# FINANCING ALTERNATIVES AND GRI SUSTAINABILITY: THE MODERATING ROLE OF STAGFLATION CYCLES, FINANCIAL CONSTRAINTS AND GOVERNANCE MECHANISM

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## ABSTRACT

The study focused on identifying macroeconomic and microeconomic dimensions of corporate sustainable performance. The primary objective was to examine the effect of comprehensive financing alternatives on both financial performance and sustainable performance of nonfinancial firms of SCO member states: Pakistan, China, India, and Iran. The study also evaluated the moderating influence of stagflation cycles, financial constraints, and corporate governance mechanisms on the interconnection between financing alternatives and a firm's financial and sustainable performance. The comprehensive financing alternatives include internal, debt, equity, shadow banking, and supply chain financing. Sustainable performance is measured through GRI 201-1, economic performance approach. The sustainable growth rate is incorporated for robustness purposes.

The study applied mixed panel regression models, the Lagrange Multiplier test and the Hausman model specification test to analyze the data sampled 1166 non-finance industrial firms listed on the corresponding Stock Exchanges of SCO member states for 14 years (2007-2020). The empirical findings proved the significant influence of financing alternatives on corporate financial and sustainable performance. Additionally, the study proved the significant moderating influence of stagflation cycles, financial constraints, and corporate governance mechanism index on the association between financing alternatives and corporate financial and sustainable performance, controlled by firm size, asset tangibility, and total asset turnover. The study fostered the economic goals of SCO states by utilizing the optimal capital structure and right governance mechanisms that minimize the impact of stagflation cycles and financial constraints, and resultantly influence financial performance and sustainable performance. The empirical relationships are supported through capital structure theories: pecking-order theory, trade-off theory, agency theory, and market timing effect. This study supported corporations, financial regulators, financial managers, stakeholders, investors, and financial advisors in capital generation decisions based on alternative financing sources and their contribution to achieving corporate sustainability among different industrial firms in SCO countries.

**Keywords:** Capital structure; Corporate governance; Developing countries; GRI Sustainability

Panel data analysis;  Sustainable performance;

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| | |
|---|---|
| AT | Asset Tangibility |
| BCSI | Bovespa Corporate Sustainability Index |
| BRICS | Brazil, Russia, India, China, and South Africa |
| CCC | Cash Conversion Cycle |
| CGMI | Corporate Governance Mechanism Index |
| CIGI | Centre for International Governance Innovation |
| CSRC | China Securities Regulatory Commission |
| FC | Financial Constraints |
| FRB | Federal Reserve Bank |
| FSB | Financial Stability Board |
| EBA | Euro Banking Association |
| EC | European Commission |
| EPA | Environmental Protection Agencies |
| EPS | Earnings Per Share |
| ESG | Environmental, Social, and Governance |
| GDP | Gross Domestic Product |
| GMM | Generalized Method of Moments |
| GRI | Global Reporting Initiative |
| HOSE | Hochiminh Stock Exchange |
| ICAN | Institute of Chartered Accountants |
| ICC | International Chamber of Commerce |
| NBFI | Non-Banking Financial Institution |
| NPM | Net Profit Margin |
| OECD | Organization for Economic Cooperation and Development |
| PE ratio | Price to Earnings ratio |
| ROA | Return on Assets |
| ROE | Return on Equity |
| ROCE | Return on Capital Employed |
| ROIC | Return on Invested Capital |
| SC | Stagflation Cycles |

SCF Supply chain Financing

SCO Shanghai Cooperation Organization

SEBI Security and Exchange Board of India

SGR Sustainable Growth Rate

SEM Structure Equation Modeling

SFA Stochastic Frontier Analysis

TAT Total Asset Turnover

TFP Total Factor Productivity

UNDP United Nations Development Program

WCED World Commission on Environment and Development

WCM Working Capital Management

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of the Study

The conception of sustainability has become an observable fact and gained importance in both economic and financial literature. Businesses operated with a singular focus on maximizing profit, enhancing financial performance, and increasing wealth, often at the expense of society and the environment. This approach disrupted communities and threatened the very elements that sustained the long-term success of these businesses (DNV, 2015). Businesses in the present world have increased their attention toward sustainability issues. Corporate sustainability has turned into a broader global movement. Sustainability is recognized as a success story, at a slower pace. Sustainability should be embedded as the business DNA globally. Sustainability has gained importance in the present-day corporate world and can significantly contribute towards the current as well as future success of the companies (Muller & Pfleger, 2014). Emerging economies face challenges in achieving sustainable development goals, mainly proposed were inadequate parameters, monitoring mechanisms, and evaluation frameworks, lack of sustainability infrastructure, standardization, and reliability. To ensure success, they need to design frameworks and review mechanisms, and implement them through proper legislation (Sarvajayakesavalu, 2015).

According to Brundtland (1987), in the World Commission on Environment and Development (WCED); (Hahn & Figge, 2011), sustainability entails fulfilment of the present needs with safeguarding the ability of future generations to meet their needs. In recent times, companies, consumers, and investors alike focusing on a firm's success and its sustainability over the years, indicating increased interest in corporate sustainability (Ameer & Othman, 2012). Markova and Lesnikova (2015), called corporate sustainability as a business philosophy, which is based upon the complicated business conditions, business economic conditions and the ability of the enterprise representatives to act according to the underlying principles. Corporate sustainability leads to sustainable performance, which is considered financial performance which remains durable over periods. Jordao (2017), conceptualized sustainable performance as the firm's ability to generate real profits that can be supportive for sustaining their financial status over periods. They

highlighted the importance of corporate sustainability, as an endeavor for business development with sustainable firm success by considering wider dimensions including environmental, socio-social, and economic performance (Markova & Lesnikova, 2015). Target 12.6, documented that sustainable development should be focused with the same importance, frequency, and thoroughness, as the firm's financial performance aspect (GRI, 2020).

Statement of sustainability has become a legal requirement as governments, market regulators, stock exchanges, investors, stakeholders, and civil society firms are more concerned about the sustainability impacts of an organization. GRI Sustainability reporting standards are internationally acknowledged standards, applied for quality reporting, measurement, and preferment of better decision-making. The United Nations Development Program defined Sustainable Development Goal 12.6 as to "encourage companies, especially trans-border and large companies, to focus on embracement of sustainable practices and internalization of quality sustainability disclosure into their reporting period", by 2030 (https://www.undp.org/). Regarding UN sustainable development goals, the substantial impact on sustainability can be played by companies (Platform, 2018).

The GRI, established in 1997, as an independent, global organization that plays a supportive role for businesses and other firms in measuring their sustainability impacts. GRI provides businesses with a universally accepted common language for communication of those impacts (GRI, 2020). The GRI is well known for providing globally applied sustainability reporting standards, Global Reporting Initiative (GRI) Sustainability Standards. There has been a continuous development in the GRI Standards since 1997 and considered the globally recognized practice for reporting on multi-dimensional impacts, classified into three series i-e social (400series), economic (200series), and environmental (300series). The corporate sustainability reporting guideline is designed to be applied to the whole organization, but the GRI standards are considered as the incremental application of these guidelines (Hedberg & Malmborg, 2003). GRI principles are de facto those that provide guidelines regarding the design of corporate sustainability performance reporting (KPMG, 2017). Performance indicators are the key instruments for analyzing and monitoring and can synthetically communicate dynamic and complex events (Tarquinio et al., 2018). About 73 percent of the 250 largest international companies applied GRI standards for sustainability reporting (KPMG, 2017). Sustainability reporting is voluntary and it continuously lagging

especially for developing countries, but the increasing adoption of GRI as a sustainable performance reporting tool is justified (Tauringana, 2020).

According to Gathara et al. (2019b), corporate financial performance is a tool applied for measuring the businesses' financial health over a defined period. Almulhim et al. (2024), argued that the integration of financial performance with sustainable performance provides a more comprehensive measure of firm performance, specifically focusing on the application for different industrial firms of different regions or countries. The present study applied financial performance with sustainable performance to provide a more holistic view of a firm's overall performance as well as stage-level performance, both in terms of financial results and a sustainability perspective. Limited literature evidenced the incorporation of multidimensional performance measures, such as (Quader 2013; Docekalova et al. 2015; Zhang & Chen 2017; Neville & Lucey 2017; Okolo et al. 2019; Li 2020; Xu & Guo 2021; Farooq et al 2021; Yu et al. 2022).

The sustainable development of a company can be influenced by various factors, classified into two groups:1) macroeconomic factors i-e level of broad-scale economic advancement in a country, stability of legal and macroeconomic fundamentals, and 2) microeconomic factors i-e productivity, profitability, the financial landscape of firms, information technology, governance, human capital, and innovation (Lorenc & Sorokina, 2015). Following the literature, the study incorporated different microeconomic dimensions of sustainable performance, namely the financing structure of the firms, financial constraints, and corporate governance mechanisms. The macroeconomic dimensions include stagflation cycles measured by dynamics of the annual inflation rate and GDP.

Financing decisions and capital structure are the most important microeconomic elements that influence the success and profitability of the firms (Daud et al., 2016). The sustainable success of the firm is not only based upon financial development, but also influenced by the optimal financing decisions (Ardillah, 2020). He defined financing alternatives as the funding sources that companies can use to raise capital and provide financial assistance. Muriithi (2014) found that firms can use different financing sources including 1) internal sources are retained earnings and personal savings. 2) External financing sources, which are further classified into informal external financing i-e financial support from family, relatives, and friends and formal external financing i-e financial institutions, banks, equities, warrants, etc.

Decisions regarding the choice of financing alternatives and optimal capital structure have been crucial questions in corporate finance for the past 5 decades (Mamaro & Legotlo, 2020). There is a special need to explore, which combination of financing alternatives primarily determines the firm's financial and sustainable performance. The existing literature consisted of alternative capital sources that proved to have an influential relationship with firm financial performance. The majority studies include: retained earnings (Nguyen & Rugman, 2015), debt financing (Nguyen & Nguyen, 2020), and equity financing (Okolo et al. 2019; (Olaniyi et al., 2015), for measuring capital structure-performance effects, focusing on return on assets (ROA), return on equity (ROE), economic value added (EVA), Tobin's q, earnings per share (EPS). A few studies also applied supply chain financing (Tomusange 2015; Pan et al. 2022) and shadow bank financing (Boot & Marinc 2010; Zhou & Tewari 2019) as alternative capital structure adjustments to bank-based and market-based financing, and significantly influence the corporate financial performance.

According to Kong et al. (2023), choosing the right financing structure positively influences firm financial and sustainability performance. Iqbal (2022), argued that research has proved a significant interaction of financing structure with both market and financial measures of corporate financial performance, focusing on ROA, ROE, NPM, PE ratio, and Tobin's q, sustainable growth rate (Liu et al., 2022). The combination of optimal financial structure and its contribution to corporate sustainable performance is still a debatable area.

Firms with internal finance have sufficient funds and do not face any financial obligation for meeting their financing needs, regarding payment of transactional costs, taxes, and interest rates. Internally generated funds have a significant positive influence on a firm's performance as well as future earnings (Bassey et al., 2016). Despite the importance of internal financing, it remains an unexplored area in the context of sustainable performance effects. Financing either internally or externally has various influences on the overall economic performance of companies. When internal funds are insufficient, firms consider external financing alternatives.

Debt financing emphasizes the acquiring funds, specifically through sources such as loans from commercial banks. This financing assumes firms with financial obligations that encompass interest rates, transactional costs and bankruptcy costs. Debt financing is primarily considered for financing the long-run activities of an enterprise that significantly influences its performance (Achieng et al., 2018). Financial experts suggested firms consider debts as a useful financing

source, but up to a certain threshold level, high debt financing negatively affects corporate performance, due to increased interest cost and bankruptcy costs (Chowdhury & Chowdhury, 2010). Various studies have examined the association of debt financing with firm performance and obtained mixed and contrasting results. Some studies highlighted significant negative long-term and short-term debt financing-performance relationship, such as (Nazir et al. 2021; Habib et al. 2016), but few studies proved a positive association between debt-performance, e.g. (Margaritis & Psillaki, 2010). Studies also highlighted both negative and positive debt financing-performance relations, based on the diversity of industrial sectors, and turbulence in both macroeconomic and microeconomic fundamentals (Weill, 2008). Ebaid (2009), also proved weak or no relationship between capital structure performance relation. In the literature, the determination of debt structure decisions is still identified as debatable and among the myriad financing decisions, encountered by the business sector (Orji et al., 2021).

When debt financing is difficult to afford, equity financing can be a considerable financing source. According to Owolabi et al. (2021), equity financing involves a firm's process of raising capital by issuance of shares. Issuance of both common shares and preference shares is also subject to transactional costs, dividend payments, agency costs, and tax payments. An equity financing source is considered a risky source and involves sharing profits with shareholders. According to Owolabi et al. (2021) and Baker and Wurgler (2002), equity financing is highly dependent upon the marketing timing effect. They indicated high equity financing during overvaluations and low equity financing during undervaluation, with varying performance effects. Existing studies have reported mixed results while considering the equity financing-performance relationship. Some studies have reported a favorable influence of equities on firm performance, such as (Githire & Muturi 2015; Taani 2013), few studies have obtained results with a negative interrelation between equity finance and performance, e.g. (Ronoh & Ntoiti 2015; Akeem et al. 2014), and only a few studies indicated insignificant effect of equity financing on corporate performance: (Chadha & Sharma 2015; Raza 2013). The existing results proved equity finance-financial performance relations are still inconclusive and debatable. Equity financing and sustainable performance relationship is still an unexplored area, especially for the nonfinancial corporate sector.

When internal funds are insufficient, a firm's use of commercial banks and equity financing sources will increase the associated costs (Dalbor & Upneja, 2004), shadow bank financing can be

a possible alternative financing source. Financial Stability Board (FSB) defined Shadow Banking as the system that carries out credit intermediation, comprised of activities and entities beyond the regular commercial banking system (FSB, 2011a). Zhou and Tewari (2019), highlighted the sources of shadow bank financing: Repos, commercial paper, non-bank financial institutions, securitization, money market funds (MMFs), broker-dealers, and hedge funds. Shadow bank funding as a substitute capital allocation source to the evidenced financing alternatives i-e bank financing and market-based financing approach and is more cost-efficient in comparison to alternative sources (Boot & Marinc, 2010). The volume of shadow banking is nearly 20 trillion in China, about twice to the volume of bank credits (Pozsar, 2010). Adrian and Ashcraft (2016), argued that limited literature shows the association between shadow banking and firm financial performance (Zhou & Tewari, 2019). It is still in the early stage of development, and due to the non-availability of data for both advanced as well as emerging economies, this gap made it an important area of study. Considering the author's research, no study highlights the contribution of shadow banking to corporate sustainability.

When the potential funding sources dry up, many studies proved supply chain financing as an alternative source, more specifically trade credit from suppliers (Marak & Pillai, 2019). Mulure (2013), defined supply chain finance as a collection of strategies, applied for funding particular items and/or products of the borrowing company from the point of origin to the point of customer satisfaction. Supply chain financing gained importance as a viable financing instrument (Vousinas, 2019). SCF can be used for all types and sizes of businesses after the global economic crisis. Referenced studies documented that many firms prefer trade credit financing as a replacement to bank loans, such as (Atanasova 2007; Mateut et al. 2006), and other alternative funding sources (Yazdanfar & Ohman, 2017). Tomusange (2015), proved factoring as an alternative financing option for African enterprises when both internal and external funding is insufficient. According to Bui (2020), supply chain financing positively increases the profitability, and the value of borrowing firms (Karakus & Zor, 2017). Supply chain financing enhances the commitment, trust, and profitability of firms with a significant reduction in financing costs (Lamoureux & Evans, 2011). Supply chain financing in the context of corporate economic sustainability is still an unexplored area of study.

According to Davis and Powell (2012), the industry environment consisted of surrounding forces that potentially affect the operations of the firm. Egbunike and Okerekeoti (2018), documented that ICAN (Institute of Chartered Accountants) viewed macroeconomic factors as the uncontrollable conditions existing outside the firm that has a favorable influence on the performance of the firm. Stagflation is a stagnation characterized by extreme changes in macroeconomic factors including declining economic productivity with the simultaneous rise of unemployment and inflation rates (Blinder, 1979). The global economy has experienced many stagflation episodes (Salehi, 2015). Peterson (1980), considered it a great economic puzzle, which centers the crisis in a country with long-lasting and extremely worst effects. Stagflations have resulted from both national and international volatilities (Amjad et al., 2011). Zherdetska (2018), conducted a study for estimating the depth of stagflation episodes, determined through a formula, based on the dynamics of the annual inflation rate and GDP. The study proved that the depth of stagflation episodes in developing economies is significantly greater than in emerging economies due to the high inflation rate, which has made it an important area of study.

All the selected SCO member states experienced stagflations, namely Pakistan as a developing country has very weak macroeconomic fundamentals, which increases its vulnerability to stagflations (Amjad et al., 2011). Amjad (2010), compared the performance of Pakistan with other Asian member states and reported far worst make out of Pakistan during the global financial crisis than Bangladesh, Sri Lanka, and India, which recovered quickly while Pakistan continues to be mired in the worst stagflation. After independence in 1947 till today, Pakistan has faced many economic stagflation episodes, e.g Chaudhary and Ahmad (1996), economic stagnation and double-digit inflation from Bhutto's economic policy reforms (the late 1970s), recession in the 1990s (1993 and 1997) Amjad (2012), Amjad et al. (2011), prolonged stagnations for five years (2008 to 2012) including international commodity and oil price shocks, acute energy supply shortages, floods in summer (2010), and worldwide economic crisis of 2008/ 2009, recent COVID-19 pandemic economic fallout (2019, 2020) reported by Afzal (2020). Pandemic COVID-19 has decreased spending power, reduced economic productivity, and had a notable detrimental impact on corporate performance (Shen et al., 2020).

Chinese economy experienced a turnaround in macroeconomic fundamentals during 2009, inflation pressure peaked at 3.9% and GDP decelerated from 9% to 6.7%, signaling stagflation

(Huang et al., 2009). As the financial landscape of China is strong, so economy experienced fewer fluctuations in the financial cycle, characterized by short depression and long prosperity. The Chinese government should be able to control the financial macroeconomic upheavals (Jiang et al., 2019). The bearish Chinese economy experienced Stagflation during the pandemic COVID-19 and called it late-stage stagflation with the economic growth rate dropping to 5-8percent and a commodity price increase to 9%, the highest in the last 13 years (Wang, 2021). Joseph (2009) found that during the financial crisis of 2008, the Indian economy experienced a sharp drop in GDP to 7.8% with inflation rising to 12.9%, stagflation with a simultaneous rise in inflation, and unemployment to 6 percent and 4.9percent during 2012-2014. This Week magazine documented the report of the Reserve Bank of India (RBI) that during the Pandemic COVID-19, the Indian economy was hit by severe stagflation with GDP contracted by 7.3% in 2020, the worst situation in 40 years (Week, 2021). The Indian Express reported that during the second quarter of 2020, India recorded the highest fall in GDP all over the globe i-e 23.9% (Misra & Iqbal, 2020). The economy of Iran is recognized as an ill economy because of volatilities resulting from both national as well as international crises. According to Salehi (2015), Iranian economy experienced many stagflation cycles from 1979-2012 and experienced the highest stagflation of modern history during the 2019 and 2020 pandemic COVID-19 with 41 percent inflation and -7.6 percent GDP (Mahdavi, 2020).

Owolabi (2017), highlighted that firm financing, investing, and operational decisions are significantly influenced by macroeconomic volatility. Antoniou et al. (2008), argued that the choice of a firm's capital structure is strongly influenced by the market conditions in which the company operates during time-specific effects such as inflation rates, demand shocks, and stagflation. Egbunike and Okerekeoti (2018), proved that macroeconomic factors: GDP growth rate and inflation rate had a significant detrimental impact on the economic performance of companies. Zaighum (2014), documented that macroeconomic volatility had a significant negative influence on the market-based performance of companies as well as the accounting-based performance of companies (Mohd & Siddiqui, 2020). Babiarz et al. (2021), highlighted the stability of macroeconomic fundamentals as one of the important factors that influence sustainable development. Existing studies on a large-scale proved the increase in firm financing during macroeconomic turbulence, specifically focusing on inflation, such as (Zein & Angstrom 2016; Joeveer 2013; Hanousek & Shamshur 2011). Only a countable number of studies proved a negative

interrelation between inflation and corporate capital structure, e.g., (Oztekin 2015; Gajurel 2006). Existing studies reported inconclusive results which emphasize the importance of further study. Considering the author's research, limited studies highlight the combination of stagflations and financing choices in the context of corporate sustainability performance.

The global worst crisis made companies financially constrained i-e run short of internal funding as well as faced hurdles to access external funding (Kurth, 2011). Market imperfections resulting from both global crisis and domestic instabilities, make the firms financially constrained, when retained earnings of the firms become insufficient to bear their expenses i-e internal financially constrained firm (Guariglia, 2008). Financial constraints are the barriers that restrict firms from obtaining finance for further investments. External financially constrained firms become unable to bear high external financing costs, and firms with insufficient external funds keep watch on further cash flow management. Kirui and Gor (2018) found that financing decisions of the firm in the context of firm performance vary with the status of financial constraints.

Khudyakova and Shmidt (2019), argued that global economic recessions resultantly harm the profitability of industrial companies in Russia, the USA, the UK, and Serbia, due to resulted internal financial constraints. Campello et al. (2010), highlighted that the financial crisis had negatively affected the growth opportunities for most firms and decreased business sustainability, due to limited accessibility to external funding options. Previous studies documented a serious decline in firm performance during crisis periods with restricted long-term debts and an increase in short-term debt financing choices Custodio et al. (2013) and Fosberg (2013). Equity issuance decreases after the global crisis, specifically in developing countries, due to undervaluation and inexpensive equity markets, resulting in external financial constraints which negatively effects the corporate sector performance (Carletti et al., 2020). Supply chain financing has considered an efficient source of financing, which reduces the firm financial constraints (Pan et al. 2020; Jia et al. 2020; Ali et al. 2019b). The existing studies proved the negative intervention effect of financial constraints between financing sources and performance effects, but the area needs further exploration in a milieu of sustainable performance.

Many studies have proved the negative effects of improper capital structures on the performance of business sector, e.g. (Ross et al. 2013; MacKay & Phillips 2005). The serious decline in corporate financial performance has brought the attention of companies toward the development

of their capital structure. The financial crisis in East Asia and corporate failures brought serious attention to the importance of governance arrangements in the institutional framework in developing countries. Previous studies highlighted corporate governance as an important influential variable for determining the interrelation between capital structure choices and businesses' performance (Malik & Naz, 2016). Corporate governance is the philosophy and mechanism that focuses on the structure and processes which creates shareholder value by managing organization affairs and ensuring protection for both manager's and stakeholders' collective interest, which eventually resulted in better performance of the organization (Uwuigbe, 2014). Corporate governance in performance is widely studied, key contributions by (Abor 2007; Moradi et al. 2012; Mukherjee and Sen 2019), proved the significant effect of corporate governance practices and capital structure decisions on the firm performance. Corporate governance is an ever-important foundational area of study for company's value creation, specifically focusing publicly held companies in Pakistan, (Akash & Abbas, 2015). The existing literature is based upon mixed and inconclusive findings, most studies show positive relation, e.g (Kapil & Mishra 2019; Pillai & Malkaw 2018), few studies proved negative relation, e.g. Dang et al. (2018); and a very few with insignificant results, e.g. Young (2003). Ronoowah and Seetanah (2023b), argued that existing literature is limited to the direct interactions between capital structure, governance practices, and performance effects. There is a need to explore the interactive, combined, and indirect effects, and they proved the positive moderation effect of governance practices on the capital structure-performance relationship. The interaction effect of CG and financial structure remains unexplored for corporate sustainability performance effects.

The issuance of corporate governance codes in countries like India (1998), Sri Lanka (1997), China (2001), Pakistan (2002) and Iran (2004) have increased corporate sector transparency in these countries. The development of CG codes reflected the multidimensionality of Corporate Governance phenomena, and for comprehensive measurement, the existing studies including (Arora & Bodhanwala 2018; Molnar et al. 2017; Javaid & Saboor 2015; Munisi & Randoy 2013), have assayed to develop Corporate Governance Indices (CGIs) based upon multiple governance procedures and the applied them for determining the relationship with firm performance. Balasubramanian et al. (2010), documented that the key questions and dimensions applied for the construction of indices vary from one research to another and there is no single accepted standardized governance index. The possible reason may be the effect of political, legal, cultural,

historical, and economic environments on the development of governance procedures (Aguilera & Jackson, 2003).

### 1.2 Problem Statement

The business surroundings encounter rapid changes at both micro and macro scales with the sharp increase at a firm level of competition, and for successful survival, firms need to maintain both financial profits as well as sustainable performance (Phan et al., 2020). Sustainable performance at a corporate level has gained importance and emerging as a unique knowledge area with wider applications in companies and industries, promoted by global programs (Shamil et al., 2012). Zhang and Chen (2017) found that appropriate selection of financing alternatives is a critical factor for maintaining sustainable growth for firms. Alternative financing sources are supportive for companies to maintain sustainable performance with wealth maximization (Ardillah, 2020). Financing mix as a vital decision has great implications for the firm's sustainability (Omaliko & Okpala, 2020). Financing alternatives helps the company to obtain profitable investment opportunities.

They determined that a good corporate governance mechanism positively affects corporate sustainability disclosure (Mahmood et al., 2018). Good Governance practices significantly contribute towards a company's success as it makes the way towards achieving financial and social objectives (Ehsan, 2019). The capital structure decisions when combined with corporate governance procedures positively impact the corporate economic performance (Bashir, 2021). Firms with financial leverage can mitigate the impact of macroeconomic turbulence (Baum et al., 2017). The optimized capital structure can help the firm to mitigate the impact of stagflations, and macroeconomic stability is vital for achieving strong economic growth on a persistent basis (Mangla & Din, 2015). Companies with low internal and external financial constraints can enhance the performance impacts with low financing cost and further investment opportunities.

Achieving sustainable performance is a compelling issue of the present corporate world and a considerable matter of concern across the globe (Aggarwal, 2013). Sustainability is the most focused issue in all regions of resource-constrained Asian economies including Pakistan, India, and China, (Younis & Chaudhary, 2019). In 2010, the United Nations Global Compact

documented sustainable performance as a crucial issue for companies striving to create a competitive edge globally (Bouloiz, 2020).

Previous studies considered only the financial aspect of the firm performance for a short period, but sustainable performance is a multi-dimensional phenomenon, not only incorporated as a corporate entity variation but influenced by microeconomic and macroeconomic determinants. Sustainability considered both economic (profitability) as well as nonfinancial components i-e community, environment, employees, and governance components, for a longer period. Despite numerous empirical and theoretical studies, the determination of corporate performance effects in the context of alternative financing mix remains a critical question in corporate finance literature (Orji et al., 2021). The determination of inadequate capital structure can negatively impact the corporate sector's performance. InunJariya (2015), argued that bad financing decisions increase the cost of capital which negatively influences corporate sustainability. Nazir et al. (2021), argued that the choice of corporate financing alternatives is the most critical decision that vastly impacts the financial performance, and sustainable performance of companies (Lindkvist & Saric, 2020). Kong et al. (2023), highlighted that corporate sustainability cannot be achieved without an optimized capital structure.

Mokhova and Zinecker (2014) found that macroeconomic volatility significantly influences the financing choices as well as sustainable development of companies across different country groups (Babiarz et al., 2021). Poor corporate governance elements negatively affect the maintenance of sustainable performance in a firm. Mehmood and Fraz (2022), argued that despite 70 years of consistent efforts, Pakistan still has a constrained and repressed financial system. In developing nations like Pakistan, the corporate sector is prevalent with financial constraints and considering alternative financing sources for generating profits (Rashid & Jabeen, 2018). The macroeconomic fundamentals in Pakistan are weak with consistently high inflation, unemployment, and budget deficits that negatively influence the performance of the corporate sector (Mangla & Din, 2015). According to Farooq et al. (2022), in Pakistan, still there exists a difference in the implementation of corporate governance practices and this impacts profitability as well.

The current study intends to scrutinize the impact of comprehensive financing alternatives for achieving financial and sustainable performance of the corporate sector, by integrating the right governance mechanisms and mitigating the effects of stagflation cycles, and financial constraints.

“The study addresses a critical issue of sustainable performance prevailing in the corporate world, resulting from inadequate capital structure, macroeconomic turbulence, financial constraints and poor governance mechanisms. Corporate sustainable performance can be achieved through optimized capital structure in the presence of right governance mechanisms, reduced financial constraints and macroeconomic turbulence.”

According to Kirton and Larionova (2022), the SCO is among the leading institutions for shaping 21$^{st}$-century global governance. The SCO provided a three-dimensional pathway for promoting economic cooperation with a special focus on channelizing trade, capital, services, free flow of goods, transportation, communication, and a network of energy sources (Khan & Jamali, 2021). The mentioned literature proved that corporate sustainability, macroeconomic turbulence, financial constraints, code of corporate governance, and dependence on capital structure are considerable issues among all the developing SCO states. The SCO Inter-bank Consortium was developed in 2005 to put up a particular lending facility under the network of the SCO (Mustafa et al., 2021). The Consortium is committed to providing the concerned SCO member states with banking, trading, and financing services. The SCO united to support the security perspective and ensure social sustainability and economic and financial stability of the member states by promoting businesses' sustainable development exercises. The SCO is a supportive standing pillar for Pakistan and provides regional, economic, social, and financial welfare. Mustafa et al. (2021), documented that the Chinese president funded 4.68 billion US dollars i-e 30 billion RMB for facilitating sustainable commercial and regional development. According to Kirton and Larionova (2022) and Alimov (2018), the literature is dominated by BRICS and Global G20 institutions, and the SCO despite its significant contributions, is still lacking exploration to become a global relevance. The current study selected four developing SCO states: Pakistan, China, India, and Iran, and determined the contribution of the right financing structure, and right governance mechanisms in mitigating businesses' financial constraints, and macroeconomic volatility and achieving sustainable performance.

Companies are required to explore corporate sustainability dimensions to determine their prospects. The study purpose is based upon four themes: 1) it is descriptive research, considering the identification of both microeconomic and macroeconomic factors that are the important determinants of corporate sustainability, 2) Direct Estimation effects: the current study examined the effect of financing alternatives on both financial and sustainable performance of non-finance firms of selected SCO Asian member states: Pakistan, China, India, and Iran. Sustainable performance measurement is done through GRI 201-1, economic performance approach, and sustainable growth rate. Considering the robustness purpose, the sustainable growth rate is considered a substitute measure. The financing alternatives included in the study are internal financing, debt financing, equity financing, shadow bank financing, and supply chain financing. 3) Indirect estimation effects: the study determined the moderation effect of stagflation cycles, consisting of two macroeconomic fundamentals: Inflation and GDP growth rate, on the interrelation between financing alternatives and performance effects. The moderating influence of financial constraints is estimated. The study also estimated the moderating influence of corporate governance mechanism on the interrelation between financing alternatives and corporate economic performance by using comprehensive governance practices collectively through the Corporate Governance Mechanism Index. 4) Determining the optimal financing mix for achieving corporate economic sustainability among different SCO countries. Capital structure theories are applied to study the financial structure-performance relationship. Panel data analysis with both P-OLS, fixed and random effect models is applied for the estimation of performance effects for the period 2007-2020.

### 1.3 Research Questions

Regarding the mentioned research gap, the study directed to answer the following questions:

1. Do the financing alternatives impact the financial performance of nonfinancial companies in the SCO member states?
2. Do the financing alternatives impact the sustainable performance of nonfinancial companies in the SCO member states?
3. Do the stagflation cycles moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states?

4. Do the stagflation cycles moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states?
5. Do the financial constraints moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states?
6. Do financial constraints moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states?
7. Does the corporate governance mechanism moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states?
8. Does the corporate governance mechanism moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states?

### 1.4 Research Objectives

The core objectives of the study are:

1. To examine the impact of financing alternatives on the financial performance of nonfinancial companies in the SCO member states.
2. To assess the impact of financing alternatives on the sustainable performance of nonfinancial companies in the SCO member states.
3. To explore the moderation effect of the stagflation cycles on the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.
4. To evaluate the moderation effect of the stagflation cycles on the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.
5. To examine the moderation effect of the financial constraints on the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.
6. To determine the moderation effect of the financial constraints on the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

7. To explore the moderation effect of the corporate governance mechanism on the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.
8. To assess the moderation effect of the corporate governance mechanism on the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

## 1.5 Research Contributions

### 1.5.1 Theoretical Contributions

1. The current study modifies the existing literature by applying capital structure theories for establishing the relationship of a comprehensive corporate financing alternatives comprised of internal, debt, shadow banking, equity, and supply chain financing, with both financial performance and sustainable performance. Despite previous literature that is based on three common capital structure components: debt financing (Nguyen & Nguyen, 2020), internal financing (Nguyen & Rugman, 2015) and equity financing (Okolo et al. 2019; (Olaniyi et al., 2015) for performance effects, the study incorporated shadow banking and supply chain financing uniquely as part of the firm's capital structure adjustment. Referenced studies, such as Mahmud et al. (2022), supported positive trade credit SCF-firm value association with benefit-cost trade-off (trade-off theory), and Bui (2020), documented it as a preferred financing alternative in a hierarchy during crisis (pecking order theory) with minimum weighted average cost of capital WACC (traditional theory approach). Similarly shadow bank financing is supported by Zhou and Tewari (2019) and Han et al. (2019).
2. In combination with capital structure theories, the study also applied agency theory and market timing theory for determining the interactive and combined effects of stagflations, financial constraints, and governance mechanisms on the relationship between comprehensive financing alternatives and corporate performance measures. Zhou and Tewari (2019), and Hofmann et al. (2022) found working capital finance and shadow banking as least expensive substitutes during uncertain economic downturns. Coleman et al., (2020), supported agency theory for positive interaction effect of right governance mechanisms on WCF-performance relationship. Samour and Hassan (2016), proved market timing effects for debt and equity finance-performance effects during crisis.

### 1.5.2 Empirical Contributions

1. The study applied more comprehensive financing alternatives, namely internal, debt, shadow banking, equity, and supply chain financing, and comprehensive performance measures including financial performance, market performance, and GRI sustainability performance for determining the effect of financing alternatives on both financial and sustainable performance. Rather than focusing on individual Supply chain finance-performance (Huang et al. 2019; Anton and Nucu 2020), and shadow bank financing-profitability relationship (Tan, 2017), this study incorporated shadow banking and supply chain financing as part of the firm's capital structure adjustment with debt, equity and internal financing, for determining their impact on financial as well as GRI sustainability performance of the nonfinancial corporate sector. The implication of financing alternatives is focused from a buyer-driven perspective i-e borrowing nonfinancial companies in line with (Bui 2020; Huang et al. 2019). The study applied the types of financing that can be an alternative capital source and can have a significant relationship with a firm's financial performance and sustainable performance. The literature proved supply chain financing (Nucu 2020; Liu et al. 2022) and shadow bank financing (Zhou & Tewari, 2019), as alternative capital sources to the traditional financing system consisted of market-based financing and bank-based capital.
2. The study identified the patterns of stagflation cycles, through the dynamics of macroeconomic factors i-e inflation threshold. The study contributes by focusing on the interactive effects of financing alternatives, and stagflations from the perspective of both financial and sustainable performance of the corporate sector in the emerging Asian SCO member states, in line with (Muthama et al. 2013; Olaniyi et al. 2015; Samour & Hassan 2016; Ater 2017).
3. The study incorporated a comprehensive set of corporate governance measures including the Board of Directors, Audit Committee, Disclosure and Transparency, Remuneration Committee, and Shareholders' rights. The study explores the interactive and combined effects of financing alternatives, and governance mechanism index on both financial performance and sustainable performance of nonfinancial companies in SCO states by applying GRI sustainable performance. The studies proved similar empirical relationships include (Javeed et al., 2017), (Iqbal & Javed, 2017), and (Tanko et al., 2021).

4. Past studies obtained inconclusive results with limited focus on the interaction effects of financial constraints, such as Rashid and Jabeen (2018). The current study determined the moderating influence of internal and external financial constraints between financing alternatives and sustainable performance. Findings from referenced studies provide foundational insights for the study, such as (Zhang and Liu, 2017), (Kirui & Gor, 2018), and (Baker et al., 2022).

### 1.5.3 Methodological Contributions

1. A significant methodological contribution of the study is an implication of the empirical analysis for determining the direct effect and interaction effect of sustainable performance dimensions i-e financing alternatives, governance mechanism, stagflations, and financial constraints. GRI sustainability is measured by the economic value generated, distributed, and retained by the firm. The existing studies empirically reviewed the direct relations of capital structure, macroeconomic factors, financial constraints, and governance procedures with corporate performance by applying panel regression, e.g., Pandey and Sahu (2019), (Viet et al., 2020), (Anozie et al., 2023). This study considers the empirical analysis of the interactive effects by applying mixed panel regression considering Chow method, fixed and random effect.
2. The current study applied comprehensive governance measures and created a corporate governance mechanism index by applying an equal-weighted index approach, for the precise investigation of the moderating influence of governance mechanisms on corporate economic performance. Ashfaq et al. (2017), highlighted index creation as the most relevant proxy for effectively analyzing the entire governance structure, instead of evaluating the individual components. The study applied mixed panel regression for determining interaction effects of corporate governance index on comprehensive financing alternatives and performance measures, by following the empirical results from Ullah et al. (2019) and Prieto et al. (2024).

### 1.5.4 Contextual Contributions

1. The study put up a contextual contribution by focusing on SCO member states, which is an emerging forum that plays an important role in the promotion and sustenance of the economic well-being of the Asian Continent (Rowden, 2018). The study has a wider scope, and generalizability of results, considering the large sample size based upon multiple

industrial firms from different SCO member states. The study utilized industrial firms commonly found listed in corresponding stock exchanges of selected SCO member states.

2. The study is the extension of literature on sustainable performance in developing markets, considers the estimation of the corporate sustainable performance of nonfinancial firms in emerging Asian economies, which is among the leading highlighted issues and needs further exploration in literature, namely Pakistan, India, China, and Iran. The results from existing studies provides foundational insights, e.g., (Rao & Madhav 2015; Zhang & Chen 2017; Liu et al. 2022; Xu & Guo 2021; Salehi & Arianpoor 2021).
3. Existing studies incorporated Sustainability reporting disclosures, e.g., ESG (Lindkvist & Saric 2020; Maqsood 2023). Following Tawfik et al. (2021), this study applied GRI Sustainability Standards economic disclosure approach to measuring the sustainable performance of nonfinancial companies in Developing SCO member countries, adopted from (GRI, 2016).
4. Considering extensive research, the measurements of shadow banking and supply chain financing that are available for emerging economies are incorporated for determining the impact of shadow banking and supply chain financing as part of the firm capital structure choices, on the sustainable performance of nonfinancial companies of emerging Asian SCO states, such as (Bai et al. 2020; Yang & Shen 2022) and (Liu et al. 2022; Jaworski & Czerwonka 2022).
5. Both internal and external financial constraints are determined to be the barriers in the developing Asian economies, e.g., Pakistan (Ahmad & Hashmi, 2014), India (Kumar & Ranjani, 2018), China (Cai et al., 2022) and Iran (Pouralireza et al., 2017). The study applied the financial constraints hypothesis from a financing perspective by incorporating financing measurements, specifically focusing on the developing Asian SCO economies.

## 1.6 Significance of the Study

### 1.6.1 Theoretical Significance

From the past five decades, policymakers, investors, regulators, and academicians have given importance to firm's decisions regarding appropriate combination of financing alternatives and their impacts on firm performance. The study originally contributes to the existing theory five folds: Firstly, the study scrutinizes the impact of financing alternatives on firm performance by building in the more comprehensive measures of financial structure and firm's economic

performance. Financing alternatives shift the theoretical focus from a traditional debt-equity mix to a more comprehensive knowledge of how different financing options influence long-term sustainable growth. Secondly, it put up limited evidence on the influence of financing alternatives on corporate sustainability performance by incorporating the GRI sustainability performance approach. This expands the theoretical understanding of the capital structure-performance relationship by demonstrating how alternative financing can drive economic success while advancing environmental and social objectives, creating broader societal benefits. Thirdly, it establishes a casual association between financing alternatives and firm financial and GRI sustainability performance effects, through the implication of capital structure theories. Fourthly, the study adds to the existing evidence on market timing effects on firm performance, by establishing the interactive influential relationships of financing alternatives, stagflations, and financial constraints on financial performance and GRI sustainability performance. This expands the theoretical depth of market timing theory by recognizing the effect of stagflations and financial constraints on firm capital structure adjustments and sustainable performance relationships. Fifth, theoretical pieces of evidence are modified by applying agency theory for determining the interactive effects of financing alternatives and governance mechanisms on the sustainable performance of SCO member states. This perspective extends traditional capital structure theories by introducing governance as a critical factor that helps firms to maintain flexibility in their financing choices for improving financial and sustainable performance.

### 1.6.2 Practical Significance

As sustainability is a matter of concern for every corporation of the modern day (Mahmood et al., 2018). This study is helpful to academicians and researchers in identifying the comprehensive measures of both macroeconomic and microeconomic dimensions of the sustainable performance of a company. The study enhances our comprehension regarding the behavior of industrial firms from selected SCO states, regarding the choice of financing alternatives and their contributions towards the financial and sustainable performance of nonfinancial companies. Alam et al. (2019), claimed that for developing nations like Pakistan, the present study will be effective for professional field persons to better design their financing structures for improving financial and sustained financial performance. This study catalyzes the role of corporate management, regulatory authorities, decision-makers, and policymakers in maintaining corporate economic

sustainability through better utilization of microeconomic factors i-e financing alternatives and corporate governance mechanisms, for overcoming the macroeconomic turbulence. The study is practically significant from a managerial stance as the decisions regarding the financing structure choice of a firm should be based upon good governance practices (Mokhova & Zinecker, 2014). This study is supportive for corporations, financial institutions, financial managers, stakeholders, investors, and financial advisors in capital generation decisions based on alternative financing sources during internal and external financial constraints. This study has important implications for policymakers, managers, and regulatory authorities, regarding the financing decisions during double-digit macroeconomic fluctuations, which maintain a firm's economic performance. This study determines the optimal financing mix for achieving corporate economic sustainability among different industrial firms in different countries. Along with this, it offers a comprehensive governance framework to the firm's management for consideration of suitable governance mechanisms in their financing decision-taking processes. The study mentions some insightful practical inferences for investors through the implementation of the right governance mechanisms which ensures the safety of investors' investment against equities and improves the confidence of debt holders.

### 1.7 Organization of the Thesis

The study is organized into five chapters. Chapter one is the introduction chapter, highlighting the background and context of the study, research problem, questions and objectives, contribution, and significance of the study.

Chapter two documented the literature review, consisting of theoretical contributions, the conceptual background of variables, the theoretical relationship between the variables, research gaps, theoretical framework, and hypothesis development. This chapter provides a comprehensive review of the existing literature related to the study's key themes, including financial performance, sustainable performance, and capital structure theories.

Chapter three highlighted the interconnectedness of data research methodology. This chapter describes the criteria for sample selection, operationalization of variables and their metrics, proposed empirical models, and the statistical estimation techniques applied for analysis. The

chapter also explains the validity and reliability measures applied, along with any ethical considerations.

Chapter four is the discussion and interpretation of results, consisting of descriptive statistics of the study variables, applied diagnostic tests, pooled OLS regression statistics, fixed effect, and random effect models, and the Hausman test. The findings are presented in a structured format, with figures, tables, and statistical analysis to support the interpretations.

Chapter five summarizes the study's important findings, revisits the research questions and objectives, and makes practical implications for businesses and policymakers. The chapter also highlights the limitations of the study and proposes future research directions.

# CHAPTER 2

# LITERATURE REVIEW

Mamaro and Legotlo (2020), argued that over the past six decades, researchers and academicians have made several attempts for determining the proportion of financing alternatives and their impact on a firm's performance but still did not get a consensus from the estimated results, e.g Sustainability in performance is widely studied for developed economies, few studies in developing states e.g., Kong et al. (2023), Xu & Guo 2021; Salehi & Arianpoor 2021; Liu et al. 2022), provide the foundational insights into the emerging field.

The current chapter provides a theoretical foundation consisted of underpinning finance theories, and a description of the general background for the conceptual capital structure-performance relationship framework, beginning with the theoretical discussion of the concepts of comprehensive financing alternatives and a firm's economic performance. It explores the microeconomic factors: financing alternatives: internal financing, debt financing, shadow bank financing, equity financing and supply chain financing, financial constraints, and corporate governance mechanism. The section also makes inquiries into macroeconomic factors: stagflation cycles that influence the sustainable performance of the corporate sector. The chapter goes on to highlight the existing theoretical relationship models between financing alternatives and sustainable performance and the moderating role of stagflation cycles, financial constraints, and governance mechanisms in the development of the hypothesis. With the detailed review of existing literature, the study explores the research gaps consisted of theoretical, empirical, methodological and contextual research gaps. A conceptual model based on the explored theoretical relationships is also presented.

## 2.1 Theoretical Review

### 2.1.1 Modigliani–Miller (MM) theory

Modigliani and Miller (1958), proposed the irrelevance capital structure theorem, which formed the foundation for capital structure theories. They highlighted Modigliani–Miller (MM) theory as the basic principle for the capital structure-firm value relationship and proposed that company value would not be influenced by any form of financing either debt, equity, or hybrid in perfect capital market conditions i-e markets with no bankruptcy expenses, no taxes, and no information

asymmetries prevail. Many studies, e.g., (Zhang & Yu 2016; Mwangi et al. 2014; Muhammad & Shah 2014), documented the non-existence of perfect capital markets can be attributed to the existing market distortions: inflation, taxation cost, transaction cost, and coinsurance effect. Consequently, the suppositions highlighted by the M&M theorem are realized to be too restrictive in real-world markets (Harrison & Widjaja, 2014). Modigliani and Miller in 1963 acknowledged the existence the imperfect markets and they revised the stated assumptions and included tax-shield advantages from debt as a source for enhancing the firm's value. The modifications in the capital markets lead to the discovery of further shortcomings in the assumptions proposed by the M&M model. Modigliani and Miller (1963), declared debt financing as an inexpensive financing source in comparison to alternative financing options, and the inclusion of debt financing will provide the tax shield but also increases the cost of equity capital, following the trade-off between debt tax payoffs and equity cost, resultantly the firm's value will remain constant. Therefore, this leads to the origination of alternative financing structure theories, regarding the influence of financing structure choice on the firm value. To deal with imperfect market conditions, the alternative capital structure theories include the pecking order theory, trade-off theory, net income approach, traditional approach of capital structure, Agency theory, and Market timing theory (Le & Phan, 2017).

### 2.1.2 Trade-off Theory

Following the trade-off theory, the firm's selection of financing alternatives should follow the criteria that weigh the balance between benefits and costs (Jensen & Meckling, 1976). The optimal financing structure considered the trade-off between the effects of personal income and corporate taxes, bankruptcy costs, agency costs and transaction cost, etc. According to Myers (1984) and Kraus and Litzenberger (1973), company will consider trading off the tax shield benefits of debts finances with the cost of debt and financial distress for creating an optimal financing structure with increased firm value. One prediction of the theory highlights that booming companies and firms with a high proportion of fixed assets prefer debt financing for value maximization and the uncertain enterprise units and high-growth firms prefer equity financing. Ahmed (2018), argued that organizations should consider an optimal blend of financing choices depending upon the trade-off between the associated cost and benefits.

The theory is further comprised of two classifications, proposed by Kraus and Litzenberger (1973), 1) static trade-off theory and dynamic trade-off theory. Myers (1984), conceptualized that in a static trade-off hypothesis a firm should establish a target capital structure ratio, determined by the business requirements, firm's financial distress and balance of tax shield benefits with cost. For dynamic trade-off theory, similar assumptions are applied to static trade-off theory. In a dynamic trade-off model, rather than establishing a target financing ratio, firms need to consider the forecasted effects of financial frictions, financial deficits, market timing effects, and other macroeconomic turbulences that cause the firm to deviate from its target financing structure while optimizing its financing structure. Ahmed (2018), considering deviations, a company's financial structure should consider a trade-off between the marginal benefits and marginal costs for shareholder wealth maximization. In addition to debt and equity financing, the study incorporated two contributing financing sources: supply chain financing and shadow banking financing. Supply chain financing is a viable financing instrument and increases firm profitability with trading off financing costs and benefits Vliet (2015) and Pfohl and Gomm (2009), supporting trade-off theory. Supply chain financing can be used for all types and sizes of businesses after the global economic crisis (Vousinas, 2019). For both financial and sustainable performance, a firm should maintain a portfolio of alternative financing sources with a specific focus on trade-offs between costs and benefits. There exists a benefit-cost trade-off while considering trade finance and firm value relationship (Mahmud et al., 2022). Firms experience a trade-off between shadow banking and formal bank financing about cost-benefit trade-offs (Zhou & Tewari, 2019). The present study focused on determining that non-finance firms in SCO member states optimize their financing structure to balance borrowing cost, bankruptcy costs and tax shield benefit will exhibit higher financial performance and sustainability performance under the interactive effects of stagflations, financial constraints and governance systems.

### 2.1.3 Pecking Order Theory

A competitive theory was formulated by Myers and Majluf in 1984 against the tradeoff theory, called as Pecking order theory (Myers & Majluf, 1984). Pecking order theory was conceptualized as the financing choices of the firm following a hierarchy. The theory does not contemplate optimal financing structure as a beginning or targeted point but maintains that enterprises comply with a hierarchical structure: give preference for internally generated funds (retained earnings), and for

external financing, debt is favored over equity (Alzubi & Hani, 2021). The firm's preference for financing follows internal to external financing alternatives i-e meeting of financial deficit first with debt without risk, followed by debt with risk, and then equity financing as a last resort. When internal financing is insufficient to meet a firm's financing needs, external financing is a preferable choice.

The financing order was traditionally followed by information asymmetry, transaction cost, and issuing cost (Abeywardhana, 2017) and (Dalmases et al., 2023). Caselli and Negri (2021), documented that financial hierarchy is dependent upon the size and stage of business development because every step has a distinct level of information asymmetry and different financing requirements for each phase of business growth, called the financial development cycle. In this informationally opaque financial system, managers have more information and a better understanding of the organization's future investments and operational activities than outside investors (Boadi et al., 2015). Qu et al. (2018), argued that companies having higher levels of information asymmetry i-e poor corporate governance procedures, will be severely chastened through higher discounting by equity investors**,** and this negatively influences the firm value (Ahmed, 2018). Bulan and Yan (2010), argued that mature firms kept to the pecking order theory more than the growing and young firms, because of high stability, better credit histories provide cost benefits, and higher profitability, while growing and young firms are comparatively financially constrained. There is less information cost, transaction, and issuance cost associated with internal financing than with other external financing alternatives, as debts involve fewer transaction and information costs than equity options (Li, 2020). Hellqvist and Sandvall (2016), proved preference shares as an important alternative to restrictive bank lending for increasing the corporate capital. According to Graham and Harvey (2001), managers prefer internally generated funds when the organization's stock price movements are synchronized with their human capital and personal wealth, because of the lowest transaction cost and restricted volatility followed by alternative borrowing and equity sources.

Chen (2004), challenged the existing pecking order theory, considering the Chinese perspective. Chinese firms prefer internal financing, then consider equity finances over debt finances. The highlighted reason may be due to institutional differences or differences in the firm's level of financial constraints. The Chinese firms considered log-run debt finances as a last resort.

Ahmed (2018), documented that Chinese financial systems are dominated by government monopolies, which restricts the efficiency and growth of financial markets. China has an immature legal and institutional framework, lenders' rights are cryptic, and stockholders are more powerful for liquidating firms or bankruptcy processes than the debt holders, so equity financing dominates debt in the pecking order perspective of Chinese firms.

When companies are profitable and have sufficient funds, they prefer internal funds i-e retained earnings (Myers & Majluf 1984; Myers 1984). External financing sources are preferred only when internal funds available are inadequate to meet the funding needs of the company. During stagflation, a financial crisis, the firms face a significant decline in profitability with a liquidity crisis, so internal financing decreases due to insufficient internal funds (Cornett et al., 2011). Debt financing is a considerable financing option when firms seek external financing sources during financial depressions. Debt sources include riskless debt, tracked by risky debt that may cause bankruptcy (Roberts & Leary, 2004). Debt funding structure considers the cost of debt issuance including the principal amount and interest on debt. During crises, debt financing decreases because of the increase in the associated cost of debt and interest rates (Barraza et al., 2015), so equity financing can be a preferable financing option. The firm equity issuance complies with improved economic conditions (Samour & Hassan, 2016). Hence, during financial constraints and stagflation cycles, equity issuance decreases (Marx & Struweg, 2015). Additional alternatives to equity finances are shadow banking financing and supply chain financing. Shadow bank financing is a cheaper debt substitute to the alternative financing sources: debt and market-based funding sources (Boot & Marinc, 2010). Zhou and Tewari (2019), argued that in the absence of internal finance, shadow bank credit is an alternative and cheaper capital source. During a crisis, supply chain financing can be a preferable source with increased profitability (Bui, 2020). The present study tested that non-finance firms in SCO member countries incorporated financing alternatives that have hierarchal preferences, followed by internal financing, debt financing, shadow bank financing, equity financing and supply chain financing, will exhibit higher financial performance and sustainability performance under the interactive effects of stagflations, financial constraints and governance mechanisms.

### 2.1.4 Traditional Theory Approach

Solomon (1963), proposed the Traditional theory approach to capital structure, stating that the cost of capital and the value of the firm are dependent upon choosing the financing options. Optimal capital can be obtained by considering a judicious proportion of debt financing, as it is relatively a cheaper source and reduces the total cost of capital with a significant increase in firm performance. Khan et al. (2021), documented three stages for traditional theory approach: Stage 1: Higher debt financing ratio resulted in reduced cost of capital and increased firm performance, Stage 2: Size of the debt increases but up to the certain threshold level, beyond this the total cost of capital increases with the significant decline in firm market-based performance. At this stage, the firm has attained the minimum level of its cost of capital with the maximum level of its overall value. The theory highlighted WACC as the function of a firm's financial leverage. Stage 3: after this threshold level, the further increase in the company's debt size may increase its WACC and hence the company's value starts falling off. For increasing the overall firm value, a firm should consider a judicious mix of debt and equity proportions.

Ullah et al. (2017), argued that under traditional theory, a judicious proportion of debt will positively influence the firm value and minimizes the WACC. The traditional theory approach views that optimal capital structure should have consisted of a particular proportion of debt and equity which maximizes the firm value and reduces the cost of capital (Arikekpa, 2020). Pandey and Sahu (2019) and Akindejoye, (2017), argued that debt financing is comparatively a cheaper source than equity financing due to interest tax deduction. During stagflations and financial constraints, the firm experienced a significant decline in both debt financing and equity financing, but relatively the proportion of internal financing or supply chain financing solutions increased, which significantly increases the value of the firm. Supply chain financing has considered an efficient source of financing, which increases the profitability of firms (Bui, 2020). Firm choice of financing alternatives always considers the availability of cashflow at cheaper financing cost and supply chain finance is a considerable one (Gelsomino et al., 2016). The shadow banking system is a cheaper source of capital generation and increases the performance of the enterprise (Han et al., 2019). In Pakistan, financially constrained firms rely more heavily on internal financing than costly external financing to support their growth prospects (Iqbal, 2017). A firm should choose a judicious combination of financing alternatives that minimizes the WACC and

increases its value. The current study determined that non-finance firms in SCO member states optimize their capital structure by minimizing the WACC, will lead to positive financial performance and sustainability performance under the interactive effects of stagflations, financial constraints and governance systems.

### 2.1.5 Market Timing Theory

Market timing theory lately challenged the perspectives of pecking order theory and trade-off theory. According to the theory, documented by (Kayhan & Titman 2007; Baker & Wurgler 2002; Myers 1984), the current capital structure decisions of a firm depend upon its past market conditions. Market timing theory assumes that management selection of financing alternatives considers cost minimization and benefits maximization followed by the conditions in both debt and equity markets (Huang & Ritter, 2009; Ahmadimousaabad et al. 2013). The firm selection of financing alternatives is influenced by Market turbulences (Samour & Hassan, 2016). Market timing theory predicts that firms consider equity issuance during business expansions and stock overvaluation. Equity issuance is followed by good economic conditions. According to Baker and Wurgler (2002), companies prefer stock issuances during stock price overvaluations, stock repurchasing was followed by stock price undervaluation, and debt issuance was followed by low market interest rates. They proved that market fluctuations greatly impact the organization's choice of financing structure. Lal and Wolf (1986), documented the World Bank Report that the proportion of equity financing decreases significantly during economic stagnation, specifically in developing countries. Firms preferred debt and equity financing in the pre-crisis period, and macroeconomic turbulence during the financial crisis resulted in insufficient internal funds for the firm and restricted the firm to consider both long-term debts and equity financing (Samour & Hassan, 2016). Ahmed (2018), highlighted two classifications of equity market timings from the perspective of economic agents: 1) rational economic agents: assume that a firm's preference of stock issuance was followed by the release of positive information, this reduces information asymmetry between the company's managers and shareholders, which resultantly increases the stock prices and firms get the chance to create the value by generating their market timing opportunities. Good governance procedures positively utilize market timing opportunities and hence increase the firm's value. 2) Irrational economic agents: these assume that firms consider a time-variance undervaluation of their shares. The company's managers prefer equity issuances

when they are sure that the cost incurred is irrationally low and repurchasing was followed by irrationally high cost, this resultantly enhances managers' trust that they can create value by generating their market timing opportunities (Ahmed, 2018).

Stagflation and financial constraints were followed by share undervaluation, resulting in decreased equity issuance. Firms prefer to consider short-term debts and supply chain financing during crisis periods. Zhou and Tewari (2019), documented that shadow banking is the least expensive substitute when a firm faces debt financing constraints. They argued that the working capital finances of firms with comparatively inflated financial constraints significantly influence their behaviors during economic downturns (Hofmann et al., 2022). During internal financial constraints, the firms can consider working capital financing components to overcome the uncertain economic downturn. The current research focused on determining that non-finance firms in SCO member nations optimize their capital structure with low interest rates, low lending rate, cost of equity, and stock overvaluations, which will enhance financial performance and sustainability performance with reliance on unexpected changes in market conditions, specifically focusing stagflation cycles and financial constraints.

### 2.1.6 Agency Theory

Jensen and Meckling (1976), conceptualized agency cost theory as problems emerge due to conflict of interest between managers, stockholders, and debt holders. Agency conflicts arise between the firm’s managers and stockholders when managers are enraptured in moral hazard issues and give preference to their personal wealth and interest over the firm’s value and shareholders’ interest. Panda and Leepsa (2017), summarized three classifications of agency problems: 1) principal-principal problem: it assumes the conflict of interest among the firm minors (shareholders) and major owners. Minor owners have restricted voting power, while major owners are with higher voting rights and always prefer to take decisions considering their self-interest which may ruin the minor shareholder’s interest (Fama & Jensen, 1983). 2) Principal-agent problem: it assumes a conflict of interest among the firm owners and managers. The owners of a firm look for managers to work for the betterment of the owners. Regardless, managers prefer the maximization of their self-interest and compensations. 3) Principal-creditor problem: it assumes the conflict of interest among the owners and debtholders of the firm. The owner’s investment principle follows higher risks and better return projects, the risky projects have high financing

costs, which decreases the overall value of the arrearages, hence affecting creditors. In the context of publicly held companies, the board of directors is the agent and shareholders are the principal, who consider authority delegation to directors to take over the corporate affairs (Akash & Abbas, 2015).

Considering agency theory, poor governance conflicts resulted from the separation of ownership and control as well as due to poor monitoring of management activities by the managers and shareholders. The decisions regarding the financing structure choice of a firm should be based upon good governance practices and must consider the resulting financial development (Mokhova & Zinecker, 2014). Ahmed, (2018), argued that minor shareholders, managers, and creditors experienced high incentive and monitoring costs, called agency costs, incurred for reducing their moral hazard troubles. Agency costs are additional expenses either indirect or direct, incurred for ensuring the actions of agents are in the best interests of the shareholders and the suppliers of the capital (Jensen & Meckling, 1976). Agency conflicts resulted in a residual loss, which is considered a significant decrease in the firm value with the increase in agency cost. Manager-shareholder conflicts resulted in a residual loss by shifting out the firm's profits into managerial discretion (Williamson, 1988). They estimated agency cost for publicly held companies and proved that agency cost showed a 16% reduction in the firm value from its benchmark i-e $1432 million (Jensen & Meckling 1976; Habib & Ljungqvist 2005).

An optimal financing structure that maximizes the firm's value always considers the minimization of agency cost. Both debt and equity financing incur agency costs to managers who always consider transferring the company's wealth to themselves (Hussain et al., 2015). More debt financing gives managers the incentive to invest in riskier projects whose failure may lead to bankruptcy. Agency cost theory supports the significance of capital structure-performance relation in two perspectives, 1) Positive: excessive debts are the controlling tools for monitoring managers (Boodhoo, 2009), and the resulting lower agency cost may enhance corporate performance (Akintoye, 2009). 2) Negative: excessive debt may discourage the managers from investing willingly in riskier projects and this may increase the cost of outside finances and negatively affect the firm's performance. Ahmed, (2018), asserted that higher debt finance sources to minimize the principal-creditor agency issue ultimately enhance the firm performance with minimum agency cost. Debts serve as disciplinary instruments that minimize the wastage of finances due to

underlying harms, specifically payment of pre-committed interests, additional protective covenants e.g., loan agreement provisions, debt informational summaries, and bankruptcy. Ang et al. (2000), studied equity agency costs for various ownership structures and proved that agency conflicts significantly increase the agency cost for equity financing. According to Boshnak (2021), the main aim of a good governance mechanism is to protect the interest of shareholders, ensure the alignment of interests of both principals and agents and reduce the agency cost. He argued that the presence of good governance mechanisms is critical to the achievement of good performance. Corporate financing policy is one of the important corporate governance practices that reduce agency costs (Ngatno et al., 2021). They proved the strengthening moderation effect of good governance mechanisms on the link between capital structure and corporate performance. Coleman et al., (2020), proved the significant influence of strong governance procedures on the working capital management of companies, which ultimately enhances the firm performance. The present study focused to determine that non-finance firms in SCO member countries optimize their capital structure by minimizing the agency cost, information asymmetry between the management, shareholders, and debtholders, will exhibit positive financial and sustainable performance under the interactive influence of corporate governance mechanisms.

## 2.2 Literature Review of Core Themes

### 2.2.1 Financing Alternatives

There are different ways through which companies finance their businesses, which are considered financing alternatives (Olsson, 2015). Waszkiewicz (2016), conceptualized alternative finance as an inventive segment of the current financial market, focusing on the provision of consumer finance and startup loans through the implementation of updated technologies i-e social media sites and e-platforms. Considering the broader perspective, the major role played by alternative financing is the provision of funds to charity or to perform actions needed for social survival and the stimulation of economies (Wardrop et al., 2015). Baeck et al. (2014), highlighted financing alternatives as a novel segment of the financial market, operates beyond the traditional capital markets and the banking systems. Allen et al. (2013), documented that we are still not confirmed about any single authenticated technical definition of alternative finance, it can be conceptualized as external financing sources outside of banks, equities, and bond markets. Baeck et al. (2014), highlighted that some concepts of financing alternatives consider direct interaction between

borrowers and funders, even considering e-platforms. Financing alternatives broaden the financing choices, more specifically considering the provision of capital to financially constrained firms (Fraser et al., 2015). Alternative financing choices are available for business-to-business, business-to-consumer, and consumer-to-consumer dealings (Wardrop et al., 2015). The existing studies, such as (Wardrop et al. 2015; Bruton et al. 2015; Barnett & Jawadi 2013), had seen a significant increase in considering financing alternatives since the financial depression and is expected to sprout in the coming future. The major reason for companies' dependence on financing alternatives is the weak (after-crisis) economic state (Allen et al., 2013), followed by financial constraints resulting from the traditional financial system (Bruton et al., 2015). Benthem (2016), documented that financing alternatives are more valuable than traditional financing systems, considering: Firstly, the use of financing alternatives provides increased benefits for both the borrower and lender (Wardrop et al., 2015). Secondly, Financing through the traditional system is a lengthy process, while alternative financing sources are considerable for speedy application processing with flexible terms for both borrowers and lenders. Thirdly, the financial landscape, consisting of financing alternatives seems to be thriving (Benthem, 2016).

Allen et al. (2013), conceptualized traditional financing system as consisting of traditional banks and financial markets. They also defined alternative finance as a system consisting of all the non-bank and non-market sources, inclusive of internal financing (e.g., retained earnings) and external alternative financing sources. The studies are continuously progressing toward the conceptual development of the term "financing alternatives", but the existing literature still lacks an explanation of the concept.

The different financing alternatives that company consider financing their real state corporates include internal financing, different forms of debt financing, and equity financing (Olsson, 2015). Companies' alternative financing choices include both internal and external financing sources, depending upon the amount and duration of funds required, cost efficiency, risk structure, distribution of control, and repayment schedule (Shrotriya, 2019). Uremadu and Efobi (2012), documented that internal financing sources consisted of retained earnings and external financing sources include equity finance and debt finance (Aras & Yildirim, 2018). They empirically proved that a company's consideration for both increases in internal and external funding sources significantly affects the firm value (Vo & Ellis, 2017).

Considering the extensive literature that documented supply chain finance, trade credit finance, working capital management, credit guarantees, and account receivables factoring financing, are the viable, low cost, flexible financing alternatives to traditional financing system, and that significantly influence the financial performance and sustainable performance of the corporate sector, such as Johnson and Templar (2011), Kouvelis and Zhao (2012) , Misu (2013), Tanrisever et al. 2015), Huang et al. (2019), Lu et al. (2019), Bilgin and Dinc (2019), Minhas (2019), Anton and Nucu (2020), Liu et al. (2022), The literature also mentioned shadow bank financing as an alternative financing source to the duet highly reviewed capital sources, namely market-based financing and bank-based capital, such as (Jokivuolle 2018; Zhou & Tewari 2019, Si & Li 2022; Jafri 2023). The study applied the types of financing that can be an alternative capital source and can have a significant relationship with a firm's financial performance and sustainable performance.

Following the theoretical review, the study literature review follows the discussion of five different financing alternatives that the firms can consider to raise their capital: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing.

#### 2.2.1.1 Internal Financing

Brealey and Myers (1991), defined internal financing as the ability of the company to consider retained earnings as a financing tool for the company's development, rather than considering equity issuance or bond debts as a source to raise funds. Retained earnings are the cashflows Upneja and Dalbor (2001) and capital Copeland et al. (2005), that are readily internally available to companies. Paramasivan (2015), conceptualized internal financing as the finance that can be obtained through retained earnings and depreciation, rather than the issuance of bonds and shares by a company. Internal financing refers to the firm's use of retained earnings or assets as a source of capital to finance ongoing growth and expansion (Nguyen & Rugman, 2015). He et al. (2019), applied the ratio of retained earnings to total assets as a measure of internal financing. Li (2020), highlighted depreciation as a non-cash expense and does not give the proper cash outflow. Shrotriya (2019), discussed the classes of internal financing sources: short-term internal financing and long-term internal financing. Internal financing sources are preferable financing options because of cost efficiency, ease of availability, less dilution of control, and no operational obligations. He considered retained earnings as the best and safer internal financing source.

Retained earnings can be conceptualized as the income that is kept aside for meeting the operational needs of the business rather than distribution (Abbadi, 2019). Companies exhibit a greater preference for internal financing sources than for external funding options (Fikasari & Bernawati, 2021). Muigai (2016), documented various explanations that support the firm's preference for internal financing: 1) Firm's reliance on internal funds increases flexibility for future investments, 2) internal financing involves minimum issuing cost and transaction cost than other financing alternatives reported by (Smith 1977; Li, 2020), while such flotation cost can be increased when firm raise the capital through external financing sources (Smith 1977; Pandey 2009). 3) Information asymmetry between investors and firm managers regarding future investment plans leads to market undervaluation of the firm's shares (Myers & Majluf, 1984). Non-availability of internal funds diverts the firm from internal to external financing sources.

#### 2.2.1.2 Debt Financing

The origination of concept of debt financing can be dated back to the times of the Middle Ages when financial lending services were only accessible to the traders of Venice city (Sluga, 2017). According to Chaldeos (2016), till the 18$^{th}$ Century, it was followed by the disclosure of international banking, led by the Rothschild European banking dynasty. Proceeding to the 1980s, followed by the introduction of the Internet into the procedures used for debt financing i-e online loan application processing (Turvey, 2017). Many studies, e.g., (Eis & Lang 2017; Kljucnikov & Belas 2016), conceptualized debt financing as the process of borrowing funds from investors and organizations through banks, and financial institutions or the use of bonds, to support business operations. Bratton (2016), highlighted that the borrowers must have to repay the amount borrowed with the interest charged on it later. Debt financing are the instruments considered the provision of upfront funding to the borrowers in exchange for returning the principal amount and the interest charged, considering pre-determined time boundaries and the terms for interest rate, defined by (Harelimana 2017; Cheong 2015). Harelimana 2017), document debt financing as the most frequently pursued financing option by the companies. Over time, debt financing has declared itself as an important capital raising and funds maintenance source for both start-ups and established firms (Omoshagba & Zubairu, 2018). Debt financing has gained importance in the current paradigm, considering tax benefits and low riskiness to debtors making it an attractive tool for investors (Zaidi et al., 2019). There can be some challenges for which the borrower must be

prepared while considering debt financing: 1) Financial obligations in case of business failure, interest rate fluctuations associated with macro-economic conditions, past financing history with banks or financial institutions, firm's credit rating and credit history (Allen, 2018), 2) financial risks that significantly affect both short-term and long term debt borrowing include: country's stability, financial depressions, fund's concession period (Marco & Mangano, 2017). 3) The extreme fluctuations in government policies and capital markets (Du et al., 2017). The firm's debt financing consisted of both short-term debts and long-term debts. Short-term debts are financial obligations due for a period of one year and repaid within 90 to 120 days. Peavler (2014), defined short-term loans as the term loans employed to meet the immediate financing needs of the firm without any long-term commitment, followed by tax and interest benefits (Kahl et al., 2015). Long-term debts are finances with maturities of more than 1 year, in which the equity return of the borrowing firm is affected by interest rate, interest coverage ratio, leverage, and duration of re-payment terms (Kirimi et al., 2017). Abbadi (2019), highlighted that firms mostly consider long-term debts as a preferred financing option, while arranging finance to purchase fixed assets, make permanent investments, and strengthen their capital structure.

#### 2.2.1.3 Shadow Bank Financing

McCulley (2007), highlighted that PIMCO's Paul McCulley, a money manager, and an economist first thought up the term shadow banking in an economic symposium organized by the Federal Reserve Bank (FRB) of Kansas City, in Wyoming in 2007. According to McCulley (2007), the Shadow Banking System means "the complete alphabet soup of levered-up non-banking investment structures, vehicles, and conduits". Pozsar et al. (2010), conceptualized shadow banks as a system comprised of financial intermediaries that manage maturity, liquidity, and credit transformation without any access to public credit assurance and central liquidity. European Commission (EC) in the Green Book and Financial Stability Board (FSB) conceptualized shadow bank finance as a novel alternative financing source that operates beyond the traditional capital markets and the banking systems (Page & Wooders 2020; EC 2012; FSB 2011b). Noeth and Sengupta (2011), highlighted that the concept and scope of shadow banking are widely discussed in the literature from both narrow as well as broader perspectives. The FSB defined Shadow banking in a narrow perspective as 1) Representations of regulatory arbitrage that diminishes the advantages of financial regulations and 2) Financial advancements that lead to increased systemic

risk, specifically inadequate transfer of credit risk and/ or leverage and imperfections in liquidity and maturity transformation (FSB, 2011b). FSB coined the term shadow banking in a broader perspective as credit intermediation consisted of activities and entities beyond the traditional banking system and the broader perspective has been confined to focus on specific activities and entities. Agırman et al. (2013), specified shadow banks as a wide myriad of highly levered non-deposit-taking financial institutions that borrow short and lend long in a financially liquid market. Kodres (2013), discussed the characteristics of shadow bank entities including non-transparent ownership and governance structures between shadow banks and traditional banks, imperfect regulatory oversight of the funding sources linked with traditional banks, no or limited capital for absorbing loss or redemptive cash, accessibility to officially recognized liquidity support and imperfect disclosure of information about their asset's valuation. Economist (2014), objectified shadow banking as any bank-like financial activity attempted by an institution, but not following the traditional bank regulations. FSB documented several categories of shadow bank financing sectors: 1) Securitization-based financial intermediaries, 2) financial firms that facilitate credit creation i-e monoline insurers, financial guarantors and credit insurance institutions, 3) Broker-dealers i-e market intermediaries that depend on short-term secured funds from the client assets, 4) non-bank financial institutions e.g. consumer-credit intermediaries, leasing companies, factoring companies and finance firms and 5) bank run susceptible sectors e.g. hedge funds, vehicle financing, real estate funds, and mutual funds (FSB, 2015). Sreelakshmi and NidhiParpiani (2020), reported a rapid increase in shadow banking systems all over the globe in the past decades. The financial systems in India and Russia witnessed an increase in shadow bank financing, resulting from the adoption of strict formal regulations by traditional banks (Schwarcz, 2012). Tang and Wang (2016), documented shadow banks as a cheaper, cost-efficient alternative financing source to banks and related mainstream market-based capital (Boot & Marinc, 2010). Shadow banking financing makes the financial markets more prosperous, but with the increase in vulnerability of the financial system (Fan & Pan, 2020).

#### 2.2.1.4 Equity Financing

Jenkinson et al. (2001), conceptualized equity financing as a method applied for raising capital and meeting the liquidity needs of the company through the selling of shares to the public, financial institutions, and institutional investors. Pandey (2009), conceptualized equity financing as the

source of business finance provided by the owners of the company. Titman et al. (2011), highlighted equity funds as the amount handed out by firm owners, specifically including share capital from common stock issues and preference share capital as external equity funding sources. Moyer et al. (2017), documented equity funding as part of a company's capital which shows ownership rights in a firm and is free of debt. Omoshagba and Zubairu (2018), highlighted equity financing as the process of raising capital by selling the ownership interests (shares) of an enterprise. Those who invest to buy the company shares are known as shareholders and ownership interest depends upon the investment in the firm's shares. The equity funds providers obtain returns as dividends from the profits earned by the borrowing firm (Titman et al., 2011). Shareholders of preference equity earn their dividends at a decided rate before common equity holders with retention of profits for the future expansion programs of the firm. They also highlighted the sources of equity financing, specifically including preference share capital, common share capital, savings, reserves, and retained earnings (internal financing source). Common stocks provide ownership rights and give shareholders voting power and a proportional stake in company's decision making. Common shares potentially offer high returns with higher risk with sharing of company profits to shareholders in the form of dividends (Gupta, 2022). Common shareholders can obtain the advantage of capital appreciation during stocks overvaluation. Preference shares are the fixed income securities with hybrid nature exhibit the characteristics of both equity and debt. Preference shares provide ownership rights in the company. As a debt preferred shares can be claimed with predetermined dividends without any fixed maturity date. In the situation of a company's liquidation, preferred shareholders would have a higher claim to company assets and seniority in the capital structure (Brzenk & Soe, 2015). They are less risky, high yield and stable dividend payments and are paid before common shareholders. Equity financing is also subject to financial obligations, not tax-deductible (PWC, 2016), and is more expensive when the interest rate is lower (Mohammad et al., 2019) and because it requires higher returns for compensation of risk against equity capital.

#### 2.2.1.5 Supply Chain Financing

Before developing the conceptual knowledge of supply chain finance, it is better to consider the birth of the term SCF (Vousinas, 2019). SCF evolved from the broader concept of supply chain management, the emerging advancements paved the way to integrate both financial and physical

flows of supply chain management. Stemmler (2002), was the first that used the concept of SCF and highlighted that the basic principle underlying the SCF is the integration of finance with the supply chain management mechanism. Traditionally supply chain management was documented as the functions of purchasing, transportation, supplies, and logistics, e.g., (Tan et al. 1998; Oliver & Webber 1982). The evolution in the field demands to incorporate issues of risk management (Ellis et al. 2011; Boone et al. 2007), issues of integration (Frohlich & Westbrook 2001; Pagell 2004), optimization of working capital (Preve & Allende 2010; Shin & Soenen 1998 and performance sustainability (Wieland et al. 2016; Seuring & Muller 2008), leads to the emergence of the concept of Supply chain finance in the early 80s in the automotive sector. Johnson and Templar (2011), conceptualized Supply chain finance (SCF) as a complementary way out to sort out the existing credit problems by enhancing the overall financial performance of the participant firms with minimization of the interrupting operational and financial risk of the supply chain. Camerinelli (2011), highlighted SCF as the combination of products and services that are offered by financial institutions to the companies for supporting their financial flow and physical flow. Mulure (2013), conceptualized supply chain finance as a set of solutions, considered for financing specific products and/or goods of the borrowing firm throughout the supply chain process from origin to customer satisfaction. SCF provides the companies with diversified financing sources, resulting in win-win, solidified relationships for all trading partners. He highlighted SCF as the process of quick-witted and cost-efficient management of the financial flows of the firm in supply chain trade relationships.

Euro Banking Association (EBA) defined SCF as the implication of financial practices, technologies, and instruments for optimizing the working capital management and liquidity invested in SC processes for collaboration of a business network i-e the supplier, financial institution, and the buyer (Camerinelli & Bryant, 2014). The International Chamber of Commerce (ICC) Global SCF forum gave the Master definition of SCF: it is a portfolio of funding and risk management practices and techniques, applied for supporting the trade and fund flows in every bit of businesses distribution and supply chains both at domestic and international level (Forum, 2015). The forum emphatically considered SCF a holistic concept that covers a broader range of instruments for the provision of funds to borrowing firms. Zhao & Huchzermeier (2018), highlighted SCF as an event-stimulated financing solution, applied to perform the operations of the organization. SCF become a widely applicable, secured, and promising tool for financing all

sizes and types of businesses after the outburst of the financial crisis of 2009 (Vousinas, 2019). From the literature, Caniato et al. (2016), the study identified three perspectives of supply chain finance: 1) financial perspective (Banks mandatory), 2) supply chain-oriented perspective, and 3) buyer-driven perspective. In consideration of the above perspectives, SCF consisted of a wide variety of financing instruments: trade financing, factoring, working capital financing, payable financing, dynamic discounting, forfeiting, shipment financing, distributor financing, inventory financing, payment obligations, payment guarantees, purchase order finance, etc. (Vousinas, 2019). The study applied all three perspectives for the comprehensive measurement of supply chain financing.

### 2.2.2 Financial Performance

Meigs (1978), conceptualized financial performance as the act of a firm's performance of financial activity. From a broader perspective, financial performance is considered the standard to which a firm's financial targets are being or have been achieved. A few early studies e.g., (Cole and Mehran 1998; Merz & Yashvi 2007), thought of performance as the total market value of an organization or the aggregate between the value of equity options and the market value of equity. Financial performance measures the financial condition of the firm over the stated accounting period, including the funds' collection and utilization, indicated by several measures: Liquidity, profitability, capital adequacy ratio, leverage, and solvency (Horne & Wachowicz, 2001). In the early decade of the 21$^{st}$ Century, the major focus of the concept of organizational performance was the ability and propensity of a firm to consider the efficient exploitation of the available resources for achievements aligned with the stated objectives of the organization as well as focused on their aboutness to its users (Peterson et al., 2003). The firm financial performance considers both the enhancement of shareholders' wealth and profits which are listed at the top of the firm's objectives (Pandey, 2004). Verboncu and Zalman (2005), realized that performance is a specific outcome obtained in marketing, management, and economics that characterizes the firm as having effectiveness, efficiency, and competitive edge in its procedural and structural components. Referenced studies, such as (Verboncu & Zalman 2005; LeBas & Euske 2006), documented several definitions for illustration of the concept of organizational performance. They defined performance as a combination of financial and nonfinancial parameters that provides information about the levels of achievement of results and objectives. Performance is an important dynamic

concept, highly dependent on interpretation and judgment. They highlighted that the causal model could provide the meaning illustration of the term "performance" and describes the effect of current actions on the future out-turn.

Early studies, namely Allen et al. (2007), also consider that financial performance is a broader term, beyond the market value, it also includes the value of a company's operations assets. Firm is considered performant when its operations are both effective and efficient. Hence, firm performance is a bi-functional concept, consisting of two variables i-e efficacy and efficiency (Siminica et al., 2008). Financial performance refers to the outcomes resulting from the achievement of external and internal purposes of an organization. The concept of performance varies depending on the fundamental characteristics related to the area of assessment (Leah, 2008). Tehrani and Rahnama (2010), defined financial performance as a tool for measuring the level of the firm's use of available resources for the generation of profits. Financial performance is a guiding tool that helps the firm in making future decisions related to asset acquisitions, management control, and business developments. It indicates what has been accomplished by the company's management in financial terms over a specified duration and can be applied to compare the firm with other firms at the industry level. Ongeri (2014), documented that financial performance channelizes the firms for evaluating their enterprise activities in real financial terms. It reflects the better financial strength of a shareholder at the end of the accounting year than at the beginning, by considering investment decisions over an accounting period (Berger & Patti, 2006), and can be obtained by calculating financial ratios from the financial data of firms. Financial performance refers to the level to which a firm targeted financial purposes have been or will be met (Yahaya & Lamidi, 2015). Financial performance is highlighted as the general well-being of an organization as far as we consider its finance over a stated period (Kajirwa, 2015). Financial performance can be summarized as the critical objective that firms, more specifically profit-orientated firms aim for or are inclined to achieve (Yahaya & Lamidi, 2015).

An enterprise's financial performance is an aggregate economic standard that reflects the extent to which factors of production have been used in processing (Kajirwa, 2015). Hence it is the business efficiency indicator that reflects the extent of a firm's use of financial and physical resources in an efficient way. Haule (2017), conceptualized a firm's financial performance as the ability of a company to obtain new resources from routine business operations over a given time.

Colase (2009), cited in Taouab and Issor (2019), conceptualized the term "performance" as a bag word because it encloses a variety of notions: return, competitiveness, growth, productivity, profitability, and efficiency. Mohammad et al. (2019), conceptualized it as a process of measurement of outcomes of a firm's operations and policies in monetary terms. They highlighted financial performance as the tool used for the measurement of the financial health of a company over a stated period and applied for the comparison of firms within the industry or comparison of the cluster of industries (Gathara et al., 2019b). Pham (2020), highlighted financial performance as the effect of using, managing, and mobilizing capital in an organization. Financial performance reflects the efficiency of a firm's management in the utilization of resources for earning profits in a stated period (Wambua 2019; Muya & Gathogo 2016).

Blatrix & Bartoli (2015), identified that an accurate conception of performance should be obtained through objects such as quantity, quality, piloting, effectiveness, efficiency, and procedural evaluation. Abdi (2010), documented the fundamental characteristics of financial performance: business potentials, economic intentions of the firm's leadership, reliability of the current or future agreements, and business competitiveness. Financial performance is mainly measured through the items that directly affect the annual financial reports of an organization (Omondi & Muturi, 2013). Financial performance is a standard measure of the success of several economic units e.g., accomplishment of a set of stated goals and intentions (Xu & Banchuenvijit, 2014). Financial performance is one of the controversial issues (Pham, 2020), and the identified components used for measurement of a firm's financial performance are classified into two groups: 1) accounting-based performance (return on assets, return on equity and net profit margin (Sadeghian et al., 2012), and 2) Market-based performance measured by earnings per share (Salim & Yadav, 2012) and Tobin's Q (Li, 2020). The use of metrics for analysis is dependent upon the rounds of analysis. Recent studies also considered Return on capital employed and return on invested capital as a significant measure of financial performance (Li, 2020).

### 2.2.3 Sustainable Performance

The concept of sustainable development dates back three decades and originated in response to the emerging worldwide scarcity of natural resources and environmental problems, specifically highlighted were energy resources (Stanciu et al., 2014). In 1972 in Stockholm, during the Conference on the Human Environment, it was realized that the performance of various human

activities leads to serious environmental destruction, which endangers the future of humanity (Sohn, 1973). Then in 1983, after a few years, a program was introduced i-e World Commission on Environment and Development (WCED), and right after resolution was acquired by The United Nations General. In 1987, after the situation resulting from the Chernobyl disaster, a report i-e Brundtland Report of WCED, published with the title "Our Common Future", documented the most cited conceptions of "sustainable development". Sustainability refers to the economic progress that meets the present generation's demands without having an impact on the opportunity and capability of forthcoming generations (Brundtland, 1987). Business sustainability refers to the implementation of business activities and strategies for fulfilling the needs of the firm as well as its current stakeholders through the protection, sustenance, and enhancement of both natural and human resources that will be the future requirement (Deloitte, 1992). Cheney et al. (2004), highlighted sustainability as a multi-faceted, complex concept that covers a wide-ranging spectrum of ideas, specifically from habitat preservation to energy conservation, to satisfaction of linked stakeholders and financial performance. They highlighted that the actual or literal definition of the concept of sustainability is parallel to permanence and hinted in terms of eternalness, stability, and durability.

Szekely and Knirsch (2005), defined sustainable performance as the integrated consideration of both environmental, social, and economic perspectives of business progress with a long-run focus. Schaltegger and Wagner (2006), conceptualized sustainable performance as an organization's performance considering all the drivers and all the dimensions linked with corporate sustainability. The concept can be extended beyond the boundaries of an individual company and covers both downstream customers and upstream suppliers in a value chain network (Fiksel et al., 1999). The sustainable performance of a firm considers the company's contribution towards the long-run principles and objectives of sustainable development (Baumgartner, 2008). Stanciu et al. (2014), defined sustainable performance as the capability of an organization to meet the long run demands and expectations of buyers and other stakeholders, appraised by focusing on the application of adequate improvements, learning management, staff awareness, innovation procedures, and effective management of the organization's practices. They identified from the literature that the traditional system relied on return on investment and profitability measures for measurement and management of business performance which is inadequate in the current competitive and rapidly changing environment, so sustainable performance is a concept that

focuses more on businesses' long-term performance measurement and decision making. Nimo and Chovancova (2020), documented sustainability as an incorporation of environmental, social, and economic factors (triple bottom line) (Elkington, 1998) and ethical perspectives into a firm's strategic decisions that directly contributes to the firm sustainable performance. Referenced studies conceptualized corporate sustainable performance as an organization aiming to meet the current day needs without relinquishing the needs of future generations (Sapta et al. 2021; Baumgartner & Rauter 2017; Schaltegger et al. 2016).

There are two methods for Assessing the sustainable performance of a business: 1) monetary units: Sustainable Value-added approach, focus on value assessment created through comparison of the resources utilized with the benchmark. and 2) non-monetary units: Integrated sustainability and Composite Sustainability Development Index (CSDI), focus on benefits analysis and use variance indicators for each different dimension of sustainable development and their combination shows the total sustainable performance (Baumgartner, 2008). The sustainable performance of an organization can be measured through the sustainable growth rate (SGR) (Zhang & Chen, 2017), Environmental, Social, and Governance (ESG) rating (Lindkvist & Saric, 2020). The GRI 201-1, Sustainable economic performance approach can be applied to measure corporate sustainability performance (GRI, 2016).

### 2.2.4 Stagflation Cycles

Keynes (1937), said stagflation is the heinous combination of consistently rising inflation and unemployment. The term stagflation was first introduced by Samuelson in 1974, highlighted as periods of negative or slow economic productivity, and inflation is comparatively very high than historical standards (Kohler, 1982). Blinder (1979), called the phenomena of stagflation "The Great Stagflation", refers to the hostile shift in the aggregate supply curve that resulted in the lowering of output and rising of prices effect. Korteweg (1979), defined stagflation as a phenomenon followed by co-existence between the high or increasing inflation rates, the high or increasing unemployment rates, and the falling or low output growth rates. Lal & Wolf, (1986), documented stagflation as the economic rigidity and a deep-seated cause for destructing both the developed and developing economies.

They highlighted that the phenomenon of stagflation was found to consist of three different problems, based on three distinctive policies specifically: 1) policies particularly related to the labor market required for lowering the employment rate, 2) contraction in fiscal and monetary policies required for lowering the inflation rate and 3) fluctuation in tax laws for heading off the negative effects of inflation in the form of a slowdown in economic productivity (Krauthoff, 1979). He explained the stagflation in reality i-e it is the combined effect of peaked inflation followed by weak demand, situation arises whenever the sum of core rate (product of existing demand shocks) and shock rate (Patterns of inflation resulting from exogenous events such as International Oil and food price shocks, fluctuations in tax rates and government regulations and related policies) is greater than the demand rate (contribution of the difference in levels of aggregated demand to the inflation patterns). Hence the integrated effect of rising unemployment, higher inflation rate, decreasing growth in real output, and higher taxes resulted in a dissatisfied situation and malaise called "stagflation". In consideration of a monetary model of stagflation, stagflation is the period of above steady state inflation (an increase in price level is quicker than the monetary supply) followed by a decrease in output (Friedman 1992; Rotemberg 1996). Amjad et al. (2011), highlighted stagflation as a classical situation whereby extremely low economic productivity is followed by extremely high double-digit inflation. Stagflation can be conceptualized as a downturn of economic growth followed by an increase in rates of inflation (Baumol & Blinder, 2015). They documented capital formation as one of the solutions to stabilize the effects of stagflation on productivity performance and disturbances in the business cycle (Krauthoff, 1979). The limited academic interest in the situation of stagflations is quite surprising, indicating the pre-occupation of studies of the popular press and policymakers with the origination and possible recurrence of stagflations, rather than the impact of stagflations on the performance at both the firm level and industry level (Barsky & Kilian, 2000).

### 2.2.5 Financial Constraints

The earlier studies highlighted financial constraints as the frictions that firms face while considering their supply of capital, resulting from agency problems (Jensen & Meckling, 1976), or information asymmetries (Myers & Majluf, 1984). A firm is said to be financially constrained, when there is a wedge between their external cost and internal cost of finance. As the wedge in the firm's external and internal financing cost increases, there will be an increase in their level of

financial constraints (Kaplan & Zingales, 1997). A financially constrained firm is a firm whose spending for investments would increase or decrease with the rise or fall in retained earnings (Cava, 2005). Financial constraints can be conceptualized as the barriers that restrict firms from spending funds for different investment projects (Guariglia, 2008). Kasseeah (2008), conceptualized financial constraint is the degree of the barriers that firms face in accessing finance. Financial constraints mostly resulted from underlying corporate taxes, increase in the illiquidity of the firm's assets, inability for equity issuance and borrowing from external sources, shortage of banks finances, and credit constraints (Cheng et al. 2014; Hennessy & Whited 2007). Chen (2016), characterized financial constraints as the reflection of the difficulties faced by a company when it has a shortage of funds to meet its financing needs.

A firm is assumed to be financially constrained, if the realized external funds are lower than the desired funds, but in a perfect non-frictional environment (Cao & Leung, 2016). The real markets consisted of frictions including imperfect financial contracts and their enforcement, asymmetry in the information on project quality, and fluctuations in the loan market. Cherchye et al. (2018), conceptualized financial constraints as the inflexibility in the supply of external funds, resulting in the implication of constraint on a firm's decision-making whenever there is a shortage of internal funds. The financial constraints are effective on the entire firm's activities. Ahamed et al. (2022), defined financial constraints as the restraint to the firm's ease of funds availability, can be employed to manage desired investments. He classified financially constrained firms into internal and external financially constrained (Guariglia, 2008). When the firms do not have sufficient internal funds to meet their financial needs, arose from market imperfections, consequently, firms become internally financially constrained. When the firms are unable to afford external financing options due to high associated costs, the firms are now considered externally financially constrained. These firms have a strong focus on their cashflows for further investment purposes. A firm is supposed to be financially constrained when it is not capable to arrange funds from external sources (Whited, 1992). Demonier et al. (2015), consideration of financial constraint as a variable resulted in difficulties associated with the classification of companies either financially constrained or not. Different studies applied different metrics for measuring the financial constraints of a firm: e.g. (Kaushik & Chauhan, 2019), Dividends (Faulkender & Wang, 2006), firm size (Quader 2013; Harris et al. 1994), interest coverage ratio, cash flows (Moyen,

2004), cost of external borrowing, level of availability of cash and cash equivalents (Demonier et al., 2015), financial leverage (Hovakimian, 2009), financial slack (Quader, 2013), etc.

### 2.2.6 Corporate Governance Mechanism

Caprio et al. (2012), documented that CG was relatively a recent concept in the 1990s. Until the 1980s, there was a clear identification of concepts i-e division of labor, corporate finance, and corporate law. At the end of the 1980s, CG emerged as an aggregated concept and an inter-dimensional field of knowledge and became more intense over the period. During the 1990s, CG occupied center stage and become accepted globally. The earlier studies conceptualized corporate governance as the processes, structures, mechanisms, and systems applied for controlling and directing the companies, e.g., (Aboagye & Otieku 2010; Fama & Jensen 1983; Jensen & Meckling 1976). Donaldson (1990), documented CG as the structure developed to maintain and control the optimal level of organizational management under the support of the board of directors, use of linked bonding and monitoring schemes, perfectly developed structures, and executive incentives. Cadbury report defined the term corporate governance as the principles developed to direct and control the companies (Cadbury, 1992). The report described CG as the principles applied to maintain the balance between the individual, social and economic goals of a corporation. CG refers to the relationship among different participants of an organization that significantly affects the direction and performance effects (Monks & Minow, 1995). Considering participants include the firm's management, board of directors, and stakeholders. Blair (1996), argued that CG is directly linked with the functioning and structure of the board of directors of a company. Broadly defined CG as the systems, culture, process, and structure, specifically linked to the successful performance of an organization (Keasey et al., 1997). Zingales (1997), defined a corporate governance system as a multiplex set of restraints applied for shaping the ex-post bargaining over the quasi-rents obtained for maintaining long-term relationships. Governance mechanisms specify how stakeholders that supply finance to corporations ensure the availability of return on their investment (Shleifer & Vishny, 1997). Organization for Economic Cooperation and Development (OECD) in 1999 defined the concept in similar terms (OECD, 1999).

President of the World Bank, J. Wolfensohn in 1999, documented CG as all linked with the promotion of accountability, fairness, and transparency of an organization (Iskander & Chamlou, 2000). He defined the CG from two perspectives: 1) Corporation i-e policies adopted to

maintain the good relationship between management, owners, and stakeholders, and 2) Public Policy i-e policies adopted to ensure corporate accountability as well as development, growth, and survival. Matheson (2002), actualized that CG is a field in economics specifically focused on securing/motivating the efficient management of an organization's systems by use of impulsive mechanisms including contracts, legislations, and organizational designs. CG refers to the collection of legal principles specified by the expert members or shareholders having the right to participate in the crucial decisions of the business enterprise and corporate control (Boatright, 2012). CG refers to the institutional framework designed for regulating the divisions and exercising power in the organization (Caprio et al., 2012). They highlighted power as an important concept while defining corporate governance. They defined corporate governance as the process applied for providing direction and management of business affairs directed towards the enhancement of business accountability and the organization's prosperity with a focus on the firm's goal of maximizing the stakeholder value and realization of long-term organizational objectives (Mensah & Adams, 2014). Naimah (2017), highlighted corporate governance is the practice and method for directing, organizing, and controlling the company. She described corporate governance as the system designed for providing direction to the company professionally, following good governance mechanisms including independence, responsibility, accountability, transparency, and fairness. Almost all countries have developed and adopted corporate governance codes in their companies, mainly consisting of the elements: Board of Directors, Shareholdings and ownership rights, transparency and disclosure, and audit committee, such as Pakistan: Code of corporate governance 2002 (SECP, 2002), India: Code of corporate governance 1998 (LEXPEEPS., 2020), China: Code of corporate governance 2001 (Liu, 2005), and Islamic Republic of Iran: Code of corporate governance 2004 by Security and Exchange Commission (Kashani & Mousavi, 2022).

The corporate governance code in Pakistan considers four important perspectives: 1) develop a system focus on directing and controlling the firms through directors, 2) protection of shareholder's interest, 3) the Code considered transparency, disclosure, and informed decision-making process and in a timely manner and 4) focus on the establishment of audit committees, their composition, and functions performed (SECP, 2002). The publication of the Code of corporate governance, 2002 by the Security and Exchange Commission of Pakistan, increased its importance as a research area for the corporate sector. The modified Code of CG (2012) consisted

of the following practices: board size, audit committee, disclosure, shareholding, and ownership and remuneration (Iqbal & Javed, 2017). In India, governance mechanisms were listed in the Clause-49 of the listing agreement, developed by SEBI (Security and exchange board of India), specifically including board structure, shareholdings, transparency, audit committee procedures, and related party transactions (Basu, 2004). During 2001, the China Securities Regulatory Commission (CSRC) adopted a legal governance policy for the first time, focused to develop a well-organized board structure (Liu, 2005). The CSRC proposed Corporate Governance Code for Chinese listed companies, mainly comprised of board Structure, shareholding rights, stakeholder rights, disclosures, audit committee, remuneration, procedures for related party transactions, social and environmental protection, and voting rights of institutional investors (OECD Publishing, 2011). By the end of 2004, The TSE Research and Development Center (TSE R&D) published the 1st edition of the Code of Corporate Governance of Iran. The code comprised 22 clauses, specifically focused on conceptual explanations of key terms, specifications for disclosures, description of board structure and shareholdings, and a framework conceptualized for auditing and accountability. The code was modified in 2005 and the 2nd edition of the code consisted of five chapters with 38 clauses (Mashayekhi & Bazaz, 2008).

Adams and Ferreira (2007), highlighted that the board of directors structures the corporate leadership, gives an overview of the corporate mission, and set achievable performance targets. Regarding the contributions of boards, specifically monitoring management, the board structure plays a pivotal role in determining the effectiveness of the governance mechanism (Elad et al., 2018). The existence of an independent audit committee is critical to the functioning of an effective CG (Engel et al., 2010). The major functions of the committee include integrating internal controls and financial reporting, identifying, and managing financial risks, reviewing the company's annual reports and audit process (Crison & Fulop, 2014). Hence the establishment of a company's audit committee is a critical component of the governance mechanism. Jalahma, (2022), documented three characteristic features of the audit committee: audit committee size, independence, and meetings, all of which significantly contribute to the firm performance. The existing literature proved transparency and disclosure as an important governance practice: (Okpara 2011; Hassouna et al. 2017), proved as an important internal CGM that influences the performance of listed companies, particularly in emerging markets, Janning et al. (2020), highlighted it as a full disclosure in CG, Sisman et al. (2015), proved transparency and disclosure as critical for

sustainable success- orientation of companies. Transparency and disclosure focus on the disclosure of the firm's Board of directors' remuneration, share ownership details, corporate governance practices, auditors' remuneration, biographies of its board members and audit committee (Khan & Ahmad 2021; Javid & Iqbal 2010). The remuneration committee (RC) ensures the alignment of the insider's interests with the shareholder's interests (Munisi & Randoy, 2013). The committee supports the board members in setting the executives' compensation. Mintah, (2016), and some early studies, including (Conyon et al. 1995; Main & Johnston 1993; Gregg et al. 1993), documented RC as one of the subgroups that scrutinize the board decisions concerning: salary, bonus, rewards, health insurance, superannuation payments, share options, beneficial pensions, company cars, commissions, all these benefits collectively called as "Fat Cat Payments". Hence, RC ensures the fair and responsible compensation of the company's executives (Melis et al., 2012). The study proved that RC significantly contributed to corporate performance improvement (Mintah, 2016). They documented shareholders' rights as their ability to take measures, obtained by voting on certain issues: directors' approval, directors' appointment, executives' remuneration approval, participation in decision-making in other company-relevant considerable matters, based upon the concentration of shares possessed by each shareholder (Bebchuk et al., 2009). Good governance mechanisms give shareholders equal rights to remove or object to any underperforming boards (Munisi & Randoy, 2013). However, among companies with ineffective voting principles, the shareholders are unable to remove the staggered board with a single vote, indicating weak governance mechanisms and resultantly negatively impacting the company's performance (Bebchuk & Cohen, 2005). Shareholdings and ownerships can be measured by various metrics: ownership concentration, managerial ownership, institutional ownership, government ownership, and block holder's ownership (Dakhlallh et al. 2021; Amina 2015).

## 2.3 Empirical Relationships

### 2.3.1 Internal Financing and Sustainable Performance

The existing studies for internal financing-firm performance relationship are inclusive, majority of the studies proved positive performance impacts, but a few studies proved insignificant relationships, such as (Ugwueze et al., 2019). Considering deep literature review, no study has explored contribution of internal financing for sustainability performance.

Dobrovolsky (1951), proved the positive significant effect of earnings surplus on the performance of growth companies. Harkavy (1953), documented that if the firm's retained earnings bring about an actual return higher than the required return, then it would positively affect the firm's market value, measured by earnings per share. They identified that corporate savings and internal financing are the most convenient and considerable funding sources for business enterprises, as tax system in United Kingdom exempted these capital gains from taxation (Bates & Henderson, 1967), follow trade-off theory. Carpenter and Petersen (2002), investigated the internal financing-firm growth relationship. Panel data was collected from 1600 small manufacturing companies in the US market. The study proved that earnings surplus significantly contributes towards a firm's growth, insufficient internal funds constrain their growth. Guariglia (2008) found that firms with high internal funding are less sensitive than those with external financial constraints due to domination of costs over revenues, supporting trade-off theory and pecking order theory. They applied capital structure theories and proved that firms with high internal financing ratios positively influences the performance and productivity of companies in both developed and emerging economies, measured by retained earnings (Mallick & Yang, 2011). The performance is measured by return on sales and productivity is proxied by total factor productivity. Other literature evidence e.g., Beisland (2011); Choi et al. (2011), proved the direct influence of retained earnings on the firm's financial performance. The research discussed the impact of several components of earnings surplus on the future sustainable profitability and stock returns of listed companies in Pakistan (Khan et al., 2012). Random effect model and Seemingly Unrelated Regression (SUR) are applied. The study proved that dimensions of retained earnings significantly influence the net future profitability of the companies. Thirumalaisamy (2013), evaluated the effect of firms' earnings retention on the potential growth prospects of seven different industrial sectors listed on the Bombay Stock Exchange in India. Panel data was collected for years between 1996 and 2010. Regression analysis proved the high share of internal financing on the firm's growth than external financing, aligned with capital structure theories. Boadi et al. (2015), documented that companies with high earnings can be realized as more profitable and can utilize internally generated funds i-e retained earnings, for financing their investments, which is a liberalization for interest rate. They proved the significant positive effect of retained earnings on the corporate performance and future earnings of Niger Mills Company

Ltd during 2001-2010 (Bassey et al., 2016). Pecking order theory proved preference of internal finances for increased future earnings, measured by turnover and earnings per share.

They examined the effect of financing decisions and environmental performance on the financial sustainability of Environmental Protection Agencies (EPAs) listed on Stock Exchanges in China during the period from 2007-2016 (Zhang & Chen, 2017). Trade-off theory supports the balancing of bankruptcy costs and debt tax-shields and pecking order theory supports the underperformance of debts in the long-run. The study measured sustainable performance through sustainable growth rate. The study applied unbalanced panel data analysis and proved the beneficial influence of internal financing on both financial and sustainable performance (Neville & Lucey, 2017). They proved internal financing is an important source of financing while considering a firm's revenue generation, measuring tech firms' performance through total annual revenue for the year, supported by trade-off and pecking order theory. Yemi and Seriki (2018), conducted a study to evaluate the impact of retained earnings on the earnings per share i-e the market value of nonfinancial firms listed on the Nigerian Stock Market for the period 2003-2014. The findings indicated a beneficial influence of the retention policy, proxied by retained earnings per share on the firm's value. They studied the influential relationship between earnings surplus and operational performance of six listed pharmaceutical companies in Nigeria (Ugwueze et al., 2019). Data was gathered for the years 2007 to 2016 from annual reports of companies. The operational performance is measured through sales. The results proved the insignificant negative effect of retained earnings on sales. They also recommended the preference of retained earnings contribute significantly to profits if utilized for re-investment purposes, by applying pecking-order theory.

Rashid and Bilal (2020), recommended a preference for internal financing over external debts for long-term increasing performance effects, supported by pecking order theory. Li (2020), determined the effect of internal financing on the performance of listed automobile companies in Europe for the period from 2011-2019. Internal financing is measured by retained earnings. The study applied panel regression analysis and proved the beneficial influence of internal financing on enterprise performance. The findings show that internal financing is the cheapest source of financing. The profitable firms considered internal financing while financially constrained firms considered external borrowing for obtaining optimal financial structure and the high cost of

borrowing in debt financing negatively affects the performance of companies supported by trade-off theory, pecking order theory, and traditional theory approach. The study incorporated both accounting-based and market-based performance measures i-e ROA, ROE, and Tobin's q with two additional measures, namely return on capital employed and return on invested capital and proved a significant influence of internal and external finances on corporate performance. They examined the impact of retained earnings on the performance level of 37 construction companies listed on the Hochiminh Stock Exchange (HOSE) of Vietnam from years ranging from 2005 to 2016 (Viet et al., 2020). Fixed effect and random effect statistics proved the significant positive effect of retained earnings on enterprise performance. The findings supported pecking order theory and prefer to retain internal funds for investments than to consider dividend payments. The study applied Granger causality and proved causality association between retained earnings and financial performance (Agembe, 2024).

### 2.3.2 Debt Financing and Sustainable Performance

Muchugia (2013), highlighted that the optimal debt ratio significantly contributes towards the profitability of an organization. Most of the studies proved the negative debt financing-performance relationship. Few studies indicated the positive influential relation between debt financing and firm performance. Only a very few studies also indicated the mixed or insignificant relationship between debt financing and firm performance.

Abor (2005), highlighted the conclusion for negative debt capital structure and firm performance i-e the firm's increased reliance on borrowing increases cost as well as bankruptcy risks with cost reduction, supported by traditional theory approach and trade-off theory. Pecking order theory represents the dominance of internal funds and short-term loans for funding routine operations due to restricted accessibility to long-term funds and underdeveloped funding markets. Mallick and Yang (2011), investigated the impact of different financing sources on organizational performance, considering a matching approach. The study sampled about 11000 firms separated into developed and emerging economies. By applying underpinning capital structure theories, the study proved that a high debt ratio negatively affects the firm's performance and internal efficiency. A study conducted by Salim and Yadav (2012), proved the negative effect of long-term debt, short-term debt, and total debt on firm performance, listed on the Malaysian stock exchange from 1995 to 2011, and trade-off theory and pecking order theory were applied to support

preference of short-term debt over long run leverage. He proved the adverse effect of leveraged finance on the financial performance of companies operating in emerging economies: China, Russia, Eastern Europe, Asia, Africa, and the Middle East (Habimana, 2014). He highlighted the optimal level of leveraged finance proportion, beyond which the financing capital marginal benefit starts to decline, supported by trade-off theory and traditional theory approach. Khanam et al. (2014), determined the capital structure-performance relationship in the food sector of Pakistan for a period ranging between 2007 and 2012. Data was collected from the yearly financial reports of 49 firms and analyzed through linear regression analysis. The results proved significant negative capital structure-performance relationship in the food industry of Pakistan, supported by pecking order theory, agency theory and trade-off theory with tax savings and avoidance of debts in uncertain circumstances. Chechet and Olayiwola (2014), proved negative debt financing structure-profitability relationship, supported by capital structure theories. Barry and Mihov (2015) found that companies with high debt financing experienced underperformance over a longer period and avoidance of equity options due to high information asymmetry, aligned with capital structure theories. Pecking order theory and agency theory supported that high debt financing significantly increases the firm value for the short-term but with great exposure to management-control conflict, agency cost, bankruptcy, and financial distress (Yazdanfar & Ohman, 2017). The study assessed the association between capital structure decisions and the financial performance of nonfinancial companies listed on the KSE (Karachi Stock Exchange) for the period ranging between 1999 and 2015 (Kanwal et al., 2017). The study undertook a sector-wise comparison and proved that among many sectors, both short-term and long-term debt financing has a significant negative effect on firm performance and there exist variations in the magnitude of the effect across industries. The preference of using retained earnings for funding and debt finances with trade-off between taxes and borrowing cost supported by trade off, pecking order theory, agency theory and traditional theory approach. Li (2020), agency theory supports the negative influence of debt finance on firm performance resulted from agency conflicts between creditors and shareholders while monitoring the debt finances. Zeitun and Saleh (2015), scrutinized the effect of a firm's financial leverage on the performance of the firms in GCC countries (Gulf Cooperation Council) during the financial crisis. The study proved financial leverage has a significant adverse effect on a firm's financial performance during a financial crisis. Capital structure theories supported that debt financing is

susceptible to borrowing cost and refinancing risks, decreases the business performance, measured by both accounting-based and marketing-based measures i-e ROA and Tobin's q.

They analyzed the impact of debt ratios on the accounting-based performance of companies (Ashraf et al., 2017). The results indicated that for the period 2006 to 2015, long-term debt and total debt ratio had negative effects while short-term positively influences firm performance with ROA and ROE. Trade off theory supported that increased debt with high interest expense decreases corporate profitability. They considered the financing structure-profitability relationship of 50 companies listed on the Karachi Stock Exchange (Basit & Hassan, 2017). Panel data for the year 2010 to 2017 was analyzed and proved the significant debt financing and performance relationship. The study challenged the pecking order theory and proved high returns from equities than debt funds. The study assessed the effect of internal factors on the firm performance (Pham et al., 2018). Data was collected from the annual financial reports of 30 listed construction companies in Vietnam for the period 2011-2015. One of the internal factors in the study is capital structure, measured by debt ratio, and proved the significant negative effect of debt ratio on firm performance, measured by return on assets (ROA) and return on equity (ROE). Miko and Para (2019), determined the capital structure dimensions of listed manufacturing companies on the Nigerian Stock Exchange between the period 2008 and 2017. OLS statics proved the significant influence of debt funding structure on enterprise performance, supported by agency cost theory, trade off theory and pecking order theory. Aziz and Abbas (2019), examined the debt financing-performance relationship for listed nonfinancial companies in Pakistan for 9 years from 2006-2014. The data collected from 14 industrial sectors and panel data analysis proved the significant as well as negative relation between debt financing and firm performance of nonfinancial firms, measured through return on asset and return on equity, supported by capital structure theories with high WACC and borrowing cost. Pandey and Sahu (2019), empirically evaluated the influence of debt financing on the performance of listed manufacturing companies in the Indian security market for the period from 2009 to 2016. The study employed panel-OLS, fixed and random effect statistics and established a significant negative debt financing-performance relation, indicated by return on equity metric, due to high management-shareholders interest conflict, supporting agency theory. According to Jadiyappa et al. (2020), the implication of diversified debt finances may influence the firm value. They examined the effect of debt diversification on the enterprise value, by considering 3061 nonfinancial companies listed on the Indian National Security market for the

period ranging between 2001 and 2016. They applied panel regression and established the significant adverse effect of diversified debt finances on firm value, possibly due to, less efficient finances monitoring by the creditors, supported by agency theory.

The study applied trade off theory, pecking order theory and marketing timing effect determined the capital structure-profitability relationship of non-finance firms listed on the Vietnam Stock Exchange (Nguyen & Nguyen, 2020). Panel data was collected from 488 companies for the period from 2013-2018. Capital structure is proxied by a combination of debt ratios, performance is measured by ROA, ROE, and EPS. Panel data was analyzed through Generalized Least Square (GLS) statistics and the results proved statistically significant and negative performance effects of debt ratios on the performance of different industrial sectors. Li (2020), proved the adverse effect of debt financing ratios on the performance of listed automobile companies. Debt financing ratios include both long-term debts, short-term debts, and total debt ratio. Debt funding increases the agency's costs, hence decreasing the company's performance effects, supported by pecking order theory, trade off theory and agency theory. The finding from the referenced studies aligned with capital structure theories, such as Narsaiah (2020), investigated the effect of financing structure on the financial performance of manufacturing firms listed in the Bombay Stock Exchange (BSE) for the period 2014 to 2019. The estimated results proved the beneficial influence of short-term debts and the negative effect of total debts and long-term debts on the firm's financial performance. Nazir et al. (2021), conducted a study to investigate the impact of debt level on the performance of companies listed on the Pakistan Stock Exchange for five years 2013-2017. The study applied pooled OLS statistics and fixed and random effect approaches and established the significant adverse effects of both short-run and long-term debts on the performance of sugar, cement, and automobile sectors, documented agency problems as the underlying cause for decreasing performance. Mathur et al. (2021), explored the capital structure-performance relationship of Pharma companies listed on BSE-500 for the period 2000-2018. The results established the adverse effect of the high debt ratio on the accounting performance of Indian pharma companies. They determined the capital structure-performance relationship for Russian high-tech firms during the period 2013-2017 (Spitsin et al., 2021). The results proved that optimal capital structure maximizes the firm's performance and high reliance on debt capital negatively affects the firm's performance.

Salehi and Arianpoor (2021), identified the indicators of the sustainable performance of Iranian businesses, listed in the Tehran Stock Exchange. The study applied confirmatory factor analysis and proved the significant relationship between both financial and nonfinancial indicators with sustainability performance. Yasmin and Hassan (2021), evaluated the impact of financial leverage on the corporate financial performance of 28 distinct nonfinancial industrial sectors of Pakistan for the period ranging between 1998 and 2017. Financial performance is classified into accounting-based and market-based performance, measured by ROA, ROE, and Tobin's q. The study applied simple pooled regression analysis and proved the significant negative influence of all leverage ratios on corporate financial performance, supported through deliberated capital structure theories. They employed conditional quantile regression statistics and evaluated the sustainability effects of financing structure distribution of Chinese listed companies in the Chinese Stock Index 300 for the period 2010 to 2019 (Zhao et al., 2022). The findings revealed a significant negative relationship between high leverage levels and profitability, which is measured through the ratio of EBIT to total assets. They scrutinized the impact of multiple financial leverages on the financial performance of the oil and gas industry in Nigeria for the years 2011-2020, measured by ROE (Anozie et al., 2023). The study applied a mixed panel regression approach: pooled OLS model, fixed effect, and random effect model and proved the negative effect of long-run debt on ROA.

They evaluated the impact of financial frictions on the firm value (Khan & Shoaib, 2024). Financial frictions comprised of: 1) microeconomic frictions: sum of short-run debts to total debt, accounts payables and all trade credits, and 2) macroeconomic frictions based upon interest rate and external borrowing, measured by total borrowing to total assets, and firm value is measured by tobin's q. The findings proved the significant negative influence of financial frictions on firm value, supported by M&M theory and agency theory as negative financial friction-firm value association is deep rooted in agency conflicts. Stoiljkovic et al. (2024), applied agency theory and proved the significant influence of debt structure on the firm efficiency for manufacturing firms of Serbia. Panel OLS regression and Stochastic Frontier Analysis reported that higher agency cost causes resource misallocation and decrease in output resulted in lower level of firm efficiency. Ahmed et al. (2024), contributed to capital structure theories with similar results for 78 public listed companies in Bangladesh. Tesema (2024), proved similar results for 85 Ethiopian manufacturing companies for 2017-2021, aligned with pecking order theory for preference to use

equity financing than debt capital. Khan and Qasem (2024), contributed to capital structure theories with similar results for GCC countries by applying mixed panel regression and Feasible Generalized Least Square (FGLS) model.

The earlier studies proved the positive influence of debt financing and firm performance e.g., Wippern (1966), examined the impact of financial leverage on the value of firms in industries that are ranked higher in distinctive characteristics of demand, cost, and growth. Financial leverage is measured by debt ratios and financial performance is measured by earnings per share value of common stock. The results indicated the positive financial leverage and firm value relationship i-e firm value can enhance by increasing reliance on external financing. Holz (2002) found that the use of liability-asset ratio negatively affects the firm performance due to government established bank loans and underlying borrowing cost and interest rate. The study measured performance through four profitability indicators: ROA, ROE, gross profit, and profit per value-added. Dessi and Robertson (2003), proved that debt financing structure positively influences the firm performance with Tobin's q, regarding low-growth firms that respond to the predicted growth opportunities by external borrowing and investment in profitable projects. Agency theory supports that businesses with more erratic cash flows typically have a larger debt load in their capital structure. They applied debt capital structure for measuring financial leverage and proved positive impact on firm performance, proxied by EBIT to total assets (Margaritis & Psillaki, 2007). The agency conflicts between equity and debt holders influences the firm efficiency with higher leverage.

Lourenco and Branco (2013), determined the factors significantly contributing to the sustainable performance of companies, specifically in developing economies like Brazil. They studied both financing and operating characteristics and proved that financing characteristics have a higher contribution towards sustainable performance. The study evaluated sustainability through dummy variables with 1 indicating that the firm belongs to the BCSI (Bovespa Corporate Sustainability Index) and 0 otherwise. Sheikh and Wang (2013), indicated the negative effect of debt financing structure consisting of short-term loan, long-run debt, and total debt on the performance of listed non-finance companies of Pakistan, measured by ROA and market-to-book ratio. Trade off theory supported the tax savings from high debts trade off the borrowing cost significantly influences firm performance. They applied trade-off theory and established the

beneficial influence of capital structure strategies, indicated by leverage ratios, on the sustainable growth of the corporate sector, specifically concentrated on Dr. Reddy's Pharmaceuticals (Rao & Madhav, 2015). Sustainable growth is measured by the net profit of the firm for one year. Zhang and Chen (2017), applied panel OLS, fixed effect, and random effect models for determining the impact of financing decisions and environmental performance on the sustainable financial growth of Chinese EPAs for the period from 2007-2016. Statistics established the positive impact of debt financing on financial and sustainable performance, and preference for long-run debt over short-term borrowing enhances financial sustainability. Trade-off theory supported the variations in debt maturity structure influences performance impacts. Financial performance is measured by ROA and long-run performance is by sustainability growth rate. Vijayakumaran (2017), determined the influence of capital structure decisions on the industrial firms listed on the Chinese stock exchange for the period 2003-2010. The study proved positive performance effects and considered debt financing as a governance mechanism that plays a significant role in the performance enhancement of Chinese firms, supported by agency theory. The firm's performance has been regressed with two measures: ROA and ROE. The study proved significant positive financial leverage-firm performance for Indonesian food and beverage industry from 2017-2021, when proxied by debt-to-equity ratio, and insignificant effect with debt-to-assets ratio (Moridu, 2024).

Singh and Bagga (2019), investigated the capital structure and profitability association for Nifty firms listed on the National Security Exchange of India, data collected from 50 firms for the period ranging between 2008 and 2017 and analyzed through panel-OLS, fixed effect, and random effect statistics. The results proved a significant adverse effect of total debt finances on ROA and ROE and a positive effect on STD and LTD capital structure, supported by pecking order theory and trade off theory. Ardillah (2020), estimated the effect of financing choices and environmental performance on the sustainability of financial development in the listed mining companies on the Indonesian Stock Exchange from 2015 to 2018. Sustainable financial development is measured through sustainability growth rate. The study incorporated external financing and proved the beneficial influence of both long-term and short-run debt with financial sustainability development, by applying pecking order theory and trade off theory. The study assessed the performance effects of nonfinancial firms listed on the Pakistan Stock Exchange from the standpoint of capital structure (Rashid & Bilal, 2020). Three capital structure metrics are considered: short-term debt ratio, long-run debt ratio, and total debt ratio for panel analysis from

2010-2017. The performance effects are measured through ROA, ROE, NPM, and EPS. The findings indicated a positive long-term debt-performance relationship and negative short-term debt and total debt-performance relationship. The findings counter trade off theory by giving preference to long-term debts due to low financing cost. They evaluated the nexus between the capital structure and the corporate financial sustainability of Ghanaian nonfinancial firms for the period ranging between 2008 and 2019 (Kong et al., 2023). The study utilized the Common Correlated Effects Mean Group estimator (CCEMG) and proved the significant positive influence of debt ratio and debt-to-equity ratio on corporate financial sustainability under the significant controlled effect of firm size and asset tangibility, supported by trade off theory and traditional theory approach. The findings countered M&M theory and pecking order theory considering adverse financing structure-profitability relationship.

The study determined the influence of capital structure decisions on the performance of emerging economies i-e the engineering sector listed on the Karachi Stock Exchange of Pakistan (Khan, 2012). Pooled OLS regression was applied to the data collected from 36 firms for the period 2003 to 2009. The results revealed an insignificant relationship between debt financing ratios and return on equity but positive and significant results with return on assets, supported by pecking order theory, trade off theory and market timing effect that prefers short-term debts due underdeveloped debt and inefficient security markets. Mumtaz et al. (2013), documented that capital structure choice plays a significant role in determining the financial performance, future growth, and sustainability of companies. They conducted a study on 83 non-finance companies listed on the Karachi Stock Market. The study applied comprehensive measures of firm performance: ROA, ROE, operating profit margin, price-to-earnings ratio, and EPS and proved the significant negative effect of financing choices on the firm performance, but the effect is insignificant with a net profit margin as a performance measure. The results were found similar to evidenced studies (Rafique 2011; Ebaid 2009). Another study was conducted on 320 firms listed on the Tehran Stock Exchange of Iran for 8 years 2002 to 2009 (Saeedi & Mahmoodi, 2011). The study considered four performance metrics: ROA, ROE, EPS, and Tobin's q, and proved a significant positive effect of EPS and Tobin's q, a significant adverse effect of ROA, but an insignificant effect of ROE. The obtained results were consistent with the following studies: (Hasan et al. 2014; Ahmad et al. 2012; Uwalomwa & Uadiale 2012).

Chadha and Sharma (2015), proved the insignificant impact of both short-term debts, long-term debts, and total debts on firm financial performance, if measured by parameters of return on assets. Ebrati et al. (2013), proved the same results for Tehran Stock Exchange, supported by M&M theorem. The research focused on determining the effect of capital structure choice on an enterprise's performance (Bokhari & Khan, 2013). Data was collected from 380 non-finance listed firms on Karachi Stock Exchange for the period ranging between 2005 and 2011. The study proved the insignificant effect of both firm leverage and long-term debt on ROE and NPM, but a significant effect on ROA. The reasons documented as the difference between the cost structures of both debt and equity that differentiates their impact on firm performance supported by pecking order theory, trade off theory and agency theory. They examined the impact of alternative capital structure solutions on the corporate sector performance of 10 industries listed on the US stock market, during the period of crisis, post, and pre-crisis, ranging between 2003 and 2006 (Olaniyi et al., 2015). The study employed multiple regression statistics and regressed comprehensive performance measures: ROA, ROE, EPS, price-to-earnings ratio, and Tobin's q. The conclusions drawn from the study highlighted an insignificant effect (15%) of capital structure choices and documented capital structure as not an important determinant of firm performance, companies should consider other tools for performance improvement, only ROE shows negative performance effects, supported by market timing theory claimed market timing as the major determinant of firm's choice of debt and equity. Anozie et al. (2023), proved the positive insignificant influence of total debt and short-run debt on the financial performance of the oil and gas sector in Nigeria, while trade off theory and pecking order theory supported the preference for equity shares when obtained negative debt financing-performance effects.

### 2.3.3 Shadow Bank Financing and Sustainable Performance

Jiang et al. (2010), documented shadow banking activities as re-lending business activities including non-finance firms borrowing from banks or issuing bonds for raising funds and then re-lending these funds to other non-finance firms rather than using them for self-investment purposes. The re-lending activity resulted in the generation of income for nonfinancial growth firms, having strong asset structures and high price-to-earnings ratios. Pozsar et al. (2010), highlighted the benefits of shadow bank financing i-e low cost, interest-efficient capital availability to investors without any regulation but at high risk. The benefits resulting from

shadow bank activities may exceed the risk associated with shadow banking growth, supporting trade off theory, reported by (Adrian & Ashcraft 2016; Claessens et al. 2012). Financial Stability Board in Global Shadow Bank Monitoring Report of 2014 documented those Asian economies experienced a very fast expansion of shadow financing these years (FSB, 2014). The shadow banking industry occupied the fifth largest position in 2012 reported by FSB Jurisdictions and stepped up to third rank in 2014. Studies are continuously extending to gauge the influence-based perspective of shadow bank financing in developing economies. Adoption of shadow banking activities by self-interested managers is highly dependent on the gain from investment earnings, and improved operating, and financial performance (Liu et al., 2014). Lu et al. (2015), documented shadow banking as an important tool for financing Chinese companies which resultantly increases the profitability of companies. They reported that businesses volume that consider internal finances and retained earnings are 36.7percent and 12.3percent, bank credits are 5.4%, while shadow bank financing is the dominant funding source, supported by pecking order theory. He proved shadow bank finance as a money-like claim, responding quickly to the financing needs of the company (Sunderam, 2015).

Adrian and Ashcraft (2016), documented that the shadow bank financing-corporate economic performance relationship is still in the infancy stage in both developed markets and emerging economies, considerable reasons were the non-availability of data metrics for measuring shadow financial services. Referenced studies, (Qian et al. 2017; Qian et al. 2013), documented entrusted loans as one of the most considerable channels for capital formation. Zhang and Zhang (2016) and Epstein (2005), argued that companies that are involved in shadow banking can generally be categorized under “financialization”, indicating that capital accumulation and profit accumulation are highly dependent upon speculative activities and financial investment rather than on productivity or exchange of excess value. In consideration of profit incentives, Tang and Wang (2016), argued that traditional commercial banks give preference to shadow financing because of its profitability. The diversification effect covers volatility, risks, regulatory systems and institution features, transaction fee, significantly influences corporate profitability, supporting market timing theory. The improvement in financial revenue resulting from increased profitability is one of the important forces for expansion in shadow banking (Zhang & Zhang, 2016). Tan (2017), analyzed and proved the positive influence of shadow banking and

competition on the profitability of the banking sector in China for the period ranging between 2003 and 2013. The profitability was measured by ROA and NPM.

Zhou and Tewari (2019), highlighted that there were many studies that determined the influential relationship between broader measures of firm financial development and firm profitability and performance. Little or no evidence is available that highlights the relationship between shadow financial services and firm performance, specifically nonfinancial companies. They determined the effect of shadow financing services on the profitability of companies in South Africa and considered the evaluation of shadow financial services in real economic terms during 2006-2016 (Zhou & Tewari, 2019). Shadow financing is measured by the ratio between shadow banking assets and the total assets of a firm. The results revealed a significant positive relationship between shadow financing and profitability of the South African nonfinancial firms but negatively affects the profits of traditional banking institutions through flexible credit creation, supported pecking order theory and M&M theorem by arguing the presence of financing constraints and taxes. The study assessed the effect of Shadow bank financing services on the enterprise performance of nonfinancial firms listed on the Shenzen and Shanghai Stock Exchanges in China from 2004-2015 (Han et al., 2019). The results proved the positive effect of shadow bank activity on the operating performance as well as enhancing the financial benefits of non-finance firms. Additional analysis proved the interaction effect of two variables, namely investment efficiency and investment scale, on the relation between shadow banking activities and firm performance.

Prudhvi and Bhattacharya (2020), studied the emerging trends in the growth of shadow financing service channels in Indian NBFIs. For determining the financial performance relationship, the study applied gross non-performing assets (GNPA) and capital risk (weighted) assets ratio (CRAR). The Autoregressive Distributed Lag (ARDL) model is applied for analysis and proved the long-run financial performance relationship of shadow financing services of NBFIs in India. The study conducted by Mirjalili et al. (2021), focused to determine the influence of shadow bank finance on the financial stability of fourteen G20 countries for periods ranging between 2002 and 2018. Countries are classified into four categories based on their level of shadow financing activity. The results from the quantile regression analysis indicated a significant beneficial influence of shadow banking on the Firm's financial stability, specifically for countries

with high Shadow Banking Index (SBI) and countries with low SBI indicated an insignificant effect on financial stability. The highlighted reason may be their deregulation by central banks can make them generate excess credit, resulting in high risk and financial instability for lenders.

Si and Li (2022), investigated the impact of shadow banking activities on the risk-taking of non-finance companies in China during the period between 2003 and 2019. The study proved a significant beneficial influence of shadow baking activities on firm risk-taking. They argued that shadow banking activities are helpful for the promotion of stable and sustained operations of companies. The study proved the pronounced influence, followed by drastic financial stress, poor governance mechanisms, and increased financial constraints, results recommended better governance as a key to right shadow banking and reducing financial risks. Le et al. (2024), conducted a similar study for non-finance firms in Vietnam for 2009-2021, by incorporating entrusted loans, private lending, entrusted investments, commercial credits and leasing as shadow banking activities. The findings proved the adverse effect of shadow banking on firm performance during pandemic COVID-19, possibly due to lack of supporting regulation and oversight, financial instability and associated financial risk, supporting market timing effect. They highlighted it a viable alternative to traditional bank credits, supporting pecking order theory. The study empirically evaluated the influence of shadow banking activities on the total factor productivity of the nonfinancial corporate sector in China during the period from 2008-2019 (Yang & Shen, 2022). Shadow banking activities were measured by the ratio of entrusted loans and private lending to total assets, and performance was measured by total factor productivity. The findings from regression statistics indicated a significant negative effect of shadow banking activities performed by the nonfinancial corporate sector, possibly due to weak industry competition, non-state-owned business and weak monetary policy, supporting market timing effects. The negative effects might be mitigated by bringing down information asymmetry, optimizing the allocation of financing sources, and diminishing financial constraints. Wang et al. (2022), examined the impact of shadow bank financing services performed by non-banking financial institutions (NBFIs) on the risk and performance of Chinese listed companies. Entrusted loans were used to measure shadow bank activities. The findings from the study proved the significant effect of shadow services on the firm's financial performance when they are financially constrained, non-state-owned, and financially healthy but with high risk, supporting market timing theory.

### 2.3.4 Equity Financing and Sustainable Performance

The evidenced studies proved the significant effect of equity financing on firm performance, considering both financial and long-run aspects of the firm performance. The literature studies proved the inconclusive equity financing-performance relation. Most of the studies supported the positive equity financing-performance relationship. Only a very few studies proved the negative equity financing structure-performance relationship, resulted from agency conflicts.

The study expanded the capital structure-performance literature by considering the impact of sources of financing on the productivity and profitability of the largest companies all around the world during 1997-2007 (Mallick & Yang, 2011). The study sample covered 11000 companies from 47 countries including most OECD and G8 member states, EU countries, and the largest developing nations. They applied Propensity Score Matching (PSM) method for analysis by comparing differential effects of low and high levels of funding by firms. The results proved that firms with high equity to sales resulted in higher profitability and high debt to equity ratio resulted in lower performance effects and equity financing positively influences both market-based and accounting-based performance of all the companies from different countries, measured by return on sales and total factor productivity, supported by market timing theory, agency theory, pecking order theory. Oke and Afolabi (2011), also supported the positive equity-financing performance relationship by applying fixed effect panel regression through the creation of a profitability index. The study supported optimal combination of debt and equity options with low agency conflicts improves performance, aligned with static trade off theory and agency cost theory. They examined the capital structure-corporate performance influential relationship for the textile industry listed on the Karachi Stock Exchange of Pakistan during 2000-2009 (Nawaz et al., 2011). The study proved a significant positive relationship between equity financing structure and firm performance, by incorporating ROA, and ROE as performance measures.

They determined the impact of financing structure on the corporate sector performance listed on the Tehran Stock Exchange in Iran (Salteh et al., 2012). They considered both accounting-based and market-based performance effects and proved a significant direct association between debt to equity and firm performance. Muhammad and Shah (2014), explored the effect of financing choices on the performance of the cement industry listed on the Karachi Stock Exchange of Pakistan for the period ranging between 2009 and 2013. The results proved positive relation of

debt to equity with performance measures i-e net profit margin and negative relation with ROA and ROE. Pecking order theory supported the dominance for retained earnings, then debt finances and equity financing as final alternative. Optimal financing structure decisions significantly contribute to shareholder wealth maximization due to their influence on sustainability as well as the satisfaction of the external objectives of an enterprise (Chechet & Olayiwola, 2014). They examined the financing structure-profitability relationship by applying panel mixed models on companies listed on the Nigerian Stock Exchange from 2000 to 2009. The statistics indicated a significant direct relationship between equity financing and firm financial performance by reducing the agency problems supported agency theory, and optimal mix of equity and debt options are supported by traditional theory approach. The results were consistent with referenced study i-e (Shubita & Alsawalhah, 2012). Saad et al. (2014), determined the effect of debt and equity financing on the performance of small businesses in Malaysia. The study applied the survey method, primary data collected and analyzed through SPSS and proved the significant positive relation between equity financing and firm performance. Similar evidenced studies proved the positive impact of debt-to-equity ratio on firm performance with optimal proportion of debt-equity options which reduces cost of financing and bankruptcy, supporting capital structure theories e.g., (Goh et al. 2016; Hadi et al. 2015; Nirajini & Priya 2013).

Vatavu (2015), argued that Romanian-listed companies show comparatively higher performance when they prefer equity financing sources rather than debt finances, challenged pecking order theory. The study applied traditional theory approach to support the reduction of WACC with optimal capital structure choice. Gathara et al. (2019a), determined the effect of equity financing structure on the financial performance of companies listed at the Nairobi Stock Exchange (NSE) of Kenya. Data was collected from the financial statements of 30 companies from 2007 to 2015 and analyzed through a panel regression model. The statistics proved the significant positive effect of equity financing structure on a firm's financial performance, measured by return on sales, ROA, and ROE, supported by capital structure theories. Miko and Para (2019), evaluated the impact of capital structure on the performance of the manufacturing sector listed on the Nairobi Stock Exchange for 10 years from 2008 to 2017. OLS regression statistics proved that both equity financing and debt-to-equity financing ratios significantly affect the profitability (ROA) of Nigerian companies, applied capital structure theories to support the dominance of short- term debts over long term debts and equity finances. Okolo et al. (2019), scrutinized the impact of equity

capital finances, consisting of common stocks, retained earnings, and preference shares, on the financial performance of deposit money financial institutions in Nigeria for 11 years ranging from 2006-2016. The study employed panel data and applied pooled OLS statistics and proved the significant positive causal influence of equity capital funding on performance when monitored carefully by both debt and shareholders, proxied by ROE and economic value added. Shikumo (2021), conducted a study to determine the effect of equity financing share capital on the financial development of listed nonfinancial firms at the Nairobi Stock Exchange for 10 years ranging between 2008 and 2017. Financial growth is measured by market capitalization growth and earnings per share growth. Panel data statistics proved the significant positive influential relationship between equity financing and corporate growth, influenced by market timing effects with shares issuance during market overvaluations.

A study conducted by Xu and Guo (2021), assessed the effect of financialization on the nonfinancial corporate sector performance of Chinese listed companies, considering both financial and long-run aspects of the firm performance for the period 2009-2018. The findings indicated financialization is based on the availability of monetary financial assets and proved a significant beneficial influence on the company's performance. The performance is comprehensively measured by ROA, ROIC, and Tobin’s q. They investigated the impact of three financing strategies: bank credits, equity finances, and hybrid financing strategies, on the performance improvement of supply chains of financially constrained low-carbon companies (Zhang et al., 2021). The findings proved the positive impact of equity finances on the supply chain equilibrium of low-carbon companies which resultantly enhances the profits of the company, claimed the preference of equity funds when dividend ratio is low otherwise bank credits was the option by applying pecking order theory. Owolabi et al. (2021), empirically reviewed the relationship between equity financing alternatives and the financial well-being of the listed manufacturing sector in Nigeria for the period from 2008-2017. Equity finances include common shares, retained earnings, and preference shares and performance metrics include ROA. The study proved the significant influence of multiple equity finances on ROA. They determined the capital structure-performance relationship for forty nonfinancial firms listed in Sub-Sahara Africa during the period 2012 to 2020 (Osagie & Enadeghe, 2022). Panel data analysis proved that total debt-to-equity has a positive effect on enterprise performance (ROA). Hu et al. (2023), investigated the impact of equity concentration and entrepreneurial human capital on the performance of the listed Chinese

Growth Enterprise Market (GEM). They proved the positive relationship between the firm's equity concentration and performance effects.

Javed et al. (2014), proved that capital structure consisting of equity funding may result in the creation of liquidity problems as well as loss of growth opportunities for the companies. The study supported M&M theorem, trade off theory for optimal capital structure, agency theory for reducing managers-shareholders conflicts. They determined the relationship between capital structure and firm performance of listed Nigerian manufacturing companies by using a case study approach (Akeem et al., 2014). Regression analysis for data from 2003-2012 proved the negative effect of debt-to-equity ratio on the firm's performance. Numerous evidenced studies have proved the negative equity structure-firm performance relationship, measured through debt to-equity ratio, well supported by capital structure theories e.g., (Abeywardhana 2016; Saputra et al. 2015; Sabin & Miras 2015; Muhammad & Shah 2014). Basit and Hassan (2017), proved that excessive reliance on equity financing resulted in liquidity problems for the company which negatively affects the performance of companies. They determined the effect of financing structure on the performance of Malaysian listed companies and findings supported by capital structure theories claimed preference for debts, but above the optimum level high WACC and negative performance considered alternative equity option (Basit & Irwan, 2017). They identified the heavy reliance on industrial sector equity funding sources in their capital structure. The equity financing structure is indicated by the debt-to-equity ratio and total equity ratio metric. The results indicated a significant negative effect of debt-to-equity financing on firm performance, but the total equity ratio shows an insignificant effect. Patjoshi (2020), explored the impact of corporate financing structure on the performance of six listed software companies in India for five years from 2015 to 2020. The capital structure is measured by two metrics: long-term debt-equity ratio and total debt-equity ratio. Regressions analysis proved the statistically significant negative relationship between capital structure metrics and firm performance. For determining the impact of equity capital structure, the study applied the ratio of owner's equity to total assets i-e self-financing ratio and proved the significant negative effect of equity capital to ROE (Pham, 2020). Lyu and Chen (2022), determined the contribution of the founder to financial decision-making and the improvement of the firm's performance through the implication of moderating role of radical strategy for the period from 2010-2019 for Chinese listed companies. The study proved the negative impact of equity

financing on firms' performance. The study proved that founder control negatively influences the firm's performance which may be positively mediated by equity financing.

### 2.3.5 Supply Chain Financing and Sustainable Performance

Supply chain financing and sustainable performance relationship is in the early stage of research, specifically focusing on developing economies. The existing studies proved mixed and inconclusive results. The majority of the studies proved positive SCF-performance impacts, few studies proved negative performance impacts due to high financing costs (Bilgin and Dinc, 2019).

Klapper (2005), documented in The World Bank policy research papers that factoring financing is a well-known, emerging, and profitable external financing source. It may be highly effective for developing countries with imperfect records of claiming seniority as well as weak regulatory enforcement. SCF is an important step towards the optimization of firm financial flows with the maintenance of stability all along the integrated supply chain (Pfohl & Gomm, 2009). Gomm (2010), argued that supply chain financing is the tool for attaining the optimized financing structure as well as cashflows within the supply network. Wang and Lv (2010), empirically proved that SCF is beneficial for firms as it reduces operating costs and enhances both supply chain efficiency as well as corporate profitability. Hofmann and Belin (2011), Theoretically argued that adopting SCF can be considered as a source of improving working capital with a reduction of future supply chain risk and enhancement of the firm's performance. Johnson and Templar (2011), identified SCF as an important solution to stabilize the existing financing issues and improve corporate financial performance. Baerentsen and Thorstenson (2012), also proved similar results.

Mousavi and Jari (2012), described WCM as an important decision related to the corporate financing structure. They studied the impact of working capital management on the performance of 56 companies listed on the Tehran Stock Exchange. Performance metrics include ROA, ROE, Tobin's Q, and liquidity balance. Results indicated optimum WCM has a significant beneficial influence on performance. Shortening the cash conversion cycle leads to the development of stronger financial links within the supply chain network, hence increasing the company's performance (Wuttke et al., 2013). Misu (2013), proved factoring as an important commercial and financing tool, applied to improve the overall liquidity and solvency problems of the company by shortening their account receivables collection period. Factoring is an alternative source of

financing to short-run finances for companies, supporting pecking order theory. CI Consulting, the top-ranked professional research institution in China reported total SCF was 5.75 bn Yuan in 2011 and rose with a 20% growth rate i-e 6.9 bn (Liu et al., 2015). Khan et al. (2016), tried to determine the relationship between the financial flow of supply chain management and the financial performance of the textile industry listed on the Karachi Stock Exchange during 2010-2014. Financial supply chain management is measured by CCC, inventory turnover, cost of revenue, gross margin, and general and administrative expenses, and performance is measured by ROA, ROE, and return on sales and basic earning power. The study employed the GMM model, fixed and random effect statistics, and results indicated a negative relation between CCC, inventory turnover, administrative expenses, and performance effects and only gross margin shows a positive relation with performance metrics.

Chen (2016), proved the positive effect of SCF on SC efficiency as well as improving the profitability of SC partners. He documented SCF as a risk-shifting and profit-shifting approach applied for enhancing organizations' performance. Referenced Studies, such as (Wuttke et al. 2016; Tanrisever et al. 2015), documented that SCF contributes significantly to improving the firm's performance by slowing down the average payment periods with the provision of remarkable receivable services to their suppliers. They documented SCF as an alternative to bank credits with low transaction cost and interest rate, supporting pecking order theory and trade off theory, and M&M theory to support factoring financing impact on other management decisions than corporate value. Supply chain financing consisted of both supply chain-oriented and finance-oriented perspectives. (https://primerevenue.com/) Prime Revenue in 2016 argued SCF as the leading approach for enhancing the company's working capital as well as operational performance. Kozarevic and Hodzic (2016), determined the influential relationship between factoring supply chain financing and liquidity of 30 companies in Herzegovina and Bosnia. The data was gathered through the survey method for the period ranging between August 2014 and September 2015. The findings proved factoring financing is a preferable choice for overcoming the liquidity problems of the company, hence increasing the financial position of the company. They studied the influential impact of WCM on the financial performance of 179 companies listed on the Bombay Stock Market in India over a period from 2000 to 2014 (Bhatia & Srivastava, 2016). Panel mixed models proved the significant negative relationship between WCM and firm market-based (Tobin's q) and accounting-based performance (Gross profit margin). They documented that

Working capital management and performance association have been indicated in two classifications, i-e longer CCC proved a negative relation, and account receivables, current assets, gross margin, etc. proved a positive performance relation. Rehman (2016), empirically reviewed and indicated the insignificant impact of trade credit finance on the profitability of listed non-finance companies in Pakistan. They highlighted SCF as a triggering financing solution for the efficient performance of an organization's operations (Zhao & Huchzermeier, 2018).

The financing perspective of SCF focused on all the money-related activities and supply chain aspects considering both behavioral and money-related activities and both play important roles in the progression of a firm financial performance (Ali et al., 2019b). Huang et al. (2019), examined the effect of trade credit finance as an alternative financing source on the sustainable growth of 20,089 A-Share listed companies in the Shenzhen and Shanghai stock markets of China, supporting trade off theory. Data collected from annual reports of companies from 2003-2017 and analyzed through two-step instrumental variable regression statistics, and proved the significant positive effect of trade credit financing on the sustainable growth of Chinese companies and higher dependence exhibits a higher sustainable growth rate. They operationalized sustainability growth as lasting competitiveness and long-run profitability of companies. The study determined the impact of trade credits as an informal financing tool on the company's growth in China (Allen et al., 2019). Data was collected through surveys from 2400 Chinese firms and analyzed through OLS regression. They proved the significant positive relationship between trade credits and firm growth. The study proved the significant effect of SCF on capital structure adjustment, specifically for financially constrained firms, and has the potential to be applied in emerging economies with positive firm's economic growth. Lu et al. (2019), examined the impact of credit guarantees provided by suppliers when financially constrained firms obtain loans through banks on the firm's profitability. The numerical analysis indicated that retailers always prefer supplier credit guarantees while considering their financing needs. Kouvelis and Zhao (2012), argued the preference for supplier financing over bank financing when presenting an effectively constructed trade credit contract, supporting pecking order theory. The reason for preference of credit guarantee financing is the minimum or risk-free interest rate offered during the financing and the market-oriented guarantee rate.

Bilgin and Dinc (2019), highlighted factoring as an important determinant of a firm's capital structure. They applied trade off theory and pecking order theory and supported factoring as an important alternative for obtaining optimal capital structure within a financing hierarchy. They argued factoring as a costly financing alternative and preferred only for severe indebtedness and increasing volume may negatively influence the corporate value. They studied the effect of working capital management as a short-term funding source, on the performance of listed manufacturing companies in China for the period 2010-2017 (Ren et al., 2019). The study applied the cash conversion cycle as a measure of working capital financing, core profit, and ROA for measuring financial performance. Two-way fixed effect regression statistics proved a negative association between working capital financing and firm performance. Minhas (2019), highlighted trade credit as an alternative source of financing that significantly affects the firm performance, evidenced by nonfinancial firms listed on the Pakistan Stock Exchange for the period from 2008-2016. The research focused on the investigation of the effect of Working capital management (WCM) on the performance of manufacturing companies listed on the Tehran Stock Exchange in Iran (Soukhakian & Khodakarami, 2019). Cash-conversion cycle (CCC) is used for measuring (WCM), accounting-based measures (ROA) are used for financial performance and economics-based (economic value added) measures are used for long-run financial performance. Panels OLS regression statistics were applied for data ranging between 2010 and 2016 and proved the significant positive relationship between WCM and firm performance. Bui (2020) and Wuttke et al. (2013), highlighted supply chain finance as a short-run credit that supports the firms in their working capital optimization at a low cost, which strengthens the company's performance (Lekkakos & Serrano, 2016).

They studied the contribution of supply chain finance (SCF) as a risk management practice for small enterprises (Ali et al., 2020). Data was collected from 330 companies in the textile industry and was analyzed through AMOS structural Equation Modeling statistics. The results proved the significant contribution of supply chain finance as a risk management instrument that positively influences the performance of enterprises. They applied agency theory to establish strong relationship patterns among SCF financers and credit customers. They in their study documented SCF as an innovative financing strategy introduced by financial institutions or lending organizations for optimizing their working capital for achievement of remarkable financial and operational performance. Bui (2020), investigated the effect of supply chain financing and

financial leverage on the performance of the Vietnamese construction industry for the period 2015-2018. The study proved the negative effect of financial leverage on firm performance and supply chain financing with a short-run cash conversion cycle positively influences the firm performance. Anton and Nucu (2020), investigated and proved the significant positive association between working capital financing and a firm's profitability, measured by ROA and Operating ROA, for 719 Polish-listed firms for periods ranging between 2007 and 2016. They applied the pecking order theory to support working capital finance as an alternative to debt finance and the traditional theory approach to support the negative profitability trend over the optimum level of working capital resulted from interest charges and opportunity cost. They investigated the link between Supply chain financing and cash holdings of Chinese firms listed on the Shenzhen and Shanghai Stock exchanges during 2011-2017, and proved that supply chain financing positively influences firm cash holdings (Pan et al., 2020). Baker et al. (2022), scrutinized the interrelation between the trade credit finances and corporate profitability of listed six broader Indian nonfinancial industries. The study incorporated both trade credit payables and receivables and applied panel regression statistics for 2011-2018. The findings supported by traditional theory approach that firms must maintain the optimal level of trade credit, breaching this level will negatively influence the corporate profitability, measured by net operating profit and gross profit.

They examined the influence of supply chain finance on the risk and performance of small businesses in China (Liu et al., 2021). They collected data from the annual reports of 4,679 small manufacturing businesses for the years 2016 and 2017. Supply chain financing is measured by accounts receivable turnover and highlighted as a robust metric for SCF. The study applied regression statistics and proved a significant positive influential relation between SCF and firm performance with ROA, ROE, and return on sales, but a negative relationship is obtained for SCF and risk. Shaik (2021), studied the significance of SCF in improving the financial performance of 42 organizations listed under the material sector in Saudi Arabia for the period starting from 2008 and ending in 2019. Supply chain finance is proxied through CCC, and corporate financial performance is measured by ROA, Tobin's Q, and gross profit margin. Analysis based on mixed panel regression and GMM proved significant negative SCF-ROA relationship and positive SCF-Tobin's q relation. More and Basu (2013), highlighted the challenges including inadequate supply chain models, unavailability of technically advanced payment systems, delayed cashflows, and insufficient SCF training and knowledge that may negatively affect the output of SCF. Farooq et

al (2021), examined the effect of bank trade credit on the financial performance of enterprises and the differential effect when a loan is acquired through a trade credit financing channel. Data was collected from 6,654 nonfinancial enterprises from 12 Asian countries and analyzed through fixed-effect model regression analysis. The results proved that firms financing through the acquisition of trade credits positively influences the financial health and financial efficiency of the firms, supported by agency theory to reduce the conflict between suppliers and trade creditors, trade off theory to minimize the interest rate and liquidity risk, and pecking order theory to support the claim that firm with capital reserves is less dependent on external borrowing.

Shou et al. (2021), evaluated the impact of a widely adopted, buyer-oriented supply chain finance strategy, named reverse factoring, on the operating performance of Chinese-listed manufacturing organizations for the period from 2014 to 2018. The study applied long-haul event study methodology and statistics proved a positive interaction effect between reverse factoring and buying firms' operational profitability, measured by operating margin and cost-efficiency. They investigated the impact of working capital management on the listed manufacturing companies of the Qatar Stock Market for the period from 2015-2019 (Aldubhani et al., 2022). Working capital management was measured through CCC and profitability was measured by ROA, ROE, ROCE, and operating profit margin. The results proved that firms with shorter CCC show higher profitability. The study scrutinized the impact of WCM on corporate liquidity and profitability of listed non-finance companies of PSX for the tenure ranging between 2014 and 2019 (Hashmi & Iqbal, 2022). The study applied quantile regression statistics and proved a significant direct interaction between WCM and corporate profitability (ROA). Referenced studies produced similar findings, such as Nguema et al. (2022), considered the empirical investigation of the effect of SCF on corporate performance by using the dynamic capabilities approach (DCA). Data was gathered through a survey of the supply chains of 210 companies in mainland China. PLS-SEM statistics are applied for testing the empirical relationships and proved SCF positively affects the operational performance of companies. The study applied capital structure theories and explored the contribution of supply chain financing in the adjustment of a firm’s capital structure, listed on the Shenzhen and Shanghai Stock Exchanges of China (Pan et al., 2022). They identified that SCF quickens the average cash collections with the reduction in financing cost and hence improves company values. A study conducted by Yu et al. (2022), for determining the impact of SCF credit guarantees on the financial performance of borrowing companies in China. The results identified

the increase in borrowing capacity of firms with the increase in credit guarantees significantly influences the total factor productivity.

Liu et al. (2022), examined and proved the positive impact of supply chain trade credit finance on the sustainable growth of Chinese listed firms for the period 2011-2020, by applying panel regression estimation. They found that trade credit finances are supplementary and alternative finance to traditional finance, supporting pecking order theory, and agency theory for improving the monitoring function of trade creditors. They determined the dimensions of supply chain finance and how supply chain financing influences small enterprises' performance in Vietnam (Vu et al., 2022). The study utilized a survey method, analyzed data through Smart-PLS, and regression statistics, and proved the significant influence of supply chain financing on a firm's performance. Mahmud et al. (2022), investigated the influence of trade credit financing on the organization's performance in the developing market, i-e. nine non-finance industries of Bangladesh for the period ranging between 2011 and 2019. Mixed panel regression statistics proved an indirect relation between trade credit finance and firm performance, measured by ROA and gross profit margin. Agency theory is applied to reduce information asymmetry between corporate management and stakeholders.

Jena et al. (2023), determined the effect of supply chain financing programs, specifically focusing on trade credit, factoring, and reverse factoring, on supply chain profitability for financially distressed retailers and manufacturers. The study applied the Stackelberg game approach and proved reverse factoring is the leading profits generation program for both retailer and producer and trade credit leads to the highest profits with a large market size. Detthamrong and Chansanam (2023), study worked out the positive interaction effect between trade credit and corporate performance of the agri-sector in Thailand for the period between 2001 and 2020 by applying OLS and GMM regression models. Trade credit is obtained by dividing account receivables by total assets and performance is determined by ROA and ROE. They claimed that more than optimal trade credit negatively influences firm performance, and shows preference for debt and equity finances, supported by the traditional theory approach and pecking order theory. Nguyen et al. (2024), proved the positive SCF-performance relationship for Vietnamese non-finance firms. The study proved the positive impact of trade credit on firms' sales performance for Korean firms, and

the preference for trade credit over bank credit as stable financing enhances corporate performance was supported by the pecking order theory (Heo, 2024).

### 2.3.6 Financing Alternatives, Stagflation Cycles, and Sustainable Performance

The past literature has proved significant negative influence of macroeconomic turbulence on firm sustainable performance, very few studies discussed the interactive effect of stagflation cycles, financing structure and firm performance. The developing economic has weak macroeconomic, and high vulnerability to stagflation cycles, but the area still remain unexplored for developing nations.

It is identified from the previous studies that macroeconomic variables significantly influence the performance of companies, proxied by both market-based and accounting-based metrics. The decisions related to the development of a firm's policy structure i-e working capital policies, and strategy structure are highly dependent upon macroeconomic factors (Soukhakian & Khodakarami, 2019). Ali and Khan (2011), argued that stagflations affect the firm's policy decisions, such as working capital policies that positively influence firm performance (Nadeem et al., 2020). The evidenced studies, such as (Soukhakian & Khodakarami 2019; Issah & Antwi 2017; Ramadan 2016); Abaidoo & Kwenin 2013), highlighted that inflation resulted in an increase in commodity prices and production costs with the decrease in the level of demand and sales plunged (Deloof, 2003), both these factors affect the profitability of companies. From the financing perspective, lenders increase the lending rate during inflationary depressions which increases the cost of capital and borrowing costs and negatively affects the profitability of companies (Kaminsky et al., 2002). On the contrary, Ramadan (2016), highlighted the positive impact of inflation on the long-run economics-based performance of companies, measured by economic value added. Zaighum (2014), proved that macroeconomic volatility had a significant influence on the market-based performance of nonfinancial companies listed on the Karachi Stock Exchange during 2001-2011, measured through stock returns. Inflation has a significant negative effect on the firm's stock returns and share prices. Financial depressions, specifically debt crises and global financial setbacks significantly affect the macroeconomic fundamentals of a country, which resultantly affect the financial stability, short-run achievements as well as future sustainability and growth of the companies (Mokhova & Zinecker, 2014). Ramadan (2016), proved the significant effect of macroeconomic factors on the long-run economics-based performance of 77 listed Jordanian

production companies in the Amman stock market over the period from 2000 to 2014. The results revealed that inflation and GDP significantly affect the long-term performance of organizations.

Shi et al. (2016), proved the significant negative influence of unfavorable macroeconomic turbulence on cash sales i-e cash flow reduction of companies. Mohd and Siddiqui (2020), investigated the impact of macroeconomic fundamental variables on the performance of firms in seven industrial sectors of Pakistan for 10 years. The study proved the significant influence of macroeconomic turbulence on the financial performance of almost all industrial sectors. The study highlighted macroeconomic factors as a recommended area for future studies for determining the impact of financing decisions on the performance of firms. They studied the effect of the stability of macroeconomic fundamentals on the sustainable performance of manufacturing firms in the Central and Eastern European Countries (CEECs) for the period ranging from 2008-2018 (Babiarz et al., 2021). They proved a significant effect of macroeconomic stability on sustainable performance, specifically in Hungary, Poland, and Czechia. Existing studies also proved significant direct interaction between the macroeconomic factors and financing structure decisions, such as Riaz et al. (2014), proved the significant influence of macroeconomic conditions on the financing decisions of the manufacturing sector in Pakistan with the increase in floatation costs and credit interest rates. The study explored and proved the significant interaction between macroeconomic parameters (inflation and GDP), corporate characteristics, and corporate financial performance (ROA) for Nigerian listed firms between 2011 and 2017 (Egbunike & Okerekeoti, 2018). Azofra et al. (2020), determined the impact of macroeconomic frictions on the financing structure decisions of European Companies. They proved that During macroeconomic turbulence bank debts support the capital structure decisions of the corporate sector. Paseda and Obademi (2020), proved similar results for Nigerian listed companies, supported by market timing theory i-e companies avoid debts with high interest rates and equity issuances during stock undervaluation expected in uncertain macroeconomic turbulences. They applied the comprehensive classification of macroeconomic factors for determining the impact of financing structure decisions of Asia-Pacific member states from 2004-2014 (Chow et al., 2019). The GMM statistics proved the significant negative influence of macroeconomic frictions on financing structure decisions.

The limited past literature focused on the interaction effect of the macroeconomic crisis on the capital structure-performance effects. The example evidenced studies proved the significant

moderating influence of macroeconomic turbulences namely, inflation depressions, Crude oil price fluctuations, GDP, exchange rate, etc., on the interaction effect of financial structure and corporate performance effects, e.g., Muthama et al. (2013) proved the significant positive effect of GDP and inflation rate on the financing structure decision of Kenyan listed companies, supported by market timing theory of capital structure. Riaz et al. (2014), proved the significant impact of macroeconomic variables on the decisions related to the choice of financing alternatives for the listed production sector of Pakistan. GDP has a negative relation with the debt financing structure of companies. Pakistan is a country with weak macroeconomics and these frictions leads to high lending rates, negatively effects debt financing-performance association, supported by market timing theory. He considered Pakistan's textile sector and investigated the effect of financial leverage on financial performance over the period 1999-2012, specifically considering the financial crisis of 2008-2009 (Shahzad et al., 2015). The study proved that a crisis has a significant negative effect on financial leverage because of increased borrowing costs and less developed debt capital markets and negatively affects financial performance. They documented the problem of high information asymmetry in equity markets during the crisis, indicating less equity financing. Chadha and Sharma (2015), studied the relationship between financial leverage and manufacturing sector performance of 422 companies listed on the Bombay Stock Exchange for 10 years from 2003-2013. Specifically considering the period of both pre-crisis and post-crisis, the results indicated the positive leverage-performance relationship in the pre-crisis period and indicated adverse effects in the post-recession periods.

Olaniyi et al. (2015), determined the effect of alternative financing choices on the company's performance during the three crisis periods i-e prior (2003 to 2006), during (2007 to 2008), and post (2009 to 2012). The study sample consisted of 200 firms from 10 different sectors listed in the US stock market. Results proved a negative debt financing-performance relationship during the crisis and a positive relationship in the after-crisis situation. Market timing theory supported the reduction in equity value and higher lending rates and borrowing cost influences the corporate financing decisions during crisis. Rehman (2016), proved that macroeconomic fundamentals including inflation, GDP growth, and corporate taxes have a significant positive influence on the alternate financing choices for listed textile companies on KSE during 2004-2013. They identified that an appropriate combination of financing alternatives positively influences the value of companies over the long run. Gabrijelcic et al. (2016), proved the significant negative relationship

between financial leverage and firm performance. During the crisis period the firm's reliance on financial leverage increases resulted in a significant decline in performance. They applied market timing theory to document the changes in financing decisions-performance effects during crisis time, consisting of issuance of equity and debts. The study determined the influence of macroeconomic variables on the growth of shadow banking services in 15 European Union member states (Barbu et al., 2016). The findings proved the negative effect of GDP growth on the fluctuations in shadow banking services and after-crisis period, financing from traditional banks was restricted and shadow bank financing expanded. Samour and Hassan (2016), investigated the effect of the financial crisis on capital structure decisions and its impact on the performance of different industrial sectors by applying capital structure theories. The results highlighted industrial specificity for effects of capital structure decisions on enterprise performance during crisis, healthcare sectors, technology, and customer service industries proved statistically supported results. Market timing effects support the findings to take the benefit of market fluctuations following undervalued assets and low interest cost. Ater (2017), examined the moderation effect of macroeconomic variables on the influential relationship between financing structure and corporate value of non-finance companies listed at the Kenyan Nairobi Stock Exchange (NSE). The target sample consisted of 36 non-finance firms and was analyzed through stepwise multiple regression statistics. The findings indicated a significant positive moderation effect of GDP growth rate on the relationship between financing structure and market-based performance of organizations.

Khodavandloo et al. (2017), investigated the moderation impact of the financial crisis on the relationship between financing structure and the corporate performance of Malaysian companies. The study sample consisted of 45 listed companies from both services and trading sectors and was analyzed for the early-crisis period (2004 to 2006), crisis period (2007 to 2009), and post-crisis period (2010 to 2013). The findings indicated a strong negative effect of a crisis on the financial leverage-performance relationship, supported by market timing effect. Tehrani and Khoi (2017), determined the influence of inflationary depression on the financing structure of enterprises listed on the Tehran stock markets. They identified that high inflation increases the cost of capital and for compensation, Iranian companies' managers are suggested to shorten their CCC which significantly increases the financial performance of companies. They scrutinized the moderation effect of macroeconomic variables i-e GDP and inflation on the interdependence

between working capital financing and firm financial as well as long-term performance for listed manufacturing companies of Iran (Soukhakian & Khodakarami, 2019). The results indicated a significant direct effect of macroeconomic variables on firm performance. Moreover, there was an insignificant moderation effect of GDP and Inflation on the WCM-performance relationship, in favorable economic conditions. During high market risk conditions, the SCF credit guarantee approach is preferred for financing the companies rather than a third party, resulting in improved profitability with a low-cost guaranteed rate (Lu et al., 2019). Muchtar et al. (2019), determined the effect of the worst financial crisis on the company performance, financing decisions, and corporate governance practices of Indonesian listed companies during 2003-2013. The findings indicated lower financial leverage has a more negative effect on market performance and less negative effect on financial performance during the financial crisis.

Hekmati (2020), reported that the threatening eventual consequences resulting from Pandemic COVID-19 leads to severe Stagflation in the US economy with a sharp rise in inflation and unemployment rates and an economic downturn. They evaluated the influence of macroeconomic fundamentals on financing structure decisions of listed 17 different industrial sectors of Nigeria (Paseda & Obademi, 2020). The study indicated both GDP growth and inflation have a significant effect on finance borrowing decisions. They recommended the use of debt finance for the management of macro-turbulence and maintenance of the long-run stability of companies. The study contributed by determining the moderation effect of macroeconomic variables on the interdependence between WCM and the performance of companies in an emerging country i-e Pakistan (Hussain et al., 2021). They proved a significant interaction effect of macro-variables for the fuel and energy sector listed on the Karachi stock market during 2013-2018. They study applied panel regression statistics and prove the significant interaction effect of macroeconomics on the relation between WCM and firm value (Kristanto, 2022). Inflation, risk-free interest rates, and currency interchange rates are incorporated as measures of macroeconomics, and firm value was quantified by the ratio between the market value of equity and total assets. Market timing theory supported the claim that macroeconomic frictions in a country significantly influence the working capital management and company value association. Magkonis et al. (2022), evaluated the impact of implications of macroeconomic fundamentals of shadow banking on TFP growth of cross countries, specifically focusing on China and the US from 1992-2019, by applying a DSGE (Dynamic Stochastic General Equilibrium) model. The findings

indicated significant productivity loss resulted from the macroeconomic involvement of shadow finances and innovation riskiness. They scrutinized the moderating influence of optimized macroeconomics on the relation between supply chain finance and profitability of Indonesian manufacturing firms for the period ranging between 2017 and 2021 (Supriyanto et al., 2023). Panel regression statistics and the GMM model are applied and proved that abnormal macroeconomics negatively influences corporate profitability and optimization of macroeconomics through the extension of CCC and increasing availability of strategic capital, specifically focusing on long run and medium-term credits, will lead to positive profitability effects. Macroeconomics is measured by inflation statistics for the study duration. Yıldırım and Karabayır (2024), contributed to capital structure theories with similar results.

### 2.3.7 Financing Alternatives, Financial Constraints and Sustainable Performance

The choice of financing alternatives varies for both financially constrained as well as unconstrained firms (Ahamed et al., 2022). They documented multiple studies that determined the influence of financial constraints on enterprise performance. But the variations in design factors of the study, choice of financial constraints and performance metrics, control variables, study samples, estimation techniques, and the mixed empirical findings are still considered a matter of attention. Very few studies explored interactive effect of financial constraints, capital structure and firm performance, specifically for developing economies.

For providing an objective conclusion, they explored the meta-analysis of the influential interrelation between financial constraints and corporate performance (Ahamed et al., 2022). External financing and size are financial constraints metrics. The meta-analytic statistics were applied to 26 studies and proved the significant negative relationship between financing constraints and corporate performance. Most of the studies in past literature proved the negative influence of financial constraints on firm performance e.g., (Chen & Wang 2012; Chan et al. 2010; Campello & Chen 2010). These studies highlighted the poor economic consequences that financial constraints bring on the investment policy, which resultantly affect the financial performance of an enterprise. On the contrary, some studies proved the positive financial constraints performance relationship e.g (Zhao 2016; Li 2011; Stikkelman 2010; Livdan et al. 2009). Zhao (2016), highlighted the reason for the positive relationship is cash holdings, which is the symbol of a firm's financial strength (Doan, 2020), but hoarding cash resulted in the decline of firm value. The mixed

results still considered the literature inconclusive. Hennessy and Whited (2007), evidenced that financial constraints negatively influence the value of both large and small enterprises. They identified that both internally and externally financially constrained firms experience bankruptcy risk and higher equity financing costs, these restrain a company from achieving the optimal capital structure. Financially constrained businesses give up valued investment opportunities, which negatively affects business performance. They identified that financial constraints significantly determine the possibility of a firm's survival by considering the access to external financing sources which positively influences the firm's growth for the near future (Musso & Schiavo, 2008).

Only financially constrained companies focus on the management of liquidity i-e capable to meet financial obligations, for maximizing their firm value (Almeida et al., 2004). Whited and Wu (2006), highlighted that external financial constraints at the firm level are considered the undiversified risk that affects the financial value of the company and is priced in financial markets. The study investigated the variations in the financing structure decisions of different groups of companies from two countries namely, China and the UK, when experienced financial constraints (Kasseeah, 2008). For the UK both small companies and listed production companies are considered and from China only listed manufacturing companies form the study sample. The results indicated financial leverage as the preferred source of financing when companies faced internal financial constraints and the availability of sufficient internal funds leads to a reduction of debt borrowing. They recommended that an optimal financing structure optimizes corporate value. Guariglia et al. (2008), proved that Chinese firms with sufficient internal funds are less financially constrained and these firms experienced consistent rises in their financial growth, hence internal financial constraints negatively affect the growth of companies. They documented that credit constraints negatively affect the growth of Chinese firms (Poncet et al., 2010). This issue requires even more attention specifically for developing economies, where companies' access to financial markets is an important determinant for successful survival and growth.

The study proved that both financing constraints are principal for corporate financing and investment decisions (Yang, 2011). Tiwari et al. (2010), empirically examined the influential relationship between financing structure dynamics, financial constraints, and innovation performance of R&D firms. The findings proved that firms with high financial leverage are identified as more financially constrained and show lower innovation performance. They proved

financial constraints as one of the determinants of corporate goodness (Hong et al., 2012). Corporate goodness is considered as high profits. They also identified that the sustainability of financially constrained firms increases with their typical equity valuation and consideration of lower capital cost. Auret et al. (2013), studied the dynamics of capital structure and financial constraints across different macroeconomic business cycles for non-finance companies listed on (JSE) Johannesburg Stock Exchange. The study proved statistically significant differences across macroeconomic business cycles for financing structure adjustments of financially constrained firms. The capital structure of financially constrained firms adjusted faster during unfavorable macroeconomic cycles, supported by market timing theory. They identified the higher cost of deviation from optimal leverage adjustment, specifically during imperfect macroeconomic states. They assessed the influence of financial constraints on corporate financing decisions. Two financial constraints are focused on: less dividend payout ratio and external debt issuance restriction.

Quader (2013), studied the effect of a firm's financial constraints on corporate efficiency, considering the role of sufficient internal funds. The study applied Stochastic Frontier Analysis (SFA) and measured both the financial and long-run corporate efficiencies by focusing on both profit maximization as well as corporate value. He explored that financial constraints mostly occur for smaller firms, having low dividend payout ratios, less collateralized assets, and less external funding access, capturing fewer future productive investment options. Unbalanced panel statistics applied to 1122 UK-listed companies in London Stock Exchange during 1981-2009 and proved that firms with comparatively higher financial constraints consider external financing sources to support a larger segment of their growth. The study proved heterogeneous firm's growth with varying degrees of financial constraints i-e sufficient internal funds or availability of external funds significantly influences the entire firm's growth. They investigated the effect of internal and external financial constraints on the investment decisions of the manufacturing industry of Pakistan (Ahmad & Hashmi, 2014). They also explored its effect on the entire performance of manufacturing companies: chemical, sugar, and allied industries, chemical and engineering. The study applied GMM (Generalized Methods of Moments) and panel analysis for testing the hypothesis. The statistics indicated that the financing decisions of the firm significantly influence their investment choices and there occur behavioral differences across each industry based on financial conditions. They proved that the maintenance of sufficient internal funds positively

affects the entire performance of contributing industries. According to Chen (2016), financial constraints significantly influence financing decisions and business value. Zhang and Liu (2017), evaluated and proved the interaction influence of financial constraints, institutional environment, and leverage cost on the relationship between corporate leverage and long-run TFP for non-listed companies in China for the period ranging between 1999 and 2007. The study applied multiple leverage measures: short-run, long-run, and total leverage, SA index is applied for measuring financial constraints to avoid endogeneity problems and has inbuilt information for the variables.

Kirui & Gor (2018), investigated the interaction effect of firm financial constraints on the financing structure of 13 listed production companies in the Nairobi Stock Market in Kenya. Annual reports of the companies are the principal source of data collection during the period 1999 to 2016. The results proved that the borrowing behavior of the firms varies with the status of financial constraints in different regimes and the related opportunity cost and debt cost. They proved that financially constrained companies i-e firms with insufficient internal funding in India, pool their funds from external funding sources to take on future profitable investing opportunities (Kumar & Ranjani, 2018). Rashid and Jabeen (2018), evaluated the interaction effect of financial constraints on corporate cash flows, considering the external funding sensitivity of firms. The study sample consisted of listed non-finance firms on PSX-covered tenure between 2000 and 2013. The findings obtained through GMM statistics indicated a significant negative interrelation between external funding and cash flows. For interaction effects, financial constraints decrease the availability of external finances that negatively impacts the firm's cashflows. Less financially constrained companies are less dependent on external finances for increasing their cashflows, and asset tangibility adjusts the financial decisions of financially constrained firms. Specifically focusing Pakistan that has an underdeveloped capital markets and financial system and unfavorable corporate banking policies leads to increase in external financing cost, so market timing theory is supportive to understand the impact of internal-external financial constraints on the corporate value.

Baker et al. (2022), determined the interaction influence of financial constraints and financial distress on the interrelation between trade credit payables and receivables finances and corporate performance. Regression statistics proved that financial constraints and financial distress have a negative influence on the performance of businesses with lower optimal payables and

receivables. Abdisa and Hawitibo (2021), applied the meta-analysis methodology and assessed the impact of financial constraints on the organization performance of sub-Saharan African states and proved that firms with credit constraints are less attracted towards investment decisions, which negatively influences their performance. Performance is affected by both demand side and supply side credit constraints, demand side constraints resulted from unfavorable/high interest rate, small credit size and collateral requirements and supply side constraints resulted from lesser amount of loan offered than demanded by businesses, supporting market timing theory. The shadow bank financing as a technological innovation produced the prominent positive output effects for borrowers when they experienced severe information asymmetry, takeover exposures and financial constraints, reported as a second highest capital reallocation design in meeting the funding requirements of real economy (Tian et al., 2024). They documented equity and debt financing as a rare funding resource relative to shadow banking, aligning pecking order theory.

### 2.3.8 Financing Alternatives, Corporate Governance Mechanism and Sustainable Performance

The past studies proved mixed and inconclusive findings; the majority of the studies proved positive governance-performance impacts, and few studies proved negative effects. The mixed results may be due to contextual differences, variations in the use of variables and applied metrics, or differences in applied methodologies (Munir et al., 2019). Ahmed et al. (2018), argued that many existing studies considered the individual relationships between financing structure-performance and corporate governance-performance e.g., (Bui and Krajcsak 2024; Affes & Jarboui 2023; Zelalem et al. 2022), but very few studies focused on collective interaction relationships between CGMI, financing structure, and firm sustainability performance.

Abor (2007), proved the significant positive influence of CGM on firm financing decisions and identified that companies with good governance practices have more access to external financing sources. The study determined the influential aspect of CG on the corporate performance of Iranian companies listed on the Tehran Stock Exchange between 2005 and 2006 (Mashayekhi & Bazaz, 2008). The regression statistics highlighted the negative relation between the board size and firm performance and identified the participation of external directors significantly influences corporate performance with agency costs, measured by ROA, ROE, and EPS. They proved that CGM

significantly influences the financing mix choices of a corporate sector in Ghana for the period from 2002-2007, measured by long-run debt to equity (Bokpin & Arko, 2009).

Arora and Dharwadkar (2011), proved that corporate governance effective decision-making positively influences the sustainability performance of firms, operationalized by corporate social responsibility. Another study proved that a larger board size can produce optimized governance decisions and practices that resultantly increase the company's performance with minimum managers-shareholders' conflict of interest (Nandi & Ghosh, 2013). The incorporated governance practices include board size, the proportion of the audit committee, CEO-duality and family ownership, and net profitability ratios applied for measuring performance. Chen et al. (2013), measured and proved the significant positive relationship between CG and firm performance for Chinese listed companies during 2007-2011, through the creation of both the CG index and the financial performance index. Mehrabani and Dadgar (2013), applied comprehensive governance practices including the board, shareholding and ownership, disclosure, and transparency, and proved the significant performance effects for Iran's security market and economic growth. Sound governance procedures with minimum agency cost enhance both the financial performance as well as sustainability performance of the corporate sector (Docekalova et al., 2015). Shan and Gong (2017), proved that ownership structure positively influences the long-run performance of the corporate sector in China, measured by ROA and ROE. Molnar et al. (2017), investigated the effect of CG on the performance of listed Chinese firms, for the period from 1999 to 2015, considering productivity as an important metric for firm performance. The findings proved that board independence, compensation mechanisms, institutional ownership, and ownership concentration boost the financial productivity of firms. They studied the effect of corporate governance elements on broad corporate sustainability disclosures: economic, environmental, and social disclosures on the top 100 firms listed on the Pakistan Stock Exchange for 2012-2015 (Mahmood et al., 2018). The study proved the significant contribution of corporate governance elements on corporate sustainability, in line with studies on emerging economies. The comprehensive examination proved the significant influence of governance practices on the performance of Chinese listed companies during 2001-2015, except CEO duality has an insignificant effect (Shao, 2019). Comprehensive governance practices include board size, board independence, ownership concentration, CEO-duality, supervisory board, managerial and state ownership, and performance was quantified by Tobin's q. They

attempted to determine the impact of the CG system on the performance of the corporate sector, focusing on both accounting and marketing performance measures for the listed companies of the National Stock Market of India during 2013-2018 (Kapil & Mishra, 2019). The study proved the significant positive effect of CG on corporate performance, measured by Tobin's q, ROA, ROE, and net operating income. It is identified that CG has a greater impact on market performance than accounting performance. A well-structured CGM significantly contributes towards the sustainable growth of the whole industry as well as the economy. The referenced studies 1) Shrivastava and Addas (2014), proved that the quality of a company's governance structure positively influences the sustainability performance, disclosure scores are applied for measuring sustainability, 2) Aslam et al. (2019), highlighted that different components of CGM effectively play its role in improving the sustainability performance of companies, measured by ROA, EPS, and Tobin's q. They also proved that effective governance improves the cash-holding capacity of firms. Vijayakumaran and Vijayakumaran (2019), applied agency theory and examined the interrelation between CG and financing structure decisions, considering listed enterprises in China during 2003-2010. The GMM statistics proved that firm leverage decisions are significantly influenced by shareholding practices instead of foreign ownership, board size, and independence. Soukhakian and Khodakaram (2019), documented that many firm-level factors, specifically CEO ownership, executive compensation, and board composition significantly influence the working capital financing of the Iranian corporate sector. They proved the significant positive effect of governance practices on the sustainable growth of the corporate sector in India, by incorporating financial leverage as a control variable, supported by agency theory (Mukherjee & Sen, 2019). The research sample consisted of 139 companies listed on the National Stock Exchange ranging between 2012 and 2016. Corporate governance was measured by a set of six variables: board size, women directors, CEO Duality, board member's education, board independence, and board-family affiliation and sustainability growth rate were used to measure corporate sustainability. Rahman et al. (2019), proved the significant positive moderating influence of ownership concentration on the relation between WCM and corporate performance of listed textile companies in Pakistan for the tenure ranging between 2011 and 2015 by applying regression statistics on ROA regressand. Puni and Anlesinya (2020), proved that the presence of good CGMs favorably influences the financial performance of the corporate sector in Ghana during 2006-2018, supported by agency theory. The financial performance was

extensively evaluated by accounting-based metrics (ROA, ROE, and EPS) and market-based performance measures (Tobin's q). They identified governance mechanisms as an important component for improving corporate sustainability (Aksoy et al., 2020). They determined the antecedents of an organization's sustainability in Turkey. The study proved board attributes and ownership structures of nonfinancial firms, significantly influence sustainability performance, the corporate governance index is created based on board attributes and ownership structure, and sustainable performance is measured by binary variables. Agency theory supported that board attributes considers crafting and execution of sustainability strategy and ownership structure supports the board of directors' appointment and drafting procedures for sustainability activities.

Extensive number of literature studies e.g (Nodeh et al. 2016; Ibrahim & Shuaibu 2016; Munisi & Randoy 2013), have studied the CGM-performance relationship, very few studies have discussed the moderation effect of CGM on the financing structure-performance relationship (Ngatno et al., 2021). Agency theory, M&M theory, trade off theory and pecking order theory is applied for choosing optional combination of internal and external finances through effective management-shareholder cooperation contract with low information asymmetry and agency cost, positively influences firm performance. They proved that both financing structure and governance structure had a significant influence on the performance of firms from 2001 to 2008, listed on the Tehran Stock Exchange (Jabbary et al., 2013). The referenced studies proved the consistent results proved by agency theory: reduces agency conflicts between debtholders, shareholders and managers and make optimal financing decisions that influences firm value, such as (Adomako et al. 2016; Okiro et al. 2015). Javaid and Saboor (2015), proved the significant positive causal interdependence between the Corporate Governance Index (CGI) and organization performance for listed manufacturing companies of PSX for the period ranging between 2009 and 2013. The finding revealed that firms with effective governance mechanisms have more access to financing alternatives, which resultantly increases the financial performance as well as ensures sustainable growth, measured by ROA, ROE, and Tobin's q, supported by agency theory. Javeed et al. (2017), explored the intervention effect of various CG measures on the highly discussed financing structure-performance relationship. The focused CGM includes board size and independence, shareholding concentration, and CEO duality. Panel data were collected from 155 non-finance listed firms in KSE for 2008-2012. The statistics revealed a significant positive intervening role of CGM between leverage and firm market value, measured by Tobin's q, in line with agency

theory logic. They investigated the interaction effect of governance procedures on the relation between financing structure and accounting based-financial performance of listed manufacturing sector in KSE in Pakistan during 2009-2014 (Iqbal & Javed, 2017). The results revealed a significant positive moderation effect, identified that listed manufacturing companies pursue optimized GM and capital mix which positively resulted in better financial performance, based on ROA and ROE, supported by agency theory. Ahmed et al. (2018), examined the influential role of CG and capital structure on the corporate sector performance of listed companies on PSX for ten years from 2006-2016. The study focused on two major sectors: the automobile sector and the fertilizer industry and proved that both governance procedures and capital structure are important for financial performance, specifically after the giant economic collapse worldwide and the worst financial crisis.

Arora and Bodhanwala (2018), proved the significant effect of CGI on corporate performance with the reduction in financing cost. CGI is comprised of the following parameters: ownership structure, market competition, and corporate control market and board structure. They scrutinized the association between governance practices, finance structure, and financial performance of cement companies listed on PSX over the period from 2005-2014 (Ullah et al., 2019). The findings indicated a significant influential impact of governance mechanisms on capital structure-performance, measured by ROA and ROE. The study proved both governance practices and finance structure influence the cement sector performance. The study focused on governance practices from the code of CG Pakistan (2002). Das et al. (2020), evaluated the impact of corporate governance mechanism as a firm's strategic plan on the corporate financing decision of top listed Indian manufacturing firms for 2008-2017. The study proved the positive interdependence between corporate governance components and the financing decisions of firms, considering debt ratios. The study examined that the presence of CGM and optimal capital structure influences both market-based (stock returns) and accounting-based (ROA) performance of the corporate sector listed in the KSE-100 of PSX during the period 2013 to 2017 (PeiZhi & Ramzan, 2020). The regression statistics proved that both financing structure and governance mechanism positively influence the performance of the corporate sector in Pakistan. They further identified that governance mechanisms consisting of diverse experienced members and highly leveraged financing structures are keys to improving performance, in line with the agency theory. The study proved that board independence positively moderates the existing negative debt

financing-performance relationship for an emerging economy i-e 300 listed Vietnam companies over the period from 2013-2017, with performance measured by ROA and ROE (Pham & Nguyen, 2020).

Tanko et al. (2021), proved the significant positive moderation effect of the financial literacy of the Board on the interrelation between financing structure and business sector performance of listed non-finance Nigerian companies. Agency theory supported the claim that financially literate board members make optimal financing decisions for better corporate performance. They explored the ways that which the quality of governance mechanism affects the financial leverage of listed nonfinancial Chinese firms for the period 2008-2018 (Ngatno et al., 2021). For corporate performance, the study highlighted that during the economic recession, financial leverage negatively affects the firm's performance, which could be neutralized by applying good quality corporate governance mechanism, supported by pecking order theory, trade off theory, M&M theorem and agency theory. The study contributed to capital structure theories by supporting the moderation effect of governance mechanisms on the influential relation between financing structure and corporate financial performance of Sub-Saharan African states for 2010-2020 through GMM estimation (Bawuah, 2024). Lyu and Chen (2022), proved that an effective radical corporate strategy will positively moderate the founder's choice of financing decision that resultantly enhances the corporate performance. They determined the interrelatedness and interconnectedness between governance mechanisms, financing structure, and firm performance of both nonfinancial and financial firms listed on the Mauritius Stock Exchange for the period ranging between 2009 and 2019 (Ronoowah & Seetanah, 2023a). With a theoretical contribution to capital structure theories, the study applied Panel Vector Auto Regression (VAR) statistics and proved a significant positive bidirectional interrelation between CG, financing structure, and firm performance. They examined the interactive effect of financing decisions and firm ownership structure on environmental sustainability, measured by green accounting disclosure (GAD), through random effect and fixed effect estimation procedures (Chang et al., 2024). The findings contributed pecking order theory with negative debt financing-GAD association and positive equity financing-GAD relationship. Additionally, ownership structure increases accountability and transparency, positively influences GAD, aligned with agency theory. Abid et al. (2024), reported the positive interaction effect of robust governance

systems on financial leverage and financial performance of Pakistan personal care and food products industry for 2016-2023.

### 2.3.9 Control Variables

Control variables have an indirect influence on the dependent variable. Based on the extensive literature, the current study incorporated three firm-specific control variables: firm size, asset tangibility, and total asset turnover for determining the impact on firm performance, in line with evidenced studies: (Li 2020; Rashid & Jabeen 2018; Arora & Bodhanwala 2018; Admassu 2016; Pouraghajan et al. 2012; Muritala 2012; Agiomirgianakis et al. 2002). He investigated the factors affecting the firm performance and identified that firm size, leverage, asset tangibility, growth, and age most significantly influence the firm performance (Lazar, 2016). Martis (2013), applied firm size, asset tangibility, and total asset turnover as control variables and proved their significant effect while evaluating the financing structure-performance relationship. The referenced studies: (Abughniem et al. 2020; Chakrabarti & Chakrabarti 2019), proved firm size. Total asset turnover is an important evaluator of the financing structure-performance relation. Bilgin and Dinc (2019), proved positive influence of asset tangibility and firm size on factoring financing-performance effects.

#### 2.3.9.1 Firm Size

The firm size highlights the firm's economies of scale (Eze & Ekokeme, 2020). Vijayakumaran (2017), documented that larger-size firms benefit more from economies of scale with substantial competencies in enterprise human capital resourcing and operational activities that favorably contributes towards the firm performance. Titman and Wessels (1988), argued that larger firms are more tolerant of bankruptcy risk due to diversified product offerings and demographics, which increases their access to both internal and external financing alternatives. Marsh (1982), identified that larger firms are anticipated to have a higher debt proportion than smaller firms. Smaller firms experience greater financial constraints than larger-size firms (Kaushik & Chauhan, 2019). They highlighted the significant size premium for more than 5000 US companies during the period ranging between 1927 and 1987 (Fama & French, 1992). They documented premium size for smaller-scale firms as related to lower product quality, less spending on research, lower resource funding, non-availability of qualified management, and less concern for employee training and

development, indicating high riskiness for these firms. All these factors lead to declining performance effects. Evidenced Studies proved that the size of a firm is favorably related to its profitability of a firm, such as (Li 2020; Khan 2012; Cheng & Tzeng 2011; Onaolapo & Kajola, 2010; Zeitun 2009). Lazar (2016), identified firm size as the most considerable determinant that positively influences firm performance. The highlighted cause may be better access to financial markets and the advantages of economies of scale. Large-size firms comparatively have more diversification, resources, and capabilities than smaller firms. Dienes et al. (2016), documented firm size as one of the most prominent control variables for sustainability studies. Large firm size followed by a decrease in accounting performance and an increase in market-based performance (Abdullah & Tursoy, 2021). Large-size firms tend to become more stable and are more experience with comparatively prolonged financial history which can affect capital structure-sustainability relationships (Lindkvist & Saric, 2020). Larger firms can leverage their market power, which positively influences profitability (Muritala, 2012). Pervan and Visic (2012), also proved the negative firm size-performance relationship, while considering agency conflicts, because larger size firms are generally managed by the top management who are self-concerned rather than firm-oriented with the primary focus on meeting the utility maximization goal and then value/profit maximization goal. The presence of corporate bureaucracy structures in larger-scale firms also resulted in negative firm performance relationships.

#### 2.3.9.2 Asset Tangibility

Wambua (2019), conceptualized asset tangibility as the proportion of a firm's fixed assets over total assets. Tangibility includes the property, plant, and equipment i-e real estate and buildings. He stated that it is hard to propose a relationship hypothesis for asset tangibility and firm performance because of no clear theoretical support to predict the relation (Lazar, 2016). Furthermore, he argued that firms with more tangibility experience less cost for financial distress because firms can use it as collateral for external debt financing. They identified that fixed assets are an important source for collaterals with a significant reduction in associated debt agency cost, resulting in improved financial performance (Rajan & Zingales, 1995). The referenced studies e.g., (Nguyen & Nguyen 2020; Vithessonthi & Tongurai 2015), applied tangible assets as a control variable and proved the positive effect on the firm performance. The unique feature of tangible assets is their use as collateral in an enterprise's borrowing (Lei et al., 2018). Tangibility

significantly increases the chances for a firm's external financing with low information asymmetry (Liberti & Sturgess, 2018), hence increasing financial sustainability. Samour and Hassan (2016), proved that firm size and tangibility as a control variable significantly influence the firm performance, specifically during the crisis period. Wambua (2019), described that fixed assets have higher economic value in comparison to intangible assets and are usually employed as collateral and guarantee by a firm's creditors for fulfilling the external financing requirements. These external finances on efficient utilization might result in enhanced company performance. Previous empirical literature also highlighted the negative relationship between asset tangibility and corporate performance, e.g., (Nazir et al. 2021; Ullah et al. 2017; Srivastava 2017; Zeitun & Saleh 2015). The highlighted possible reason might be the dominance of firms' total assets over tangible assets. For increasing the proportion of tangible assets, management takes on more debt to finance long-run assets, which negatively affects the firm profitability.

#### 2.3.9.3 Total Asset Turnover

Asset turnover is asset rotation (Brigham & Houston, 2006). It is the ratio that highlights the sales volume generated by an effective asset turnover. Bashir et al. (2013), highlighted the asset turnover ratio as the measure of the company's ability and the effective utilization of the assets for generating sales. Hence, it is an indication of the manager's effective utilization of assets for the generation of the dollar sales. Sitanggang (2013), conceptualized TAT as the ratio applied for measuring the extent to which operational utilization of all the company assets supports the company sales. Asset turnover ratio measures the efficiency of a firm's management in asset utilization and yielding positive returns (Muritala, 2012). He highlighted it as an important financial ratio, used for the measurement of management efficiency, and proved the controlled positive effect of asset turnover, firm size, and asset tangibility on the firm performance. Wu et al (2010), empirically analyzed the factors influencing the performance of listed agricultural companies and proved that total asset turnover positively influences the company's accounting-based performance. They determined the total asset utilization effects of a business enterprise and the findings proved that efficient asset utilization resulted in improved operational efficiency of a firm (Ding & Sha, 2011). The study classified total asset turnover into short-run and long-run asset turnover and identified low turnover value indicates incomplete exploitation of a company's assets or ineffective available resource utilization with a significant decline in firm performance (Gupta et al., 2011). Abdullah et al. (2011), revealed findings that the higher growth rate firms and larger

scale firms and the firms with comparatively higher sales turnover ratio were expected to be more profitable and sustaining than smaller-scale firms. Ross et al. (2014), theoretically proved that the high value of the total asset turnover in part represents some prospective developments of an organization with expansion in market share, and an increase in its sales, which resultantly contributes towards improving the financial performance. The evidenced studies e.g., Abughniem et al. (2020); Murtadlo et al. (2014); Sitanggang (2013), proved that TAT positively influences financing structure-firm profitability. The positive relation of TAT indicated the efficient utilization of the firm's assets, resulting in increased profits (Efendi et al., 2019).

## 2.4 Research Gaps

The research gaps comprised theoretical research gaps, empirical research gaps, methodological research gaps, and contextual research gaps. Each research gap provides a detailed explanation of where existing studies fall short of addressing the study's core themes.

### 2.4.1 Theoretical Research Gaps

Theoretical gap is the gap consisting of conflicts in the existing theory (Hatcher & Rocco 2011; Miles 2017). Simply the absence of a theory indicates the gap's existence. Theoretical gaps are the most commonly occurring gaps while considering prior research phenomena (Bloch & Kranz, 2015).

1. Capital structure theories focused to determine the influence of a firm's financing structure on the firm's value. Most of the studies explained capital structure as a combination of debt and equity financing sources and their contribution to influencing the firm's value. Very few studies incorporated supply chain financing and shadow bank financing as a part of a firm's capital structure and applied capital structure theories for determining corporate performance effects e.g., (Ibrahim et al. 2021; Zhou & Tewari 2019; Vliet 2015). The referenced studies proved both shadow banking and supply chain financing as an alternative financing source to the traditional sources with profitability enhancement at relatively low cost. The elaboration of these alternative financing sources is comparatively less reviewed in the literature.
2. The existing studies applied firm performance to elaborate financing alternatives and performance impacts, such as (Bawuah, 2024), (Agembe, 2024), (Abid et al., 2024) , (Anozie et al., 2023), (Ronoowah & Seetanah, 2023a), (Affes & Jarboui, 2023), (Zelalem et al., 2022),

(Oganda et al., 2022), (Shaik, 2021), (Ngatno et al., 2021), (Tanko et al., 2021), (Owolabi et al., 2021). Addition of sustainable performance with the financial performance provide a more holistic view of businesses' overall performance. Limited literature indicated the incorporation of multidimensional performance measurements for evaluating the capital structure-performance relationship, referenced as (Quader 2013; Docekalova et al. 2015; Zhang & Chen 2017; Neville & Lucey 2017; Okolo et al. 2019; Li 2020; Xu & Guo 2021; Farooq et al 2021; Yu et al. 2022).

### 2.4.2 Empirical Research Gaps

An empirical research gap deals with the shortcomings in the existing research. It considers the conflicts in the research conclusions or propositions that need evaluation or empirical verification (Bloch & Kranz, 2015). The empirical gaps provide insights into the new research ideas, modifications in the existing research schemes, or diversions from the existing research findings. The present study highlights the following empirical research gaps:

1. Over the last five decades, extensive research studies have been conducted by scholars for determining the optimal combination of financing alternatives to enhance the firm's performance. From the gathered literature it is identified that previous studies mostly considered the investigation of the impact of financing decisions on the firm's performance with limited measures of debt and equity financing and firm financial performance. The past literature proved inaccurate, inconclusive, and multi-dimensional results i-e positive, negative, and mixed relations for both debt financing-performance (Nazir et al., 2021), and equity financing-performance effects (Githire & Muturi, 2015). This motivates the researchers the determination of logical findings for the debatable issue. Alternative financing sources to the traditional capital structure have emerged such as shadow banking (Adrian & Ashcraft, 2016) and supply chain financing (Tomusange, 2015).
2. A limited number of studies considered the impact of the shadow banking-performance relationship (Prudhvi & Bhattacharya 2020; Han et al. 2019), as well as the supply chain financing-performance relation (Nguema et al. 2022; Wuttke et al., 2013). The consequences are inconclusive and considered a gap for further empirical and theoretical relationship investigation. To the best of the author's knowledge of existing literature, there is little or no study that determines the contribution of shadow bank financing in improving the sustainable

performance of the corporate sector Prudhvi and Bhattacharya (2020), specifically focusing on GRI sustainability. Very few studies focused on determining the supply chain financing solutions-sustainable performance relationship, e.g., (Lu et al., 2019)

3. Extensive research has been conducted by considering supply chain financing as a financing tool for small and medium enterprises e.g., (Lu et al. 2019; Ali et al. 2019a; Lekkakos & Serrano 2016). Previous studies also proved supply chain financing as an optimized lending option for banks and related suppliers e.g., (Juhasz & Szucs 2022; Beyer & Herzog 2021; Song et al. 2018). Very few studies highlighted its importance from the borrowing perspective, specifically for nonfinancial firms, by applying buyer-driven financing solutions (Bui 2020; Huang et al. 2019; Johnson & Templar 2011).
4. Most of the studies highlighted the capital structure-performance relationship during the financial crisis of 2008-2009 (Muchtar et al., 2019); (Samour & Hassan, 2016). Only a handful of studies considered macroeconomic fundamentals i-e inflation, GDP, and unemployment, in the context of capital structure and sustainable performance. Olokoyo et al. (2020), referenced that macroeconomic fundamentals significantly influence the performance of capital markets, but the area remained unclear and comparatively underexplored among emergent and developing markets. Hosseini et al. (2011), identified that capital market responses to macroeconomic factors remained a highly unexplored area.
5. The literature studies focused financial constraint hypothesis from the investment perspective i-e investment policy and investment decisions and choices, e.g., (Serrasqueiro et al. 2016; Chowdhury et al. 2016; Ahmad & Hashmi 2014; Chen & Wang 2012). These studies proved the negative financial constraints-performance relationship. On the contrary, very few studies highlighted the relationship between financing constraints and firm performance from a financing perspective, e.g., (Quader 2013; Almeida et al. 2004). These results revealed that finance constraints positively influence corporate performance. The mixed results indicated inconclusive literature, considerable for future study.
6. Most of the existing studies have examined the influential relationship between governance practices and corporate financial performance. The governance procedures-firm performance relationship is a major area in accounting research (Kapil & Mishra, 2019). Although the findings from prior studies indicated mixed evidence of both positive relationship effects, e.g., (Kapil & Mishra 2019; Pillai & Malkawi 2018; Molnar et al. 2017), negative relationship

effects (Dang et al., 2018) and neutral effects (Young, 2003). Munir et al. (2019), mentioned that the possible reasons for inconclusive and inconsistent results may be contextual differences, variations in the use of variables and applied metrics, or differences in applied methodologies.

7. The contribution of corporate governance mechanisms for achieving different aspects of corporate sustainability standards is a relatively unexplored area of study, and corporate sustainability is a major concern of corporations in a modern paradigm (Mahmood et al., 2018). Aras and Crowther (2016), argued that the existing research on governance mechanisms has ignored the influential relationship between governance mechanisms and corporate sustainable performance. Very few studies have determined CG and corporate sustainable performance relationship, such as (Aslam et al. 2019; Mukherjee & Sen 2019). Munir et al. (2019), highlighted that the inconclusive results from the prior studies may result from the negligence and ignorance of corporate sustainable performance mechanisms. The gap is to develop a robust conceptual framework for determining relationships.
8. The existing studies were based on the direct causal relationship of stagflations, financial constraints, and governance mechanisms with financial performance, such as (Yao et al. 2022; Egbunike & Okerekeoti 2018; Ahmed et al. 2018). The interaction effects of stagflations, financial constraints, and governance mechanisms were identified as emerging areas of interest, specifically in the context of financial structure-performance relationships.

### 2.4.3 Methodological Research Gaps

A methodological research gap refers to the conflict in the methodology applied in existing research. The gaps consisted of diversions and modifications in the existing research methods. Gaps in the methodology need to be addressed if the existing research focuses on the repetition of common methods (Miles, 2017). He identified that the utilization of different research methods plays an important role in the avoidance of distorted methodological findings or the generation of new insights (Bloch & Kranz, 2015).

1. The existing studies applied panel regression models for determining the direct effect of stagflations, financial constraints, and governance mechanisms on firm financial performance, such as (Almeida et al 2004; Quader 2013; Samour & Hassan 2016; Molnar et al. 2017; Pillai & Malkawi 2018; Muchtar et al. 2019; Kapil & Mishra 2019). The implication of panel

regression models is least explored regarding the interaction effect of stagflations, financial constraints, and governance mechanisms on the relationship between financing alternatives and sustainable performance. The referenced studies applied varying methodologies but reported inconclusive and inconsistent results, such as (Quader 2013; Khodavandloo et al. 2017; Javeed et al. 2017; Zhang and Liu 2017; Rashid and Jabeen 2018; Soukhakian & Khodakarami, 2019; Hussain et al. 2021; Supriyanto et al. 2023; Ronoowah & Seetanah, 2023a; Chang et al. 2024).

2. A scarcity of empirical studies on corporate sustainable performance focused on GRI Sustainability Standards. The studies conducted were mostly descriptive (Laskar et al., 2017), and focused on the quality of sustainability disclosures (Oncioiu et al., 2020). The implication of GRI sustainability as a performance metric is lagging among emerging countries. Lopez et al. (2016), highlighted that measurement discrepancies and diverseness of sustainable performance metrics, and un-explained performance measurement methodologies (Talbot & Boiral, 2018), have created inconclusive confusion and complexity among academicians and practitioners for corporate sustainability assessment and its reporting.
3. From the literature, it has been identified that many studies considered comprehensive governance mechanisms for determining performance effects. A limited number of studies considered the construction of a specific factor or single metric framework i-e governance mechanisms index for determining the performance effects e.g., (Mehmood et al. 2020; Arora & Bodhanwala 2018; Iqbal & Javed 2017). Mehmood et al. (2020), highlighted that there is still an insufficiency while considering the contribution of governance indices to corporate performance. For the construction of CGI, studies considered both survey methods e.g., Ertugrul and Hegde (2009), parametric analysis based on an equal-weighted approach (Arora & Bodhanwala, 2018), and non-parametric analysis (Tarchouna et al., 2017). The mixed methods resulted in inconclusive and inconsistent findings.

### 2.4.4 Contextual Research Gaps

He defined context-based research gap as the overlooked knowledge gap on the measurement method and the contextual definition applied to describe a variable as per the prevailing context (Miles, 2017). The contextual gap includes the following: physical location i-e worldwide, regional, domestic, and nature of the firms or industry under investigation. The contextual gaps of the study include:

1. The gathered literature shows that extensive research had been conducted by scholars to determine the effect of financing structure on the performance effects of organizations that are associated with different industrial sectors across different countries. Scholars have found differences in results with different contextual studies. It is identified that the previous studies have a narrow scope, based upon a limited sample with specific nature of industrial firms in a particular country e.g. Zhang and Chen (2017), focused listed EPAs in China, Khanam et al. (2014), studied the food sector of Pakistan, (Mathur et al. 2021; Rao & Madhav 2015), listed pharmaceutical firms in India, Salehi and Arianpoor (2021), focused listed businesses in Iran. The findings from limited contextual incorporations lead to generalizability problems for studies. There is a consistency of new research with different contexts to provide a more comprehensive understanding of the dynamics of the interplay between the financing sources and organizations' performance (Onel & Gansuwan, 2012).
2. Academicians were deeply engaged to determine the influential relationship effects of sustainable performance (Diez, 2021). The determination of sustainable performance effects has not received equal attention in all contexts, this gap develops the interest of scholars in research. There is a need to explore various dimensions of sustainable performance for comprehensive empirical analysis across different sectors.
3. Studies on sustainable performance effects of companies are found to be few in comparison to firm accounting-based and market-based financial performance and most of them had focused on economically advanced countries. The preponderant focus of existing studies on corporate sustainability performance lies within developed economies (Phan et al., 2020), such as the USA, Canada, and Europe (Beelde & Tuybens, 2015); (Lourenco & Branco, 2013); (Ameer & Othman, 2012). Kuzey and Uyar (2017), highlighted that the realm of sustainable performance effects remained underscored in the context of emerging economies. Only a few studies consider emergent countries e.g., firm sustainable performance effects in Indonesia (Wang et al., 2021), the sustainable performance of listed Turkish firms (Aksoy et al., 2020). Business enterprises working in economically weak or emergent economies, play an important role in the achievement of sustainable development goals which increases the demand as well as the attention of scholars toward research context (Correa & Larrinaga, 2015). The existing studies considered corporate sustainability approaches i-e social, economic, and environmental, for advanced countries rather than emergent nations (Bae et al. 2018; Masud et al. 2018).

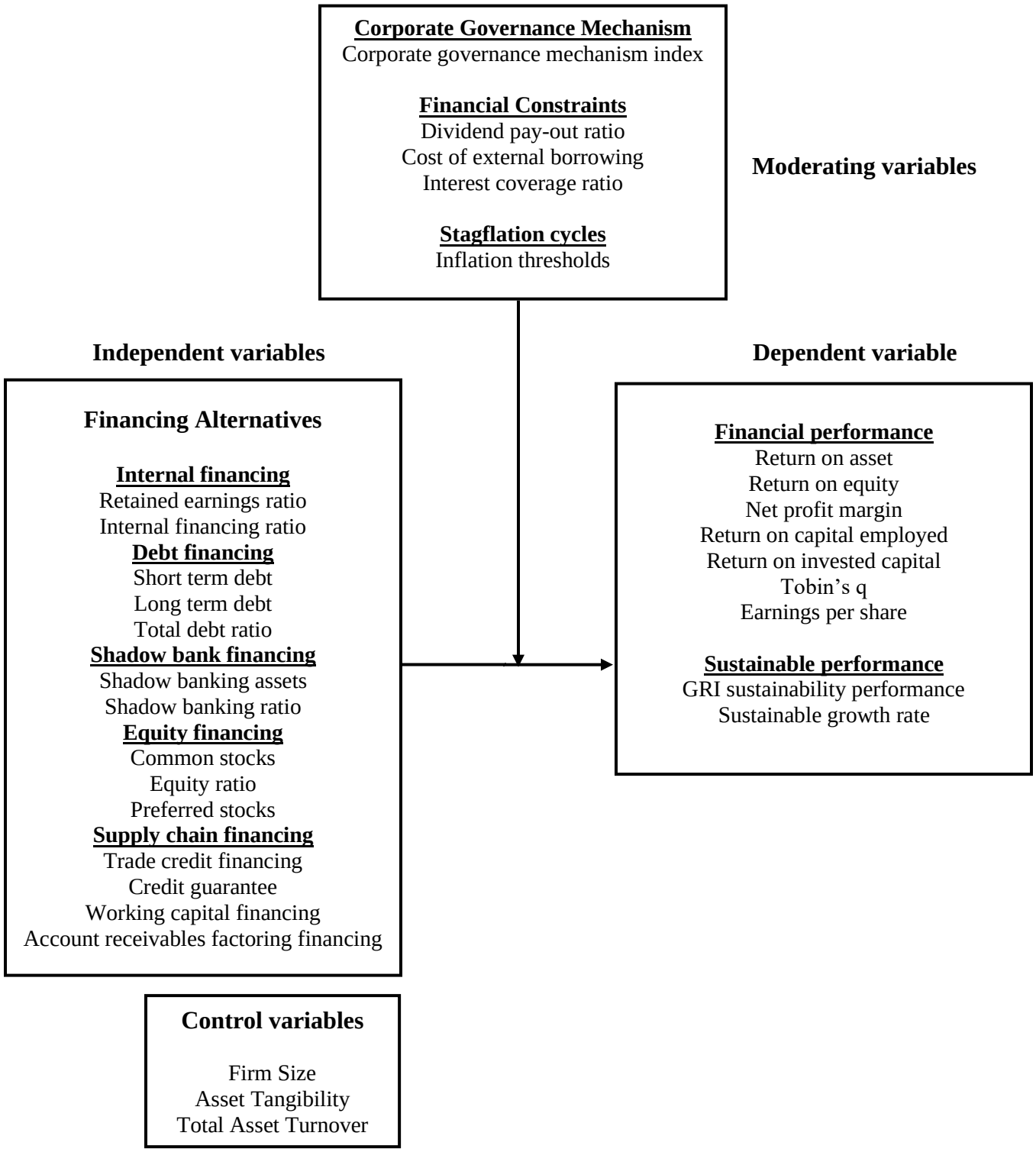
Excessive exploitability and vulnerability are prevailing in underdeveloped nations (Belal & Owen, 2015), and this also increased the importance of corporate sustainability approaches as a research area, specifically for underdeveloped economies. The existing gap has an opportunity for understanding, knowledge improvement, and contribution to literature.

4. A scarcity of empirical studies on corporate sustainability performance were conducted on Asian developing economies like India and Japan. Existing studies considering emergent Asian countries e.g., Salehi and Arianpoor (2021), sustainable performance of Iranian businesses, Huang et al. (2019), sustainability growth of the Chinese corporate sector, Chechet and Olayiwola (2014), determined the financing structure and sustainability performance relationship. However, the conclusions are inconclusive and considered a gap for determining further empirical and theoretical relationships.
5. The literature identified that there has been a consistent expansion of shadow banking and supply chain financing sources among emergent economies, but limited studies considered their performance effects, specifically in developing economies. The shadow banking industry occupied the third rank in 2014 among developing Asian economies (Spring, 2014). Adrian and Ashcraft (2016), documented that the studies focused on determining the relationship between shadow bank financing and corporate economic performance is still in the early stage of development both in developed markets and emerging economies, considerable reason for the contextual gap may be the non-availability of data metrics for measuring shadow financial services globally. Pan et al. (2022), argued that supply chain financing has the potential to be applied in emerging economies with positive economic growth and is still generally at the early stages of its development in emerging economies (Abbasi et al., 2018).
6. The literature proved financial constraints as an important determinant of an organization's financial performance as well as long-run sustainable performance, concerning the choice of financing alternatives. Most of the referenced studies focused financial constraint hypothesis in developed countries, such as (Serrasqueiro et al. 2016; Chowdhury et al. 2016). Very few have explored it in developing economies like Ergun & Doruk (2020), financial constraints and firm growth in Turkey, specifically in emergent Asian countries like (Guariglia & Yang, 2016), financial constraints, and the Chinese listed sector.

## 2.5 Conceptual Framework

To roadmap the impact of financing alternatives on financial performance and sustainable performance with the moderation effect of stagflation cycles, financial constraints, and corporate governance mechanisms, the conceptual framework of the study is developed. Figure 2.5 shows the theoretical framework of the study, based upon two main dependent variables: financial performance and sustainable performance, which are further classified into nine dependent variables based on their measurements including return on assets, return on equity, net profit margin, return on capital employed, return on invested capital, Tobin's q, earnings per share, GRI sustainability and sustainable growth rate. There are five independent variables applied for determining the effect of financing alternatives namely: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing. The study explored three moderating variables including stagflation cycles, financial constraints, and corporate governance mechanisms. There are three control variables: firm size, asset tangibility, and total asset turnover. The developed theoretical model in figure 2.5 shows the relationships between dependent variables, independent variables, control variables, and moderating variables, supported by capital structure theories.

**Figure 2.5:** *Conceptual Model of the Study*



## 2.6 Hypothesis Development

$H_1$: There is a significant impact of financing alternatives on the financial performance of nonfinancial companies in the SCO member states.

$H_2$: There is a significant impact of financing alternatives on the sustainable performance of nonfinancial companies in the SCO member states.

$H_3$: The stagflation cycles moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_4$: The stagflation cycles moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

$H_5$: The financial constraints moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_6$: The financial constraints moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

$H_7$: The corporate governance mechanism moderates the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_8$: The corporate governance mechanism moderates the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

# CHAPTER 3

# DATA AND RESEARCH METHODOLOGY

Chapter 3 exhibits the interconnectedness of data and methodology in producing valid and reliable results. Comprehensive research methodology is applied for achieving the capital structure-sustainable performance impact objectives, considering the moderation effects of comparative patterns of stagflation and non-stagflation cycles, financial constraints, and corporate governance mechanisms. The chapter is divided into four different sections, the first section describes the sample size, the sample selection procedure applied, and the sources of data collection. The second section describes the study variables. The third section highlighted the empirical models for statistical testing. The final section consisted of the illustration of the estimation techniques applied.

## 3.1 Sample Selection

### 3.1.1 The Shanghai Cooperation Organization (SCO)

The Shanghai Cooperation Organization was founded on June 15, 2001, in Shanghai, as an intergovernmental multilateral association (Khan & Jamali, 2021). The organization emerged to maintain security and ensure stability all around the wide Eurasian Continent. The SCO presently comprised eight resource-rich member countries: China, India, Russia, Pakistan, Kyrgyzstan, Kazakhstan, Uzbekistan, and Tajikistan, four observer states: Iran, Afghanistan, Mongolia, and Belarus and six Dialogue Partners: Nepal. Armenia, Turkey, Sri Lanka, Cambodia, and Azerbaijan. Weitz (2014), documented SCO as Eurasia’s top influential multilateral and multinational organization. The SCO states constitute a land mass that covers over 60 percent of Eurasia and encompasses more than one-third of the global population. Integration of Central Asia's neighboring countries with the largest developing countries such as China and Russia have multiplied the profile of the institution. The SCO organization is a picture of the strong relationship between China and its neighborhood's emerging economies. The SCO consolidates four nuclear powers: Russia, Iran, India, and Pakistan, which constitute half of the global nuclear countries, into a unique regional institution (Alimov, 2017). China enters the Central Asian region through SCO, to dominate their markets and to meet their ever-increasing energy needs. The SCO emerged as a significant forum, playing multi-dimensional roles in maintaining economic, political security,

territorial integrity, and sovereignty in the states. Khalil (2021), described that the SCO member states include nations that share culture, common borders, ethnicity (150 ethnic groups), and historical common threads such as China Pakistan Economic Corridor (CPEC), electricity transmission line Central Asia and South Asia 1000 (CASA-1000), and Gas pipeline project i-e Turkmenistan, Afghanistan, Pakistan, India (TAPI), etc. (Rauf, 2019). The SCO provided a three-dimensional pathway for promoting economic cooperation with a special focus on channelizing trade, capital, services, free flow of goods, transportation, communication, and a network of energy sources (Khan & Jamali, 2021).

### 3.1.2 Pakistan and The SCO

Since 2015, the SCO came out as a global contributing actor. Pakistan joined the SCO as an observer state in 2005 and later in 2010 applied for permanent membership. In 2015, at a meeting held in Russia among heads of the member states, it was decided to grant Pakistan permanent membership in the SCO. In June 2017, the 16$^{th}$ Heads of the States Summit, held in Astana, Pakistan formally came to join the SCO as a permanent member (Khetran, 2019). The SCO membership is of great significance to Pakistan, as it significantly contributes to promoting regional and economic stability, trade and commerce, and anti-terrorism. The SCO provides a soft image for Pakistan to explore new markets and strengthen its trade relationships with European economies, which was the earliest recorded dream. The SCO opens the energy corridors for Pakistan through coordination with all resource-rich economies. The largest mega projects including Belt and Road Initiative (BRI), which is a huge project among 65 countries, aimed to establish a modern Silk Road including the Silk Road Economic Belt (SREB) and the Maritime Silk Road (MSR). The project connects China with Central Asia, Europe, and Africa. CPEC is the foundation that will provide China access to the Arabian Sea through Pakistan. Pakistan is among the largest beneficiaries of the BRI project and will get the largest infrastructural development because China is the neighboring country. Among SCO member states, Pakistan shares its geographical borders with four states: China, India, Iran, and Afghanistan. It enrooted crossroads connecting Western China, Central Asia, and South and West Asia. Pakistan has historical common threads with all the neighborhood SCO countries: CPEC with China in 2015 (Rauf, 2019), Iran Pakistan India (IPI Pipeline) Gas Pipeline project (2005) to solve energy shortage problems (Khalid & Khan, 2020), Gwadar port and Chabahar port Cooperation (2016) to facilitate

the export of mineral resources. Sikh Pilgrims in Pakistan, media, culture, cricket, literature, and ethnicity, all evidenced strong historical connections between India and Pakistan. Pakistan and India are considered soft powers. Pakistan's unique geography strengthens its relations with the neighboring countries.

### 3.1.3 Description of Sample Selection

For determining the relationship between financing alternatives and sustainable performance with the moderation impact of financial constraints, stagflation cycles, and governance mechanisms, the research considered probability simple random sampling in which every element selected from the population has a fair chance of being participated in the study sample (Taherdoost, 2016). The sample selection is narrowed down from country-level to industry-level. The country-level sample size is mapped out by applying the dual important selection schemes: Firstly, the study focused on the SCO member states, which are the listed members of the Global Reporting Initiative. Among SCO, Afghanistan, Uzbekistan, Tajikistan, Mongolia, Belarus, Nepal, Armenia, Sri Lanka, Cambodia, and Azerbaijan, are not listed as members of GRI (GRI, 2021). Among selected countries' firms, adoption of the GRI framework has been slower but is gaining traction, particularly among large firms and those with international exposure. Although the firms started adopting GRI reporting principles when they got GRI membership. China (since early 2000s), Pakistan, India and Iran (in 2013) (https://www.globalreporting.org/).

Secondly, the sample size is further narrowed by focusing on the SCO states, which belong to the same territorial context i-e developing Asian economies, documented by the Asian Development Bank Report 2023 (ADB, 2023) and (Rezaeinejad et al., 2023). The SCO member states are supportive of promoting economic development in Asian economies. Among leftover states, Russia and Kazakhstan are the developed economies. According to World Population Review (WPR), Country rankings based on Human Development Index 2020, Russia and Kazakhstan are developed countries. In considering the HDI score, equal to or above 0.80 are considered developed countries, and below 0.80 are considered developing countries. Russia has 0.824 and Kazakhstan has a 0.825 HDI score (WPR, 2020). The final sample consisted of four developing Asian SCO members: Pakistan, China, India, and Iran, which are unique having considerable characteristics: 1) The countries share common borders, 2) The countries share historical and cultural orientation, 3) All selected states experienced Stagflation cycles and

financial constraints and 4) Among all states, corporate sector considers capital structure as important for their sustainable performance.

The study identified stagflation episodes among the selected SCO member states through the formula of inflation thresholds, specifically considering macroeconomic volatility during the financial crisis of 2008-2009 and the Pandemic COVID-19 (2020). Pendery (2009), argued that the 2008 financial crisis was looked on to be the worst global economic debacle. The study period ranges between 2007 and 2020 to cover extreme stagflations and financial constraints because this brought the attention of the corporate sector towards the management of the right capital structure with a special focus on corporate financial stability (Samour & Hassan, 2016) and financial sustainability (Rashid & Jabeen, 2018).

The industry-level study sample covers the listed nonfinancial firms in Pakistan (Pakistan Stock Exchange (PSX)), India (Bombay Stock Exchange (S&P BSE SENSEX)), China (Shanghai Stock Exchange), and the Islamic Republic of Iran (Tehran Stock Exchange) during periods ranging from 2007-2020.

The study excluded financial firms from the analysis, because of differences in their capital structure decisions from nonfinancial firms such as insurance companies, banks, mutual funds, mudarabahs, exchange-traded funds, etc. Financial firms operate in different regulatory regimes, capital structures, and risk profiles, and consider distinct business models and accounting methods from industrial firms. Nonfinancial firms are preferred because the study applied GRI Sustainability Standards, which consisted of a framework of items, that might not apply to reporting of financial firms (Laskar et al., 2017). Nonfinancial firms will significantly provide a better understanding of the contribution of financing choices to firm performance with rational corporate governance practices (Chang et al., 2019). The selection of listed non-financial firms is followed by a desire to focus on firms with greater flexibility in their capital structure decisions, provide comprehensive, publicly available data, and are less affected by regulatory limitations.

Considering stock exchanges, listed nonfinancial companies of Pakistan, India, China, and Iran have been classified into many industrial sectors. Based on the criteria of the State Bank of Pakistan, this study merged many small industrial sectors with related businesses (Ahmed, 2018). The study is based upon industrial firms from 14 different sectors commonly found listed in

corresponding stock exchanges of selected SCO member states: Automotive industry, cement industry, chemical industry, Pharmaceutical and healthcare industry, sugar and allied industry, Refinery industry, transport, and tourism industry, Food and personal care products industry, cable and electrical goods industry, Metals, minerals and fertilizers industry, oil and gas industry, power generation and distribution, technology and communication, and textile industry. The study focused on industrial firms because they often face more stringent environmental regulations, enhanced stakeholder scrutiny, and greater sustainability issues than corporations in other sectors. The initially identified firms were aggregated to 1425 i-e China (539), Pakistan (285), India (322), and Iran (279). Considering the sampling strategy, the study included the firms listed throughout the entire period and excluded the firms with missing annual reports.

The current study focused to consider balanced panel data because it contains observations of the same elements (firms) in all time frames, resulting in the reduction of noise produced by unobserved heterogeneity (Hsiao, 2007). It also reduces the biases of attrition and self-selection (Baltagi & Pesaran, 2007). Although very few companies among the selected firms become defaulted and doubt the availability of their financial information, reported by annual reports of corresponding Stock Exchanges and for Pakistan it is also reported by the State Bank of Pakistan. This reduces the survivorship bias, a bias in sample selection where the data set only includes surviving observations and does not consider the sample elements that ceased to exist (Elston, 2021). Ahmed (2018), highlighted the characteristics of the defaulted firm, published by the State Bank of Pakistan in 2015, including:1) defaults in corporate credit payments, 2) Firms failure of dividend declaration for five years from the previous declaration, 3) firm's inability to pay the annual listing fee for consecutive two years, 4) firm's inability to conduct Annual General Meeting for three years consistently, 5) when the market value of firm shares is less than 30% of their face value for consecutive three years and 6) the firm is winded up by following the orders from Court.

The final sample aggregated to 1166 firms, i.e., China (485), Pakistan (217), India (248), and Iran (216). Table 3.1 in the appendix A shows the details of nonfinancial industrial firms from selected SCO countries. In Pakistan, the textile sector is the dominant sector with 75 companies, India has the maximum number of firms in the pharmaceutical sector, China has the comparatively greater number of firms in the automotive industry (56), chemical industry (46), Pharmaceutical and healthcare industry (54), Food and personal care products industry (50), Cable and electrical goods

industry (61), Metals, minerals, and fertilizers industry (46) and Technology and communication industry (47). The oil and gas industry are the leading sector in Iran. In China, there is only one company listed in the sugar industry i-e COFCO Sugar Holding Co. Ltd, the company has a larger market capitalization (3.038 billion USD) and the highest rank in the global market (5010), it can represent a whole sugar industry in China (Today, 2021). Hence, out of 1425 listed nonfinancial firms from different SCO States, 259 firms are not included in the final study sample.

The required financial data are collected from various sources including: Thomson Reuters (DataStream), Open Doors (https://opendoors.pk/annual-reports/), Trading View (source: https://www.tradingview.com/), The Wall Street Journal (https://www.wsj.com/market-data), EMIS (https://www.emis.com/), while the non-available data are collected individually from the yearly financial reports of the listed companies on the corresponding national stock exchanges of the selected SCO countries: Pakistan (https://www.psx.com.pk/), China (http://english.sse.com), Iran (https://tse.ir/en/). For Pakistan, the State Bank of Pakistan published financial reports entitled 'Financial statement analysis of non-finance companies are also used (source: https://www.sbp.org.pk/publications/index2.asp). The data for the construction of corporate governance mechanism index is also collected from multiple sources, Pakistan: Open Doors (https://opendoors.pk), India (annual reports of companies), China (annual reports of companies), Iran: EMIS (https://www.emis.com/) and annual reports of the companies. Reverso (https://documents.reverso.net/) is applied for translation of financial reports, specifically Iran. All the considered sources provide authentic and reliable information for the identified variables.

## 3.2 Description of Study Variables

### 3.2.1 Independent Variables

#### 3.2.1.1 Financing Alternatives (FA)

The study includes five financing alternatives including Internal financing, Debt financing, shadow bank financing, equity financing, and supply chain financing, identified from the wide literature sources, based upon capital structure theories.

##### 3.2.1.1.1 Internal Financing

Internal financing pertains to the use of a firm's retained earnings or assets as a capitalization source to finance ongoing growth and expansion (Nguyen & Rugman, 2015). Retained earnings

are the best internal financing tools and have a favorable influence on the firm's performance. Managers always prefer internal financing for increasing their investment efficiency (He et al., 2019). Managers believe that firm value can be increased for outside investors by keeping the cash inside and using the internally generated funds. They employed retained earnings ratio to total assets as a proxy for internal financing. Table 3.2.1 shows the two measures of internal financing applied by the study: retained earnings ratio and internal financing ratio: ratio between the sum of retained earnings and depreciation to total assets. Paramasivan (2015), highlighted that internal financing has two classifications i-e depreciation funds and retained earnings. Existing literature, such as Myers (2001), Li (2020), and Harvey (2012), conceptualized internal financing as funds generated through depreciation and retained earnings. Depreciation is a non-cash expense that a company incurs when writing off the usage value of an asset over the interval of time (Tuovila, 2020).

**Table 3.2.1:** *Measurement Variables of Internal Financing*

| **Internal Financing (IF)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| i. Retained earnings ratio (RER) | The ratio of retained earnings to total assets. | (He et al., 2019); (Li, 2020) |
| ii. Internal financing ratio (IFR) | Retained earnings + depreciation / total assets | |

### 3.2.1.1.2 Debt Financing

Cheong (2015), conceptualized debt financing as funding through external loans, obtained from banks, financial institutions, and other companies for supporting ongoing business operations. The loan principal amount will be paid back with interest expenses before the loan maturity period. The proxy variable used to measure the impact of debt finances on firm performance includes short-run debts, long-term loans, and total debt ratio, presented in table 3.2.2. These ratios are considered as the robust combination of debt financing structure (Jones & Edwin, 2019). Debt structure based upon these ratios plays a role in the estimation of independent effects of all debt

components because of differences in their return and risk profiles (Ahmad et al., 2012). The debt structure can be a viable metric for evaluating financial leverage, notably for developing countries (Lucey & Zhang, 2011). These ratios are considered an effective measure of the debt financing structure of a firm.

**Table 3.2.2:** *Measurement Variables of Debt Financing*

| **Debt financing (DF)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Short-term debt (STD) | Short-term loans/total assets | (Jones & Edwin, 2019) |
| Long-term debt (LTD) | Long-term loans/total assets | |
| Total debt ratio (TD) | Total debt/total assets | |

#### 3.2.1.1.3 Shadow Bank Financing

Shadow Banking is comprised of entities and activities beyond the regular commercial banking system (FSB, 2011a). Zhou and Tewari (2019), highlighted the sources of shadow bank financing: repurchase agreements (Repos), commercial paper, collateralized debt obligations, non-bank financial institutions, securitization, money market funds (MMFs), broker-dealers, and hedge funds. They measured shadow banking assets of nonfinancial firms through entrusted loans i-e liabilities against assets. Yang and Shen (2022), measured shadow banking of nonfinancial enterprises as the ratio of shadow banking assets to total assets, shadow banking assets comprised of entrusted finance, private lending, and entrusted loans. They reported in Irving Fisher Committee (IFC) Bulletin no. 36, that the proportion of shadow banking as compared to traditional bank financing is small in Asian economies (Amar, 2017). The studies also employed shadow banking assets dummies as proxy variables, e.g., (Bai et al., 2020), Dummy is 1, if a company engages in entrusted loan activities and 0 otherwise. The Shadow bank financing could be proxied by ‘other receivables” (Yang & Shen, 2022). Due to the non-availability of data for other financial measures, the study considers shadow banking assets dummy and shadow banking assets ratio to total assets of the firm, mentioned in Table 3.2.3.

**Table 3.2.3:** *Measurement Variables of Shadow Bank Financing*

| Shadow Bank Financing (SBF) | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Shadow bank financing<br>1. Shadow banking assets (SBA)<br>2. Shadow banking ratio (SBR) | 1. dummy variable that equals 1 if a firm used shadow bank banking assets, and 0 otherwise.<br>2. The ratio between shadow bank assets and total assets of the firm | 1. (Bai et al., 2020)<br>2. (Yang & Shen, 2022) |

#### 3.2.1.1.4 Equity Financing

Equity financing is the firm's process of raising capital by selling ownership rights (issuance of shares) (Floegel, 1990). Equity financing forms include share premiums, capital surplus, revenue reserves, common stocks, and preferred stocks (Omukaga, 2017). Equity financing is the measure of ownership percentage in a company. They conceptualized share capital as the firm's fundraising by issuing shares in cash return, specifically consisting of common shares and preferred shares (Uremadu & Efobi, 2012). Achieng et al. (2018), claimed that the existing literature has limited empirical consideration for these equity financing options, despite their popularity in the context of shareholder's wealth management for the corporate sector.

Equity financing, specifically focusing on common stocks is the widely applied and single most crucial business funding that appears conspicuously on the annual reports of listed companies (Achieng et al., 2018). The preference shares is a fixed charge security and classified as equity with blended features of both equity and debt (Brabenec et al., 2020). Preferred issuers have higher yields and provide fixed dividend-based income to investors. As a debt, it assures of dividends at predetermined levels. Sanz et al. (2004), claimed it as a long-term financing instrument, and is subordinated to creditors. The firm behavior as issuers is more like debt holders until the maturity

date (Hellqvist & Sandvall, 2016). They documented certain features of issuing firm's that support the classification of preferred stocks as equity with clientele effect of debt: 1) regulatory aspects, 2) firm's capitalization is more skewed towards equity which motivates the financially distressed firm to issue preferred security over debt (Callahan et al., 2001), 3) absence of pre-defined maturity date, 4) highly flexible financing choice with low bankruptcy and liquation risk, specifically when the firms are financially constrained or financially distressed (Cheng et al., 2011). In the present study, preferred stock was classed as equity due to its treatment in financial reporting standards and corporate balance sheets, where it is frequently included as part of shareholders' equity.

Equity financing is proxied by both common stocks and preferred stocks, as presented in Table 3.2.4. Both preferred stocks and common stocks are commonly used variables for measuring the firm's level of equity financing for publicly held corporations (Floegel, 1990). The equity ratio is the balanced measure of the equity structure of a firm (Gathara et al., 2019a).

**Table 3.2.4:** *Measurement Variables of Equity Financing*

| **Equity Financing (EF)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Common stocks (CS) | Common stocks/total assets | (Achieng et al., 2018) |
| Equity ratio (ER) | Total equity /total assets | (Gathara et al., 2019a) |
| Preferred stocks (PS) | Preference stocks/total assets | (Marietta, 2012) |

#### 3.2.1.1.5 Supply Chain Financing

Pfohl and Gomm (2009), conceptualized supply chain financing as a tool for optimizing inter-company financing and integrating capitalization processes with suppliers, buyers, and service providers for increasing the overall value of the coordinating companies. Gomm (2010), defined it as a financial structure and cash flow optimization tool for network companies. (GSCFF, 2021) Global Supply Chain Finance Forum (GSCFF) conceptualized it as capitalizing solutions and risk management practices and instruments for optimizing the working capital management and liquidity invested in supply chain transactions. According to Gelsomino et al. (2016), supply chain

financing consisted of two major perspectives: supply chain-oriented solution and finance-oriented perspective, the additional perspective to supply chain financing is buyer-driven-oriented perspective i-e reverse factoring, which can be a considerable subset of financial-oriented solution. The current study considered supply chain, financing, and buyer-driven oriented perspectives of SCF for investigating the effect on both financial and sustainability performance of the corporate sector. The finance-oriented perspective of supply chain financing highlighted it to be a set of new and innovative financing solutions that mainly concentrate on short period financing relating to payables and receivables. Financial institutions (banks) play a mandatory role in the financial perspective. The supply chain-oriented perspective mainly focused on the optimization of working capital in consideration of payables, receivables, and inventories. It does restrict the mandatory role of financial institutions. This is a broader perspective of SCF than the finance-oriented view, as it does not limit SCF to only short period financing but is also supportive of long-term financing. The variables incorporated in the study for measuring supply chain financing, in correspondence to these perspectives include Trade credit financing, credit guarantee, working capital financing, and account receivables factoring financing, presented in table 3.2.5.

Cunat and Appendini (2012), conceptualized trade credit is a legal binding contract between two transacting parties, in which the buyer purchases the supplies on credit and pays the other party i-e the supplier later. Firms with easy accessibility to bank loans prefer to offer trade credit to firms that are financially constrained (Deloof & Overfelt, 2011). Bougheas et al. (2009), documented that trade credit in the context of accounts payable has a positive relationship with the firm profitability. The past studies proxied trade credit by accounts payables, like the evidenced studies (Ghosh, 2015); (Samiloglu & Demirgunes, 2008). Similar to Liu et al. (2022), the study measure trade credit finance as payables proxied by the ratio of the sum of accounts payable, advance receivable and notes payable to the total assets.

External financing is highly dependent upon certain guarantees, especially for long-term debt. Collateral serves as a credit guarantee and has a role in the supply of information to the supplier about the borrower’s quality (Duarte et al., 2018), and mode of reducing problems of asset substitutions and credit agencies' cost (Jensen & Meckling, 1976). With a credit guarantee, the supplier helps the borrower to borrow from the bank at a low interest rate, and the firm promises timely payment to the supplier in the supply chain. The study incorporated two proxies for

measuring credit guarantees: The proxies applied are better representative of the borrowing company's financial structure and helpful for financing decisions concerning firm performance. Duarte et al. (2018), argued that the selected combination of credit guarantees can be easily applied in the context of a firm's financing structure.

Working capital management (WCM) is all about controlling the current assets, current liabilities, and the way financing is obtained (Panda & Nanda, 2018). Working capital financing implies the amount of working capital needed, which is capitalized by short-term loans. Working capital financing refers to the decisions and actions that focus on maintaining the efficiency of both current liabilities and current assets for strengthening the firm position that it has adequate cash flow to meet its short-term obligations (Abdullah & Siddiqui, 2019). Working capital financing strategies are one of the considerable concepts that impact the firm's profitability. Wetzel and Hofmann (2019), argued that working capital management can be measured by: 1) financial ratios: currents assets, short-term debts (Panda & Nanda, 2018); (Altaf & Ahmad, 2019), current liabilities, sales, debt ratio, total assets, and liquidity and 2) Cycle times: (DSO) Days sales outstanding, (DPO) Days payable outstanding, (DIH) Days inventory holding and (CCC) Cash conversion cycle (Altaf & Shah, 2017). The current study measured working capital financing through cycle times, because of the following reasons: 1) It is recognized that accounts payable, accounts receivable and inventories truly reflects the cross-organizational financing relationship within a supply chain finance network (Wetzel & Hofmann, 2019), 2) It is most commonly used measure of working capital management and 3) It is used as a typical capital management measurement tool for an entire supply chain. Financial ratios can be useful when we investigate the effect of WCF on firm profitability under the circumstances like financial flexibility (not directly measurable), and price-cost margins (Panda & Nanda, 2018).

Account receivables factoring financing is a form of debtor finance in which account receivables are sold or offered as collateral to the borrowing firm (Mian & Smith, 1992). Factoring financing includes three parties, the buyer of goods, the seller of goods, and a factor i-e financial institution. Firms often face difficulties recovering their account receivables, and factoring can be a possible solution to its liquidity problems. In developed countries, some databases measure the volume of factoring such as FnGuide in Korea (Park et al. (2020), and limited availability of financial databases in emerging economies e.g., Wise news database in China (Shou et al., 2021).

Due to the non-availability of these databases in SCO states, the study considered dichotomous variables for both factoring financing and reverse factoring financing, adopted from Mian & Smith (1992), for measuring its effect on sustainable performance. In financial statements, it is represented as invoice discounting or early payment discounts on supplier invoices.

**Table 3.2.5:** *Measurement Variables of Supply Chain Financing*

| **Supply Chain Financing (SCF)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Trade credit financing (payables financing) (TF) | Accounts payable + notes payable + advance receivable/ total assets | (Liu et al., 2022) |
| Credit guarantee<br>Credit guarantees ratio (CGR)<br>Solvency rating ratio (SRR) | 1. The ratio of variation of the increase of total guarantees to total assets<br>(TG/TA= Total guarantees / Total assets)<br>2. The ratio of solvency rating of the company<br>(TG/TO= Total guarantees/ Total operations) | (Duarte et al., 2018) |
| Working capital financing<br>(Logarithm of CCC) | Days payable outstanding = Accounts payable/ cost of goods sold * 365<br>Days sales outstanding= Accounts receivable/ sales * 365<br>Days inventory holding= inventory/ cost of goods sold * 365 | (Jaworski & Czerwonka, 2022) |

| | | |
|---|---|---|
| | 1. Cash conversion cycle (CCC)= DIO+DSO-DPO | |
| Account receivables factoring financing.<br>1. Reverse factoring (RF)<br>2. Factoring (FF) | Dummy variable<br>1. D1= 1 if the firm uses receivables as collateral, otherwise 0<br>2. D2= 1 if the firm sells receivables to a factor, otherwise 0 | (Mian & Smith, 1992) |

### 3.2.2 Dependent Variables

#### 3.2.2.1 Corporate Economic Performance (CEP)

Corporate economic performance is a broader concept than financial performance, the current study applied an economic perspective for supporting both the financial and sustainability dimensions of firm performance. The study categorized corporate economic performance into firm financial performance and sustainable performance (Christensen & Montgomery 1981; Balabanis et al. 1998; Zhang & Chen 2017).

##### 3.2.2.1.1 Financial Performance

Samour and Hassan (2016), defined firm performance as financial performance. Li (2020), measured the firm performance in two ways:1) Financial performance and 2) market performance. Table 3.2.6 shows the five proxy variables used to measure financial performance: return on assets, return on equity, net profit margin, return on capital employed and return on invested capital, Tobin's q, and earnings per share. Sudharika et al. (2018), argued that the combination of variables has been identified as the most applied financial performance and market performance measures in literature.

ROA is conceptualized to evaluate the capability of the firm to generate profits from the allocated assets. Fosu (2013), highlighted it as a good approximation of the effective utilization of the

organization's resources. The existing studies measured ROA by dividing the net profit of the firm by its total assets, such as (Boshnak 2022; Nguyen & Nguyen 2020; Khodavandloo et al. 2017). Some existing studies measure ROA by considering the ratio of net income by adding interest expenses to total assets, such as (Jayiddin et al. 2017. Li 2020; Udeh et al. 2016), use the ratio of earnings before interest and tax (EBIT) to total assets. In this study, ROA is proxied by dividing net profit by total assets.

Return on equity is conceptualized to measure the generation of profits from the allocated shareholder's funds, applied to measure the firm's profitability. Existing studies use the ratio between the net profit of the firm and shareholder's equity as a proxy for ROE, such as (Boshnak 2022; Abdullah & Tursoy 2021). Very few existing studies applied the ratio of EBIT to total equity, e.g., Gill et al. (2011). The current study follows the reference studies (Nguyen & Nguyen 2020; Li 2020), and measures ROE by dividing net profit by shareholder's equity.

Net profit margin is conceptualized to measure the generation of profits as a percentage of a firm's revenue. According to Shim et al. (2013), NPM helps to access the firm's operational efficiency, pricing strategy, and competitiveness with other industrial firms. The current study follows the referenced study (Nazir et al., 2021), and applied the ratio of net profit to total sales as a proxy for NPM.

Two additional measures are applied for measuring financial performance: (ROCE) return on capital employed and (ROIC) return on invested capital. The ROCE and ROIC are employed as profitability measures, especially in the milieu of capital structure in the existing studies, such as (Li 2020; Monga & Kahndelwal 2018; Abeywardhana 2015). ROCE is a ratio applied for long-run profitability and measures the efficiency of the asset when utilized as capital for facilitating the long-term funding requirements of a firm (Li, 2020). ROCE is obtained by dividing EBIT and capital employed. Capital employed is the difference between total assets and current liabilities. For uniformity of data metrics, the present study adopted (Monga & Kahndelwal, 2018) that proxied ROCE as the proportion of net profit to the capital employed.

Li (2020), conceptualized Return on invested capital as a profitability ratio applied to measure the efficiency of the company in capital allocation specifically considered for profitable investments. Nasimi (2016), highlighted ROIC as the capability of the company to use its money for generating

returns. The existing literature calculated ROIC by ratio of net operating profit after tax (NOPAT) to invested capital. NOPAT is calculated by applying an effective tax rate on EBIT and considers the implication of tax obligations for the company. Due to the non-availability of effective tax rates for SCO states in Orbis, the current study obtained NOPAT by deducting income tax from EBIT, in line with Li (2020). Invested capital is obtained by aggregating the book value of equity and the book value of debt and then deducting non-operating assets which include cash and cash equivalents, account receivables, marketable securities, and under-utilized assets.

Tobin's Q was proposed by Tobin in 1969 and considered as an appropriate method for measuring the firm's market performance. Tobin's q was conceptualized as the ratio between the firm's market value and book value. The combination of market value and accounting value leads to an effective proxy for firm value (Li, 2020). The existing literature e.g., Li (2020); Le & Phan (2017), quantified Tobin's q by dividing the sum of the market value of equity and book value of debt to the book value of total assets. Le and Phan (2017), highlighted that the market value of a firm consisted of the market value of equity and market value of debt. Salim and Yadav (2012), documented that calculating Tobin's q is challenging at times due to nonavailability of data, following other studies they equalize market value of debt to the book value of debt. The market value of equity is measured by the current market capitalization of shares and the book value of debt is the sum of notes payable, long-term debt and current portion of long-term debt. The present study applied the same proxy as previous studies (Li, 2020); Aimagh, 2018)

Another measure of a firm's market performance is earnings per share. Ullah et al. (2015), conceptualized EPS as annual per-share earnings, during the buying and selling of shares in the market. The existing studies: (Ullah et al. 2015; Salim & Yadav 2012), calculated EPS by taking the ratio of net profit to the number of shares outstanding.

**Table 3.2.6:** *Measurement Variables of Financial Performance*

| **Financial Performance (FP)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |

| | | |
|---|---|---|
| Financial performance<br>1. Return on assets (ROA)<br>2. Return on equity (ROE)<br>3. Net profit margin (NPM)<br>4. Return on Capital employed (ROCE)<br>5. Return on invested capital (ROIC) | (ROA=Net income/Total assets),<br>(ROE=Net income/Shareholder's equity),<br>(NPM= Net profit/Net sales)<br>(ROCE=Net Profit/Total assets-current liabilities),<br>(ROIC=Net operating profit after tax/ (Debt + Equity-Non operating assets) | (Nguyen & Nguyen, 2020)<br>(Nazir et al., 2021)<br>(Monga & Kahndelwal, 2018)<br>(Li, 2020) |
| Market performance<br>6. Tobin's q<br>7. Earnings per share (EPS) | Tobin's q=Market value of equity + book value of total debt/Book value of total assets<br>(EPS=Net income/Number of outstanding shares) | (Li, 2020)<br>(Salim & Yadav, 2012) |

#### 3.2.2.1.2 Sustainable Performance

Literature has proven sustainability as a critical aspect of firm performance. This study applied Global Reporting Initiative (GRI) Sustainability Standards, as a measure of corporate sustainable Performance based on the following reasons: 1) Its worldwide recognition, specifically at the firm level, 2) It has high credibility for extraction of reporting indicators, applied for measuring sustainability impacts (Rahdari & Rostamy, 2015), 3) The GRI reporting standards are a free general public good i-e any organization, public or private, small or large, regardless of any reporting experience, sector-wise distribution, or geographical territory, can apply GRI standards to report its sustainable performance (GRI, 2020) and 4) its generalizability and reliability (GRI, 2020). All the selected SCO member states: Pakistan, India, China, and Iran are part of GRI-listed member states. Most of the studies measured sustainable performance through sustainable growth rate (Ardillah 2020; Zhang & Chen 2017. Tawfik et al. (2021), highlighted that for firm-level

analysis, sustainability economic disclosure is measured through direct economic value-generating and distributing revenues. Both item-wise disclosure and sustainability disclosure indices can be used for measuring the level of a firm's sustainability (Sobhani et al., 2012). The study applied a sustainable growth rate for robustness purposes and adopted the metrics of (Zhang & Chen, 2017).

The study applied GRI 201-1, economic performance approach is applied for measuring corporate sustainable performance. (GRI, 2016) The GRI sustainability performance can be measured by the three components: 1) Direct economic value generated (EVG), 2) Economic value distributed (EVD), and 3) Economic value retained (EVR), as presented in Table 3.2.7. It provides businesses with a standardized method for reporting on the direct economic value they generate and how that value is distributed among stakeholders. The value retained is obtained through the difference between the value generated and the value distributed. The value retained can be used for business reinvestments, meeting future financing needs, and can be reserved.

GRI sustainability performance considers the firm's sustainable economic value creation for the broader stakeholders, including employees, governments (through taxes), communities, suppliers, and the environment (GRI, 2016). It encourages businesses to evaluate the economic impact of their operations on future generations, including sustainable resource usage and long-term community welfare in their financial measures, which can be a great contribution to the local economies.

GRI Standards highlighted that a firm could compile information related to sustainability economic perspective from the figures in the audited annual financial statements (GRI, 2016). Two steps are applied, 1) calculation of the aggregate score for EVG and EVD dimensions that presents the overall use of the dimensions, and 2) calculation of the EVR by taking the difference between EVG and EVD, which represents the GRI sustainability performance score (Saleem & Hashmi 2022). The score for GRI sustainability performance was calculated as

$$GRI\ Sustainability\ Performance = \ EVR = EVG - EVD$$

1. Direct economic value generated: It is quantified through revenues, which can be calculated as Net income, Net sales of assets (both tangible and intangible), interest on loans, and dividends received on shareholdings.

2. Economic value distributed: quantified through employee salaries and benefits (insurance, interest-free loans, pension plans, etc.), operating costs (cash payments made to acquire product components, materials, services, and facilities purchased), payments to government by country (Taxes), community investments (total expenses made for community development) and payments to capital providers (payment of interest on loans, dividend payment)
3. Economic value retained: Difference between the economic value generated and distributed.

**Table 3.2.7:** *Measurement Variables of Sustainable Performance*

| **Sustainable Performance (SP)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| GRI Sustainability performance (GRI)<br>1. Direct economic value generated. | Revenues:<br>1. Net income of the firm during the period<br>2. Net sales<br>3. Interest received on loans.<br>4. Dividends received on shareholdings | (GRI, 2016) |
| 2. Economic value distributed | Operating cost<br>Employee salaries and benefits<br>Payments to capital providers<br>Payment of taxes<br>Expenses made for community support | (GRI, 2016) |
| 3. Economic value retained | Difference between the economic value generated and distributed | (GRI, 2016) |

| | | |
|---|---|---|
| Sustainable growth rate (SGR) | Retained profits*net profit rate*(1+debt/equity ratio)*[1/(total assets/total sales)–1] | (Zhang & Chen, 2017) |

### 3.2.3 Moderating Variables

#### 3.2.3.1 Stagflation Cycles (SC)

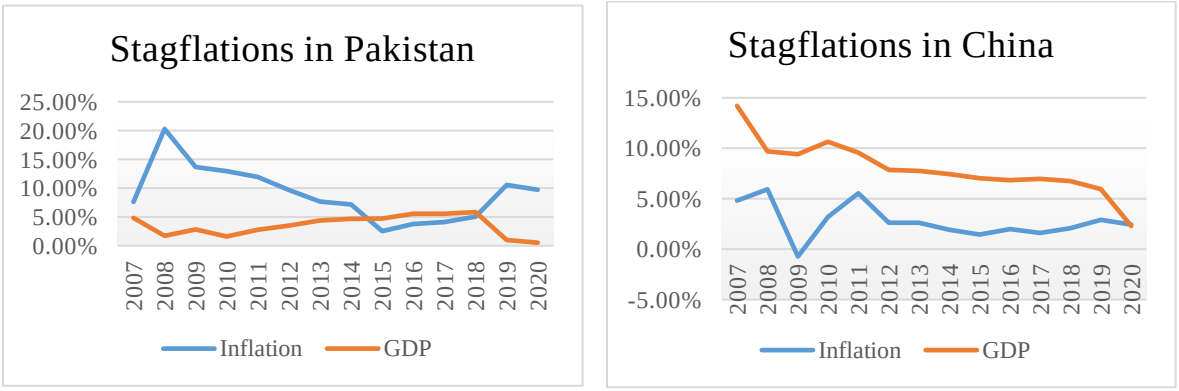
Keynesian economic perspective considered the positive association between inflation and economic growth and was generally accepted before 1970 (Marx & Struweg, 2015). After the 1970's the validity of the existence of positive association was challenged and the concept of stagflation moved forward (Andres & Hernando, 1999). Stagflations are considered periods of economic recession (low or negative growth) with a simultaneous increase in inflation and unemployment rate (Blinder, 1979). Nitzan (2004), documented three versions of stagflation: 1) The weak version conceptualized stagflation as stagnated economic growth with a simultaneous rise in inflation and unemployment rates (Samuelson 1974), 2) the moderate version views stagflation as the combination of inflation with recession or slow economic growth rates (Baumol et al., 1986), and 3) The strong version restricted stagflation only to conditions in which inflation occurs simultaneously with the decrease of overall output (Bade & Parkin, 1986). Inflation is considered an important measure of stagflation, so a weak version is less important for the current study. A strong version also is not much supportive since a declining overall output level is comparatively rare (Nitzan, 2004). A moderate version is important for understanding the association between inflation and economic growth, for negative association stagflation is a normal situation, that intensifies as the growth rate decreases with the continuous increase in inflation. Previous studies proved the existence of a positive association between inflation and growth at low inflationary levels, but the existence of a negative relationship is considered at high inflationary levels (Khan & Ssnhadji, 2001). Nell (2000), highlighted that single-digit inflation increases economic growth but double-digit inflation negatively affects economic growth.

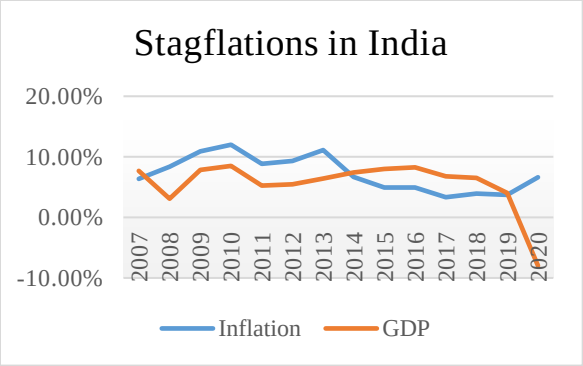
Marx and Struweg (2015), documented stagflation is the occurrence of low economic growth with the simultaneous increase in inflation, based on the inflation threshold level. Mubarik and Riazuddin (2005), estimated the inflation threshold level in Pakistan i.e., 9%, (Hussain, 2005) He highlighted the threshold between 4%-6% and (Arby & Ali, 2017) found it to be 6 percent.

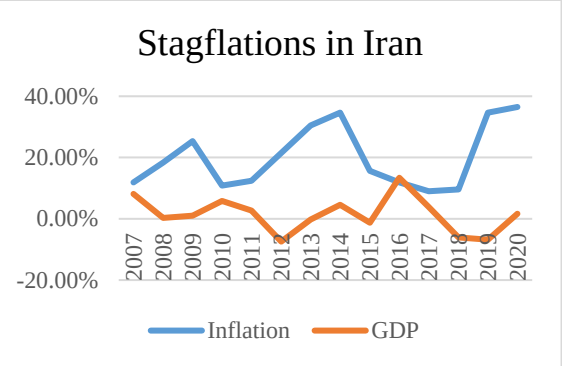
Highlighted the inflation threshold point for China is 2.50% and above this, it would negatively affect Chinese economic growth (Hwang & Wu, 2011). They determined the inflation threshold point that affects the economic growth of India (Behera & Mishra, 2017). The determined threshold point is 4%, inflation above this point harms the Indian economic growth. The inflationary threshold level for the Iranian economy is estimated as ranging between 9%-12% and above this, it will be destructive for economic growth (Mehrara, 2008).

The graphs in Figure 3.2 show the stagflation cycles of SCO member states, based on the data obtained from The World Bank (source: https://data.worldbank.org). Pakistan experienced stagflation cycles during 2008-2012 and 2019 and 2020 with the highest recorded inflations of 20.29%, 13.65%, 12.94%, and 11.92% during 2008-2011 and a growth rate ranging between 1-2 percent. Higher inflations experienced by India were 12%, 11.10%, and 10.88% during 2009, 2010, and 2013 and during the pandemic COVID-19, the economy experienced a negative growth rate of -7.97%, the worst in history. China is the largest developing nation with a strong financial cycle, so the highest inflation rate experienced is less in comparison to other states i-e 5.55% in 2011 and the lowest growth rate is 2.30% in 2020. Iran experienced significant macroeconomic turbulence with maximum inflation of 36.50%, 34.70%, 34.62%, 30.50%, and 25.40% during 2020, 2014, 2019, 2013, and 2009, followed by negative growth rates.

**Figure 3.2:** *Graph of Stagflation Cycles in SCO Member States*






Source: The World Bank Data (country specified) (https://data.worldbank.org).

They used stagflation as a dummy variable, with 1 indicating stagflation periods and 0 for non-stagflation cycles (Berthold & Grundler, 2012). The stagflation cycles of each country were identified in correspondence to inflation thresholds, which vary from country to country. For Pakistan, the stagflation periods identified were 2008-2012, 2019, and 2020, and the non-stagflation cycle from 2013-2018. For India, the stagflation periods were 2007-2016 and the 2020 non-stagflation period was 2017-2019. For China, the identified stagflations were 2007, 2008, 2010-2013, and 2019 and the non-stagflation period was 2009, 2014-2018, and 2020. Iran experienced the highest stagflation cycles during 2008, 2009, 2011-2015, 2019, and 2020 and non-stagflation periods were 2007, 2010, and 2016-2018.

### 3.2.3.2 Financial Constraints (FC)

Financial constraints can be conceptualized as the firm's incapability to obtain finance from external sources, resulting from either the restrictions or inability of firms to consider debt financing or new equity issues, reduction in the liquidity of the firm's assets, firm's borrowing inability from financial intermediaries, prevailed credit constraints, increased dependence on bank credit (Rashid & Jabeen, 2018). The study applied the financial constraint hypothesis from a financing perspective. The proxy variables are selected by considering borrowing firm financing choices including dividends (dividend payout ratio), cost of external borrowing, and interest coverage ratio, presented in Table 3.2.8. Almeida and Campello (2007), highlighted dividend payout as the payout distributions. Dividend policy measures the cash disbursements to shareholders or retaining of profits for future investments. Financially constrained firms pay no or very less amount of dividend, which decreases the chances of equity financing, and make the firms

externally financially constrained (Kaushik & Chauhan, 2019). They proved that lower dividend payouts constrained the external financing capabilities of the firm. The current focus is on the recognition of a firm's level of financial constraints, which is obtained by classifying firms into two categories: positive dividends and zero dividends (Fazzari et al., 1988). Firms with a dividend payout ratio below the industry median are considered more financially constrained compared with the above sample median (Faulkender & Wang, 2006). (Fazzari et al., 1988) Firms become financially constrained when the cost of external borrowing is high. Firms with values above the sample median are financially constrained. The interest coverage ratio is commonly used to measure the financial constraints and insolvency risk of a firm. Firms with above median interest coverage ratio are less financially constrained (Kaushik & Chauhan, 2019).

**Table 3.2.8:** *Measurement Variables of Financial Constraints*

| **Financial Constraints (FC)** | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Dividend payout ratio (Dividends) (DPR) | Dividend/ Net profits | (Kaushik & Chauhan, 2019 |
| Cost of external borrowing (CEB) | Financial expenses/ total debt | |
| Interest coverage ratio (ICR) | EBIT/ Financial expenses | |

### 3.2.3.3 Corporate Governance Mechanism Index

Black et al. (2019) argued that well-developed, country-specific Corporate Governance Indices are critical for predicting the increasing firm values in developing markets. The current study investigates four major developing Asian SCO member states (Pakistan, India, China, and the Islamic Republic of Iran) and constructs an entire country specific CGM Index. For comprehensive measurement of the Corporate Governance Mechanism of selected SCO member states, the study considers the construction of the CGM index, adopted (Munisi & Randoy, 2013). The overall index is based upon five sub-indices: 1) Board of directors, 2) Audit committee, 3) Disclosure and transparency, 4) Remuneration committee, and 5) Shareholders' rights. Each sub-index is

measured through multiple items i-e 39 elements, mentioned in Table 3.2.9. These elements are used to construct proxies for the general governance perspectives. The entire CGMI is developed by applying an equally weighted index creation approach i-e equal (100%) weights have been allocated to each sub-index item (Javaid & Saboor, 2015). The study considers annual financial reports and corporate governance reports for examining the validity of each statement item in the table and whether it is true or not for the selected company. A 'Yes' response for the statement is coded with 1 and a 'No' response is coded with 0 (Munisi & Randoy, 2013). The index calculation consisted of two steps: first, the aggregate score is generated for each sub-index by taking the average score of all the elements for each firm, and second, the aggregate score is generated for CGMI by taking the average score of all the five sub-indices for the sample firms, by applying the formula:

$$CGMI = \frac{Aggregate\ score\ of\ sub-index\ for\ each\ firm}{Total\ number\ of\ items}$$

The calculated CGMI is applied for determining the moderation effect of the corporate governance mechanism. Table 3.2.9 gives a detailed description of items and sub-indices applied for the development of CGMI.

**Table 3.2.9:** *Measurement Variables of Corporate Governance Mechanism Index*

| **Corporate Governance Mechanism Index (CGMI)** | |
|---|---|
| Sub Index | Measurement items |
| 1<br>Board of Directors | 1. The CEO and board chairperson are two separate individuals.<br>2. The firm chairperson is a non-executive director.<br>3. The firm indicates the directors' classes.<br>4. The board is comprised of at least two-thirds of non-executive directors.<br>5. The firm shows the frequency of meetings organized by the board.<br>6. There is a CG committee on the board.<br>7. There is a nominating committee on the board. |

| | |
|---|---|
| 2 | 8. The firm has an audit committee. |
| Audit Committee | 9. The committee chairperson is a non-executive director. |
| | 10. All the committee members are non-executive directors. |
| | 11. The board chairperson is not a member or a chairman of the audit committee. |
| | 12. The firm shows the frequency of meetings organized by the committee. |
| 3 | 13. The firm uses IFRS (International Financial Reporting Standards). |
| Disclosure and transparency | 14. The firm discloses the remuneration committee composition. |
| | 15. The firm discloses the audit committee composition. |
| | 16. The firm discloses the gross remuneration of all directors. |
| | 17. The firm discloses the CEO's remuneration. |
| | 18. The firm discloses the professional/work qualifications of its superior officers. |
| | 19. The firm discloses the academic qualifications of its superior officers. |
| | 20. The firm discloses the remuneration of the top management team. |
| | 21. The firm discloses the professional/work qualifications of its directors. |
| | 22. The firm discloses the academic qualifications of its directors. |
| | 23. The firm discloses the director's ages. |
| | 24. The firm discloses the date of appointment of each director. |
| | 25. The firm considers external auditors i-e big four audit firms. |
| | 26. The firm discloses its yearly report during three months of year-end. |
| | 27. The firm discloses the performance of the stock market and stock prices. |
| | 28. The firm discloses share ownership concentration. |
| | 29. The firm discloses its dedication to effective governance procedures. |

| | |
|---|---|
| | 30. The firm discloses the critical analysis of financial outcomes. |
| | 31. The firm discloses a review of 5-year financial trends. |
| | 32. The firm discloses the reports on CSR activities. |
| 4 | 33. The firm has a remuneration committee. |
| Remuneration Committee | 34. The committee chairperson is a non-executive director. |
| | 35. All the committee members are non-executive directors. |
| | 36. The firm shows the frequency of meetings organized by the committee. |
| 5 | 37. The firm uses the equal rights principle i-e one share-one vote. |
| Shareholders' rights | 38. The firm appoints all directors annually. |
| | 39. The firm shows the implication of Proxy voting. |

Source: (Munisi & Randoy, 2013)

### 3.2.4 Control Variables

The organization's performance is not merely influenced by financial structure, control variables must be incorporated for evaluation of the firm-specific performance attributes. Considering control variables, past studies have vast literature on the capital structure-performance relationship, also focusing on the moderation effects of macroeconomic factors, financial constraints, and governance mechanisms, such as the results from evidenced studies: firm size, firm growth, and asset tangibility (Admassu, 2016); firm size, asset tangibility (Zein & Angstrom 2016); firm size and firm growth (Rashid & Jabeen, 2018); firm age, firm size, and asset tangibility (Ronoowah & Seetanah, 2023a). The existing studies also highlighted other control variables for direct effects of capital structure, macroeconomic factors, and governance mechanisms on firm performance, such as firm size, asset tangibility (Li, 2020); firm age, total assets (Kandukuri et al., 2015), asset-liability ratio (Yao et al., 2022). Based on the literature, the present study identified three control variables in consideration with interaction effects: firm size, total asset turnover, and asset tangibility, presented in Table 3.2.10.

Most of the studies in the financing structure-performance perspective proved that firm size positively influences firm performance, specifically as a control variable e.g., (Nguyen & Nguyen 2020; Lindkvist & Saric 2020; Dienes et al. 2016; Lazar 2016). The studies measure firm size through total assets and applied it as a natural log of total assets obtained at the end of each financial year and Samour & Hassan (2016), considered it the most common way to measure firm size. They measure firm size as a log of sales and proved its positive firm performance effect (Tifow & Sayilir, 2015). Like the existing studies, the present study measured it through a common logarithm of a firm's total assets for each accounting year from 2007-2020. The larger firms are considered as more diversified and well-managed that ultimately leads to performance improvement (Margaritis & Psillaki, 2010).

Asset tangibility is an important control variable when considering financing sources and performance effects. Li (2020), highlighted tangibility as important for controlling the influence of asset structure on an organization's performance. The studies including: Nazir et al. (2021); Nguyen & Nguyen (2020); Lei et al. (2018); Lazar (2016), applied asset tangibility as a control variable and proved its significant contribution towards the performance of companies. These studies quantify asset tangibility as the ratio between the fixed assets and total assets, a higher proportion of fixed assets indicates strong financial performance. He measured asset tangibility by dividing tangible fixed assets and total assets (Li, 2020). Samour & Hassan (2016), highlighted the ratio of equipment, property, and plant to the total assets of the firm. In consideration of the existing studies, the present study also measures asset tangibility by dividing the firm's fixed assets by the total assets of a particular year.

Total asset turnover is the measure of a firm's management's capability to effectively utilize the firm's assets for the generation of dollar sales (Muritala, 2012). The existing studies proved the positive significant influential relation between total asset turnover and firm profitability and financial performance e.g., (Kim et al., 2021); (Nurlaela et al., 2019); (Muritala, 2012). The studies measure TAT by computing the asset turnover ratio of an enterprise for one accounting period is obtained by dividing the firm's net sales by the total assets of a company. A higher ratio indicates more effective asset utilization for generating dollar sales and is highly preferred in comparison to the lower value. The present research adopted a similar metric from the evidenced studies and applies for determining the controlled effect on firm financial as well as Sustainable performance.

**Table 3.2.10:** *Measurement Variables of Control Variables*

| Control Variables | | |
|---|---|---|
| Measurement variables | Formula | Reference |
| Firm size (FS) | Natural log of total assets | (Li, 2020) |
| Asset Tangibility (AT) | property, plant, and equipment are the assets used as collateral (Fixed assets)/ Total assets | (Kim et al., 2021) |
| Total Asset Turnover (TAT) | (Net sales / Total assets<br>A measure of a firm's management efficiency | |

### 3.3 Financial Modeling

The financial modeling of the study follows five themes: Firstly, the research explores the evaluation of the impact of financing alternatives on the financial performance of nonfinancial firms in SCO member states. Secondly, the research examines the estimation effect of financing alternatives on the sustainable performance of nonfinancial firms in SCO member states. Thirdly, the study examines the moderation effect of stagflation cycles on the interrelation between financing alternatives and organization's sustainability. Fourthly, the research investigated the moderation effect of financial constraints on the financing alternatives-sustainable performance relationship. Lastly, the moderating influence of corporate governance mechanisms in the relationship between financing alternatives and corporate sustainability is also explored. For effective moderation analysis, there are three fundamental conditions: 1) The effect of the moderator on the predictor variable must be insignificant, 2) the effect of the interaction term on the dependent variable must be significant, and 3) there are two possibilities for the interrelation between independent variables and response variable in the presence of a moderator: a) if the relationship is significant, it indicates partial moderation and b) if the relationship is insignificant, it indicates complete moderation. The empirical models for regression analysis and hypothesis

testing are designed in consideration of the study objectives and the light of theoretical support provided by existing literature.

There are five independent variables included in financing alternatives: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing, two dependent variables: financial performance and sustainable performance, and three moderating variables: stagflation cycles, financial constraints, and corporate governance mechanism. Three control variables: firm size, total asset turnover, and asset tangibility. In the model's equations '$\alpha$' and '$\beta$' are intercepts, '$i$' is the indexes firm, 't' is the number of years and '$e_{it}$' is the idiosyncratic/ random error term. The term '$X_{it}$' represents independent variables, '$y_{it}$' are dependent variables, and '$M_{it}$' are moderators. The proposed models are:

$$y_{it} = \alpha_0 + \alpha_1 X_{it} + e_{it}$$

$$y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 M_{it} + \beta_3 XM_{it} + e_{it}$$

$$Financial\ Performance_{it} = \alpha_0 + \alpha_1\ InternalFinancing_{it} + \alpha_2\ DebtFinancing_{it} + \alpha_3\ ShadowBankFinancing_{it} + \alpha_4\ EquityFinancing_{it} + \alpha_5\ SupplyChainFinancing_{it} + \alpha_6\ FirmSize_{it} + \alpha_7\ AssetTangibility_{it} + \alpha_8\ TotalAssetTurnover_{it} + e_{it} \quad (1)$$

$$ROA_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.1)$$

$$ROE_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.2)$$

$$NPM_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.3)$$

$$ROCE_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.4)$$

$$ROIC_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.5)$$

$$Tobin's\ q_{it} = \alpha_0 + \alpha_1\ IF_{it} + \alpha_2\ DF_{it} + \alpha_3\ SBF_{it} + \alpha_4\ EF_{it} + \alpha_5\ SCF_{it} + \alpha_6\ FS_{it} + \alpha_7\ AT_{it} + \alpha_8\ TAT_{it} + e_{it} \quad (1.6)$$

$$EPS_{it}=\alpha_0+\alpha_1\ IF_{it}+\alpha_2\ DF_{it}+\alpha_3\ SBF_{it}+\alpha_4\ EF_{it}+\alpha_5\ SCF_{it}+\alpha_6\ FS_{it}+\alpha_7\ AT_{it}+\alpha_8\ TAT_{it}\ +e_{it}$$
(1.7)

$$Sustainable\ Performance_{it}=\alpha_0+\alpha_1\ InternalFinancing_{it}+\alpha_2\ DebtFinancing_{it}+\alpha_3\ ShadowBankFinancing_{it}+\alpha_4\ EquityFinancing_{it}+\alpha_5\ SupplyChainFinancing_{it}+\alpha_6\ FirmSize_{it}+\alpha_7\ AssetTangibility_{it}+\alpha_8\ TotalAssetTurnover_{it}+e_{it}$$ (2)

$$GRI_{it}=\alpha_0+\alpha_1\ IF_{it}+\alpha_2\ DF_{it}+\alpha_3\ SBF_{it}+\alpha_4\ EF_{it}+\alpha_5\ SCF_{it}+\alpha_6\ FS_{it}+\alpha_7\ AT_{it}+\alpha_8\ TAT_{it}+e_{it}$$
(2.1)

$$SGR_{it}=\alpha_0+\alpha_1\ IF_{it}+\alpha_2\ DF_{it}+\alpha_3\ SBF_{it}+\alpha_4\ EF_{it}+\alpha_5\ SCF_{it}+\alpha_6\ FS_{it}+\alpha_7\ AT_{it}+\alpha_8\ TAT_{it}+e_{it}$$
(2.2)

$$Financial\ Performance_{it}=\beta_0+\beta_1\ InternalFinancing_{it}+\beta_2\ DebtFinancing_{it}+\beta_3\ ShadowBankFinancing_{it}+\beta_4\ EquityFinancing_{it}+\beta_5\ SupplyChainFinancing_{it}+\beta_6\ StagflationCycles_{it}+\beta_7\ Financingalternatives*StagflationCycles_{it}+\beta_8\ FirmSize_{it}+\beta_9\ AssetTangibility_{it}+\beta_{10}\ TotalAssetTurnover_{it}+e_{it}$$ (3)

$$ROA_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.1)

$$ROE_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.2)

$$NPM_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.3)

$$ROCE_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.4)

$$ROIC_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.5)

$$Tobin's\ q_{it}=\beta_0+\beta_1\ IF_{it}+\beta_2\ DF_{it}+\beta_3\ SBF_{it}+\beta_4\ EF_{it}+\beta_5\ SCF_{it}+\beta_6\ SC_{it}+\beta_7\ FA*SC_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}$$ (3.6)

$$EPS_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 SC_{it}+\beta_7 FA*SC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (3.7)$$

$$Sustainable\ Performance_{it}=\beta_0+\beta_1 InternalFinancing_{it}+\beta_2 DebtFinancing_{it}+\beta_3 ShadowBankFinancing_{it}+\beta_4 EquityFinancing_{it}+\beta_5 SupplyChainFinancing_{it}+\beta_6 StagflationCycles_{it}+\beta_7 Financingalternatives*StagflationCycles_{it}+\beta_8 FirmSize_{it}+\beta_9 AssetTangibility_{it}+\beta_{10} TotalAssetTurnover_{it}+e_{it} \quad (4)$$

$$GRI_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 SC_{it}+\beta_7 FA*SC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (4.1)$$

$$SGR_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 SC_{it}+\beta_7 FA*SC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (4.2)$$

$$Financial\ Performance_{it}=\beta_0+\beta_1 InternalFinancing_{it}+\beta_2 DebtFinancing_{it}+\beta_3 ShadowBankFinancing_{it}+\beta_4 EquityFinancing_{it}+\beta_5 SupplyChainFinancing_{it}+\beta_6 FinancialConstraints_{it}+\beta_7 Financingalternatives*FinancialConstraints_{it}+\beta_8 FirmSize_{it}+\beta_9 AssetTangibility_{it}+\beta_{10} TotalAssetTurnover_{it}+e_{it} \quad (5)$$

$$ROA_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.1)$$

$$ROE_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.2)$$

$$NPM_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.3)$$

$$ROCE_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.4)$$

$$ROIC_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.5)$$

$$Tobin's\ q_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.6)$$

$$EPS_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (5.7)$$

$$Sustainable\ Performance_{it}=\beta_0+\beta_1 InternalFinancing_{it}+\beta_2 DebtFinancing_{it}+\beta_3 ShadowBankFinancing_{it}+\beta_4 EquityFinancing_{it}+\beta_5 SupplyChainFinancing_{it}+\beta_6 FinancialConstraints_{it}+\beta_7 Financingalternatives*FinancialConstraints_{it}+\beta_8 FirmSize_{it}+\beta_9 AssetTangibility_{it}+\beta_{10} TotalAssetTurnover_{it}+e_{it} \quad (6)$$

$$GRI_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (6.1)$$

$$SGR_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 FC_{it}+\beta_7 FA*FC_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (6.2)$$

$$Financial\ Performance_{it}=\beta_0+\beta_1 InternalFinancing_{it}+\beta_2 DebtFinancing_{it}+\beta_3 ShadowBankFinancing_{it}+\beta_4 EquityFinancing_{it}+\beta_5 SupplyChainFinancing_{it}+\beta_6 CorporateGovernanceMechanismIndex_{it}+\beta_7 Financingalternatives*CorporateGovernanceMechanismIndex_{it}+\beta_8 FirmSize_{it}+\beta_9 AssetTangibility_{it}+\beta_{10} TotalAssetTurnover_{it}+e_{it} \quad (7)$$

$$ROA_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 CGMI_{it}+\beta_7 FA*CGMI_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (7.1)$$

$$ROE_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 CGMI_{it}+\beta_7 FA*CGMI_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (7.2)$$

$$NPM_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 CGMI_{it}+\beta_7 FA*CGMI_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (7.3)$$

$$ROCE_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 CGMI_{it}+\beta_7 FA*CGMI_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (7.4)$$

$$ROIC_{it}=\beta_0+\beta_1 \mathrm{IF}_{it}+\beta_2 \mathrm{DF}_{it}+\beta_3 \mathrm{SBF}_{it}+\beta_4 \mathrm{EF}_{it}+\beta_5 \mathrm{SCF}_{it}+\beta_6 CGMI_{it}+\beta_7 FA*CGMI_{it}+\beta_8 FS_{it}+\beta_9 AT_{it}+\beta_{10} TAT_{it}+e_{it} \quad (7.5)$$

$$Tobin's\ q_{it}=\beta_0+\beta_1\ \mathrm{IF}_{it}+\beta_2\ \mathrm{DF}_{it}+\beta_3\ \mathrm{SBF}_{it}+\ \beta_4\ \mathrm{EF}_{it}+\beta_5\ \mathrm{SCF}_{it}+\ \beta_6\ CGMI_{it}+\beta_7\ FA*CGMI_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}\quad(7.6)$$

$$EPS_{it}=\beta_0+\beta_1\ \mathrm{IF}_{it}+\beta_2\ \mathrm{DF}_{it}+\beta_3\ \mathrm{SBF}_{it}+\ \beta_4\ \mathrm{EF}_{it}+\beta_5\ \mathrm{SCF}_{it}+\ \beta_6\ CGMI_{it}+\beta_7\ FA*CGMI_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}\quad(7.7)$$

$$Sustainable\ Performance_{it}=\beta_0+\beta_1\ InternalFinancing_{it}+\beta_2\ DebtFinancing_{it}+\beta_3\ ShadowBankFinancing_{it}+\ \beta_4\ EquityFinancing_{it}+\beta_5\ SupplyChainFinancing_{it}+\beta_6\ CorporateGovernanceMechanismIndex_{it}+\beta_7\ Financingalternatives*CorporateGovernanceMechanismIndex_{it}+\beta_8\ FirmSize_{it}+\beta_9\ AssetTangibility_{it}+\beta_{10}\ TotalAssetTurnover_{it}+e_{it}\quad(8)$$

$$GRI_{it}=\beta_0+\beta_1\ \mathrm{IF}_{it}+\beta_2\ \mathrm{DF}_{it}+\beta_3\ \mathrm{SBF}_{it}+\ \beta_4\ \mathrm{EF}_{it}+\beta_5\ \mathrm{SCF}_{it}+\ \beta_6\ CGMI_{it}+\beta_7\ FA*CGMI_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}\quad(8.1)$$

$$SGR_{it}=\beta_0+\beta_1\ \mathrm{IF}_{it}+\beta_2\ \mathrm{DF}_{it}+\beta_3\ \mathrm{SBF}_{it}+\ \beta_4\ \mathrm{EF}_{it}+\beta_5\ \mathrm{SCF}_{it}+\ \beta_6\ CGMI_{it}+\beta_7\ FA*CGMI_{it}+\beta_8\ FS_{it}+\beta_9\ AT_{it}+\beta_{10}\ TAT_{it}+e_{it}\quad(8.2)$$

### 3.4 Estimation Tools

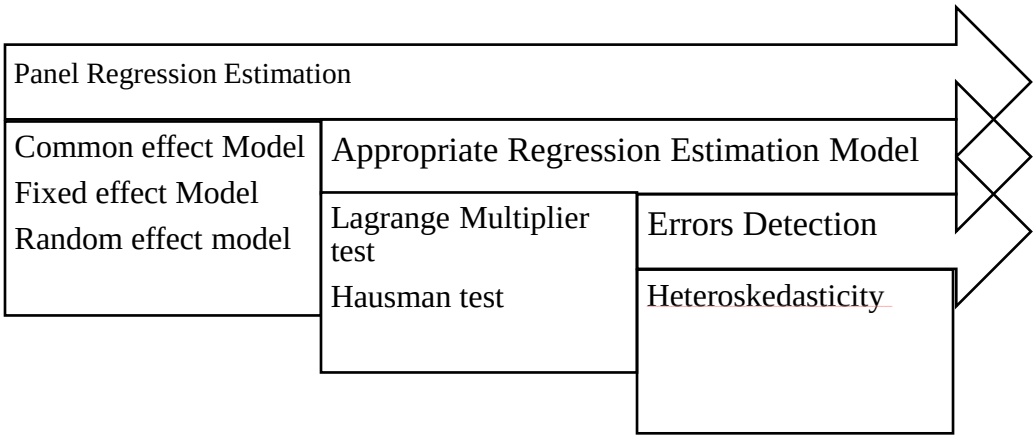
The study considered multi-country, multi-industry analysis for the period from 2007-2020, so Panel data analysis is applied to the estimation effects of the proposed models. Panel data analysis is considered one of the most widely applied and most powerful innovative inventions in the literature of econometrics (Greene, 2005). The use of panel data provides suitable circumstances for the purposeful development of statistical estimation models and theoretical results. Panel data accounts for more degrees of freedom(df), more information and variation, and less multi-collinearity and individual item heterogeneity (Wooldridge, 2015). Hussain et al. (2021), highlighted two panel data models: 1) Static panel data model, a dataset with both time series and cross-sectional components, with all time points units as independent, and are observed over the entire study period. 2) Dynamic panel data model, accounts for lagged effects, changes over time and consider variables time dynamics. The study applied static panel model for the period 2007-2020. Four assumptions for valid static panel model include: time period should be less than 25 years i-e T<25, size of the population (N) should be above 25 i-e N>25, strongly balanced panel, there should be fixed effect in the model, no heteroskedasticity, no serial correlation, and no

endogeneity. Panel data has three models for analysis: 1) Pooled Ordinary Least Square (OLS), known as Common effect panel regression model, 2) Fixed Effect Model, and 3) Random Effect Model. When there exists endogeneity, FE, RE and OLS give biased estimates, for unbiased estimates other Generalized Least Square (GLS) models: GMM, FGLS, ARDL models can be applied (Wooldridge, 2010).

According to Park (2011), for panel data sets, both the panel-OLS, fixed and random effect regression estimation models can be used for determining the relationship between outcome and predictor variables. He evidenced that OLS regression, random effect, and fixed effect estimation approaches are the most applied statistics for the evaluation of panel data sets (Li, 2020). The evidenced studies applied pooled panel OLS model, fixed effect, and random effect estimation tools with the Hausman specification test and significantly proved the results in line with the existing literature, e.g., (Li 2020; Rajon et al. 2020; Mujwahuzi & Mbogo 2020; Miko & Para 2019; Zhang & Chen 2017).

Figure 3.3 adopted from (Zulfikar, 2017), highlighted the series of steps applied for estimation of panel data regression. Step 1: panel data regression estimation through panel-OLS, fixed effect and random effect model, Step 2: selection of appropriate panel estimation model through Hausman test and Lagrange Multiplier test, Step 3: detection of heteroskedasticity problem and data robustness statistics. Lagrange Multiplier is applied for determining the appropriate selection among Common effect or Random effect model. Along with this, Hausman's (1978) model specification test is applied to differentiate between the statistics of fixed effect and random effect approaches by considering the p-values. The reference studies applied the same decision criteria for selection of an appropriate panel estimation model among panel-OLS, fixed effect, and random effect model (Aimagh & Larsson 2018; Dada & Ghazali 2016; Ahmad 2014). For meeting the objectives of the study, the current study applied Mixed panel OLS regression estimations for determining the causal relation between dependent and explanatory variable.

**Figure 3.3:** *Panel Data Regression Estimation*




Source: (Zulfikar, 2017)

Pooled OLS statistics are applied for affirming the relationships between explanatory and response variables, carry out for the panel data. Among the highly considerable estimation tools, used for analyzing the association between capital structure-performance is the OLS Regression (Ahmed, 2018). OLS focused on the criterion of linear function followed by the principle of least squares: minimization of the aggregate of the squares of the differences among the measured dependent variables of the dataset and those estimated by a linear function. (Li, 2020) He documented the following assumptions for the OLS regression, namely data normality, homoskedasticity, no autocorrelation, and no multi-collinearity. OLS has the advantage of easy implementation and production of easily understandable solutions. According to Le and Phan (2017), OLS estimations are considered consistent and unbiased with the absence of observed heterogeneity and the error terms show no dependence for the independent variables. OLS regression follows ignorance of individual characteristics and time-specific dependencies, known as unobserved individual effects, which is very common while working with cross-sectional data and it questions the advantages of OLS regression (Li, 2020). OLS regression disregards the panel nature of the financial data by obviating the time and industry-specific effects (Dinardo et al., 1997). In consideration, the fixed effect model and random effect model are the better and highly applicable estimation tools for studies based on panel data sets (Coleman, 2007).

According to Udeh et al. (2016), fixed and random effect estimations are mostly adopted when there is a need to control the impressions of unobserved heterogeneity in the given data set by ignoring time-invariant and time-contrast variables. The fixed effect estimators explored the interactions between explanatory and response variables in separate entities with the assumption of the independent effect of firm characteristics on the interrelation between the variables (Li, 2020). Fixed effect statistics assume the individual effects of unmeasured explanatory variables are fixed across all observations. Fixed effect estimators are the consistent estimators of a model and the vital benefit of applying fixed effect is the high credibility with limited biases in the assessments than comparatively with OLS models (Matthias & Eberl, 2020). They highlighted the limitations of the fixed effect approach: 1) they are limited to estimating absolute group differences, 2) there may be classical measurement errors due to time variances, and 3) they are prone to estimate reverse causality. The current study applied a fixed effect approach because follows time-variance unmeasured heterogeneity, the independent effect of firm characteristics on the interrelation between the variables, no societal group level difference is estimated, and it does not assess the direction of a causal effect.

According to Vatavu (2015), the Random effect estimation approach is applied when model parameters have random variations across all observations. The estimation model assists in limiting time-constant unobserved heterogeneity. Li, (2020), argued that for random effect estimation, the individual unmeasured heterogeneity is not correlated with the explanatory variables included in the model. Random effect is beneficial because it can include time-invariant variables and it supports the generalizability of results irrespective of the sample selected for analyzing the model (Reyna, 2007). Schmidheiny (2015), argued that small sample characteristics are not appropriate for random effect estimator, it can therefore be established for samples with multiple individual observations. He guided that random effect statistics are essentially normally distributed and give consistent estimations. As OLS regression, similar assumptions can be applied for fixed effect and random effect estimations, including data normality, homoskedasticity, no autocorrelation, and no multicollinearity. For determining the specificity of the panel-OLS, fixed effect and random effect statistics, the Lagrange multiplier test and Hausman model adequacy test is applied. The referenced studies applied different methodologies: FGLS (Nguyen et al., 2021), and Generalized Method of Moments (GMM) estimation (Do et al., 2022). The highlighted reason may be due to the problems of heteroskedasticity and endogeneity phenomena.

Different diagnostics tests, proposed by Reyna (2007), are applied for validating the appropriateness of the applied estimation tools. The diagnostics are used to check the normality, multicollinearity, and heteroscedasticity in the data. For ensuring the normal distribution of the sample data set, the study applied Jarque-Bera normality statistics and skewness and kurtosis tests. Both tests are applied to determine the goodness of fit for the study sample. For determining the occurrence of high correlations i-e serial correlation and multicollinearity between the independent variables in a panel regression model, the study performed Durbin Watson (DW) test, which is the most used test for measuring autocorrelation The current study applied both Breusch-Pagan/Cook-Weisberg test and White test on Stata for heteroskedasticity analysis. For analyzing the presence of multicollinearity, the study used Variance Inflation Factor (VIF) statistics.

The estimation of results based on proposed models and their interpretation in consideration of the supporting literature is discussed in the next chapter.

# CHAPTER 4

# DATA ANALYSIS AND DISCUSSION OF RESULTS

The focus of the chapter is testing the theoretically proven hypothetical relationships, denoted by ($H_1$:$H_8$), through the provision of empirical evidence on the influential relationship between alternative financing sources and firm economic performance, based upon a company's financial performance and long-run sustainable performance of Pakistan, India, China, and Iranian listed companies.

The chapter is further classified into three main sections. Section 4.1 consisted of the detailed preliminary analyses of the data set, including the descriptive statistics of all the variables in each country's data set, and other preliminary diagnostics tests. The diagnostics tests validate the initial appropriateness of tools applied for empirical estimation of both dependent and independent variables. The diagnostic statistics check the normal distribution, autocorrelation, heteroskedasticity, and multicollinearity of the study data set. Section 4.2 represents the panel estimation statistics incorporated for testing the proposed hypothetical models based on the relationship of financing alternatives with financial performance and sustainable performance. Three-panel estimation techniques including Pooled Ordinary Least Square (OLS) Model, 2) Fixed Effect Model, and 3) Random Effect Model are applied. Lastly, Chow test, Lagrange Multiplier test and the Hausman test validate the adequacy of panel statistics. Zulfikar (2018), argued that the regression method panel data statistics will give estimation results that are based on BLUE (Best Linear Unbiased Estimation). Section 4.3 gives the analyses of the moderation effects of interaction terms, consisting of three moderating variables: stagflation cycles, financial constraints, and corporate governance mechanism, through the implication of panel estimation statistics and model specification tests.

## 4.1 Preliminary Statistics

### 4.1.1 Data Preparation

Abdallah et al. (2017), stated that once data is collected, it is necessary to be inspected before performing any empirical analysis on it. They conceptualized data preparation as the process of data organizing and data manipulation before analysis. The preliminary evaluation of the data eliminates the probable contraventions on the suppositions considered for the implication of

multivariate approaches. Initial data preparation and examination provide the researchers with meaningful data leading to more realistic results. Data preparation for the study includes entering relevant data in an Excel sheet and applying formulas and statistics for data standardization and making it ready for further data analysis.

### 4.1.2 Data Verification

Data verification is the assessment of collected data. Data verification is necessary before proceeding to the data analysis. This phase makes the data more usable and sufficient for carrying out statistical examination. Fidell (2007), documented that summary statistics is a process to prove that the data set is without missing values and outliers and fit for execution of further statistics.

### 4.1.3 Missing Data

Bori (2013), highlighted that missing data is a complex problem and all the standard empirical analyses assume the incorporation of complete information for the entire variables embraced in the analysis. And missing even a few observations on the study variables decreases the sample size. Missing secondary data during gathering may harm reliability and leads to inconclusive results. Fujimoto et al. (2022), highlighted that big data from financial statements have the characteristic of 'non-representative' and 'incompleteness'. They proved that the rate of variation in the missing data is highly dependent upon the country, size, and type of financial items. Bryzgalova et al. (2022), identified four missing data problems while collecting financial data: 1) Substantial heterogeneity in the short run that varies over time, 2) Multiple characteristics observation at once, 3) non-random data missing, and 4) Data selection bias with a focus on particularly observed values. The study considers big financial data collection with multiple characteristics and from multiple sources from four different countries: Pakistan, India, China, and Iran, so missing data can be a problem. The study applied descriptive statistics for dealing with data incompleteness problems.

### 4.1.4 Source Bias

Multiple Source bias is the most considered error while conducting studies based on secondary data sources. One of the major challenges in data collection is accessibility to multiple data sources because of the incompleteness of single data sources, which is resource intensive, and requires effort and time (Wilson et al., 2018). Data integration is a major challenge when collected from

multiple sources (Abdallah et al., 2017). Olabode et al. (2019), highlighted that approaching multiple secondary data sources may lead to quality problems, and to avoid any error we need to cross-check and repetitively confirm the accuracy and truth of multiple data sources. They documented source bias as an important bias that reduces the quality of secondary data. The study considers data integration from multiple sources which is validated by cross-checking the data obtained.

### 4.1.5 Descriptive Statistics

The complete descriptive statistics of firm-specific variables, both explanatory and regressand variables, moderating variables, and control variables are determined, based on a financial data set consisting of 1166 listed nonfinancial firms of Pakistan (217), India (248), Iran (216), and China (485), for the period ranging between 2007-2020. (Heyman et al., 2008) They highlighted the criteria for filtering the explanatory variable outliers: 1) the proportion of short-term loans over total debt could not add up to 100%, 2) the proportion of long-term loans over total debt could not add up to 100%, and 3) all predictors and control variables except for binary measures are winsorized at 1% at every tail.

#### 4.1.5.1 Descriptive Statistics of Pakistan

Table 4.1.1 shows the descriptive statistics of all the variables for 3,066 observations of listed nonfinancial companies of Pakistan including Mean value, minimum, maximum, standard deviation, skewness, kurtosis, and variance. The standard deviation indicates the spreading of data distribution and variance is the square of the standard deviation. Skewness is the measure of data asymmetry and Kurtosis is the measure of a peakedness of a distribution. The normal distribution for skewness lies near zero. The normal distribution of kurtosis has a convenient benchmark of 3.

Internal financing is measured by two commonly used proxies: internal financing ratio and retained earnings ratio. The minimum value for the internal financing ratio is 0.021 and the maximum value is 0.848. The computed mean value for the internal financing ratio is 0.532, which indicates only 53% of firms' reliance on internal funds for meeting the funding requirements, with a standard deviation of 0.500. The mean value for other construct i-e retained earnings ratio is 0.313, indicating 31% of Pakistani firms rely on retained earnings to meet their funding needs,

highlighting it as a least preferred financing source, with a standard deviation of 0.123. Skewness for all measures is near 0 and kurtosis is 1.187, showing the symmetrical distribution.

Debt financing alternative is measured by three constructs, namely short-term debt, long-term debt, and total debt. The minimum and maximum value for short-term debt is 0.026 and 0.725. respectively and the calculated mean value is 0.347, indicating only 34% of listed firms in Pakistan consider short-term debts as a financing source. The mean value for long-term debt is 0.407, indicating a slightly larger percentage in comparison to short-run funding. The mean value obtained for total debt is 0.626 (63%), with a standard deviation of 0.162. Skewness for all measures is near 0 and kurtosis is below 3, showing symmetrical distribution.

For measuring shadow bank financing two proxies are applied including the shadow banking dichotomous variable and the ratio of shadow banking assets to total assets for measuring the proportion of shadow banking. The mean value for shadow banking services is 0.566 i-e 56.58%, indicating more than 50% of Pakistani firms consider shadow banking as a financing source, which is a sign of shadow banking expansion in Pakistan, and the standard deviation is 0.496. The computed mean value for measuring the proportion of shadow bank financing is 0.214 i-e 21.39%, showing a very low proportion of shadow bank financing with a standard deviation of 0.113. All the measures show the normal distribution with skewness of 0 and kurtosis of 3.

The study applied three proxies for measuring equity financing: common stocks, preferred stocks, and equity ratio. The mean value for both common stocks and preference shares is 0.345 and 0.337, indicating relatively equal reliance on both common stocks and preference shares as a funding source, with standard deviations of 0.640 and 0.609. The minimum value for equity ratio ranging between 0.050 and 0.545 and a mean value of 0.388, indicating 38% firm's reliance on equity financing as a financing source, which is comparatively less possibly due to associated transaction cost and agency cost. Li (2020), argued that values less than 1 show negative growth projections from investments in these assets. All the measures show the normal distribution with skewness of 0 and kurtosis of 3.

Supply chain financing is comprehensively measured by incorporating four metrics including working capital financing i-e cash conversion cycle, trade financing, factoring financing, reverse factoring, credit guarantees measured by the proportion of credit guarantees to total assets, and

credit financing to total financing operations. The minimum and maximum range for CCC is between 0.012 and 5.774, and the mean value is 3.928, showing that average firms consider 120 days for cash conversion, with a standard deviation of 0.567. The mean value for trade financing is 0.220 but the maximum value is 0.887 i-e 88%, which indicates that one of the firms is highly dependent upon a trade financing source, which is comparatively an inexpensive financing source. The mean values for both factoring and reverse factoring are 0.548 and 0.576, indicating more than 50% of nonfinancial firms consider their receivables as a cheap and quick source of financing. The computed mean values for both proxies of credit guarantees are 0.362 and 0.316 i-e 36% and 31%, indicating limited dependence of firms in Pakistan for credit guarantees from third parties. A very low minimum indicates that one of the firms avoids credit guarantees and a high maximum i-e 0.793, indicates the preference for the firm's financing through credit guarantees, with a standard deviation of 0.213. All the measures show the normal distribution with skewness of 0 and kurtosis of 3.

Dependent variables consisted of financial performance and sustainable performance. The descriptive statistics for financial performance highlight the summary statistics for both accounting-based and market-based performance measures. The mean value for return on assets performance metrics is 0.081, with minimum and maximum ranging between minus 3.507 and 3.359, indicating that the firm's sample generates 8% profit from their allocated assets and a standard deviation is 0.398. The return on equity mean value is 0.152, indicating 15% profits generation from allocated shareholders' funds and the negative minimum value -0.990 (99%) shows one of the sample firms generates a huge loss by utilizing shareholders' funding. The mean value for net profit margin is 0.097 i-e nearly 10% of the firms generate profits as a percentage of revenue, while one of the sample firms from Pakistan generates a loss of 27.25%, as it is less efficient in converting its sales to profits. Two additional ratios: return on capital employed and return on invested capital are applied as a measure of profitability and means values of 0.681 and 0.872, show that most firms are efficient and consider profit generation while utilizing their capital, with maximum values of 7.942 and 13.808. All the measures show the normal distribution with skewness of 0 and kurtosis of 1.120 and 1.014. The variance is less than 1, indicating less spreading of data points.

The market-based performance metric i-e Tobin's q has a mean value of 2.863 with minimum and maximum values ranging between 0.055 and 35.176. The mean value is greater than 1, indicating a higher market value of the firm's shares than the debt book value to the asset replacement cost. High maximum value suggests that one sample firm should avail greater investments with high market value shares. The minimum value indicates the firm with lower market value shares than its debt book value. The mean value of EPS is 3.208 and the high maximum value indicates the high market value of shares trading by one of the selected firms. The standard deviation for both market performance metrics is high in comparison to other performance measures i-e 1.912 and 3.455, the possible reason may be the high market price volatility for Pakistani firms during the study period (Ahmed, 2018). All the measures show a normal distribution with a skewness of 0, a kurtosis of 3, and a standard deviation closer to the mean value.

For measuring long-term performance, the study incorporated GRI sustainability performance and sustainable growth rate metrics. The computed mean value for GRI sustainability is 12.891 with a maximum value of 17.946 indicating high economic value generated by most of the firms through operational efficiency, dividends, and interest collections. The standard deviation is 0.494 indicating a normal spread out of data points. Skewness has a value of 0.021 and kurtosis is 1.001, showing the symmetry of the distribution. The sustainable growth rate has a mean value of 0.237, which shows that only 24% of the listed firms in Pakistan can sustain their growth with internal profits and without borrowing from external sources. A very high maximum value of 0.894 indicates that one of the sample firms has achieved a sustainable growth rate of 89% by relying on just internal revenues rather than external financing. The standard deviation is closer to the mean value i-e 0.289, and the variance is 0.084.

The moderator stagflation cycle is a dichotomous variable, and the computed mean value is 0.654, indicating 65% of the companies are affected by macroeconomic turbulence in Pakistan. The standard deviation is 0.500.

Financial constraints are measured by three proxies including dividend payout ratio, cost of external borrowing, and interest coverage ratio. The mean value for the dividend payout ratio is 0.380, which indicates 38% of firms pay dividends, low dividend payout ratio shows that many firms are more financially constrained. The standard deviation is closer to the mean value of 0.611. The cost of external borrowing has a mean value of 0.605, indicating firms experience about 60%

cost when borrowing from external sources and the high cost of external borrowing shows that most of the firms are more financially constrained. The standard deviation is less than 1, showing less spreading of the data points. The interest coverage ratio measures the ability of the companies to cover interest expenses. The mean value of 0.202 indicates a very less percentage of firms can meet their interest expenses, a low-interest coverage ability shows that the firm is more financially constrained, and the standard deviation is 0.416. The mean values of all three measures indicate that firms are more financially constrained.

The mean value calculated for the corporate governance mechanism index is 0.548, indicating that 55% of the listed nonfinancial firms in Pakistan consider corporate governance practices for managing their companies. Maximum value is 0.692, minimum 0.145 and standard deviation 0.321.

The study incorporated three control variables firm size, asset tangibility, and total asset turnover. The mean value for firm size is 15.633 and the minimum and maximum values range between 13.195 and 19.685. The maximum value shows that a larger size firm has owned Rs 35 million total assets, and the minimum value shows that only Rs 537,821 assets are owned by one of the sample firms with a smaller size. The standard deviation is 0.489. Asset tangibility has a mean value of 1.068, and a value above 1.0 shows that listed firms have tangible assets that can be pledged for financing from external sources. The minimum value shows that one of the firms has low tangibility to meet their funding needs and the standard deviation is closer to the mean value showing less spread of data points. The computed mean value for total asset turnover is 1.957, and a value above 1 indicates the operational efficiency of the firm in using its assets for generating sales income. The minimum value shows the incapability of a company to effectively use its assets for generating sales, and the standard deviation is 0.420. All the measures show a normal distribution with a skewness of 0, a kurtosis of 3, and a standard deviation closer to the mean value.

**Table 4.1.1:** *Descriptive Statistics of Pakistan*

| Descriptive Statistics of Pakistan | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Observations | Mean | Minimum | Maximum | Standard deviation | Skewness | Kurtosis | Variance |
| Internal financing ratio | 3,066 | 0.532 | 0.021 | 0.848 | 0.500 | 0.019 | 1.027 | 0.250 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Retained earnings ratio | 3,066 | 0.313 | 0.101 | 0.928 | 0.123 | -0.433 | 1.187 | 0.015 |
| Short term debt | 3,066 | 0.347 | 0.026 | 0.725 | 0.138 | -0.310 | 1.097 | 0.019 |
| Long term debt | 3,066 | 0.408 | 0.103 | 0.529 | 0.165 | -0.332 | 1.111 | 0.027 |
| Total debt | 3,066 | 0.626 | 0.344 | 0.634 | 0.162 | -0.506 | 1.165 | 0.091 |
| Shadow banking assets | 3,066 | 0.566 | 0.000 | 1.000 | 0.496 | -0.266 | 1.071 | 0.246 |
| Shadow banking ratio | 3,066 | 0.214 | 0.051 | 0.712 | 0.113 | 0.396 | 3.064 | 0.013 |
| Common stocks | 3,066 | 0.345 | 0.069 | 0.643 | 0.640 | -0.261 | 1.068 | 0.410 |
| Preferred stocks | 3,066 | 0.337 | 0.012 | 0.465 | 0.609 | -0.839 | 1.704 | 0.371 |
| Equity ratio | 3,066 | 0.388 | 0.050 | 0.545 | 0.114 | 0.650 | 2.225 | 0.013 |
| Cash conversion cycle | 3,066 | 3.928 | 0.012 | 5.774 | 0.567 | -0.514 | 2.318 | 0.321 |
| Trade financing | 3,066 | 0.220 | 0.000 | 0.888 | 0.144 | -0.852 | 1.727 | 0.021 |
| Reverse factoring | 3,066 | 0.576 | 0.000 | 1.000 | 0.494 | -0.306 | 1.093 | 0.244 |
| Factoring | 3,066 | 0.549 | 0.000 | 1.000 | 0.498 | -0.195 | 1.038 | 0.248 |
| Credit guarantees ratio | 3,066 | 0.362 | 0.053 | 0.793 | 0.220 | -0.398 | 1.159 | 0.048 |
| Solvency rating ratio | 3,066 | 0.316 | 0.032 | 0.764 | 0.213 | 0.527 | 2.268 | 0.045 |
| Return on Assets | 3,066 | 0.081 | -3.507 | 3.359 | 0.398 | -0.186 | 1.285 | 0.158 |
| Return on Equity | 3,066 | 0.152 | -0.990 | 4.210 | 0.350 | -0.106 | 1.012 | 0.122 |
| Net Profit Margin | 3,066 | 0.098 | -27.254 | 4.451 | 0.289 | -0.717 | 1.514 | 0.083 |
| Return on capital employed | 3,066 | 0.681 | 0.002 | 7.942 | 0.844 | -0.346 | 1.120 | 0.712 |
| Return on invested capital | 3,066 | 0.873 | 0.005 | 13.808 | 0.348 | 0.119 | 1.014 | 0.174 |
| Tobin's Q | 3,066 | 2.864 | 0.055 | 35.176 | 1.913 | 0.297 | 1.088 | 0.121 |
| Earnings per share | 3,066 | 3.208 | 0.028 | 16.812 | 0 .484 | 0.498 | 1.248 | 0.235 |
| GRI Sustainability | 3,066 | 12.892 | 5.509 | 17.947 | 0.494 | 0.021 | 1.001 | 0.244 |
| Sustainable growth rate | 3,066 | 0.237 | -1.116 | 0.894 | 0.289 | -0.570 | 1.325 | 0.084 |
| Stagflation Cycles | 3,066 | 0.654 | 0.000 | 1.000 | 0.500 | 0.000 | 1.000 | 0.250 |
| Dividend Payout ratio | 3,066 | 0.380 | -3.907 | 7.229 | 0.611 | 0.054 | 1.003 | 0.374 |
| Cost of external borrowing | 3,066 | 0.605 | -5.379 | 6.256 | 0.816 | 0.069 | 1.005 | 0.667 |
| Interest Coverage Ratio | 3,066 | 0.202 | -1.484 | 1.751 | 0.416 | -0.111 | 1.013 | 0.173 |
| Corporate Governance Mechanism index | 3,066 | 0.548 | 0.145 | 0.692 | 0.321 | 0.268 | 1. 201 | 0.156 |
| Firm Size | 3,066 | 15.633 | 13.195 | 19.686 | 0.489 | 0.152 | 1.023 | 0.239 |
| Asset Tangibility | 3,066 | 1.068 | 0.023 | 1.301 | 0.182 | -0.403 | 1.163 | 0.033 |
| Total Asset turnover | 3,066 | 1.957 | 0.010 | 9.892 | 0.420 | -0.410 | 1.169 | 0.176 |

### 4.1.5.2 Descriptive Statistics of India

Table 4.1.2 shows the summary statistics for the employed financial metrics of 3,472 observations of selected nonfinancial companies of India. The internal financing ratio has a mean value of 0.421,

with a minimum and maximum value ranging between 0.112 and 0.786, indicating internal funds as the least preferable financing source for the Indian industrial sector. The standard deviation is closer to 1 with non-scattered data points. The minimum value for retained earnings ratio is 0.107, indicating that one of the firms has only 10.76% consideration for retained earnings, and a maximum value of 0.871 shows that one of the selected firms has 87% reliance on retained earnings for meeting their funding requirements. The mean value shows a 33% dependence of firms on retained earnings with a standard deviation closer to the mean value i-e 0.110. All the measures show a normal distribution with a skewness of 0 and a kurtosis of 3.

The computed mean values for short-run, long-run, and total debt financing alternatives are 0.387, 0.437, and 0.645, indicating 38.7%, 43.7%, and 65% consideration of debt proportions by firms for supporting their funding need, and long-term loans are comparatively preferred for financing among Indian industries. Long-term loans and total debt minimum values show the least focus (3%) of one of the firms on debt finances and maximum values show 59% and 73% debt financing reliance, consistent with the description of (Abbadi, 2019). The standard deviation of all the three metrics is closer to the mean value. The mean value for shadow banking assets is 0.563 (56%), indicating quick expansion of shadow banking in India, and the proportion of shadow banking is 0.222 i-e 22%, indicating a limited proportion of shadow bank finances among other financing alternatives with standard deviation closer to mean value i-e 0.496 and 0.120. All the measures show the normal distribution with skewness closer to 0, and kurtosis closer to 3.

The mean value for common stocks is 0.370 with minimum and maximum values of 0.008 and 0.525, indicating that listed firms in India also consider common stocks for meeting their financing needs. Preference shares' mean value is 0.286 with a minimum value of 0.0023 and a maximum value of 0.354. The proportion of Indian firms' dependence on equity financing is comparatively greater than in Pakistan. The mean value of the equity ratio is 0.334, which is less than 0.50, shows negative growth projections from equity investments, and only a limited number of firms depend upon equities for meeting their funding needs. Chadha and Sharma (2015), determined mean debt-to-equity ratio is 0.70, indicating a higher debt proportion than equity. The standard deviation is less than zero, indicating a normal spread of data points.

The mean value for the cash-to-cash cycle is 4.008, which shows most of the firms focus on working capital financing for meeting their short-run funding requirements with a cash conversion

cycle of 98 days. The minimum value of 0.070 shows the restricted dependence of one of the sample firms on working capital financing. Trade financing has a mean value of 0.235, which is less than 0.50 showing only a limited number of companies in India, finance them through trade credits, but a very high maximum value of 0.941 indicates trade credit as a supreme financing source for one of the listed firms. The mean value for factoring and reverse factoring dummies are 0.576 and 0.544, showing that many industrial firms in India consider selling receivables or use of receivables as collateral, a preferable financing source. Credit guarantees have also mean values less than 0.50 i-e 0.392 and 0.345, showing comparatively more than Pakistan, but a smaller number of firms in India receive guaranteed credits from suppliers. The maximum value is greater than 1, showing an increased proportion of credit guarantees implied by one of the sampled Indian firms. The analyzed standard deviation for all supply chain metrics is less than 1 i-e 0.564, 0.150, 0.494, 0.498, 0.231, and 0.227, showing less spread out of data points. All the measures show the normal distribution with a skewness near 0 and a convenient kurtosis near 3.

The mean values of return on asset, return on equity, and net profit margin are 0.079, 0.143, and 0.020, showing 7.93% income generation by using assets, 14.3% income generation through shareholdings, and only 2% income generation from total sales obtained. The negative minimum values show that one of the selected industrial firms has negative profits generated from assets utilization (-2.563), shareholder's funds (-1.029), and annual revenues (-7.086). The standard deviation for three accounting-based performance metrics is closer to the mean value i-e 0.423, 0.367, and 0.164. Iqbal (2022), calculated slightly closer mean values i-e 0.042 (ROA) and 0.097 (ROE). The ROCE has a mean value of 0.675, and ROIC has a mean value of 0.877, the values are approximately closer to 1, indicating effective utilization of the capital for investment purposes by most of the firms, with maximum values of 8.260 and 14.360. The standard deviations are less than 1 with symmetrical skewness and kurtosis.

The mean value of both market-based performance measures (Tobin's q and EPS) for Indian industrial sectors are 2.872 and 3.346, showing the increased profit due to high market values of the firms' shares than the book values. The minimum and maximum values for Tobin's q range between 0.080 and 10.426 and for EPS 0.018 and 19.968, which is relatively less than Pakistan and shows that the market performance of assets for Pakistan is slightly greater than for Indian listed industries. The calculated summary statistics show that the Indian corporate sector is mostly

undervalued (Chadha & Sharma, 2015). The high standard deviation for Tobin's q also indicates high market price volatility for Indian firms from 2007-2020. All the financial measures proved symmetrical skewness and kurtosis with achieved benchmarks.

GRI sustainability performance has obtained the mean value of 1.811, which is greater than 1, and a higher value indicates the better performance of Indian listed companies. The maximum value is 2.515 shows greater long-run performance of one of the selected companies during the study period. The GRI sustainability performance shows a normal distribution with a skewness of about 0, a kurtosis of 1.607, and a standard deviation closer to the mean value. The mean value of the sustainable growth rate is 0.313, representing 31% of the industrial firms in India has maintained long-run performance with sufficient internal funds and avoided considering external financing sources. One of the sampled firms has a high sustainable growth rate with a maximum value above 0.50. Both the GRI sustainability and the sustainable growth rate have standard deviations closer to the mean value i-e 0.291 and 0.392.

The computed mean value for stagflation is 0.786, which represents about 78.6% of listed industry firms in India that have experienced stagflation during the study period, which is comparatively higher than in Pakistan. The standard deviation is closer to the mean value 0 .410 with symmetrical skewness and kurtosis.

The mean value for the dividend payout ratio is 0.233, showing 23% of firms regularly pay dividends with a minimum and maximum value ranging between -2.512 and 3.112. The low dividend payout ratio shows that many of the firms are financially constrained. The mean value for the cost of external borrowing is 0.606 i-e 60.6%, which is above 0.50, showing that most of the firms are financially constrained because they avoid external borrowing due to high associated costs. The mean value of interest coverage ratio for Indian listed firms is computed as 0.325, which is less than 0.50, shows that most of the sample firms are more financially constrained, and a high maximum value of 2.829 indicates that one of the selected firms with high-interest coverage ratio is less financially constrained. Kumar and Ranjani (2018), evidenced the existence of financial constraints for Indian firms. The standard deviation for all three measures of financial constraints is less than 1, showing less spread out of data points with symmetrical skewness and kurtosis.

The mean value obtained for the corporate governance mechanism index for India is 0.560, indicating that only 56% of the listed nonfinancial firms in India consider corporate governance practices for managing their companies. Minimum value is 0.183, maximum 0.723 and standard deviation 0.241.

The mean value for firm size is 13.298 and the minimum and maximum values range between 11.233 and 16.745. The minimum value shows that one of the smaller size selected firms has only Rs 548577 assets and the maximum value shows that the larger size firm owns 36 million total assets. Asset tangibility has a mean value of 0.934, and it shows maximum tangibility for selected industrial firms i-e firms that have tangible assets that can be pledged for external financing. The minimum value shows that one of the firms has fewer tangible assets to be used for meeting its funding needs. The mean value for total asset turnover is 1.685, showing the operational efficiency of listed Indian firms. The minimum value shows the incapability of a company to effectively use its assets for generating sales. The standard deviation of the control variables is closer to the mean value, with symmetrical skewness and kurtosis.

**Table 4.1.2:** *Descriptive Statistics of India*

| Descriptive Statistics of India | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Observations | Mean | Minimum | Maximum | Standard deviation | Skewness | Kurtosis | Variance |
| Internal financing ratio | 3,472 | 0.421 | 0.112 | 0.786 | 0.814 | 0.585 | 2.640 | 0.663 |
| Retained earnings ratio | 3,472 | 0.335 | 0.108 | 0.871 | 0.110 | 0.307 | 2.776 | 0.012 |
| Short term debt | 3,472 | 0.387 | 0.028 | 0.778 | 0.139 | 0.364 | 2.678 | 0.019 |
| Long term debt | 3,472 | 0.437 | 0.079 | 0.592 | 0.159 | 0.531 | 2.725 | 0.025 |
| Total debt | 3,472 | 0.645 | 0.325 | 0.728 | 0.222 | 0.321 | 1.523 | 0.070 |
| Shadow banking assets | 3,472 | 0.563 | 0.000 | 1.000 | 0.496 | -0.256 | 1.065 | 0.246 |
| Shadow banking ratio | 3,472 | 0.222 | 0.003 | 0.696 | 0.120 | 0.369 | 2.440 | 0.014 |
| Common stocks | 3,472 | 0.370 | 0.008 | 0.525 | 0.388 | -0.396 | 1.157 | 0 .151 |
| Preferred stocks | 3,472 | 0.286 | 0.023 | 0.354 | 0 .408 | -0.353 | 1.125 | 0.167 |
| Equity ratio | 3,472 | 0.335 | 0.052 | 0.514 | 0.121 | -0.320 | 1.103 | 0.015 |
| Cash conversion cycle | 3,472 | 4.008 | 0.070 | 5.832 | 0.564 | -0.543 | 1.295 | 0.318 |
| Trade financing | 3,472 | 0.235 | 0.000 | 0.941 | 0.150 | -0.246 | 1.061 | 0.023 |
| Reverse factoring | 3,472 | 0.576 | 0.000 | 1.000 | 0.494 | -0.310 | 1.096 | 0.244 |
| Factoring | 3,472 | 0.544 | 0.000 | 1.000 | 0.498 | -0.176 | 1.031 | 0.248 |
| Credit guarantees ratio | 3,472 | 0.392 | 0.056 | 0.689 | 0.231 | -0.761 | 1.579 | 0.053 |
| Solvency rating ratio | 3,472 | 0.345 | 0.068 | 0.662 | 0.227 | 0.467 | 2.217 | 0.052 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Return on Assets | 3,472 | 0.079 | -2.563 | 3.633 | 0.423 | 0.059 | 2.212 | 0.179 |
| Return on Equity | 3,472 | 0.144 | -1.029 | 4.378 | 0.367 | 0.496 | 2.160 | 0.135 |
| Net Profit Margin | 3,472 | 0.020 | -7.086 | 1.227 | 0.164 | -0.758 | 1.575 | 0.154 |
| Return on capital employed | 3,472 | 0.675 | 0.002 | 8.260 | 0.859 | -0.719 | 1.517 | 0.737 |
| Return on invested capital | 3,472 | 0.877 | 0.006 | 14.360 | 0 .352 | -0.559 | 1.312 | 0 .124 |
| Tobin's Q | 3,472 | 2.872 | 0.080 | 10.426 | 0.490 | -0.384 | 1.147 | 0.241 |
| Earnings per share | 3,472 | 3.346 | 0.018 | 19.968 | 0.483 | -0.015 | 1.001 | 0.233 |
| GRI Sustainability | 3,472 | 1.811 | 0.774 | 2.515 | 0.291 | -0.779 | 1.607 | 0.085 |
| Sustainable growth rate | 3,472 | 0.313 | -1.537 | 1.752 | 0.392 | 0.585 | 2.640 | 0.154 |
| Stagflation Cycles | 3,472 | 0.786 | 0.000 | 1.000 | 0.410 | -0.142 | 1.020 | 0.168 |
| Dividend Payout ratio | 3,472 | 0.233 | -2.512 | 3.112 | 0.383 | -0.068 | 1.005 | 0.147 |
| Cost of external borrowing | 3,472 | 0.606 | -3.820 | 6.506 | 0.818 | -0.283 | 1.080 | 0.669 |
| Interest Coverage Ratio | 3,472 | 0.325 | -2.516 | 2.829 | 0.702 | -0.226 | 1.051 | 0.493 |
| Corporate Governance Mechanism index | 3,472 | 0.559 | 0.183 | 0.723 | 0.241 | 0.342 | 1.278 | 0.236 |
| Firm Size | 3,472 | 13.298 | 0. 020 | 1.150 | 0.176 | 0.272 | 1.074 | 0.734 |
| Asset Tangibility | 3,472 | 0.934 | 11.233 | 16.750 | 0.857 | 0.411 | 1.169 | 0.031 |
| Total Asset turnover | 3,472 | 1.685 | 0.008 | 8.744 | 0.294 | 0.465 | 1.216 | 0 .086 |

#### 4.1.5.3 Descriptive Statistics of China

Table 4.1.3 shows the descriptive statistics of 6,791 observations for the financial variables of selected nonfinancial listed firms of China. The average value for the internal financing ratio is 0.272, indicating less consideration of internal funds for financing. The minimum value computed is 0.125 and the maximum value is 0.861 indicating increased reliance of one of the selected firms on internal funds for meeting funding requirements. The retained earnings ratio mean value is above 50% i-e 54.4%, indicating positive support of earning surplus for fulfilling the financing needs of Chinese firms. Cull & Xu (2005), argued that Chinese competitive industries have limited retained earnings and consider external finances as a preferable financing source. The standard deviation for all three metrics is approximately closer to the mean value.

The computed mean values for short-run, long-run, and total debt financing alternatives are 0.283, 0.239, and 0.520, indicating that Chinese firms consider only 28%, 24%, and 52% debt financing for meeting their financing needs and this proportion is smaller than Pakistan and India. Zhao et al. (2022) found that Chinese firms avoid high debt financing due to increased collaterals and

agency costs and bankruptcy costs and desire to switch to alternative funding sources to avoid high debt constraints evidenced study also proved the negative effect of debt financing on performance in China. Short-term loans have less minimum value (6.7%) in comparison to long-term loans and total debt is 2% and 4%. The standard deviation for all three debt proportions is closer to the mean value. The statistics of skewness and kurtosis also show symmetrical distribution.

The computed mean value for shadow banking expansion in China is 0.565, indicating the adoption of shadow banking as a financing tool by many of the industrial companies but the proportion of shadow banking is comparatively less than in Pakistan and India i-e 16% only. Lu et al. (2015), highlighted shadow banking as an unregulated, informal, emerging financial market in China. The maximum value of 0.783 shows the increased dependence of one of the firms in China on shadow banking. The standard deviation for both the metrics is less than 1, i-e 0.496 and 0.467, which indicates normality and data distribution is also symmetrical.

The mean value for share capital of common shares and preference shares for Chinese listed firms is 0.532 and 0.412 with a minimum and maximum value ranging between 9% and 89%, one of the sampled firms considers common stocks and preference shares as a preferred financing source. Both metrics have a standard deviation closer to the mean value. The mean value for the equity ratio is 0.485, showing less proportion of equities in their financing alternatives, with a minimum value of 0.123 and a maximum value of 0.651. The summary statistics indicate high values for equity finances than debt finances, supporting the financing hierarchy stated by (Chen, 2004). The standard deviation of all the metrics indicates less spread of data points with skewness closer to 0 and kurtosis closer to 3.

Working capital financing has a wider scope in China with an average cash conversion cycle of 3.655 i-e 57 days, which shows a preference for working capital financing in Chinese industries for meeting their funding needs with shorter cash conversion cycles than Pakistan, India and Iran. The minimum value of minus 0.312 shows a shorter cash conversion cycle by one of the selected firms. The mean value of trade financing is 0.208, showing only a 21% proportion of payables financing among Chinese firms. Both factoring and reverse factoring have mean values greater than 0.50 i-e 0.545 and 0.573, showing effective utilization of receivables by most of the firms for meeting their financing needs. Both metrics of credit guarantees considering assets and operations have computed means 0.272 and 0.239, indicating less consideration of credit guarantees by

Chinese firms for meeting financing requirements and the proportion is comparatively less than Pakistan and India. China has a more stable financial system so credit guarantees are least preferred. The calculated standard deviation for all supply chain metrics is less than 1 i-e closer to the mean value. All the measures have symmetrical skewness and kurtosis.

The mean value of return on assets is 0.110, showing 11% net earnings obtained from the allocation of assets, with a negative minimum value showing that one of the selected firms obtained negative profits by utilizing the assets. The mean value for the return on equity measure of Chinese companies' financial performance is 0.030, represents only 3% profit generation from shareholders' investments and one of the sample firms has high negative net earnings from equities, analyzed by minimum return on equity i-e 10.204, indicates negative performance. The net profit margin mean value is 0.211, showing 21% net earnings from the total annual revenues, which is comparatively a low performance because the value is less than 50%. And minimum and maximum value ranges between -1.482 and 6.305. The standard deviation for three performance metrics is less than 1, so data points are closer to the mean value. Both ROCE and ROIC show mean values closer to 1 i-e 0.980 and 1.272, showing good performance resulting from efficient utilization of assets owned by Chinese firms. A very high maximum value indicates a firm's focus on the effective and efficient utilization of capital assets for achieving high financial performance. Both metrics have a standard deviation closer to the mean value with skewness closer to 0 and kurtosis closer to 3.

Tobin's q and EPS measures of financial performance have obtained the mean value of 4.147 and 4.648 lie between the minimum (2.694) and maximum values (27.000). The values are high in comparison to Pakistan and India, showing a high market price of the Chinese listed firm's shares. The reason might be the less volatility among the Chinese firms during the study period. The standard deviation for both market performance metrics is less than 1, with data points closer to the mean value i-e 0.491 and 0.494.

The computed mean value for measuring the GRI sustainability performance of Chinese firms is 7.590. GRI sustainability has a value greater than 1, indicating sustenance of high performance with a minimum value of 3.451 and a maximum value of 10.427. SGR shows 46% of the sampled firms maintain their economic sustainability with internal funding rather than considering external financing sources. As China has a more stable financial system, so large number of firms than

Pakistan and India can maintain financial sustainability. The minimum value shows a negative long-term growth rate experienced by one of the selected firms during 2007-2020. Standard deviation is closer to the mean value, and skewness and kurtosis show symmetrical distribution i-e 0.455 and 1.207.

For Chinese firms, the computed mean values show about 50% effect of macroeconomic turbulence over the period from 2007-2020, which is less than for Pakistan and India. China is comparatively more stable among Asian economies, European Central Bank reported that China has experienced imbalances resulting from macroeconomic turbulence, but the economic system retains strong buffers such as regulatory framework, structural reforms that may support the sustainable development in moderate terms (Dieppe et al., 2018). The computed standard deviation is closer to the mean value i-e 0.500.

The computed mean values show that Chinese firms are comparatively less financially constrained, with a dividend payout ratio of 0.982, a value above 0.50 showing that firms are more focused on regular payment of dividends. The mean value for the interest coverage ratio is 0.663, which is slightly above 0.50, representing that more Chinese firms can recover their interest expenses from earnings. The negative minimum values show that one of the sample firms has negative profits and avoids paying dividends and is more financially constrained. The means value for the cost of external borrowing is also above 0.50 i-e 1.360, but this shows avoidance of most of the Chinese firms borrowing from external sources due to high transaction cost, and this measure represents that most of the firms are financially constrained and minimum value is -8.581, shows high-interest expense against external borrowing. The standard deviations for all the metrics are 1.611, 1.908, and 1.420, with symmetrical skewness and kurtosis.

CGMI mean value for Chinese listed nonfinancial firms is 0.596, indicating that 60% of the listed nonfinancial firms in China consider corporate governance practices for controlling and managing the performance of their companies. The figure is comparatively higher than India and Pakistan. Maximum value 0.747 shows 75% implementation of governance mechanisms by one of the firm, Standard deviation, skewness and kurtosis satisfies the acceptable criteria.

The mean value for asset tangibility and total asset turnover is greater than 0.50 i-e 1.581 and 2.266, showing that many of the firms in China have tangible assets that can be utilized for

increasing external borrowing capacity as well the operational efficiency of companies. The minimum values of 0.033 and 0.014 indicate that one of the firms has fewer assets to meet the financing requirements. The computed mean value for firm size is 16.120, showing Chinese Yuan 10026065 worth of assets owned by the firms, with a minimum value of 0.014 (Chinese Yuan 620,770) for smaller size firms and a maximum value 20.200 (Chinese Yuan 592,791,171) for larger size firms. The standard deviation for all three metrics is closer to the mean value. The skewness for all the measures is closer to 0 and kurtosis is closer to 3.

**Table 4.1.3:** *Descriptive Statistics of China*

| Descriptive Statistics of China | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Observations | Mean | Minimum | Maximum | Standard deviation | Skewness | Kurtosis | Variance |
| Internal financing ratio | 6,791 | 0.272 | 0.125 | 0.861 | 0.490 | -0.402 | 1.162 | 0.240 |
| Retained earnings ratio | 6,791 | 0.545 | 0.109 | 0.887 | 0.353 | -0.348 | 1.121 | 0.125 |
| Short term debt | 6,791 | 0.282 | 0.068 | 0.858 | 0.484 | -0.516 | 1.266 | 0.234 |
| Long term debt | 6,791 | 0.239 | 0.017 | 0.543 | 0.494 | -0.314 | 1.099 | 0.244 |
| Total debt | 6,791 | 0.520 | 0.042 | 0.782 | 0.317 | -0.244 | 1.059 | 0.101 |
| Shadow banking assets | 6,791 | 0.565 | 0.000 | 1.000 | 0.496 | -0.260 | 1.068 | 0.246 |
| Shadow banking ratio | 6,791 | 0.159 | 0.001 | 0.783 | 0.467 | -0.768 | 1.589 | 0.218 |
| Common stocks | 6,791 | 0.532 | 0.178 | 0.893 | 0.492 | 0.317 | 2.852 | 0.243 |
| Preferred stocks | 6,791 | 0.412 | 0.092 | 0.648 | 0.375 | 0.356 | 2.870 | 0.141 |
| Equity ratio | 6,791 | 0.485 | 0.123 | 0.651 | 0.469 | -0.739 | 1.546 | 0.220 |
| Cash conversion cycle | 6,791 | 3.655 | -0.312 | 5.507 | 0.568 | -0.579 | 1.335 | 0.322 |
| Trade financing | 6,791 | 0.208 | 0.000 | 0.866 | 0.490 | -0.409 | 1.167 | 0.240 |
| Reverse factoring | 6,791 | 0.573 | 0.000 | 1.000 | 0.495 | -0.297 | 1.088 | 0.245 |
| Factoring | 6,791 | 0.545 | 0.000 | 1.000 | 0.498 | -0.182 | 1.033 | 0.248 |
| Credit guarantees ratio | 6,791 | 0.272 | 0.074 | 0.792 | 0.500 | -0.030 | 1.001 | 0.250 |
| Solvency rating ratio | 6,791 | 0.239 | 0.066 | 0.722 | 0.158 | 0.488 | 2.257 | 0.025 |
| Return on Assets | 6,791 | 0.110 | -5.050 | 5.231 | 0.466 | -0.779 | 1.607 | 0.217 |
| Return on Equity | 6,791 | 0.030 | -10.204 | 1.766 | 0.574 | -0.146 | 1.021 | 0.330 |
| Net Profit Margin | 6,791 | 0.211 | -1.482 | 6.305 | 0.511 | 0.466 | 1.058 | 0.261 |
| Return on capital employed | 6,791 | 0.980 | 0.003 | 12.060 | 0.319 | -0.082 | 1.007 | 0 .102 |
| Return on invested capital | 6,791 | 1.272 | 0.008 | 20.966 | 0.317 | 0.251 | 1.063 | 0.101 |
| Tobin’s Q | 6,791 | 4.147 | 2.694 | 14.845 | 0.491 | 0.384 | 1.148 | 0.241 |
| Earnings per share | 6,791 | 4.648 | 2.072 | 27.000 | 0.494 | -0.307 | 1.094 | 0.244 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GRI Sustainability | 6,791 | 7.590 | 3.451 | 10.427 | 0.554 | 0.455 | 1.207 | 0.306 |
| Sustainable growth rate | 6,791 | 0.459 | -2.324 | 1.660 | 0.480 | -0.576 | 1.332 | 0.231 |
| Stagflation Cycles | 6,791 | 0.500 | 0.000 | 1.000 | 0.500 | 0.000 | 1.000 | 0.250 |
| Dividend Payout ratio | 6,791 | 0.982 | -10.786 | 13.666 | 0.320 | -0.125 | 1.016 | 0.102 |
| Cost of external borrowing | 6,791 | 1.360 | -8.581 | 17.678 | 0.445 | -0.016 | 1.000 | 0.198 |
| Interest Coverage Ratio | 6,791 | 0.663 | -5.205 | 10.677 | 0.500 | 0.017 | 1.000 | 0.250 |
| Corporate Governance Mechanism index | 6,791 | 0.596 | 0.122 | 0.747 | 0.351 | 0.131 | 1.221 | 0.187 |
| Firm Size | 6,791 | 16.120 | 13.339 | 20.200 | 0.449 | 0.163 | 1.027 | 0.202 |
| Asset Tangibility | 6,791 | 1.581 | 0.033 | 2.124 | 0.300 | -0.165 | 1.027 | 0.090 |
| Total Asset turnover | 6,791 | 2.266 | 0.014 | 12.644 | 0.500 | -0.351 | 1.124 | 0.250 |

#### 4.1.5.4 Descriptive Statistics of Iran

Table 4.1.4 shows the summary statistics of 3,024 observations for the sampled nonfinancial listed firms in Iran. The computed average value of the internal financing ratio is 0.417 with a maximum value of 0.721, which represents that firms have sufficient internal funds that can be supportive for meeting financing needs. The value is lower in comparison to India and China but almost closer to Pakistan. For the earnings surplus ratio, the value is 0.305, indicating 31% of Iranian firms are with earnings surplus and rely on internal financing. The standard deviations for all the measures are closer to the mean value with symmetrical distributions.

The determined mean values for the debt structure of Iranian firms are 0.428, 0.374, and 0.684, indicating 43% short-term loans, 37% long-term loans, and 68% total debt funding proportions are applied by Iranian firms, and this is comparatively higher than China, and Pakistan, shows more reliance of Iranian listed firms on debts for meeting their financing requirements. Ebrati et al. (2013), highlighted that listed Iranian companies support their operations with an increased proportion of debt financing and short-term debts are preferred over long-term debts and the possible reason may be the non-availability of a well-developed public debt market and cost restrictions associated with external debts. The minimum values highlight less preference for leverage ratios by one of the sample firms. All three leverage ratios have standard deviations closer to the mean value, with skewness closer to 0 and kurtosis closer to 3.

The means values for shadow bank financing metrics are 0.527 and 0.254, indicating the expansion of shadow bank financing in Iran but the proportion of shadow banking assets is still less in comparison to other finances. The standard deviation indicates that data points are closer to the mean value i-e 0.497 and 0.134. Both measures have symmetrical skewness and kurtosis.

The proportion of equity financing is less in Iran as indicated by computed mean values for common shares and preferred stocks i-e 41.7% and 30.5%. Iranian companies prefer equity financing over debt financing. Ahmadimousaabad & Nodeh (2017), proved that profitable listed companies in Iran prefer equity funds over debts. The equity ratio is 0.371 indicates 37% of firms' consideration of equities in meeting their funding requirements. Ebrati et al. (2013), proved overvaluation of equity prices. The standard deviation for the three equity measures is less than 1.

The estimated levels of supply chain financing for Iranian firms are 4.100 (CCC of 66 days), 0.184 (trade financing), 0.560 and 0.554 (factoring and reverse factoring), and 0.297 and 0.260 (credit guarantees). Trade credits are the least preferred financing alternative and receivables financing is a relatively preferred financing option. The minimum value for the cash conversion cycle is positive, indicating a flexible financing policy. The values indicate the expansion of supply chain financing in Iran, consistent with China, India, and Pakistan. The standard deviation for all the metrics is less than 1 with symmetrical skewness and kurtosis.

The mean values for accounting-based performance metrics are 0.073 (7.3% return on assets), 0.088 (9% return on equity), and 0.123 (12.3% net profit margin). The negative minimum values for all three metrics show that one of the selected firms has obtained negative profits from asset utilization, equity investments, and annual revenues. The figures are approximately closer to the other selected SCO states. The calculated mean values align with 1 (Ebrati et al., 2013), indicating comparative underperformance during the study duration. The mean values for ROCE and ROIC are greater than 0.50, i-e 0.770 and 0.883 with a maximum value ranging between 5.696 and 8.689, showing effective use of capital assets by industry firms in Iran. The standard deviation value is closer to the mean and shows less spread out of data points. The skewness and kurtosis of the measures are symmetrical i-e -0.812, -0.853, and 1.660, 1.728 respectively.

Tobin's q and EPS measures of market performance have mean values of 3.318 and 2.610, values above 0.50, indicating good market performance for Iranian firms with high market prices for

shares of listed companies. The minimum values are the presentation of high replacement costs for the book value of equity. The computed standard deviations are closer to 1, hence normally distributed data points.

For Iranian listed firms, GRI sustainability and sustainable growth rate have mean values of 7.892 and 0.225. High GRI sustainability shows high long-run performance for industrial firms listed on Tehran Stock Exchange. The negative minimum value shows negative profits obtained by one of the selected firms. Iran has low financial stability than China and standard deviations are closer to the mean value.

For Iranian firms, the computed mean values of stagflation cycles show about 64.2% effect of macroeconomic turbulence over the study period, which is relatively higher than China and closer to Pakistan. The computed standard deviation is closer to the mean value. Heybati (2021), documented the negative effects of uncertain macroeconomic spikes in Iran, consistent with the study period.

For Iranian firms, the computed dividend payout ratio and interest coverage ratio are less than 0.50 i-e 0.134 and 0.139, and the interest coverage ratio is more than 0.50 shows that the firms are highly financially constrained. The maximum value shows that one of the firms pays more dividends, experience low-cost external borrowing, and can cover interest expenses. The calculated standard deviations show that data points are closer to the mean value. The value for skewness is closer to zero and for kurtosis, it is slightly above 1, indicating symmetrical distribution.

Listed companies in Iran have a CGMI mean value of 0.520 showing that only 52% of companies imply governance mechanisms for performance management of their companies. The identified value is less than China, India, and Pakistan. Minimum 0.112, maximum 0.613, standard deviation, skewness and kurtosis satisfies the acceptable criteria.

Control variables including Asset tangibility and total asset turnover have mean values of 1.244 and 1.024, which are above 0.50, hence firms are operationally efficient with a larger magnitude of intangible assets. Minimum values show less asset tangibility and operational inefficiency. Firm size has a mean value of 9.936 ranging between a minimum of 8.349 (378,518 Rials assets) for

smaller size firms and a maximum value of 12.567 (24 million Rials assets) for larger size firms. The standard deviation is closer to the mean value with symmetrical skewness and kurtosis.

**Table 4.1.4:** *Descriptive Statistics of Iran*

| Descriptive Statistics of Iran | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Observations | Mean | Minimum | Maximum | Standard deviation | Skewness | Kurtosis | Variation |
| Internal financing ratio | 3,024 | 0.417 | 0.097 | 0.721 | 0.682 | 0.601 | 1.685 | 0.464 |
| Retained earnings ratio | 3,024 | 0.305 | 0.099 | 0.839 | 0.383 | -0.409 | 1.168 | 0.147 |
| Short term debt | 3,024 | 0.428 | 0.063 | 0.884 | 0.154 | 0.485 | 2.605 | 0.024 |
| Long term debt | 3,024 | 0.374 | 0.029 | 0.556 | 0.141 | 0.330 | 2.539 | 0.020 |
| Total debt | 3,024 | 0.684 | 0.070 | 0.683 | 0.235 | 0.423 | 1.563 | 0.082 |
| Shadow banking assets | 3,024 | 0.527 | 0.000 | 1.000 | 0.497 | -0.228 | 1.052 | 0.247 |
| Shadow banking ratio | 3,024 | 0.254 | 0.002 | 0.621 | 0.134 | 0.400 | 3.082 | 0.018 |
| Common stocks | 3,024 | 0.354 | 0.023 | 0.517 | 0.489 | 0.692 | 2.811 | 0.239 |
| Preferred stocks | 3,024 | 0.203 | 0.005 | 0.453 | 0.465 | 0.656 | 1.613 | 0.216 |
| Equity ratio | 3,024 | 0.371 | 0.065 | 0.473 | 0.133 | 0.324 | 1.106 | 0.018 |
| Cash conversion cycle | 3,024 | 4.100 | 0.184 | 5.834 | 0.565 | -0.525 | 1.660 | 0.319 |
| Trade financing | 3,024 | 0.184 | 0.000 | 0.743 | 0.496 | 0 .256 | 1.066 | 0.246 |
| Reverse factoring | 3,024 | 0.560 | 0.000 | 1.000 | 0.497 | -0.241 | 1.058 | 0.247 |
| Factoring | 3,024 | 0.554 | 0.000 | 1.000 | 0.497 | -0.216 | 1.046 | 0.247 |
| Credit guarantees ratio | 3,024 | 0.297 | 0.000 | 0.566 | 0.181 | 0.646 | 1.067 | 0.033 |
| Solvency rating ratio | 3,024 | 0.260 | 0.002 | 0.592 | 0.175 | 0.523 | 2.259 | 0.031 |
| Return on Assets | 3,024 | 0.073 | -1.203 | 0.895 | 0.323 | -0.294 | 2.793 | 0.104 |
| Return on Equity | 3,024 | 0.123 | -0.813 | 0.848 | 0.277 | -0.319 | 2.960 | 0.077 |
| Net Profit Margin | 3,024 | 0.088 | -3.273 | 0.859 | 0.379 | 0.127 | 1.017 | 0.144 |
| Return on capital employed | 3,024 | 0.770 | 0.002 | 5.696 | 0 .463 | -0.812 | 1.660 | 0.215 |
| Return on invested capital | 3,024 | 0.883 | 0.006 | 8.689 | 0 .460 | -0.853 | 1.728 | 0.212 |
| Tobin's Q | 3,024 | 3.318 | 0.065 | 11.677 | 0.415 | -0.714 | 1.509 | 0.172 |
| Earnings per share | 3,024 | 2.610 | 0.011 | 23.329 | 0.407 | -0.702 | 1.494 | 0.166 |
| GRI Sustainability | 3,024 | 7.892 | 3.250 | 11.085 | 0.490 | -0.591 | 1.385 | 0.240 |
| Sustainable growth rate | 3,024 | 0.225 | -1.060 | 1.208 | 0.450 | 0.483 | 1.685 | 0.202 |
| Stagflation Cycles | 3,024 | 0.643 | 0.000 | 1.000 | 0.479 | -0.596 | 1.356 | 0.230 |
| Dividend Payout ratio | 3,024 | 0.134 | -1.376 | 2.546 | 0 .493 | -0.316 | 1.100 | 0.244 |
| Cost of external borrowing | 3,024 | 0.686 | -5.939 | 8.535 | 0 .484 | -0.514 | 1.264 | 0.235 |
| Interest Coverage Ratio | 3,024 | 0.139 | -0.994 | 4.150 | 0 .491 | -0.392 | 1.154 | 0 .241 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Corporate Governance Mechanism index | 3,024 | 0.520 | 0.112 | 0.613 | 0.412 | 0.214 | 1.554 | 0.183 |
| Firm Size | 3,024 | 9.936 | 8.349 | 12.567 | 0.676 | 0 .021 | 1.001 | 0.456 |
| Asset Tangibility | 3,024 | 1.244 | 0.026 | 1.515 | 0.213 | 0.475 | 1.226 | 0.045 |
| Total Asset turnover | 3,024 | 1.024 | 0.005 | 5.185 | 0.757 | 0 .629 | 1.187 | 0.573 |

### 4.1.6 Preliminary Diagnostics Tests

For conducting the OLS regression analysis, the preliminary assumptions for regression must be fulfilled. The referenced studies documented that preliminary assumptions need to be fulfilled for the conduction of OLS regression and its contribution as a Best Linear Unbiased Estimator (BLUE), e.g (Samour & Hassan 2016; Pallant 2011 and Gujarati 2003). They also tested and proved the following presumptions before conducting OLS regression, specifically normality, autocorrelation, heteroskedasticity, and multicollinearity. For examination of the stabilized traditional and updated regression models: OLS-regression, fixed effect model, and random effect model, the current study applied different statistics for satisfying normality, autocorrelation, heteroskedasticity, and multicollinearity assumptions.

#### 4.1.6.1 Multicollinearity Diagnostic

The important assumption for the conduction of regression analysis is the satisfaction of multicollinearity statistics. They conceptualized multicollinearity as the degree of correlation between two or more independent variables (Stock and Watson, 2007). They documented that the presence of multicollinearity between the variables resulted in unreliable results. (Ahmed, 2018) He documented that existing studies based on corporate finance research were found to consist of Variance Inflation Factor (VIF) for examining the multi-correlation effects, e.g., (Nazir et al. 2021; Kipesha & James 2014; Garson 2012). Pallant (2011), stated that the most used test for determining the variables' correlation is VIF statistic. The acceptable values for VIF statistics are less than 5, values above 5 entail multicollinearities (Wooldridge, 2015). VIF values between 5 and 10 shows moderate multicollinearity and value above 10 shows high multicollinearity, requires to apply mitigation techniques. Table 4.1.5 shows the results of VIF multicollinearity test for Pakistan, India, China and Iran. The VIF value for 24 explanatory variables is less than 5, satisfying the multicollinearity problem in the sample variables.

**Table 4.1.5:** *VIF Multicollinearity Test for SCO Countries*

| VIF Multicollinearity Test | | | | |
|---|---|---|---|---|
| Variable | VIF Pakistan | VIF India | VIF China | VIF Iran |
| Internal financing ratio | 1.68 | 1.08 | 2.55 | 1.10 |
| Retained earnings ratio | 1.44 | 1.61 | 2.19 | 1.65 |
| Short term debt | 2.61 | 2.49 | 1.97 | 2.54 |
| Long term debt | 2.22 | 2.92 | 1.37 | 2.98 |
| Total debt | 3.12 | 2.62 | 2.74 | 2.68 |
| Shadow banking assets | 2.35 | 2.63 | 1.57 | 2.68 |
| Shadow banking ratio | 2.69 | 1.01 | 2.09 | 1.03 |
| Common stocks | 2.44 | 2.73 | 3.71 | 2.79 |
| Preferred stocks | 2.56 | 1.87 | 3.89 | 1.90 |
| Equity ratio | 2.23 | 2.50 | 3.39 | 2.55 |
| Cash conversion cycle | 1.03 | 1.15 | 1.57 | 1.18 |
| Trade financing | 2.16 | 2.42 | 3.28 | 2.47 |
| Reverse factoring | 1.54 | 1.72 | 2.34 | 1.76 |
| Factoring | 1.88 | 2.11 | 2.86 | 2.15 |
| Credit guarantees ratio | 1.05 | 1.18 | 1.60 | 1.20 |
| Solvency rating ratio | 1.08 | 1.21 | 1.64 | 1.23 |
| Stagflation Cycles | 3.65 | 4.09 | 3.55 | 4.17 |
| Dividend Payout ratio | 1.09 | 1.22 | 1.66 | 1.25 |
| Cost of external borrowing | 1.23 | 1.38 | 1.87 | 1.41 |
| Interest Coverage Ratio | 1.45 | 1.62 | 2.20 | 1.66 |
| Corporate Governance Mechanism index | 3.68 | 2.12 | 2.59 | 2.16 |
| Firm Size | 3.67 | 4.11 | 3.58 | 3.19 |
| Asset Tangibility | 4.12 | 4.28 | 3.81 | 3.36 |
| Total Asset turnover | 3.82 | 4.61 | 3.26 | 3.71 |

### 4.1.6.2 Correlation Analysis

Correlation statistics are applied for evaluating the strength of interrelation between two variables. The correlation coefficient represented by ‘r’, measures the covariance in scores between the two variables. Arkkelin (2014), assesses the direction and degree of relatedness between the two continuous variables. The statistical significance among the variables can be measured by applying the conventional probability criterion i-e 0.05 significance level. A strong correlation between the two variables is indicated by high scores of correlation coefficient i-e ‘r’ greater than 0.5, a weak correlation between the two variables is indicated by low scores of correlation coefficient i-e ‘r’

less than 0.3, and moderate correlation, the value of r is greater than 0.3 and less than 0.5 and above 0.5 indicates strong correlation.

Table 4.1.5-table 4.1.8 highlights the results of correlation analysis for Pakistan, India, China and Iran. The correlation statistics employed: 1) explanatory variables: internal financing (internal financing ratio and retained earnings ratio), debt financing (short-term debt, long-term debt, and total debt), shadow bank finance (shadow banking ratio, solvency rating ratio), equity financing (common stocks, preferred stocks, equity ratio), supply chain financing (cash conversion cycle, trade financing, credit guarantees, account receivables factoring financing), 2) moderators: stagflation cycles, dividend pay-out ratio, cost of external borrowing, interest coverage ratio, and CGMI, 3) control variables: firm size, asset tangibility, and total asset turnover. The results present significant weak to moderate correlation with values ranging between 0.1 to 0.5 and less than 0.05 significance level. Hence, statistics satisfies the assumption of no multicollinearity for the variables, and further diagnostics can be applied for progression to panel regression.

**Table 4.1.6:** *Correlation Analysis for Pakistan*

| | IFR | RER | LTD | STD | TD | SBA | SBR | CS | PS | ER | CCC | TF | CGR | SRR | RF | FF | SC | DPR | CEB | ICR | CGMI | FS | AT | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IFR | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| RER | 0.3616* | 1 | | | | | | | | | | | | | | | | | | | | | | |
| LTD | 0.3366* | 0.3269* | 1 | | | | | | | | | | | | | | | | | | | | | |
| STD | 0.4366* | 0.3419* | 0.3241* | 1 | | | | | | | | | | | | | | | | | | | | |
| TD | 0.3938* | 0.4813* | 0.5231* | 0.5231* | 1 | | | | | | | | | | | | | | | | | | | |
| SBA | 0.4001* | 0.3607* | 0.4373* | 0.4373* | 0.4622* | 1 | | | | | | | | | | | | | | | | | | |
| SBR | 0.3566* | 0.3785* | 0.3634* | 0.5634* | 0.2978* | 0.3140* | 1 | | | | | | | | | | | | | | | | | |
| CS | 0.3566* | 0.3185* | 0.3124* | 0.3234* | 0.4128* | 0.4140* | 0.3411* | 1 | | | | | | | | | | | | | | | | |
| PS | 0.3249* | 0.2682* | 0.2249* | 0.2249* | 0.2701* | 0.2810* | 0.2873* | 0.2873* | 1 | | | | | | | | | | | | | | | |
| ER | 0.3678* | 0.3232* | 0.3239* | 0.1539* | 0.1395* | 0.1676* | 0.2027* | 0.2027* | 0.3852* | 1 | | | | | | | | | | | | | | |
| CCC | 0.3369* | 0.2113* | 0.2525* | 0.2525* | 0.2080* | 0.2822* | 0.3208* | 0.3208* | 0.1862* | 0.4750* | 1 | | | | | | | | | | | | | |
| TF | 0.2614* | 0.3468* | 0.2540* | 0.2540* | 0.2465* | 0.3041* | 0.3523* | 0.3523* | 0.2283* | 0.2899* | 0.3495* | 1 | | | | | | | | | | | | |
| CGR | 0.4468* | 0.2705* | 0.3745* | 0.3745* | 0.3840* | 0.4476* | 0.5187* | 0.5187* | 0.1516* | 0.2652* | 0.3970* | 0.3120* | 1 | | | | | | | | | | | |
| SRR | 0.3467* | 0.3801* | 0.3883* | 0.4113* | 0.3870* | 0.4238* | 0.5183* | 0.5183* | 0.4362* | 0.6523* | 0.3241* | 0.3780* | 0.3442* | 1 | | | | | | | | | | |
| RF | 0.3909* | 0.4429* | 0.2783* | 0.2833* | 0.3544* | 0.3281* | 0.5130* | 0.5130* | 0.2505* | 0.2047* | 0.3280* | 0.2451* | 0.4244* | 0.4125* | 1 | | | | | | | | | |
| FF | 0.4090* | 0.3448* | 0.3437* | 0.3477* | 0.3356* | 0.3770* | 0.4889* | 0.4889* | 0.2473* | 0.1351* | 0.2163* | 0.2880* | 0.4273* | 0.4063* | 0.4126* | 1 | | | | | | | | |
| SC | 0.3627* | 0.3362* | 0.3780* | 0.4120* | 0.3868* | 0.3607* | 0.4916* | 0.4916* | 0.2423* | 0.1261* | 0.1956* | 0.2156* | 0.4205* | 0.3370* | 0.2985* | 0.4447* | 1 | | | | | | | |
| DPR | 0.3544* | 0.3857* | 0.3589* | 0.3421* | 0.3156* | 0.3938* | 0.4922* | 0.4922* | 0.1921* | 0.2808* | 0.1742* | 0.2072* | 0.3306* | 0.3040* | 0.3327* | 0.4500* | 0.4470* | 1 | | | | | | |
| CEB | 0.3102* | 0.3804* | 0.3692* | 0.3022* | 0.4156* | 0.4001* | 0.5046* | 0.3216* | 0.2657* | 0.3248* | 0.1775* | 0.1572* | 0.3346* | 0.2973* | 0.3360* | 0.4158* | 0.4331* | 0.3259* | 1 | | | | | |
| ICR | 0.4968* | 0.5182* | 0.5055* | 0.5055* | 0.5041* | 0.5125* | 0.3832* | 0.3832* | 0.2752* | 0.3499* | 0.2943* | 0.2997* | 0.4126* | 0.4755* | 0.3336* | 0.3266* | 0.3246* | 0.3739* | 0.3691* | 1 | | | | |
| CGMI | 0.4222* | 0.4404* | 0.4296* | 0.2675* | 0.4284* | 0.4356* | 0.2807* | 0.3807* | 0.2339* | 0.4274* | 0.2501* | 0.2547* | 0.4471* | 0.4041* | 0.2385* | 0.3176* | 0.3151* | 0.3578* | 0.3735* | 0.4321* | 1 | | | |
| FS | 0.3167* | 0.3303* | 0.3222* | 0.4225* | 0.3213* | 0.3267* | 0.4355* | 0.4355* | 0.2754* | 0.2615* | 0.1876* | 0.3105* | 0.3353* | 0.3031* | 0.4039* | 0.2632* | 0.4613* | 0.4933* | 0.4903* | 0.3241* | 0.3821* | 1 | | |
| AT | 0.2483* | 0.2581* | 0.2526* | 0.2264* | 0.2518* | 0.2561* | 0.3414* | 0.3414* | 0.1375* | 0.2492* | 0.3709* | 0.2979* | 0.2628* | 0.2376* | 0.3166* | 0.3631* | 0.3621* | 0.3867* | 0.3843* | 0.2542* | 0.2995* | 0.3422* | 1 | |
| TAT | 0.2571* | 0.2682* | 0.2616* | 0.2672* | 0.2608* | 0.2652* | 0.3536* | 0.3536* | 0.2457* | 0.3751* | 0.3523* | 0.2551* | 0.2722* | 0.2461* | 0.3273* | 0.3761* | 0.3750* | 0.4006* | 0.3981* | 0.2631* | 0.3102* | 0.3812* | 0.3677* | 1 |

"Note: Correlation coefficient 'r' measures the covariance in scores between two explanatory variables. IFR=Internal financing ratio, RER= Retained earnings ratio, LTD=Long-term debt, STD=Short-term debt, TD =Total debt, SBS=Shadow banking assets, SBP=Shadow banking ratio, CS=Common stocks, PS=Preferred stocks, ER= Equity ratio, CCC=Cash conversion cycle, TF=Trade financing, CGR=Credit guarantees ratio, SRR=Solvency rating ratio, RF= Reverse factoring, FD=Factoring, SC=Stagflation cycles, DPR=Dividend payout ratio, CEB=Cost of external borrowing, ICR=Interest coverage ratio, CGMI=Corporate governance mechanism index, FS=Firm size, AT=Asset tangibility, TAT=Total asset turnover".

**Table 4.1.7:** *Correlation Analysis for India*

| | IFR | RER | LTD | STD | TD | SBA | SBR | CS | PS | ER | CCC | TF | CGR | SRR | RF | FF | SC | DPR | CEB | ICR | CGMI | FS | AT | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IFR | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| RER | 0.4766* | 1 | | | | | | | | | | | | | | | | | | | | | | |
| LTD | 0.4704* | 0.3293* | 1 | | | | | | | | | | | | | | | | | | | | | |
| STD | 0.4073* | 0.4924* | 0.4943* | 1 | | | | | | | | | | | | | | | | | | | | |
| TD | 0.4669* | 0.4167* | 0.3919* | 0.4397* | 1 | | | | | | | | | | | | | | | | | | | |
| SBA | 0.3618* | 0.4183* | 0.4810* | 0.3567* | 0.3963* | 1 | | | | | | | | | | | | | | | | | | |
| SBR | 0.3461* | 0.3940* | 0.3345* | 0.3017* | 0.3821* | 0.4603* | 1 | | | | | | | | | | | | | | | | | |
| CS | 0.2818* | 0.4494* | 0.3879* | 0.4005* | 0.5300* | 0.4281* | 0.3994* | 1 | | | | | | | | | | | | | | | | |
| PS | 0.2665* | 0.4481* | 0.4011* | 0.3698* | 0.4335* | 0.4964* | 0.4102* | 0.4351* | 1 | | | | | | | | | | | | | | | |
| ER | 0.2456* | 0.2643* | 0.2525* | 0.1677* | 0.2793* | 0.3170* | 0.4294* | 0.2676* | 0.3161* | 1 | | | | | | | | | | | | | | |
| CCC | 0.2894* | 0.2867* | 0.3725* | 0.3906* | 0.3156* | 0.4297* | 0.2684* | 0.3767* | 0.3767* | 0.1776* | 1 | | | | | | | | | | | | | |
| TF | 0.4143* | 0.5361* | 0.5083* | 0.4765* | 0.3664* | 0.3496* | 0.4238* | 0.3343* | 0.3317* | 0.2681* | 0.3425* | 1 | | | | | | | | | | | | |
| CGR | 0.4174* | 0.5660* | 0.5024* | 0.4378* | 0.3432* | 0.2955* | 0.3344* | 0.4598* | 0.4076* | 0.2005* | 0.3626* | 0.5158* | 1 | | | | | | | | | | | |
| SRR | 0.4292* | 0.4211* | 0.3382* | 0.3241* | 0.3785* | 0.4958* | 0.4129* | 0.4339* | 0.2963* | 0.2456* | 0.2064* | 0.4655* | 0.4448* | 1 | | | | | | | | | | |
| RF | 0.3872* | 0.4088* | 0.3871* | 0.2909* | 0.2413* | 0.4547* | 0.2859* | 0.3371* | 0.4073* | 0.2433* | 0.3306* | 0.4653* | 0.4508* | 0.4026* | 1 | | | | | | | | | |
| FF | 0.3657* | 0.3763* | 0.3492* | 0.4722* | 0.3751* | 0.5050* | 0.2927* | 0.3048* | 0.3041* | 0.3140* | 0.4475* | 0.4813* | 0.4100* | 0.3002* | 0.2903* | 1 | | | | | | | | |
| SC | 0.5454* | 0.6042* | 0.5397* | 0.5232* | 0.4590* | 0.3022* | 0.4533* | 0.5267* | 0.4811* | 0.3402* | 0.4585* | 0.3575* | 0.4002* | 0.3356* | 0.4111* | 0.3836* | 1 | | | | | | | |
| DPR | 0.3223* | 0.3761* | 0.3853* | 0.4116* | 0.4604* | 0.5063* | 0.2874* | 0.2961* | 0.3658* | 0.2887* | 0.2110* | 0.4184* | 0.2744* | 0.2900* | 0.2135* | 0.4114* | 0.4068* | 1 | | | | | | |
| CEB | 0.3798* | 0.4517* | 0.3778* | 0.3714* | 0.3898* | 0.5160* | 0.4396* | 0.3208* | 0.2866* | 0.1938* | 0.3378* | 0.4594* | 0.3914* | 0.4888* | 0.3570* | 0.3882* | 0.3549* | 0.4110* | 1 | | | | | |
| ICR | 0.2878* | 0.4172* | 0.3238* | 0.2884* | 0.4009* | 0.4473* | 0.3869* | 0.3594* | 0.2971* | 0.2527* | 0.2089* | 0.4374* | 0.2627* | 0.4354* | 0.2931* | 0.2653* | 0.4276* | 0.3665* | 0.4386* | 1 | | | | |
| CGMI | 0.2532* | 0.3661* | 0.2844* | 0.2537* | 0.3527* | 0.3936* | 0.3404* | 0.3162* | 0.2614* | 0.2223* | 0.1838* | 0.3849* | 0.2311* | 0.3831* | 0.2579* | 0.2334* | 0.3762* | 0.3221* | 0.3859* | 0.3421* | 1 | | | |
| FS | 0.2820* | 0.4086* | 0.3173* | 0.2826* | 0.3928* | 0.4383* | 0.3791* | 0.3522* | 0.2911* | 0.2476* | 0.2047* | 0.4286* | 0.2574* | 0.4266* | 0.2872* | 0.2599* | 0.4190* | 0.3591* | 0.4298* | 0.3218* | 0.3461* | 1 | | |
| AT | 0.3849* | 0.3577* | 0.4331* | 0.3857* | 0.5362* | 0.3983* | 0.5175* | 0.4807* | 0.3974* | 0.3380* | 0.2794* | 0.3850* | 0.3513* | 0.3823* | 0.3920* | 0.3548* | 0.3719* | 0.4902* | 0.3866* | 0.5199* | 0.2654* | 0.3733* | 1 | |
| TAT | 0.3541* | 0.3131* | 0.3984* | 0.35490 | 0.4933* | 0.3504* | 0.4761* | 0.4422* | 0.3656* | 0.3109* | 0.2570* | 0.3382* | 0.3232* | 0.3357* | 0.3606* | 0.3264* | 0.3262* | 0.4510* | 0.3397* | 0.4783* | 0.3984* | 0.3434* | 0.3422* | 1 |

**Table 4.1.8:** *Correlation Analysis for China*

| | IFR | RER | LTD | STD | TD | SBA | SBR | CS | PS | ER | CCC | TF | CGR | SRR | RF | FF | SC | DPR | CEB | ICR | CGMI | FS | AT | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IFR | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| RER | 0.3609* | 1 | | | | | | | | | | | | | | | | | | | | | | |
| LTD | 0.5208* | 0.3603* | 1 | | | | | | | | | | | | | | | | | | | | | |
| STD | 0.5307* | 0.5048* | 0.5400* | 1 | | | | | | | | | | | | | | | | | | | | |
| TD | 0.3790* | 0.3446* | 0.4776* | 0.4415* | 1 | | | | | | | | | | | | | | | | | | | |
| SBA | 0.3479* | 0.3908* | 0.3800* | 0.3096* | 0.3026* | 1 | | | | | | | | | | | | | | | | | | |
| SBR | 0.1858* | 0.3081* | 0.2652* | 0.2658* | 0.1846* | 0.3251* | 1 | | | | | | | | | | | | | | | | | |
| CS | 0.2398* | 0.1499* | 0.2122* | 0.2227* | 0.2259* | 0.2810* | 0.1664* | 1 | | | | | | | | | | | | | | | | |
| PS | 0.3217* | 0.2173* | 0.3227* | 0.2186* | 0.3162* | 0.3737* | 0.2346* | 0.4851* | 1 | | | | | | | | | | | | | | | |
| ER | 0.1747* | 0.3052* | 0.2994* | 0.2624* | 0.3113* | 0.3625* | 0.2791* | 0.3199* | 0.3586* | 1 | | | | | | | | | | | | | | |
| CCC | 0.4253* | 0.2812* | 0.4014* | 0.3947* | 0.4654* | 0.3261* | 0.1792* | 0.3338* | 0.4669* | 0.3606* | 1 | | | | | | | | | | | | | |
| TF | 0.3947* | 0.3766* | 0.4428* | 0.4053* | 0.4408* | 0.3517* | 0.3748* | 0.2887* | 0.3368* | 0.2898* | 0.3691* | 1 | | | | | | | | | | | | |
| CGR | 0.4445* | 0.4874* | 0.4380* | 0.3983* | 0.3942* | 0.2798* | 0.1673* | 0.2344* | 0.3466* | 0.3047* | 0.3995* | 0.4254* | 1 | | | | | | | | | | | |
| SRR | 0.3876* | 0.3541* | 0.3422* | 0.3471* | 0.4279* | 0.4971* | 0.2847* | 0.1717* | 0.2491* | 0.3189* | 0.4505* | 0.4364* | 0.4294* | 1 | | | | | | | | | | |
| RF | 0.3981* | 0.3427* | 0.3795* | 0.3651* | 0.3350* | 0.4879* | 0.1399* | 0.1518* | 0.2237* | 0.2222* | 0.4559* | 0.3486* | 0.3490* | 0.4836* | 1 | | | | | | | | | |
| FF | 0.3315* | 0.4066* | 0.3828* | 0.3622* | 0.3988* | 0.3041* | 0.2425* | 0.3071* | 0.1755* | 0.2110* | 0.3167* | 0.3124* | 0.3546* | 0.4661* | 0.3106* | 1 | | | | | | | | |
| SC | 0.3133* | 0.4132* | 0.3931* | 0.4008* | 0.3879* | 0.3115* | 0.3086* | 0.3377* | 0.3149* | 0.1688* | 0.3547* | 0.3030* | 0.3878* | 0.4565* | 0.4603* | 0.3346* | 1 | | | | | | | |
| DPR | 0.4970* | 0.5365* | 0.5187* | 0.5027* | 0.5187* | 0.3295* | 0.3080* | 0.1805* | 0.2988* | 0.3205* | 0.4246* | 0.4815* | 0.3584* | 0.3400* | 0.3560* | 0.3825* | 0.2826* | 1 | | | | | | |
| CEB | 0.3129* | 0.3328* | 0.4000* | 0.3781* | 0.3524* | 0.4762* | 0.3177* | 0.4268* | 0.3431* | 0.1572* | 0.2313* | 0.2358* | 0.3711* | 0.3365* | 0.3211* | 0.4450* | 0.4505* | 0.3507* | 1 | | | | | |
| ICR | 0.5057* | 0.4565* | 0.5349* | 0.3947* | 0.4489* | 0.3813* | 0.2711* | 0.2671* | 0.3676* | 0.2767* | 0.3571* | 0.4547* | 0.4493* | 0.4058* | 0.3222* | 0.4813* | 0.4037* | 0.3522* | 0.4809* | 1 | | | | |
| CGMI | 0.3691* | 0.3332* | 0.3904* | 0.2881* | 0.3276* | 0.2783* | 0.1979* | 0.1949* | 0.2683* | 0.2019* | 0.2606* | 0.3319* | 0.3279* | 0.2962* | 0.2352* | 0.3513* | 0.2947* | 0.2561* | 0.3510* | 0.3422* | 1 | | | |
| FS | 0.4134* | 0.3732* | 0.4373* | 0.3227* | 0.3670* | 0.3117* | 0.2216* | 0.2183* | 0.3005* | 0.2262* | 0.2919* | 0.3717* | 0.3673* | 0.3317* | 0.2634* | 0.3935* | 0.3300* | 0.2877* | 0.3931* | 0.3832* | 0.3271* | 1 | | |
| AT | 0.4298* | 0.3880* | 0.4546* | 0.3354* | 0.3815* | 0.3241* | 0.2304* | 0.2270* | 0.3124* | 0.2351* | 0.3035* | 0.3864* | 0.3819* | 0.3449* | 0.2738* | 0.4091* | 0.3431* | 0.2992* | 0.4087* | 0.3185* | 0.2891* | 0.3422* | 1 | |
| TAT | 0.3137* | 0.2832* | 0.3319* | 0.2449* | 0.2785* | 0.2365* | 0.1682* | 0.1657* | 0.2280* | 0.1716* | 0.2215* | 0.2821* | 0.2787* | 0.2517* | 0.1999* | 0.2986* | 0.2504* | 0.2184* | 0.2983* | 0.2908* | 0.3118* | 0.4122* | 0.3225* | 1 |

**Table 4.1.9:** *Correlation Analysis for Iran*

| | IFR | RER | LTD | STD | TD | SBA | SBR | CS | PS | ER | CCC | TF | CGR | SRR | RF | FF | SC | DPR | CEB | ICR | CGMI | FS | AT | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IFR | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| RER | 0.5041* | 1 | | | | | | | | | | | | | | | | | | | | | | |
| LTD | 0.3921* | 0.4046* | 1 | | | | | | | | | | | | | | | | | | | | | |
| STD | 0.3845* | 0.3619* | 0.4169* | 1 | | | | | | | | | | | | | | | | | | | | |
| TD | 0.3312* | 0.3282* | 0.4261* | 0.4749* | 1 | | | | | | | | | | | | | | | | | | | |
| SBA | 0.3642* | 0.4144* | 0.5049* | 0.3149* | 0.4440* | 1 | | | | | | | | | | | | | | | | | | |
| SBR | 0.3831* | 0.3996* | 0.4222* | 0.4980* | 0.3801* | 0.4233* | 1 | | | | | | | | | | | | | | | | | |
| CS | 0.3095* | 0.2496* | 0.2924* | 0.3758* | 0.4377* | 0.3246* | 0.3080* | 1 | | | | | | | | | | | | | | | | |
| PS | 0.4194* | 0.3880* | 0.3762* | 0.4686* | 0.3073* | 0.4062* | 0.4236* | 0.2235* | 1 | | | | | | | | | | | | | | | |
| ER | 0.3147* | 0.5084* | 0.3779* | 0.3647* | 0.4295* | 0.4516* | 0.3153* | 0.3387* | 0.3790* | 1 | | | | | | | | | | | | | | |
| CCC | 0.3374* | 0.4342* | 0.3566* | 0.3046* | 0.3792* | 0.4735* | 0.4613* | 0.2521* | 0.3416* | 0.3448* | 1 | | | | | | | | | | | | | |
| TF | 0.3772* | 0.3471* | 0.3987* | 0.3197* | 0.4454* | 0.4453* | 0.3693* | 0.2933* | 0.2424* | 0.4119* | 0.4568* | 1 | | | | | | | | | | | | |
| CGR | 0.4025* | 0.2643* | 0.2544* | 0.4587* | 0.3182* | 0.3125* | 0.4280* | 0.2948* | 0.3233* | 0.4753* | 0.4549* | 0.4220* | 1 | | | | | | | | | | | |
| SRR | 0.3950* | 0.4691* | 0.4113* | 0.5204* | 0.3120* | 0.3290* | 0.3082* | 0.3166* | 0.4776* | 0.4971* | 0.4325* | 0.3203* | 0.2884* | 1 | | | | | | | | | | |
| RF | 0.3774* | 0.3555* | 0.4824* | 0.4135* | 0.4927* | 0.3309* | 0.3294* | 0.3892* | 0.4674* | 0.3865* | 0.3049* | 0.3444* | 0.3154* | 0.3922* | 1 | | | | | | | | | |
| FF | 0.3936* | 0.4548* | 0.4917* | 0.3470* | 0.3051* | 0.3229* | 0.3635* | 0.3020* | 0.2557* | 0.3393* | 0.3311* | 0.3439* | 0.2271* | 0.4422* | 0.4565* | 1 | | | | | | | | |
| SC | 0.4228* | 0.3591* | 0.4644* | 0.3484* | 0.4593* | 0.3544* | 0.3138* | 0.2544* | 0.3299* | 0.3883* | 0.4257* | 0.3092* | 0.3463* | 0.4278* | 0.3790* | 0.4759* | 1 | | | | | | | |
| DPR | 0.3065* | 0.3087* | 0.4148* | 0.4496* | 0.4002* | 0.3789* | 0.2868* | 0.2887* | 0.2795* | 0.4660* | 0.3085* | 0.4800* | 0.3165* | 0.2810* | 0.4678* | 0.3547* | 0.3168* | 1 | | | | | | |
| CEB | 0.3136* | 0.3524* | 0.2786* | 0.3827* | 0.3038* | 0.2814* | 0.3727* | 0.3653* | 0.1469* | 0.2490* | 0.3097* | 0.2694* | 0.1917* | 0.2739* | 0.2108* | 0.2634* | 0.2229* | 0.2735* | 1 | | | | | |
| ICR | 0.2031* | 0.2199* | 0.2389* | 0.2721* | 0.3272* | 0.2507* | 0.2286* | 0.3176* | 0.2333* | 0.2742* | 0.2252* | 0.2801* | 0.2563* | 0.2764* | 0.3155* | 0.2852* | 0.1991* | 0.2703* | 0.3027* | 1 | | | | |
| CGMI | 0.2498* | 0.2704* | 0.2938* | 0.3345* | 0.4024* | 0.3083* | 0.2811* | 0.3906* | 0.2862* | 0.3372* | 0.2763* | 0.3445* | 0.3152* | 0.3391* | 0.3880* | 0.3507* | 0.2448* | 0.3324* | 0.3723* | 0.3213* | 1 | | | |
| FS | 0.3047* | 0.3299* | 0.3584* | 0.4081* | 0.4902* | 0.3762* | 0.3430* | 0.4765* | 0.3502* | 0.4114* | 0.3379* | 0.4203* | 0.3846* | 0.4147* | 0.4734* | 0.4279* | 0.2987* | 0.4056* | 0.4542* | 0.3919* | 0.4123* | 1 | | |
| AT | 0.3382* | 0.3662* | 0.3979* | 0.4530* | 0.5450* | 0.4175* | 0.3807* | 0.5291* | 0.3885* | 0.4567* | 0.3751* | 0.4665* | 0.4269* | 0.4603* | 0.5255* | 0.4754* | 0.3316* | 0.4502* | 0.5041* | 0.4351* | 0.4576* | 0.2541* | 1 | |
| TAT | 0.2774* | 0.3003* | 0.3263* | 0.3715* | 0.4469* | 0.3424* | 0.3122* | 0.4337* | 0.3186* | 0.3745* | 0.3075* | 0.3825* | 0.3503* | 0.3775* | 0.4309* | 0.3895* | 0.2719* | 0.3691* | 0.4134* | 0.3567* | 0.3752* | 0.2083* | 0.3241* | 1 |

### 4.1.6.3 Normality Diagnostics

(Wooldridge, 2013) The important assumption for regressions is the normal distribution of residuals for achieving an appropriate sample for analysis. (Samour & Hassan, 2016); (Singh et al., 2013) In consideration of the central limit theorem, the sample size from a population, such as larger than 30, should be close to normally distributed. Furthermore, the samples in panel studies are mostly industry-specific, consisting of more than 200 companies each, and these should be normally distributed. Traditional studies develop P-P normal distribution plots, mean values, and variances with values of 0 and 1 (Studenmund and Cassidy, 1997) and KS Kolmogorov-Smirnov (KS) test with a sample size larger than 50 but less than 2000. The study, e.g., Singh and Bagga (2019), applied skewness and kurtosis with zero value for normal distribution and the Jarque-Bera normality test with p-values greater than 0.05. The present study applied Jarque-Bera normality statistics and skewness and kurtosis tests for examining the normal distribution of the sample. Jarque-Bera statistics evaluate the goodness of fit for the study sample based on the skewness and kurtosis coefficients, named after Carlos Jarque and Anil K. Bera. Jarque-Bera test is the most acceptable and powerful test for symmetric distributions, adopted by econometricians (Thadewald & Buning, 2007). Jarque-Bera tests the alternate and null hypothesis, $'H_0$: The data are sampled from a normal distribution and $H_1$: The data are not sampled from a normal distribution. Hypothesis $H_0$ is to be rejected when the p-value is less than 0.05 significance level, and the p-value is greater than the chi-square. Table 4.1.10 shows the results of J-B normality test for Pakistan, India, China and Iran by incorporating all the variables. The variables have obtained the satisfied J-B normality test statistics i-e p-value is greater than a 5% significance level and is less than the chi-square, so the null hypothesis is accepted, indicating the normal distribution of the data sample.

**Table 4.1.10:** *Jarque-Bera Normality test*

| Jarque-Bera Normality test | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pakistan | | India | | China | | Iran | |
| Variable | chi-square | P-value | chi-square | P-value | chi-square | P-value | chi-square | P-value |
| Internal financing ratio | 2.426 | 0.297 | 2.521 | 0.771 | 4.083 | 0.112 | 2.500 | 0.286 |
| Retained earnings ratio | 4.929 | 0 .085 | 2.823 | 0.663 | 2.840 | 0.242 | 5.059 | 0.080 |
| Short term debt | 5.552 | 0.062 | 4.827 | 0.090 | 3.354 | 0.187 | 3.200 | 0.202 |
| Long term debt | 2.256 | 0.324 | 4.582 | 0.091 | 4.256 | 0.119 | 4.759 | 0.093 |
| Total debt | 2.663 | 0.264 | 2.493 | 0.288 | 3.693 | 0.158 | 3.251 | 0.197 |
| Shadow banking assets | 2.261 | 0.323 | 5.663 | 0.059 | 1.077 | 0.584 | 2.462 | 0.292 |
| Shadow banking ratio | 3.617 | 0.168 | 5.513 | 0.073 | 2.890 | 0.236 | 2.487 | 0.288 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Common stocks | 4.646 | 0.098 | 4.089 | 0.109 | 5.190 | 0.074 | 4.852 | 0.088 |
| Preferred stocks | 4.185 | 0.123 | 2.469 | 0.291 | 4.818 | 0.090 | 2.040 | 0.360 |
| Equity ratio | 5.196 | 0.074 | 5.419 | 0.071 | 5.813 | 0.055 | 3.841 | 0.147 |
| Cash conversion cycle | 1.449 | 0.485 | 5.294 | 0.071 | 4.015 | 0.134 | 4.883 | 0.087 |
| Trade financing | 5.460 | 0.065 | 5.717 | 0.057 | 4.738 | 0.094 | 3.547 | 0.170 |
| Reverse factoring | 5.668 | 0.062 | 4.835 | 0.089 | 2.576 | 0.276 | 5.083 | 0.079 |
| Factoring | 3.956 | 0.138 | 2.165 | 0.339 | 1.792 | 0.408 | 1.548 | 0.461 |
| Credit guarantees ratio | 0 .715 | 0.699 | 4.491 | 0.106 | 4.670 | 0.097 | 4.870 | 0.876 |
| Solvency rating ratio | 1.874 | 0.392 | 4.952 | 0.084 | 3.480 | 0.176 | 2.253 | 0.324 |
| Return on Assets | 3.968 | 0.138 | 5.006 | 0.081 | 5.672 | 0.059 | 2.137 | 0.344 |
| Return on Equity | 1.036 | 0.596 | 5.354 | 0.072 | 1.850 | 0.397 | 2.570 | 0.276 |
| Net Profit Margin | 5.041 | 0.080 | 4.897 | 0.080 | 3.083 | 0.214 | 3.630 | 0.163 |
| Return on capital employed | 5.284 | 0.071 | 3.246 | 0.197 | 4.843 | 0.089 | 5.469 | 0.065 |
| Return on invested capital | 5.563 | 0.062 | 5.063 | 0.080 | 5.059 | 0.059 | 5.407 | 0.067 |
| Tobin's Q | 0.762 | 0.543 | 2.994 | 0.206 | 3.416 | 0.181 | 3.527 | 0.171 |
| Earnings per share | 3.640 | 0.162 | 2.523 | 0.283 | 4.653 | 0.098 | 3.496 | 0.174 |
| GRI Sustainability | 5.934 | 0.052 | 3.955 | 0.138 | 3.061 | 0.219 | 3.913 | 0.141 |
| Sustainable growth rate | 3.940 | 0.140 | 3.938 | 0.140 | 1.344 | 0.511 | 3.806 | 0.149 |
| Stagflation Cycles | 3.096 | 0.213 | 3.952 | 0.139 | 4.576 | 0.102 | 5.237 | 0.073 |
| Dividend Payout ratio | 3.161 | 0.206 | 5.775 | 0.056 | 5.779 | 0.056 | 1.158 | 0.560 |
| Cost of external borrowing | 1.661 | 0.436 | 2.917 | 0.233 | 5.385 | 0.068 | 1.316 | 0.518 |
| Interest Coverage Ratio | 1.367 | 0.505 | 5.890 | 0.053 | 2.060 | 0.357 | 4.097 | 0.129 |
| Corporate Governance Mechanism index | 5.027 | 0.059 | 5.200 | 0.074 | 4.907 | 0.086 | 2.832 | 0.188 |
| Firm Size | 4.099 | 0.129 | 4.903 | 0.086 | 4.917 | 0.086 | 1.642 | 0.442 |
| Asset Tangibility | 2.557 | 0.279 | 4.454 | 0.096 | 3.689 | 0.158 | 3.094 | 0.221 |
| Total Asset turnover | 2.275 | 0.321 | 4.313 | 0.108 | 2.564 | 0.278 | 5.679 | 0.058 |

Skewness measures the asymmetrical distribution of a random variable with its mean. Kurtosis measures the sharpness and height of the peak in the center. For the acceptance of the null hypothesis p-value for skewness and kurtosis must be greater than the 5% significance level and the chi-square should be more than the p-value. Tables from 4.1.11-4.1.14 shows the skewness and kurtosis statistics for Pakistan, India, China and Iran by incorporating all the variables. The statistics for all variables indicating p-value>0.05 and chi-square> p-value. Hence, Hypothesis $H_0$ is accepted and indicated that normality is not a problem for the study sample.

**Table 4.1.11:** *Skewness/Kurtosis Normality test for Pakistan*

| Skewness/Kurtosis Normality test for Pakistan | | | | |
|---|---|---|---|---|
| Variable | Skewness | Kurtosis | Chi-square | P-value |
| Internal financing ratio | 0.115 | 0.436 | 3.11 | 0.212 |
| Retained earnings ratio | 0.361 | 0.508 | 1.28 | 0.528 |

| | | | | |
|---|---|---|---|---|
| Short term debt | 0.427 | 0.309 | 1.67 | 0.433 |
| Long term debt | 0.254 | 0.131 | 3.59 | 0.166 |
| Total debt | 0.185 | 0.216 | 3.30 | 0.192 |
| Shadow banking assets | 0.054 | 0.684 | 4.68 | 0.096 |
| Shadow banking ratio | 0.385 | 0.293 | 1.90 | 0.388 |
| Common stocks | 0.064 | 0.430 | 4.14 | 0.126 |
| Preferred stocks | 0.405 | 0.178 | 2.56 | 0.278 |
| Equity ratio | 0.058 | 0.748 | 4.87 | 0.088 |
| Cash conversion cycle | 0.055 | 0.704 | 4.63 | 0.052 |
| Trade financing | 0.282 | 0.386 | 1.91 | 0.385 |
| Reverse factoring | 0.216 | 0.312 | 2.58 | 0.275 |
| Factoring | 0.208 | 0.035 | 5.89 | 0.053 |
| Credit guarantees ratio | 0.109 | 0.711 | 2.73 | 0.255 |
| Solvency rating ratio | 0.028 | 0.853 | 4.95 | 0.084 |
| Return on Assets | 0.883 | 0.394 | 0.76 | 0.385 |
| Return on Equity | 0.520 | 0.108 | 3.03 | 0.220 |
| Net Profit Margin | 0.185 | 0.445 | 2.34 | 0.311 |
| Return on capital employed | 0.816 | 0.068 | 3.39 | 0.184 |
| Return on invested capital | 0.393 | 0.082 | 3.76 | 0.152 |
| Tobin's Q | 0.110 | 0.491 | 3.09 | 0.213 |
| Earnings per share | 0.054 | 0.741 | 5.11 | 0.078 |
| GRI Sustainability | 0.219 | 0.069 | 4.82 | 0.090 |
| Sustainable growth rate | 0.152 | 0.060 | 5.96 | 0.052 |
| Stagflation Cycles | 0.087 | 0.086 | 5.65 | 0.059 |
| Dividend Payout ratio | 0.061 | 0.089 | 6.06 | 0.058 |
| Cost of external borrowing | 0.564 | 0.055 | 4.80 | 0.091 |
| Interest Coverage Ratio | 0.157 | 0.053 | 5.82 | 0.054 |
| Corporate Governance Mechanism index | 0.058 | 0.556 | 5.09 | 0.079 |
| Firm Size | 0.058 | 0.065 | 7.07 | 0.059 |
| Asset Tangibility | 0.054 | 0.811 | 4.09 | 0.130 |
| Total Asset turnover | 0.083 | 0.161 | 5.01 | 0.082 |

**Table 4.1.12:** *Skewness/Kurtosis Normality test for India*

| Skewness/Kurtosis Normality test for India | | | | |
|---|---|---|---|---|
| Variable | Skewness | Kurtosis | Chi-square | P-value |
| Internal financing ratio | 0.061 | 0.297 | 4.64 | 0.098 |
| Retained earnings ratio | 0.693 | 0.121 | 2.66 | 0.264 |
| Short term debt | 0.731 | 0.329 | 1.10 | 0.576 |
| Long term debt | 0.063 | 0.219 | 5.65 | 0.059 |
| Total debt | 0.132 | 0.189 | 4.15 | 0.126 |
| Shadow banking assets | 0.053 | 0.995 | 3.91 | 0.142 |
| Shadow banking ratio | 0.052 | 0.385 | 5.60 | 0.061 |
| Common stocks | 0.506 | 0.170 | 2.41 | 0.299 |
| Preferred stocks | 0.059 | 0.801 | 5.39 | 0.068 |
| Equity ratio | 0.132 | 0.589 | 2.55 | 0.279 |
| Cash conversion cycle | 0.055 | 0.841 | 5.01 | 0.082 |

| | | | | |
|---|---|---|---|---|
| Trade financing | 0.064 | 0.782 | 3.67 | 0.160 |
| Reverse factoring | 0.054 | 0.804 | 4.58 | 0.101 |
| Factoring | 0.058 | 0.496 | 4.44 | 0.109 |
| Credit guarantees ratio | 0.221 | 0.052 | 6.26 | 0.054 |
| Solvency rating ratio | 0.060 | 0.803 | 4.03 | 0.134 |
| Return on Assets | 0.102 | 0.403 | 3.51 | 0.173 |
| Return on Equity | 0.248 | 0.249 | 2.77 | 0.250 |
| Net Profit Margin | 0.053 | 0.207 | 6.30 | 0.053 |
| Return on capital employed | 0.575 | 0.054 | 5.90 | 0.052 |
| Return on invested capital | 0.130 | 0.295 | 3.53 | 0.171 |
| Tobin's Q | 0.346 | 0.411 | 1.62 | 0.445 |
| Earnings per share | 0.266 | 0.370 | 2.12 | 0.347 |
| GRI Sustainability | 0.078 | 0.287 | 4.34 | 0.114 |
| Sustainable growth rate | 0.053 | 0.802 | 4.68 | 0.096 |
| Stagflation Cycles | 0.053 | 0.072 | 7.08 | 0.059 |
| Dividend Payout ratio | 0.155 | 0.826 | 2.14 | 0.342 |
| Cost of external borrowing | 0.092 | 0.590 | 3.26 | 0.196 |
| Interest Coverage Ratio | 0.065 | 0.764 | 5.70 | 0.058 |
| Corporate Governance Mechanism index | 0.240 | 0.372 | 2.26 | 0.323 |
| Firm Size | 0.653 | 0.374 | 1.02 | 0.600 |
| Asset Tangibility | 0.321 | 0.059 | 5.51 | 0.064 |
| Total Asset turnover | 0.476 | 0.728 | 3.64 | 0.725 |

**Table 4.1.13:** *Skewness/Kurtosis Normality test for China*

| Skewness/Kurtosis Normality test for China | | | | |
|---|---|---|---|---|
| Variable | Skewness | Kurtosis | Chi-square | P-value |
| Internal financing ratio | 0.061 | 0.222 | 5.48 | 0.065 |
| Retained earnings ratio | 0.078 | 0.713 | 3.37 | 0.186 |
| Short term debt | 0.123 | 0.688 | 2.65 | 0.266 |
| Long term debt | 0.584 | 0.054 | 5.82 | 0.055 |
| Total debt | 0.331 | 0.064 | 4.94 | 0.085 |
| Shadow banking assets | 0.119 | 0.467 | 2.95 | 0.229 |
| Shadow banking ratio | 0.195 | 0.553 | 2.11 | 0.348 |
| Common stocks | 0.207 | 0.336 | 2.62 | 0.270 |
| Preferred stocks | 0.059 | 0.555 | 5.39 | 0.067 |
| Equity ratio | 0.288 | 0.383 | 1.96 | 0.375 |
| Cash conversion cycle | 0.690 | 0.116 | 2.74 | 0.254 |
| Trade financing | 0.107 | 0.471 | 3.11 | 0.212 |
| Reverse factoring | 0.635 | 0.052 | 4.68 | 0.096 |
| Factoring | 0.052 | 0.718 | 4.09 | 0.130 |
| Credit guarantees ratio | 0.625 | 0.051 | 5.20 | 0.074 |
| Solvency rating ratio | 0.054 | 0.653 | 4.57 | 0.102 |
| Return on Assets | 0.208 | 0.052 | 6.81 | 0.053 |
| Return on Equity | 0.314 | 0.177 | 2.96 | 0.228 |
| Net Profit Margin | 0.357 | 0.060 | 6.40 | 0.061 |

| | | | | |
|---|---|---|---|---|
| Return on capital employed | 0.329 | 0.059 | 4.80 | 0.091 |
| Return on invested capital | 0.052 | 0.670 | 4.62 | 0.099 |
| Tobin's Q | 0.847 | 0.162 | 2.07 | 0.355 |
| Earnings per share | 0.323 | 0.709 | 1.15 | 0.563 |
| GRI Sustainability | 0.424 | 0.058 | 6.95 | 0.061 |
| Sustainable growth rate | 0.128 | 0.054 | 6.77 | 0.054 |
| Stagflation Cycles | 0.533 | 0.059 | 4.23 | 0.121 |
| Dividend Payout ratio | 0.053 | 0.370 | 6.49 | 0.054 |
| Cost of external borrowing | 0.090 | 0.112 | 5.25 | 0.073 |
| Interest Coverage Ratio | 0.067 | 0.637 | 5.50 | 0.064 |
| Corporate Governance Mechanism index | 0.373 | 0.055 | 6.25 | 0.054 |
| Firm Size | 0.433 | 0.057 | 5.02 | 0.081 |
| Asset Tangibility | 0.295 | 0.109 | 3.83 | 0.148 |
| Total Asset turnover | 0.056 | 0.671 | 5.70 | 0.058 |

**Table 4.1.14:** *Skewness/Kurtosis Normality test for Iran*

| Skewness/Kurtosis Normality test for Iran | | | | |
|---|---|---|---|---|
| Variable | Skewness | Kurtosis | Chi-square | P-value |
| Internal financing ratio | 0.330 | 0.500 | 1.45 | 0.483 |
| Retained earnings ratio | 0.863 | 0.071 | 3.42 | 0.180 |
| Short term debt | 0.055 | 0.452 | 5.23 | 0.073 |
| Long term debt | 0.061 | 0.568 | 6.20 | 0.055 |
| Total debt | 0.383 | 0.157 | 2.88 | 0.237 |
| Shadow banking assets | 0.359 | 0.259 | 2.20 | 0.333 |
| Shadow banking ratio | 0.054 | 0.489 | 5.84 | 0.054 |
| Common stocks | 0.063 | 0.433 | 5.63 | 0.054 |
| Preferred stocks | 0.482 | 0.053 | 6.06 | 0.058 |
| Equity ratio | 0.053 | 0.692 | 4.08 | 0.130 |
| Cash conversion cycle | 0.084 | 0.457 | 3.53 | 0.171 |
| Trade financing | 0.061 | 0.132 | 6.07 | 0.058 |
| Reverse factoring | 0.242 | 0.069 | 4.69 | 0.096 |
| Factoring | 0.195 | 0.154 | 3.87 | 0.145 |
| Credit guarantees ratio | 0.091 | 0.511 | 3.43 | 0.180 |
| Solvency rating ratio | 0.057 | 0.659 | 6.71 | 0.055 |
| Return on Assets | 0.166 | 0.390 | 2.77 | 0.251 |
| Return on Equity | 0.062 | 0.145 | 6.28 | 0.063 |
| Net Profit Margin | 0.059 | 0.645 | 5.53 | 0.063 |
| Return on capital employed | 0.062 | 0.446 | 5.61 | 0.060 |
| Return on invested capital | 0.415 | 0.062 | 6.17 | 0.055 |
| Tobin's Q | 0.171 | 0.317 | 2.99 | 0.224 |
| Earnings per share | 0.248 | 0.120 | 3.91 | 0.141 |
| GRI Sustainability | 0.196 | 0.509 | 2.10 | 0.349 |
| Sustainable growth rate | 0.498 | 0.090 | 3.48 | 0.176 |

| | | | | |
|---|---|---|---|---|
| Stagflation Cycles | 0.121 | 0.175 | 4.35 | 0.114 |
| Dividend Payout ratio | 0.203 | 0.454 | 2.18 | 0.336 |
| Cost of external borrowing | 0.063 | 0.119 | 5.63 | 0.060 |
| Interest Coverage Ratio | 0.258 | 0.737 | 3.33 | 0.515 |
| Corporate Governance Mechanism index | 0.062 | 0.119 | 6.48 | 0.059 |
| Firm Size | 0.201 | 0.177 | 3.60 | 0.165 |
| Asset Tangibility | 0.202 | 0.175 | 3.61 | 0.164 |
| Total Asset turnover | 0.225 | 0.207 | 3.19 | 0.203 |

#### 4.1.6.4 Autocorrelation Diagnostic

Another assumption for testing the regression models is the absence of autocorrelation in the data sample. Veaux et al. (2016), documented that there should be independence among the residual variables, otherwise, it will negatively influence the regression and give inconclusive regression statistics (Porter & Gujarati, 2009). Autocorrelation measures the degree of association between the study variables. Studies applied different tests for measuring autocorrelation e.g., Pearson correlation statistics (Singh & Bagga, 2019); (Sheikh & Wang, 2013) and Durbin-Watson test (Ahmed, 2018). The most used test for measuring autocorrelation is the Durbin-Watson test (Wooldridge, 2015). The current study applied D-W test with a d-statistic to test the autocorrelation of residuals obtained from a linear regression model. It tests the null hypothesis, '$H_0$: There is no autocorrelation and alternate hypothesis $H_1$: There is autocorrelation'. The value for D-W statistics ranges from 0 to 4, and the value closer to extreme ranges 0 or 4, indicates the presence of autocorrelation with 0 showing positive correlation and 4 showing negative autocorrelation, and the value of approximately 2 showing no autocorrelation (Wooldridge, 2015). The acceptance range for Durbin-Watson statistics is 1.5 to 2.5 (Azami et al., 2020). Table 4.1.15 shows the results of the Durbin-Watson serial correlation test for the residuals obtained from all regression models on country-specific basis. The values of d-statistic are significant lie between the acceptance criteria. Hence, the null hypothesis of no autocorrelation is accepted.

**Table 4.1.15:** *Durbin-Watson Serial Correlation Test*

| Results of the Durbin-Watson Serial Correlation Test | | | | |
|---|---|---|---|---|
| | Pakistan | India | China | Iran |
| Variable (Residuals) | Significance level (α) | Significance level (α) | Significance level (α) | Significance level (α) |

| | | | | |
|---|---|---|---|---|
| Return on Assets | 2.264 | 1.896 | 2.064 | 2.144 |
| Return on Equity | 2.112 | 2.211 | 2.126 | 2.032 |
| Net Profit Margin | 1.923 | 2.101 | 1.921 | 2.046 |
| Return on capital employed | 2.022 | 2.055 | 2.084 | 2.043 |
| Return on invested capital | 1.854 | 1.901 | 2.077 | 1.789 |
| Tobin's Q | 2.011 | 2.018 | 1.918 | 1.982 |
| Earnings per share | 1.991 | 2.118 | 2.211 | 2.106 |
| GRI Sustainability | 2.143 | 2.033 | 2.153 | 2.093 |
| Sustainable growth rate | 2.094 | 2.004 | 2.084 | 2.104 |

#### 4.1.6.5 Heteroskedasticity Diagnostic

One of the important presumptions for regression is the presence of homoscedasticity in the data. Seckanovic (2021), highlighted that there should be equal distribution of variance across each value of the explanatory variables and called it homoskedasticity. The absence of constant variance among the observations makes the data heteroskedastic. Studenmund & Cassidy (1997), stated that heteroskedasticity normally occurs because of huge differences among the smallest and largest values in the data resulting in different variances. The referenced studies applied different tests for examining heteroskedasticity in the data e.g., White test (Olusola et al., 2022), and the Breusch-Pagan test (Kipesha & James, 2014). The current study applied both Breusch-Pagan / Cook-Weisberg test and the White test on Stata for heteroskedasticity analysis. The Breusch-Pagan statistic was proposed by Trevor Breusch and Adrian Pagan (1979). The statistics test the null hypothesis, '$H_0$: The variance is constant and the alternate hypothesis $H_1$: The variance is not constant. For the acceptance of the null hypothesis, the p-value should be above the significance level i-e 0.05. Table 4.1.16 shows the results of the Breusch-Pagan / Cook-Weisberg test for the residuals obtained from all regression models on country-specific basis. The p-values are above the significance level i-e 0.05, so $H_0$ accepted and satisfy homoskedasticity assumption.

**Table 4.1.16:** *Breusch-Pagan / Cook-Weisberg Test*

| Results of the Breusch-Pagan / Cook-Weisberg Test | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pakistan | | India | | China | | Iran | |
| Variable (Residuals) | Chi-square | P-value | Chi-square | P-value | Chi-square | P-value | Chi-square | P-value |
| Return on Assets | 1.07 | 0.175 | 1.33 | 0.321 | 2.44 | 0.135 | 2.14 | 0.144 |
| Return on Equity | 3.89 | 0.087 | 2.21 | 0.137 | 3.01 | 0.098 | 0.69 | 0.406 |
| Net Profit Margin | 2.20 | 0.138 | 1.13 | 0.342 | 1.45 | 0.221 | 2.55 | 0.119 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Return on capital employed | 2.11 | 0.146 | 1.33 | 0.267 | 1.49 | 0.222 | 3.23 | 0.091 |
| Return on invested capital | 1.42 | 0.233 | 2.43 | 0.137 | 3.13 | 0.093 | 1.22 | 0.342 |
| Tobin's Q | 0.92 | 0.338 | 3.33 | 0.089 | 1.23 | 0.328 | 0.98 | 0.298 |
| Earnings per share | 1.44 | 0.229 | 2.59 | 0.107 | 0.93 | 0.317 | 2.13 | 0.137 |
| GRI Sustainability | 1.68 | 0.198 | 2.33 | 0.141 | 1.89 | 0.198 | 2.11 | 0.138 |
| Sustainable growth rate | 3.11 | 0.092 | 1.87 | 0.189 | 0.79 | 0.373 | 1.08 | 0.173 |

Another commonly applied test is the White test, which is used for heteroskedasticity analysis. The White test was proposed by Halbert White in 1980. The White test is more general because of its independence from normality assumptions, and it is easier to apply (Muhammad et al., 2019). Table 4.1.17 shows the results of the White test for the residuals obtained from all regression models on country-specific basis. The p-values are above the significance level of 0.05, hence variance is constant and the homoskedasticity assumption is satisfied for further analysis.

**Table 4.1.17:** *White Test*

| Results of the White Test | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pakistan | | India | | China | | Iran | |
| Variable (Residuals) | Chi-square | P-value | Chi-square | P-value | Chi-square | P-value | Chi-square | P-value |
| Return on Assets | 1.234 | 0.341 | 1.564 | 0.184 | 3.152 | 0.091 | 1.244 | 0.387 |
| Return on Equity | 0.782 | 0.356 | 2.741 | 0.758 | 0.983 | 0.307 | 1.602 | 0.201 |
| Net Profit Margin | 2.367 | 0.134 | 2.554 | 0.108 | 0.758 | 0.388 | 0.891 | 0.289 |
| Return on capital employed | 1.453 | 0.252 | 1.308 | 0.271 | 1.761 | 0.201 | 1.556 | 0.234 |
| Return on invested capital | 2.454 | 0.117 | 1.983 | 0.122 | 1.349 | 0.346 | 2.213 | 0.137 |
| Tobin's Q | 3.124 | 0.089 | 2.343 | 0.14 | 2.177 | 0.156 | 1.412 | 0.256 |
| Earnings per share | 1.399 | 0.342 | 2.458 | 0.116 | 3.265 | 0.081 | 2.11 | 0.147 |
| GRI Sustainability | 2.114 | 0.138 | 2.492 | 0.133 | 2.121 | 0.137 | 2.582 | 0.105 |
| Sustainable growth rate | 1.896 | 0.178 | 1.568 | 0.233 | 1.584 | 0.201 | 3.112 | 0.093 |

#### 4.1.6.6 Endogeneity Diagnostic

Endogeneity is another important pre-condition for panel regression estimation. Endogeneity arises when there exists a correlation between a predictor variable and the error term. Cooper et al. (2020), defined endogeneity as the condition where there is no casual interpretation of the effect of independent variable on the dependent variable will lead to biased estimates, possibly due to omitted variable, measurement error, simultaneity, or sample selection bias.

Baser (2011), documented that violation of multicollinearity i-e direct association between independent variables, is among the important assumptions for endogeneity problems. Li (2020), argued that fixed and random effect estimations can account for unobserved heterogeneity, but endogeneity might be an issue. This issue can be resolved by using a replacement instrument variable, or by applying lagged variables as instrument variables, or by applying dynamic panel GMM estimates. The referenced studies, e.g., Zeitun & Tian (2014), incorporated replacement variable as instrument variable, (Hussain et al. 2021; Abdullah & Tursoy 2019), applied GMM estimation model, (Margaritis & Psillaki 2010; Fosu 2013), applied one year lagged independent variables, and Li (2020), applied lagged independent variables as a robustness check. The current study determined the endogeneity by estimating a residual error term and then determining the relationship through fixed effect estimations with generated regressors for testing the null hypothesis, '$H_0$: There exists a significant correlation between a predictor variable and the error term, at p-value>0.05 significance level and t-statistic<$\pm$1.69, documented by Wooldridge (2010). Table 4.1.18 shows the fixed effect regression results of predictor variables with the error term for Pakistan, India, China and Iran. The p-values for all regression models on country-specific basis are above 0.05, and t-statistics<$\pm$1.69, indicating endogeneity is not an issue for the study variables.

**Table 4.1.18:** *Endogeneity Test*

| Results of the Endogeneity Test | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Pakistan | | India | | China | | Iran | |
| Variable (Residuals) | t-statistics | P-value | t-statistics | P-value | t-statistics | P-value | t-statistics | P-value |
| Internal financing ratio | 1.38 | 0.18 | 1.22 | 0.28 | 1.11 | 0.38 | 1.01 | 0.39 |
| Retained earnings ratio | 0.69 | 0.50 | 1.26 | 0.26 | 1.22 | 0.21 | 1.21 | 0.19 |
| Short term debt | -0.73 | 0.47 | 0.96 | 0.44 | 0.94 | 0.45 | 1.14 | 0.34 |
| Long term debt | 1.48 | 0.12 | 0.70 | 0.56 | 1.17 | 0.36 | 1.08 | 0.36 |
| Total debt | 1.62 | 0.10 | 1.01 | 0.42 | 1.05 | 0.41 | 1.36 | 0.27 |
| Shadow banking assets | -0.85 | 0.40 | 1.32 | 0.32 | 1.15 | 0.37 | 1.15 | 0.33 |
| Shadow banking ratio | 0.93 | 0.36 | 0.94 | 0.45 | 1.43 | 0.13 | 1.08 | 0.36 |
| Common stocks | 0.89 | 0.38 | 1.31 | 0.24 | 1.20 | 0.21 | 1.32 | 0.28 |
| Preferred stocks | 1.47 | 0.15 | 1.41 | 0.15 | 1.33 | 0.17 | -1.31 | 0.15 |
| Equity ratio | -1.66 | 0.07 | 0.71 | 0.55 | 1.17 | 0.23 | 1.19 | 0.32 |
| Cash conversion cycle | -0.94 | 0.35 | 1.49 | 0.11 | 1.51 | 0.11 | 0.90 | 0.44 |
| Trade financing | 1.48 | 0.15 | 1.16 | 0.37 | 0.93 | 0.45 | 1.02 | 0.38 |
| Reverse factoring | 0.77 | 0.45 | 1.21 | 0.21 | 1.03 | 0.41 | 0.98 | 0.38 |
| Factoring | 1.46 | 0.15 | 1.15 | 0.22 | 1.29 | 0.15 | 0.87 | 0.43 |
| Credit guarantees ratio | -1.35 | 0.24 | 1.33 | 0.19 | 1.27 | 0.33 | -1.06 | 0.35 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio | 0.64 | 0.53 | 1.48 | 0.17 | 1.05 | 0.40 | -1.02 | 0.37 |
| Stagflation Cycles | 1.61 | 0.08 | -1.22 | 0.21 | 1.26 | 0.34 | 1.08 | 0.34 |
| Dividend Payout ratio | 1.22 | 0.19 | 1.07 | 0.16 | 1.67 | 0.07 | 0.79 | 0.47 |
| Cost of external borrowing | 1.64 | 0.16 | 1.18 | 0.20 | 0.99 | 0.39 | 1.24 | 0.28 |
| Interest Coverage Ratio | 1.63 | 0.09 | 1.37 | 0.30 | 1.33 | 0.28 | 1.52 | 0.13 |
| Corporate Governance Mechanism index | 1.12 | 0.46 | -1.58 | 0.25 | 1.06 | 0.37 | -1.23 | 0.27 |

## 4.2 Mixed Panel Regression Models (Direct Effect)

The study utilized mixed panel regression models: panel Ordinary Least Square (OLS) regression, fixed effect approach, and random effect estimation approach. (Zulfiqar, 2017) Chow test differentiates between the statistics of Common effect and fixed effect approach by considering the p-values, followed by acceptance of $H_0$: select Common effect when p-value>0.05, and acceptance of $H_1$: select Fixed effect when p-value<0.05. Lagrange Multiplier test differentiates between the statistics of Common effect and random effect approach by considering the p-values, followed by acceptance of $H_0$: select Common effect when p-value>0.05, and acceptance of $H_1$: select random effect when p-value<0.05. The Hausman model specification test differentiates between the statistics of fixed effect and random effect approach by considering the p-values (Ullah et al, 2020). The random effect model tests the null hypothesis '$H_0$: there is no correlation between the error term and explanatory variables and fixed effect tests alternate hypothesis '$H_1$: there is a statistically significant correlation between the error term and explanatory variables (Yngman et al., 2022). A p-value above 0.05 considers acceptance of $H_0$ and p-value less than 0.05 considers acceptance of $H_1$. Modified Wald test is applied for determining groupwise heteroskedasticity in the fixed effect regression model with p-value less than 0.05 significance level indicates heteroskedasticity, and robust is applied for minimizing heteroskedasticity. Serial correlation is satisfied, endogeneity and multicollinearity satisfy the assumptions for mixed panel regression estimation.

### 4.2.1 Financing Alternatives and Financial Performance

#### 4.2.1.1 Financing Alternatives and Return on Assets

The proposed model 1.1 determines the panel regression effects of financing alternatives on ROA, with the controlled effect of firm size, asset tangibility, and total asset turnover. Table 4.2.1 shows the appropriate panel regression statistics for four SCO member states: Pakistan, India, China, and Iran. The estimated results use financing alternatives: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing as independent

variables. For deciding the appropriate panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of a most appropriate method, the Hausman test shows p-values below 0.05, indicating acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase in predictor variable.

For all SCO states, under the implication of fixed effect statistics, the two measures of internal financing: internal financing ratio and retained earnings, proved the significant positive influence on return on assets with p-values less than 0.05. Iran shows the highest (85% and 83%) differential effect of internal finances for additional increase in ROA. Hence $H1.1a$ accepted i-e "There is a significant impact of internal financing on return on asset of nonfinancial companies in the SCO member states". The results are in line with existing theoretical underpinnings, that proved internal financing as preferable choice for increasing firm value, such as Agembe (2024) and Li (2020), proved positive retained earnings-performance relationship with no taxes, transaction fee, supporting trade off theory and pecking order theory.

The study incorporated three diverse debt financing sources: short-run debts, long-run debts, and total debt proportion, considering fixed effect statistics, debt finances have significant implications on ROA for selected SCO member states, with p-values less than significant level i-e 0.05 and negative beta coefficients for long term and total debt ratio. China has a p-value of 0.50, which is significant. Hence, $H1.2a$: There is a positive impact of short-run debts and negative effect of long-run debt and total debt on the return on assets of nonfinancial companies in the SCO member states. Debt financing is the preferred source of financing when a firm has limited internal finances. Long-term loans are the least preferred because of associated transaction costs. The literature studies proved the significant influence of all debt finances, with a preference towards short-term debts, such as Li (2020); Le & Phan (2017). The results contribute to trade-off theory, pecking-order theory, and market timing effects by cost-benefits evaluation in line with Pham et al. (2018) Yazdanfar and Ohman (2017), and Li (2020), argued that high debt proportions are least efficient at generating profits

from assets due to great exposure to management-control conflict, agency cost, bankruptcy, and financial distress.

For shadow bank financing, the study incorporated two measures, shadow banking assets and the proportion of shadow banking assets in the selected SCO member states. Shadow banking is expanding gradually in the selected SCO states and is considered an inexpensive and preferred financing alternative. The calculations under fixed effect show the significant p-values i-e less than 0.05 and high positive beta coefficients of 0.576, 0.530, 0.520 and 0.4770. Tan, 2017 proved the positive significant influence of shadow banking on the profitability of companies, with increased ROA. Shadow bank activity positively influences the financial benefits of non-finance firms (Han et al., 2019). Hence, consistent with past literature, H1.3$a$: There is a significant positive impact of shadow bank financing on return on assets of nonfinancial companies in the SCO member states, is accepted, and following pecking order theory, trade off theory and market timing effect, shadow banking is preferred over traditional bank credits with low transaction fee and low volatility risks (Tang & Wang 2016; Zhou & Tewari 2019). In line with Le et al. (2024), financial instability, high financial risk and inadequate regulations in developing economies will result in negative performance impacts, supporting market timing effect.

For determining the impact of diverse equity finances on firm performance, the study incorporates comprehensive equity finances: common shares, preferred shares, and equity ratio, and contributed to market timing effect and information and transaction cost-benefit balances. Under the calculations of the fixed effect panel model, the diverse equity finances obtained statistically significant p-values at 5% significance. Common stocks and equity ratio show positive beta coefficients of 0.834, 0.592 for Iran, 0.678 and 0.342 for China and comparatively low values for Pakistan and India, shows -0.866. -0.877 and -0.899 units of ROA decreased with additional changes in common stocks. Hence $H$1.4$a$: There is a significant impact of equity financing on return on asset of nonfinancial companies in the SCO member states, is accepted. Aligned with referenced studies, such as Miko and Para (2019) and Nawaz et al. (2011), proved the significant influence of equity finances on ROA, especially during market overvaluations. Developing Asian economies are experiencing high market frictions and agency conflicts that negatively effects equity financing-ROA association in line with (Pham, 2020), supporting agency theory and market timing theory. Ahmed (2018), empirically proved the model fitness of equity finances-performance relationships.

The study incorporated comprehensive measures of supply chain financing: trade financing, factoring financing, credit guarantees, and working capital financing for evaluating the performance effects. As supply chain financing is the least expensive, viable alternative financing instrument with trading off financing costs and benefits (Vliet, 2015). The existing studies, namely Baker et al. (2022); Khan et al. (2016), proved the significant influence of supply chain finances on corporate performance, it will negatively influence the performance by breaching certain threshold levels, aligned with traditional theory approach. The fixed effect statistics proved the significant influence of comprehensive measures of supply chain finance, based on binary variables and proportionate measures, on firm performance (ROA), with a significance level of 5% for p-values. CCC, trade financing and credit guarantees show positive beta values while factoring finances shows negative coefficients with significant p-values for ROA. Hence $H1.5a$: There is a significant impact of supply chain financing on the return on assets of nonfinancial companies in the SCO member states, has been proved. The findings align with Lu et al. (2019) and Kouvelis and Zhao (2012). Following Bilgin and Dinc (2019), findings aligned with pecking order theory, traditional theory approach, proved factoring as an alternative for obtaining optimal capital structure, but high expense and WACC restrict companies to obtain low volumes of factoring finances. The mixed panel-OLS statistics present the significant influence of financing alternatives on financial performance focusing on the ROA, of non-finance firms in SCO member states. Hence H1 accepted ROA.

Based on the literature, the study incorporates three control variables: firm size, asset tangibility, and total asset turnover. Both FS, AT, and TAT show a statistically significant positive controlled effect on financial performance with p-values less than 0.05, except TAT is insignificant for Pakistan, India, and China with negative beta coefficients under fixed effect statistics. Li (2020), proved the significant influence of firm size and asset tangibility on return on assets. He argued that large-size firms are financially stable and have sufficient resources and high-risk tolerance (Lazar, 2016), which resultantly contributes towards positive performance. They highlighted that asset tangibility increases the financial security and economic value of firms by providing the collateral for obtaining external finances. They proved that high TAT resulted in improved operational efficiency of a firm (Ding & Sha, 2011).

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show

higher variance proportions of 59%, 53%, 41% and 59% for the ROA estimation model. (Ahmed, 2018) The panel regression statistics have higher explanatory powers with statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.1: Model 1.1,** *Panel Regression Analysis for Predictors of Return on Assets*

| Financing Alternatives and Return on Assets | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROA | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.638 | 0.036 | 0.386 | 0.000 | 0.433 | 0.000 | 0.833 | 0.032 |
| Retained Earnings | 0.255 | 0.043 | 0.229 | 0.020 | 0.702 | 0.045 | 0.848 | 0.000 |
| Debt financing | | | | | | | | |
| Short term debt | 0.745 | 0.000 | 0.416 | 0.000 | 0.667 | 0.050 | 0.866 | 0.035 |
| Long term debt | -0.390 | 0.000 | -0.457 | 0.000 | -0.456 | 0.038 | -0.586 | 0.039 |
| Total debt | -0.167 | 0.000 | -0.236 | 0.046 | -0.735 | 0.000 | -0.763 | 0.046 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.477 | 0.000 | 0.453 | 0.004 | 0.463 | 0.000 | 0.520 | 0.000 |
| Shadow banking ratio | 0.391 | 0.003 | 0.122 | 0.000 | 0.530 | 0.000 | 0.576 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | 0.298 | 0.000 | 0.193 | 0.000 | 0.678 | 0.002 | 0.834 | 0.000 |
| Preferred stocks | -0.899 | 0.000 | -0.568 | 0.010 | -0.877 | 0.035 | -0.866 | 0.000 |
| Equity ratio | 0.344 | 0.024 | 0.359 | 0.020 | 0.342 | 0.000 | 0.592 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.967 | 0.000 | 0.613 | 0.024 | 0.802 | 0.000 | 0.828 | 0.000 |
| Trade financing | 0.942 | 0.034 | 0.372 | 0.012 | 0.490 | 0.000 | 0.899 | 0.000 |
| Reverse factoring | -0.141 | 0.000 | -0.219 | 0.000 | -0.278 | 0.000 | -0.216 | 0.000 |
| Factoring | -0.384 | 0.025 | -0.135 | 0.026 | -0.311 | 0.024 | -0.269 | 0.000 |
| Credit guarantees ratio | 0.279 | 0.000 | 0.185 | 0.000 | 0.500 | 0.026 | 0.620 | 0.003 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio | 0.114 | 0.000 | 0.130 | 0.025 | 0.507 | 0.019 | 0.680 | 0.004 |
| Control variables | | | | | | | | |
| Firm Size | 0.385 | 0.000 | 0.530 | 0.000 | 0.930 | 0.000 | 0.825 | 0.000 |
| Asset Tangibility | 0.488 | 0.013 | 0.417 | 0.013 | 0.495 | 0.006 | 0.620 | 0.008 |
| Total Asset turnover | -0.869 | 0.933 | -0.682 | 0.066 | -0.655 | 0.083 | -0.898 | 0.017 |
| Constant | -0.595 | 0.000 | -0.114 | 0.000 | -0.120 | 0.000 | -0.431 | 0.000 |
| R-square | 0.589 | | 0.527 | | 0.408 | | 0.590 | |
| F-Statistic | 2.150 | | 4.810 | | 5.660 | | 2.240 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.1 includes the Return on Assets as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$ROA_{it}$=0.638 $IFR_{it}$+0.255 $RE_{it}$+0.745 $STD_{it}$-0.390 $LTD_{it}$- 0.167 $TD_{it}$+0.477 $SBA_{it}$+ 0.391 $SBR_{it}$+0.298 $CS_{it}$-0.899 $PS_{it}$+0.344 $ER_{it}$+0.967 $CCC_{it}$+ 0.942 $TF_{it}$-0.141 $RF_{it}$- 0.384 $FD_{it}$+0.279 $CGR_{it}$+0.114 $SRR_{it}$+0.385 $FS_{it}$+0.488 $AT_{it}$-0.869 $TAT_{it}$-0.595

Beta coefficient equation for India

$ROA_{it}$=0.386 $IFR_{it}$+0.229 $RE_{it}$+0.416 $STD_{it}$-0.457 $LTD_{it}$-0.236 $TD_{it}$+0.453 $SBA_{it}$ +0.122 $SBR_{it}$+0.193 $CS_{it}$- 0.568$PS_{it}$+0.359 $ER_{it}$+0.613 $CCC_{it}$+0.372 $TF_{it}$-0.219$RF_{it}$ - 0.135 $FD_{it}$+0.185 $CGR_{it}$+0.130 $SRR_{it}$+0.530 $FS_{it}$+0.417 $AT_{it}$-0.682$TAT_{it}$-0.114

Beta coefficient equation for China

$ROA_{it}$=0.433 $IFR_{it}$+0.702 $RE_{it}$+0.667 $STD_{it}$-0.456-0.735 $TD_{it}$+0.463 $SBA_{it}$+0.530 +0.678 $CS_{it}$-0.877$PS_{it}$+0.342 $ER_{it}$+0.802 $CCC_{it}$+0.490 $TF_{it}$-0.278 $RF_{it}$-0.311 $FD_{it}$ +0.500 $CGR_{it}$+0.507 $SRR_{it}$+0.930 $FS_{it}$+0.495 $AT_{it}$-0.655 $TAT_{it}$-0.120

Beta coefficient equation for Iran

$ROA_{it}$=0.833 $IFR_{it}$+0.848 $RE_{it}$+0.866-0.586 $LTD_{it}$-0.763 $TD_{it}$+0.520 $SBA_{it}$+0.576 $SBR_{it}$ +0.834 $CS_{it}$-0.866$PS_{it}$+0.592 $ER_{it}$+0.828 $CCC_{it}$+0.899 $TF_{it}$-0.216 $RF_{it}$-0.269 $FD_{it}$+ 0.620 $CGR_{it}$+0.680 $SRR_{it}$+0.825 $FS_{it}$+0.620 $AT_{it}$-0.898 $TAT_{it}$-0.431

#### 4.2.1.2 Financing Alternatives and Return on Equity

The proposed model 1.2 determines the panel regression effects of financing alternatives on ROE, with the controlled effect of firm size, asset tangibility, and total asset turnover. Table 4.2.2 shows the fixed effect statistics based on appropriate decision criteria with predictor variable ROE, for four SCO member states: Pakistan, India, China, and Iran. For deciding the appropriate panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Considering ROE as a financial performance indicator, all the SCO states have obtained a significant level of 5% with strong positive beta coefficients of 0.711, 0.881 for Pakistan, 0.520, 0.831 for India, 0.903, 0.450 for China and 0.847, 0.882 for Iran respectively, for both measures of internal financing under the implication of fixed effect regression statistics. This supports the acceptance of $H1.1b$: There is a significant positive impact of internal financing on the return on equity of nonfinancial companies in the SCO member states. (Li, 2020) He applied ROE with ROA as a performance metric and proved the positive significant effect of retained earnings on the ROE of the corporate sector. Boadi et al. (2015), argued that high retained earnings are the cheapest, easily accessible, and restriction-free source for financing their investments, in line with the trade-off theory. All the diverse debt finances significantly influence the ROE, with p-values less than 0.05. The p-values for total debt are significant but comparatively greater i.e., 0.032 and 0.049 for Pakistan, 0.034 and 0.025 for China, and 0.045 for Iran. The positive beta coefficients show an increased effect for short-run debt-ROE and negative values show a decreased effect for both long-run debt and total debt with ROE. The acceptance of $H1.2b$: There is a significant impact of debt financing on the return on equity of nonfinancial companies in the SCO member states, which is consistent with the Ahmed (2018), proved that multiple debt finances significantly negatively influence ROE, under both random and fixed effect statistics. The study findings aligned with traditional theory and found that high debt proportion increases the associated transaction cost and interest rates. According to

Le & Phan (2017), robust-growing industries or nations showed a negative interrelation between leverage and firm performance, and slow-growth industrial sectors or nations revealed positive leverage-performance relations.

The employed measures of shadow bank finances also obtain significant p-values at a 5% significance level and positive beta coefficients, for all SCO states, under fixed effect panel regression models. The positive beta values indicate positive significant effect, which is high for shadow banking assets and relatively low for shadow banking proportion, may be due to less consideration of shadow bank financing among SCO states. Duca (2014), argued that shadow bank financing does not require any reserve, resultantly offering higher returns. Zhou and Tewari (2019) documented that boosting accessibility to debt based on shadow banking should directly affect corporate profitability. Hence, aligning with the existing literature, the hypothesis H1.3$b$: There is a significant positive impact of shadow bank financing on return on equity of nonfinancial companies in the SCO member states, is accepted, supporting pecking order theory in line with (Zhou & Tewari, 2019).

All measures of equity financing have proved significant influence on ROE in fixed effect statistics. The significant p-values i-e less than 0.05, and positive beta coefficients for all equity finance measures satisfy the hypothesis, $H1.4b$: There is a significant positive impact of equity financing on the return on equity of nonfinancial companies in the SCO member states. (Pham, 2020) He proved the significant negative effect of equity capital on ROE, during stock undervaluation and positive effect during stock overvaluations, aligned with market timing effect, as proved by Shikumo (2021). For supply chain financing-performance effects, all finances show positive values for beta coefficients except factoring finances and credit guarantees, possibly may be due to high risk of losing the collateral. The CCC has a p-value of 0.050 under fixed effect, while all the other measures: trade finances, account receivable finances, and credit guarantees have p-values less than 0.05 significance level, indicating the acceptance of $H1.5b$: There is a significant impact of supply chain financing on return on equity of nonfinancial companies in the SCO member states, supported pecking order theory and trade off theory in line with Wuttke et al (2016) and Tanrisever et al (2015). Detthamrong and Chansanam (2023), proved the significant positive interrelation of trade financing with the firm's ROE, supporting pecking order theory as proved by Huang et al. (2019), Farooq et al (2021), and Liu et al. (2021), Raghavan & Mishra (2011), highlighted the important aspects that lead to positive supplier performance with supply chain financing: short-term funding, low-cost factoring, and guaranteed advance payments.

The appropriate fixed effect statistics present the significant influence of financing alternatives on financial performance focusing on ROE, of non-finance firms in SCO member states. Hence H1 accepted for ROE. FS shows a statistically significant positive controlled effect on ROE with p-values =0.000 and AT shows a significance level with a p-value less than 0.05, except TAT is insignificant with negative beta values for Pakistan, China, and Iran with p-values above 0.05 i-e 0.182, 0.133 and 0.057 respectively, under fixed panel statistics.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show higher variance proportions of 65% for Iran, and low values for India, China, and Pakistan for the ROE estimation model. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.2: Model 1.2,** *Panel Regression Analysis for Predictors of Return on Equity*

| Financing Alternatives and Return on Equity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROE | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.711 | 0.004 | 0.520 | 0.001 | 0.903 | 0.000 | 0.847 | 0.000 |
| Retained Earnings | 0.881 | 0.009 | 0.831 | 0.005 | 0.450 | 0.000 | 0.882 | 0.020 |
| Debt financing | | | | | | | | |
| Short term debt | 0.784 | 0.034 | 0.571 | 0.005 | 0.731 | 0.000 | 0.779 | 0.010 |
| Long term debt | -0.667 | 0.013 | -0.857 | 0.000 | -0.532 | 0.001 | -0.569 | 0.000 |
| Total debt | -0.560 | 0.049 | -0.488 | 0.009 | -0.488 | 0.025 | -0.647 | 0.045 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.613 | 0.035 | 0.567 | 0.045 | 0.682 | 0.000 | 0.491 | 0.025 |
| Shadow banking ratio | 0.387 | 0.041 | 0.390 | 0.012 | 0.412 | 0.000 | 0.304 | 0.045 |
| Equity financing | | | | | | | | |
| Common stocks | 0.637 | 0.000 | 0.481 | 0.027 | 0.783 | 0.000 | 0.652 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Preferred stocks | 0.793 | 0.000 | 0.748 | 0.043 | 0.819 | 0.002 | 0.587 | 0.036 |
| Equity ratio | 0.502 | 0.000 | 0.504 | 0.000 | 0.691 | 0.013 | 0.576 | 0.017 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.777 | 0.050 | 0.693 | 0.000 | 0.795 | 0.000 | 0.562 | 0.005 |
| Trade financing | 0.582 | 0.001 | 0.774 | 0.000 | 0.549 | 0.000 | 0.619 | 0.000 |
| Reverse factoring | -0.162 | 0.009 | -0.545 | 0.000 | -0.229 | 0.050 | -0.678 | 0.016 |
| Factoring | -0.317 | 0.015 | -0.228 | 0.029 | -0.206 | 0.038 | -0.628 | 0.000 |
| Credit guarantees ratio | -0.412 | 0.000 | -0.320 | 0.036 | -0.231 | 0.000 | -0.440 | 0.040 |
| Solvency rating ratio | -0.395 | 0.000 | -0.295 | 0.021 | -0.279 | 0.005 | -0.389 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.802 | 0.000 | 0.698 | 0.000 | 0.591 | 0.000 | 0.878 | 0.000 |
| Asset Tangibility | 0.377 | 0.005 | 0.890 | 0.000 | 0.678 | 0.022 | 0.523 | 0.034 |
| Total Asset turnover | -0.436 | 0.182 | -0.340 | 0.000 | -0.357 | 0.133 | -0.424 | 0.057 |
| Constant | 0.340 | 0.000 | 0.320 | 0.000 | 0.374 | 0.000 | 0.264 | 0.000 |
| R-square | 0.293 | | 0.327 | | 0.196 | | 0.655 | |
| F-Statistic | 13.410 | | 14.700 | | 15.310 | | 1.890 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.005 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.2 includes the Return on Equity as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROE_{it}=0.711\ IFR_{it}+0.881\ RE_{it}+0.784STD_{it}-0.667\ LTD_{it}-0.560\ TD_{it}+0.613\ SBA_{it}+0.387\ SBR_{it}+0.637\ CS_{it}+0.793PS_{it}+0.502\ ER_{it}+0.777\ CCC_{it}+0.582\ TF_{it}-0.162\ RF_{it}-0.317\ FD_{it}-0.412\ CGR_{it}-0.395\ SRR_{it}+0.802\ FS_{it}+0.377AT_{it}-0.436\ TAT_{it}+0.340$$

Beta coefficient equation for India

$$ROE_{it}=0.520\ IFR_{it}+0.831\ RE_{it}+0.571\ STD_{it}-0.857\ LTD_{it}-0.488\ TD_{it}+0.567SBA_{it}+0.390\ SBR_{it}+0.481\ CS_{it}+0.748\ PS_{it}+0.504ER_{it}+0.693\ CCC_{it}+0.774\ TF_{it}-0.545\ RF_{it}-0.228\ FD_{it}-0.320\ CGR_{it}-0.295\ SRR_{it}+0.698\ FS_{it}+0.890\ AT_{it}-0.340TAT_{it}+0.320$$

Beta coefficient equation for China

$ROE_{it}$=0.903$IFR_{it}$+0.450$RE_{it}$+0.731 $STD_{it}$-0.532 $LTD_{it}$-0.488 $TD_{it}$+0.682$SBA_{it}$+ 0.412 $SBR_{it}$+0.783$CS_{it}$+0.819 $PS_{it}$+0.691 $ER_{it}$+0.795$CCC_{it}$+0.549 $TF_{it}$-0.229 $RF_{it}$- 0.206 $FD_{it}$-0.231 $CGR_{it}$-0.279 $SRR_{it}$+0.591 $FS_{it}$+0.678 $AT_{it}$-0.357$TAT_{it}$+0.374

Beta coefficient equation for Iran

$ROE_{it}$=0.847 $IFR_{it}$+0.882 $RE_{it}$+0.779 $STD_{it}$-0.569 $LTD_{it}$-0.647 $TD_{it}$+0.491 $SBA_{it}$+ 0.304$SBR_{it}$+0.652 $CS_{it}$+0.587$PS_{it}$+0.576 $ER_{it}$+0.562 $CCC_{it}$+0.619 $TF_{it}$-0.678 $RF_{it}$- 0.628 $FD_{it}$-0.440 $CGR_{it}$-0.389 $SRR_{it}$+0.878 $FS_{it}$+0.523$AT_{it}$-0.424 $TAT_{it}$+0.340

#### 4.2.1.3 Financing Alternatives and Net Profit Margin

The proposed model 1.3 determines the panel regression effects of financing alternatives on NPM, with the controlled effect of firm size, asset tangibility, and total asset turnover. Table 4.2.3 shows the shows the fixed effect statistics based on appropriate decision criteria with predictor variable NPM, for selected SCO member states: Pakistan, India, China, and Iran. For deciding the appropriate panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

NPM is a commonly applied financial performance indicator, all the SCO states have obtained a positive beta coefficients and significant p-value level of 5% for both measures of internal financing under the implication of Panel-OLS, fixed effect, and random effect-regression statistics. This supports the acceptance of H1.1c: There is a significant positive impact of internal financing on the net profit margin of nonfinancial companies in the SCO member states. The findings aligned with Liu et al. (2018), proved the significant direct influential relationship between internal financing and the entire productivity of an organization, especially focusing on the net profit margins. They argued that the leading approach for promoting the organization's development is the reliance on internal finances for improving productivity, supporting pecking order theory. The calculated p-values under fixed effect statistics, are statistically significant with significance values less than 0.05 with positive

beta coefficients, indicating a positive significant influence of short-term loans and negative significant effect of long-run debt and total debt on NPM. Hence, $H1.2c$: There is a significant impact of debt financing on the net profit margin of nonfinancial companies in the SCO member states, is accepted. All SCO member states are dependent on short-term loans and long-term loans for financing their operations. Existing study, such as Khanam et al. (2014), proved the negative predictor effect of NPM with debt finances, possibly due to increased WACC, interest and borrowing cost, supporting traditional theory approach. Dalci (2018), demonstrated that capital structure and profitability pursued an inverted U-shape, with negative influence resulting from financial distress, bankruptcy, information asymmetry, and severe agency problems, and positive influence might be due to tax-shield advantages.

Both measures of shadow bank finances also obtain significant p-values at a 5% significance level with positive beta coefficients for all SCO states, under fixed effect regression model. The highest significant p-values are 0.043, 0.049, and 0.050 for Pakistan, India, and Iran. Tan (2017), proved the positive influence of shadow banking on NPM, with a significant decline in credit risk, and insolvency risk with an increase in liquidity and capital. In line with the reference study, the present research proved $H1.3c$: There is a significant positive impact of shadow bank financing on the net profit margin of non-finance companies in the SCO member states, supporting trade off theory and pecking order theory similar to Tan (2017). The employed measures of equity finances also obtain significant p-values at a 5% significance level for all SCO states, under fixed effect regression models. The statistics strongly support $H1.4c$: There is a significant impact of equity financing on the net profit margin of nonfinancial companies in the SCO member states, supported by pecking order theory (Owolabi et al. 2021). According to Monga and Kahndelwal (2018), equity share investors forecast dividends as a return on their investments, which is distributed only when a firm earns a surplus return, and equity finances influence profitability in lesser proportions followed by dividend payments. They proved the positive influence of multiple equity finances: common shares, and preference shares, on firm performance (Owolabi et al. 2021). The multiple measures of supply chain finances: CCC, trade financing, factoring and reverse factoring, and credit guarantees are regressed for NPM and obtained p-values less than 0.05, under fixed effect statistics. Hence $H1.5c$: There is a significant impact of supply chain financing on the net profit margin of nonfinancial companies in the SCO member states, is accepted. Theoretical underpinnings such as trade-off theory and pecking order theory are in line with the evidenced studies, such as (Mahmud et al., 2022), (Li et al., 2016). (Baker et al.,

2022) They proved an inverted U-shaped relation of trade credit with corporate profitability, with low volumes of receivables having positive relation and excess volume leading to negative relation, which is strongly followed by a benefits and detriments trade-off (Caballero et al., 2014).

The mixed panel-OLS statistics present the significant influence of financing alternatives on the net profit margin of non-finance firms in SCO member states. Hence H1 accepted for NPM. Both FS, AT, and TAT show a statistically significant positive controlled effect on NPM for SCO states, with positive beta coefficients and p-values less than 0.05, under fixed effect regression models. Fatima & Mohiuddin (2020), proved that firms with larger sizes can earn huge profits i-e direct relation with NPM.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show higher variance proportions of 66% and 69% for SCO states, except 30% for Iran. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.3: Model 1.3,** *Panel Regression Analysis for Predictors of Net Profit Margin*

| Financing Alternatives and Net Profit Margin | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: NPM | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.640 | 0.019 | 0.543 | 0.041 | 0.816 | 0.000 | 0.770 | 0.000 |
| Retained Earnings | 0.833 | 0.000 | 0.794 | 0.005 | 0.849 | 0.000 | 0.537 | 0.017 |
| Debt financing | | | | | | | | |
| Short term debt | 0.878 | 0.000 | 0.643 | 0.000 | 0.878 | 0.039 | 0.677 | 0.002 |
| Long term debt | -0.890 | 0.000 | -0.619 | 0.013 | -0.604 | 0.033 | -0.613 | 0.019 |
| Total debt | -0.698 | 0.000 | -0.545 | 0.000 | -0.647 | 0.012 | -0.493 | 0.029 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.232 | 0.029 | 0.633 | 0.025 | 0.426 | 0.000 | 0.483 | 0.049 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking ratio | 0.559 | 0.000 | 0.423 | 0.000 | 0.584 | 0.005 | 0.255 | 0.008 |
| Equity financing | | | | | | | | |
| Common stocks | 0.787 | 0.031 | 0.646 | 0.039 | 0.772 | 0.013 | 0.616 | 0.003 |
| Preferred stocks | -0.689 | 0.030 | -0.562 | 0.000 | -0.585 | 0.000 | -0.507 | 0.011 |
| Equity ratio | 0.644 | 0.000 | 0.551 | 0.010 | 0.614 | 0.000 | 0.537 | 0.001 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.683 | 0.002 | 0.658 | 0.009 | 0.691 | 0.016 | 0.638 | 0.019 |
| Trade financing | 0.659 | 0.048 | 0.713 | 0.018 | 0.531 | 0.006 | 0.585 | 0.000 |
| Reverse factoring | -0.381 | 0.000 | -0.483 | 0.006 | -0.550 | 0.001 | -0.641 | 0.018 |
| Factoring | -0.239 | 0.009 | -0.495 | 0.025 | -0.460 | 0.029 | -0.431 | 0.038 |
| Credit guarantees ratio | 0.380 | 0.029 | 0.767 | 0.000 | 0.452 | 0.032 | 0.321 | 0.032 |
| Solvency rating ratio | 0.220 | 0.000 | 0.498 | 0.025 | 0.455 | 0.000 | 0.337 | 0.002 |
| Control variables | | | | | | | | |
| Firm Size | 0.773 | 0.000 | 0.801 | 0.000 | 0.638 | 0.000 | 0.744 | 0.000 |
| Asset Tangibility | 0.671 | 0.039 | 0.465 | 0.000 | 0.461 | 0.000 | 0.511 | 0.010 |
| Total Asset turnover | 0.480 | 0.014 | 0.417 | 0.000 | 0.353 | 0.000 | 0.450 | 0.008 |
| Constant | 0.498 | 0.000 | 0.352 | 0.000 | 0.276 | 0.000 | 0.308 | 0.000 |
| R-square | 0.658 | | 0.692 | | 0.664 | | 0.303 | |
| F-Statistic | 1.790 | | 1.850 | | 2.870 | | 32.040 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.013 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.3 includes the Net profit margin as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$NPM_{it}=0.640IFR_{it}+0.833\ RE_{it}+0.878\ STD_{it}-0.890\ LTD_{it}-0.698\ TD_{it}+0.232\ SBA_{it}+0.559\ SBR_{it}+0.787\ CS_{it}-0.689\ PS_{it}+0.644\ ER_{it}+0.683\ CCC_{it}+0.659TF_{it}-0.381RF_{it}-0.239\ FD_{it}+0.380\ CGR_{it}+0.220\ SRR_{it}+0.773\ FS_{it}+0.671\ AT_{it}+0.480\ TAT_{it}+0.498$$

Beta coefficient equation for India

$NPM_{it}$=0.543 $IFR_{it}$+0.794 $RE_{it}$+0.643$STD_{it}$-0.619 $LTD_{it}$-0.545 $TD_{it}$+0.633 $SBA_{it}$+ 0.423 $SBR_{it}$+0.646 $CS_{it}$-0.562 $PS_{it}$+0.551 $ER_{it}$+0.658 $CCC_{it}$+0.713 $TF_{it}$-0.483 $RF_{it}$- 0.495 $FD_{it}$+0.767 $CGR_{it}$+0.498 $SRR_{it}$+0.801 $FS_{it}$+0.465 $AT_{it}$+0.417 $TAT_{it}$+0.352

Beta coefficient equation for China

$NPM_{it}$=0.816 $IFR_{it}$+0.849 $RE_{it}$+0.878 $STD_{it}$-0.604 $LTD_{it}$-0.647 $TD_{it}$+0.426 $SBA_{it}$+ 0.584$SBR_{it}$+0.772 $CS_{it}$-0.585 $PS_{it}$+0.614 $ER_{it}$+0.691$CCC_{it}$+0.531$TF_{it}$-0.550 $RF_{it}$- 0.460 $FD_{it}$+0.452 $CGR_{it}$+0.455 $SRR_{it}$+0.638$FS_{it}$+0.461 $AT_{it}$+0.353$TAT_{it}$+0.276

Beta coefficient equation for Iran

$NPM_{it}$=0.770 $IFR_{it}$+0.537 $RE_{it}$+0.677 $STD_{it}$-0.613 $LTD_{it}$-0.493 $TD_{it}$+0.483 $SBA_{it}$+ 0.255 $SBR_{it}$+0.616 $CS_{it}$-0.507 $PS_{it}$+0.537 $ER_{it}$+0.638 $CCC_{it}$+0.585 $TF_{it}$-0.641$RF_{it}$- 0.431 $FD_{it}$+0.321 $CGR_{it}$+0.337 $SRR_{it}$+0.744 $FS_{it}$+0.511 $AT_{it}$+0.450 $TAT_{it}$+0.308

#### 4.2.1.4 Financing Alternatives and Return on Capital Employed

In Table 4.2.4, the proposed model 1.4 determines the mixed panel regression effects of financing alternatives on Return on capital employed, with the controlled effect of firm size, asset tangibility, and total asset turnover, for four selected SCO states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

The ROCE shows the comparison of net income as a percentage of employed capital. Li (2020), proved the significant positive influence of internal financing, measured by internal financing ratio, on ROCE. The p-values calculated for both retained earnings and internal financing ratio, under the fixed effect regressions, are less than 5% significance level and beta coefficients are positive, proving the statistically significant positive influence of internal finances on ROCE for all SCO states, hence H1.1$d$ is accepted, i-e There is a significant positive impact of internal financing on return on capital employed of nonfinancial companies in the SCO member states, aligned with pecking order theory as Li (2020) argued internal financing as a preferable choice to avoid transaction cost and information asymmetry with

external borrowing. He et al. (2019), documented the sensitivity of investment efficiency to internal funds. Both short-term loans, long-run debts, and total debts have obtained significant p-values when regressed with ROCE for Pakistan, India, China, and Iran. The significantly higher p-values are 0.042, 0.043, and 0.047 for India, China, and Iran. The beta values are positive for short-run loans and negative for long-term loans, results support $H1.2d$: There is a significant impact of debt financing on the return on capital employed of nonfinancial companies in the SCO member states. (Li, 2020) He incorporated ROCE for a robustness check and proved the significant negative influence of multiple debt finances on ROCE, assuming higher debt finances lead to negative profits with increased information asymmetry, transaction cost, and debt issuance cost, supported agency theory and traditional theory approach. As the share of gross profits spent on debt payments rises, the proportion allocated to debt creditors and shareholders decreases proportionately (Li, 2020). (Norvaisiene, 2012) A firm's selection of financing alternatives is influenced by two aspects: 1) fluctuations in economic conditions, and 2) the firm's capability of proper utilization of the borrowed capital in business. During good economic conditions, a firm should opt for excessive debt finances because relatively less cost is incurred for utilization of the borrowed capital and investor obtains higher profits.

Shadow banking finances also give significant estimations when regressed with ROCE, the p-values of both measures are at a significance level of 0.05 and beta coefficients are positive, under fixed effect model, for selected SCO states. The results support $H1.3d$: There is a significant positive impact of shadow bank financing on the return on capital employed by nonfinancial companies in the SCO member states, supported pecking order theory similar to Tan (2017) and Zhou and Tewari (2019). (Han et al., 2019) They proved the significant positive influence of shadow banking activities on enterprise performance, measured by operating revenue and financial revenue consisting of interest income and return on investment. All equity finances: common shares, preference, shares, and equity ratio also obtained significant estimations when regressed for ROCE, the p-value calculated is less than 0.50 at the significance level for fixed effect panel regression. The beta values for preferred stocks show decreasing influence on ROCE, maybe due to fixed income, and high company discretion with low voting rights. Considering illustrations, $H1.4d$: There is a significant impact of equity financing on the return on capital employed of nonfinancial companies in the SCO member states, which has been accepted (Baker & Wurgler, 2002) The return from equity investment is highly dependent on market timing effects, the investors prefer the equity issuance at times when they forecast high earnings on their capital investments. The study assumes high equity

financing during overvaluations, resulting in high ROCE. All employed measures of supply chain finances: CCC, trade financing, factoring and reverse factoring, and credit guarantees are regressed for ROCE and obtained p-values less than 0.05, under fixed effect, random effect, and panel-OLS statistics. Hence *H*1.5d: There is a significant impact of supply chain financing on the ROCE of nonfinancial companies in the SCO member states, which is accepted. Results are in line with the evidenced studies, such as (Mahmud et al., 2022), (Li et al., 2016). Baker et al. (2022), proved an inverted U-shaped relation of trade credit with corporate profitability, with low volumes of receivables having positive relation and excess volume leading to negative relation, which is strongly followed by a benefits and detriments trade-off (Caballero et al., 2014). The reference study, Maeenuddin et al. (2021), proved the significant influence of working capital management on ROCE and argued that for increasing the return on working capital employed, the managers need to focus on efficient management of accounts payables, inventory holdings, and receivables. In alignment with the existing studies, the estimations supported significant results for ROCE.

The implied estimations under mixed panel-OLS statistics present the significant influence of financing alternatives on the ROCE of non-finance firms in SCO member states. Hence H1 accepted ROCE. Both FS, AT, and TAT show a statistically significant positive controlled effect on ROCE for SCO states, with p-values less than 0.05 and positive beta coefficients, under fixed effect estimations. Mahmud et al. (2022), argued that excess trade credit negatively influences smaller size firm and positively influence larger size firms. According to Li (2020), a high proportion of asset tangibility would mitigate agency issues of managerial discretion, and information asymmetry, and positively influences ROCE.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show comparatively low variance proportions for the ROCE estimation model. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.4: Model 1.4,** *Panel Regression Analysis for Predictors of Return on Capital Employed*

| Financing Alternatives and Return on Capital Employed | | | |
|---|---|---|---|
| Regressand: ROCE | | | |
| Pakistan | India | China | Iran |

| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
|---|---|---|---|---|---|---|---|---|
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.893 | 0.001 | 0.579 | 0.000 | 0.634 | 0.000 | 0.678 | 0.006 |
| Retained Earnings | 0.693 | 0.000 | 0.517 | 0.000 | 0.840 | 0.000 | 0.606 | 0.000 |
| Debt financing | | | | | | | | |
| Short term debt | 0.758 | 0.006 | 0.844 | 0.029 | 0.718 | 0.003 | 0.773 | 0.031 |
| Long term debt | -0.780 | 0.002 | -0.585 | 0.003 | -0.518 | 0.043 | -0.633 | 0.026 |
| Total debt | -0.423 | 0.018 | -0.620 | 0.001 | -0.578 | 0.038 | -0.593 | 0.047 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.484 | 0.019 | 0.616 | 0.046 | 0.507 | 0.000 | 0.616 | 0.032 |
| Shadow banking ratio | 0.330 | 0.005 | 0.484 | 0.000 | 0.369 | 0.001 | 0.433 | 0.023 |
| Equity financing | | | | | | | | |
| Common stocks | 0.683 | 0.007 | 0.756 | 0.036 | 0.669 | 0.000 | 0.535 | 0.024 |
| Preferred stocks | -0.642 | 0.018 | -0.422 | 0.046 | -0.400 | 0.050 | -0.629 | 0.026 |
| Equity ratio | 0.416 | 0.000 | 0.523 | 0.000 | 0.721 | 0.000 | 0.494 | 0.024 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.898 | 0.021 | 0.682 | 0.000 | 0.614 | 0.008 | 0.788 | 0.002 |
| Trade financing | 0.552 | 0.002 | 0.305 | 0.000 | 0.255 | 0.023 | 0.614 | 0.002 |
| Reverse factoring | -0.413 | 0.008 | -0.370 | 0.016 | -0.410 | 0.000 | 0.629 | 0.000 |
| Factoring | -0.366 | 0.027 | -0.319 | 0.048 | -0.217 | 0.001 | 0.565 | 0.026 |
| Credit guarantees ratio | 0.724 | 0.013 | 0.620 | 0.003 | 0.546 | 0.001 | 0.348 | 0.043 |
| Solvency rating ratio | 0.662 | 0.011 | 0.515 | 0.002 | 0.395 | 0.026 | 0.386 | 0.009 |
| Control variables | | | | | | | | |
| Firm Size | 0.697 | 0.000 | 0.768 | 0.000 | 0.737 | 0.000 | 0.625 | 0.000 |
| Asset Tangibility | 0.549 | 0.016 | 0.744 | 0.001 | 0.529 | 0.008 | 0.582 | 0.003 |
| Total Asset turnover | 0.627 | 0.000 | 0.802 | 0.000 | 0.303 | 0.023 | 0.336 | 0.016 |
| Constant | 0.786 | 0.000 | 0.265 | 0.000 | 0.441 | 0.000 | 0.199 | 0.000 |
| R-square | 0.303 | | 0.335 | | 0.223 | | 0.301 | |
| F-Statistic | 32.350 | | 35.260 | | 47.300 | | 31.880 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

| | | | | |
|---|---|---|---|---|
| Hausman test | 0.043 | 0.000 | 0.000 | 0.000 |
| Lagrange Multiplier test | 0.000 | 0.000 | 0.000 | 0.000 |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.4 includes the Return on Capital Employed as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$ROCE_{it}$=0.893 $IFR_{it}$+0.693 $RE_{it}$+0.758 $STD_{it}$-0.780 $LTD_{it}$-0.423 $TD_{it}$+0.484 $SBA_{it}$+ 0.330 $SBR_{it}$+0.683 $CS_{it}$-0.642 $PS_{it}$+0.416 $ER_{it}$+0.898 $CCC_{it}$+0.552 $TF_{it}$-0.413 $RF_{it}$- 0.366 $FD_{it}$+0.724 $CGR_{it}$+0.662 $SRR_{it}$+0.697 $FS_{it}$+0.549 $AT_{it}$+0.627 $TAT_{it}$+0.786

Beta coefficient equation for India

$ROCE_{it}$=0.579 $IFR_{it}$+0.517 $RE_{it}$+0.844 $STD_{it}$-0.585 $LTD_{it}$-0.620 $TD_{it}$+0.616 $SBA_{it}$+ 0.484 $SBR_{it}$+0.756 $CS_{it}$-0.422 $PS_{it}$+0.523 $ER_{it}$+0.682 $CCC_{it}$+0.305 $TF_{it}$-0.370 $RF_{it}$- 0.319 $FD_{it}$+0.620 $CGR_{it}$+0.515 $SRR_{it}$+0.768 $FS_{it}$+0.744 $AT_{it}$+0.802 $TAT_{it}$+0.265

Beta coefficient equation for China

$ROCE_{it}$=0.634 $IFR_{it}$+0.840 $RE_{it}$+0.718 $STD_{it}$-0.518 $LTD_{it}$-0.578 $TD_{it}$+0.507 $SBA_{it}$+ 0.369 $SBR_{it}$+0.669 $CS_{it}$-0.400 $PS_{it}$+0.721 $ER_{it}$+0.614 $CCC_{it}$+0.255-0.410 $RF_{it}$- 0.217 $FD_{it}$+0.546 $CGR_{it}$+0.395 $SRR_{it}$+0.737 $FS_{it}$+0.529 $AT_{it}$+0.303 $TAT_{it}$+0.441

Beta coefficient equation for Iran

$ROCE_{it}$=0.678 $IFR_{it}$+0.606 $RE_{it}$+0.773 $STD_{it}$-0.633 $LTD_{it}$-0.593 $TD_{it}$+0.616 $SBA_{it}$+ 0.433 $SBR_{it}$+0.535 $CS_{it}$-0.629 $PS_{it}$+0.494 $ER_{it}$+0.788 $CCC_{it}$+0.614 $TF_{it}$+0.629 $RF_{it}$+ 0.565 $FD_{it}$+0.348 $CGR_{it}$+0.386 $SRR_{it}$+0.625 $FS_{it}$+0.582 $AT_{it}$+0.336 $TAT_{it}$+0.199

#### 4.2.1.5 Financing Alternatives and Return on Invested Capital

In Table 4.2.5, the proposed model 1.5 determines the panel regression effects of financing alternatives on Return on invested capital, with the controlled effect of firm size, asset tangibility, and total asset turnover for selected SCO states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered

p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Ramli et al. (2019), argued that corporate financial performance, based upon ROA, ROE, and ROIC, is positively influenced by diverse financing structure dimensions. The p-values calculated for both retained earnings and internal financing ratio, under the P- fixed effect regression estimates, are less than 5% significance level and with positive beta coefficients, proving the statistically significant positive influence of internal finances on ROIC for all SCO states, hence H1.1$e$: There is a significant positive impact of internal financing on return on invested capital of nonfinancial companies in the SCO member states. He proved the significant influence of internal finances on ROIC (Li, 2020). He argued that capital investments based on internally generated funds do not consider any transaction cost or issuance cost, ultimately leading to increased return on invested capital. He et al. (2019), argued that firms management prefer internal financing during undervaluation of their firms by outside investors, supporting pecking order theory.

All three measures for debt financing, namely short-term loan, long-run debts, and total debts have obtained the significant p-values i-e less than 0.05 when regressed with ROIC for Pakistan, India, China, and Iran, and positive beta coefficients for short-run loans and negative values for long-term and total debt. The results support $H$1.2e: There is a significant impact of debt financing on the return on invested capital of nonfinancial companies in the SCO member states, supporting trade-off theory and pecking order theory as Li (2020), proved the significant influence of diverse debt finances on ROIC. According to Tretiakova et al. (2021), consideration of optimal external financing structure and correct evaluation of this financing may support the investment decisions of investors and resultantly leads to increased return on invested capital with successful survival in the surrounding competitive market.

The shadow banking finances also give significant estimations when regressed with ROIC, the p-values of both measures are at a significant level of 0.05 and shows increasing influence with positive beta values under fixed effect model, for selected SCO states. The results support $H$1.3e: There is a significant positive impact of shadow bank financing on ROIC of nonfinancial companies in the SCO member states, supporting pecking order theory. Liu et al. (2014), argued that utilization of shadow banking operations by self-interested management is highly contingent on the profit from investment earnings. All equity finances: common shares, preference shares, and equity ratio also obtained significant estimations when regressed

for ROIC, the p-value calculated is less than 0.50 at the significance level and positive beta coefficients for common shares and equity ratio. Considering illustrations, $H1.4e$: There is a significant impact of equity financing on return on invested capital of nonfinancial companies in the SCO member states., has been accepted and contributed to trade-off theory, pecking order theory, and market timing theory for obtaining investment returns during market frictions (Shikumo, 2021). Damodaran (2007), argued that the return on equity investments is to be determined in comparison to its cost of equity, and forecasted return on equity investments will have significant consequences on corporate valuations. Equity overvaluations will lead to a high return on equity capital investments and equity undervaluation will negatively influence return on investments.

All employed measures of supply chain finances: CCC, trade financing, factoring and reverse factoring, and credit guarantees are regressed for ROCE and obtained p-values less than 0.05, and increasing beta values for all supply chain finances except factoring finances, under fixed effect statistics. Hence $H1.5e$: There is a significant impact of supply chain financing on the return on invested capital of nonfinancial companies in the SCO member states, which is accepted. The results are aligned with the existing study by Pouraghajan and Emamgholipourarchi (2012), which proved the significant influence of working capital management on ROIC. Effective working capital management increases the cashflows for operational activities and the financial stability of the business, therefore increasing the accessibility to investment opportunities with positive forecasted returns. Supply chain financing tools also increase firm cash holdings Pan et al. (2020), facilitating the firm future profitable investments.

The results under fixed effect panel estimations present the significant influence of financing alternatives on the ROIC of non-finance firms in SCO member states. Hence H1 accepted for ROIC. All control variables: FS, AT, and TAT show a statistically significant positive controlled effect on ROIC for Pakistan, India, China, and Iran with p-values less than 0.05 and positive beta coefficients, except TAT shows insignificance for India under fixed effect estimations with insignificant p-value i-e 0.089.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show variance

proportions of 47% for Pakistan, India and Iran, and 32% for China, for the ROIC estimation model. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.5: Model 1.5,** *Panel Regression Analysis for Predictors of Return on Invested Capital*

| Financing Alternatives and Return on Invested Capital | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROIC | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.823 | 0.012 | 0.426 | 0.031 | 0.863 | 0.000 | 0.718 | 0.000 |
| Retained Earnings | 0.726 | 0.012 | 0.630 | 0.035 | 0.695 | 0.011 | 0.528 | 0.041 |
| Debt financing | | | | | | | | |
| Short term debt | 0.631 | 0.020 | 0.654 | 0.003 | 0.637 | 0.000 | 0.691 | 0.000 |
| Long term debt | -0.813 | 0.016 | -0.713 | 0.001 | -0.658 | 0.003 | -0.587 | 0.014 |
| Total debt | -0.629 | 0.003 | -0.543 | 0.011 | -0.447 | 0.000 | -0.553 | 0.007 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.677 | 0.050 | 0.564 | 0.039 | 0.684 | 0.009 | 0.516 | 0.033 |
| Shadow banking ratio | 0.598 | 0.010 | 0.417 | 0.002 | 0.321 | 0.009 | 0.555 | 0.005 |
| Equity financing | | | | | | | | |
| Common stocks | 0.689 | 0.002 | 0.612 | 0.001 | 0.869 | 0.000 | 0.470 | 0.000 |
| Preferred stocks | -0.318 | 0.023 | -0.346 | 0.001 | -0.321 | 0.008 | -0.403 | 0.043 |
| Equity ratio | 0.651 | 0.041 | 0.442 | 0.006 | 0.627 | 0.019 | 0.476 | 0.031 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.763 | 0.007 | 0.657 | 0.002 | 0.816 | 0.047 | 0.554 | 0.004 |
| Trade financing | 0.744 | 0.018 | 0.459 | 0.001 | 0.333 | 0.010 | 0.468 | 0.048 |
| Reverse factoring | -0.321 | 0.017 | -0.521 | 0.026 | -0.464 | 0.012 | -0.454 | 0.012 |
| Factoring | -0.357 | 0.048 | -0.243 | 0.039 | -0.409 | 0.023 | -0.211 | 0.048 |
| Credit guarantees ratio | 0.452 | 0.027 | 0.751 | 0.022 | 0.568 | 0.000 | 0.468 | 0.012 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio | 0.423 | 0.040 | 0.634 | 0.002 | 0.629 | 0.001 | 0.413 | 0.033 |
| Control variables | | | | | | | | |
| Firm Size | 0.662 | 0.000 | 0.776 | 0.000 | 0.657 | 0.000 | 0.715 | 0.000 |
| Asset Tangibility | 0.469 | 0.009 | 0.524 | 0.002 | 0.507 | 0.000 | 0.595 | 0.018 |
| Total Asset turnover | 0.422 | 0.008 | 0.385 | 0.089 | 0.706 | 0.001 | 0.350 | 0.037 |
| Constant | 0.372 | 0.000 | 0.466 | 0.000 | 0.306 | 0.000 | 0.381 | 0.000 |
| R-square | 0.470 | | 0.477 | | 0.315 | | 0.467 | |
| F-Statistic | 10.900 | | 10.640 | | 12.040 | | 10.760 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.001 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.5 includes the Return on Invested Capital as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROIC_{it}=0.823\ IFR_{it}+0.726\ RE_{it}+0.631\ STD_{it}-0.813\ LTD_{it}-0.629\ TD_{it}+0.677\ SBA_{it}+0.598\ SBR_{it}+0.689\ CS_{it}-0.318\ PS_{it}+0.651\ ER_{it}+0.763\ CCC_{it}+0.744\ TF_{it}-0.321\ RF_{it}-0.357\ FD_{it}+0.452\ CGR_{it}+0.423\ SRR_{it}+0.662\ FS_{it}+0.469\ AT_{it}+0.422\ TAT_{it}+0.372$$

Beta coefficient equation for India

$$ROIC_{it}=0.426\ IFR_{it}+0.630\ RE_{it}+0.654\ STD_{it}-0.713\ LTD_{it}-0.543\ TD_{it}+0.564\ SBA_{it}+0.417\ SBR_{it}+0.612\ CS_{it}-0.346\ PS_{it}+0.442\ ER_{it}+0.657\ CCC_{it}+0.459\ TF_{it}-0.521\ RF_{it}-0.243\ FD_{it}+0.751\ CGR_{it}+0.634\ SRR_{it}+0.776\ FS_{it}+0.524\ AT_{it}+0.385\ TAT_{it}+0.466$$

Beta coefficient equation for China

$$ROIC_{it}=0.863\ IFR_{it}+0.695\ RE_{it}+0.637\ STD_{it}-0.658\ LTD_{it}-0.447\ TD_{it}+0.684\ SBA_{it}+0.321\ SBR_{it}+0.869\ CS_{it}-0.321\ PS_{it}+0.627\ ER_{it}+0.816\ CCC_{it}+0.333\ TF_{it}-0.464\ RF_{it}-0.409\ FD_{it}+0.568\ CGR_{it}+0.629\ SRR_{it}+0.657\ FS_{it}+0.507\ AT_{it}+0.706\ TAT_{it}+0.306$$

Beta coefficient equation for Iran

$$ROIC_{it}=0.718\ IFR_{it}+0.528\ RE_{it}+0.691\ STD_{it}-0.587\ LTD_{it}-0.553\ TD_{it}+0.516\ SBA_{it}+0.555\ SBR_{it}+0.470\ CS_{it}-0.403\ PS_{it}+0.476\ ER_{it}+0.554\ CCC_{it}+0.468\ TF_{it}-0.454\ RF_{it}-0.211\ FD_{it}+0.468\ CGR_{it}+0.413\ SRR_{it}+0.715\ FS_{it}+0.595\ AT_{it}+0.350\ TAT_{it}+0.381$$

#### 4.2.1.6 Financing Alternatives and Tobin's q

The proposed model 1.6 determines the panel regression effects of financing alternatives on Tobin's q, with the controlled effect of firm size, asset tangibility, and total asset turnover. Table 4.2.6 shows the panel regression statistics of fixed effect with predictor variable Tobin's q, for four SCO member states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Considering Tobin's q as a market performance indicator, all the SCO states have obtained a significant level of 5% for both measures of internal financing with positive beta coefficients, under the implication of fixed effect-regression statistics. This supports the acceptance of $H$1.1f: There is a significant positive impact of internal financing on Tobin's q of nonfinancial companies in the SCO member states. Li (2020), applied Tobin's q as a market performance metric and proved the positive significant effect of retained earnings on Tobin's q of the corporate sector. (Yemi & Seriki, 2018) They proved the significant positive influence of earning surplus on the market value of firms (Tobin's q). Oganda et al. (2022), argued that firms' use of internally generated funds directly influences the firm value, and firms in the growth phase can cheaply avail investment opportunities with preferred retained earnings and ultimately obtain profits and shareholder wealth maximization, in line with the pecking order theory. All the diverse debt finances significantly influence Tobin's q, with p-values less than 0.05. The p-values for total debt are significant but comparatively greater i.e., 0.032 and 0.049 for Pakistan, 0.046 for India, and 0.048 for Iran. The acceptance of $H$1.2f: There is a significant impact of debt financing on Tobin's q of nonfinancial companies in the SCO member states, which is consistent with the Li (2020), proved the significant negative influence of debt ratios on Tobin's q. The possible reason for negative performance effects may be the existence of non-performing loans obtained at greater subsidized rates, which consequently decreases the firm efficiency (Yasmin & Hassan, 2021). According to Pito (2022), there exists a puzzling interrelation between capital structure and Tobin's q, high-growth firms show less debt with

q>1 and low-growth firms show high debt with q<1. He highlighted Tobin's q as the best indicator for understanding prices and markets.

The employed measures of shadow bank finances also obtain significant p-values at a 5% significance level and positive beta values for all SCO states, under fixed effect regression model. Hence, considering estimations, H1.3f: There is a significant positive impact of shadow bank financing on Tobin's q of nonfinancial companies in the SCO member states, is accepted. The findings aligned with existing studies, such as (Han et al. 2019; Zhou & Tewari 2019). All measures of equity financing have proved significant influence on Tobin's q in both P-OLS, random, and fixed effect statistics. The significant p-values i-e less than 0.05 and positive beta coefficients for all equity finance measures satisfy the hypothesis, *H*1.4f: There is a significant positive impact of equity financing on Tobin's q of nonfinancial companies in the SCO member states. Leledakis 1998), documented that if Tobin's q>1, companies might get an investment opportunity since the value of the capital investment is higher than the cost incurred, and when Tobin's q<1 the underlying investment opportunity has a high replacement cost than the investment worth. Profitable Equity capital investments will have Tobin's q>1. For supply chain financing-performance effects, CCC and credit guarantees show high positive beta coefficients i-e 0.88, 0.73, 0.67, 0.62, while trade financing and account receivables factoring financing show negative beta values, and p-values at a significance level of 0.050 under fixed effect, indicating the acceptance of *H*1.5f: There is a significant impact of supply chain financing on Tobin's q of nonfinancial companies in the SCO member states. Excessive payables financing and account receivable financing may decrease the firm's assets and negatively affect profitability. The results are consistent with the existing studies, such as Mousavi & Jari (2012), proved the direct relation between WCM and Tobin's q, Shaik (2021), proved the significant direct influence of supply chain finance on Tobin's q, measured by CCC, Mahmud et al. (2022), proved negative trade finance-performance link. The negative SCF outputs might result from inadequate supply chain models, unavailability of technically advanced payment systems, delayed cashflows, and insufficient SCF training and knowledge (More & Basu, 2013).

The fixed effect panel statistics present the significant influence of financing alternatives on market-based financial performance focusing on Tobin's q, of non-finance firms in SCO member states. Hence H1 accepted for Tobin's q. FS, AT, and TAT have significant controlled effects on market-based performance with p-values less than 0.05 significance level, for all SCO member nations, under the decided fixed effect regression estimation.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show variance proportions of 59% for India 53% for Iran and 43% and 54% for Pakistan and China, for the Tobin's q estimation model. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.6: Model 1.6,** *Panel Regression Analysis for Predictors of Tobin's q*

| Financing Alternatives and Tobin's Q | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: Tobin's q | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.774 | 0.002 | 0.864 | 0.000 | 0.791 | 0.001 | 0.524 | 0.006 |
| Retained Earnings | 0.527 | 0.000 | 0.771 | 0.000 | 0.879 | 0.011 | 0.625 | 0.001 |
| Debt financing | | | | | | | | |
| Short term debt | 0.698 | 0.007 | 0.638 | 0.000 | 0.718 | 0.013 | 0.620 | 0.015 |
| Long term debt | -0.582 | 0.000 | -0.738 | 0.000 | -0.609 | 0.000 | -0.634 | 0.010 |
| Total debt | -0.539 | 0.000 | -0.564 | 0.046 | -0.733 | 0.000 | -0.559 | 0.005 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.743 | 0.010 | 0.582 | 0.001 | 0.614 | 0.019 | 0.634 | 0.042 |
| Shadow banking ratio | 0.567 | 0.029 | 0.480 | 0.000 | 0.515 | 0.005 | 0.339 | 0.002 |
| Equity financing | | | | | | | | |
| Common stocks | 0.538 | 0.003 | 0.642 | 0.000 | 0.615 | 0.007 | 0.675 | 0.015 |
| Preferred stocks | 0.687 | 0.000 | 0.486 | 0.022 | 0.767 | 0.000 | 0.405 | 0.009 |
| Equity ratio | 0.819 | 0.000 | 0.515 | 0.050 | 0.472 | 0.008 | 0.380 | 0.017 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.875 | 0.032 | 0.728 | 0.005 | 0.621 | 0.000 | 0.675 | 0.047 |
| Trade financing | -0.656 | 0.006 | -0.243 | 0.009 | -0.305 | 0.000 | -0.532 | 0.010 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reverse factoring | -0.799 | 0.048 | -0.269 | 0.020 | -0.482 | 0.000 | -0.385 | 0.047 |
| Factoring | -0.272 | 0.013 | -0.340 | 0.005 | -0.345 | 0.011 | -0.268 | 0.018 |
| Credit guarantees ratio | 0.215 | 0.011 | 0.490 | 0.006 | 0.475 | 0.007 | 0.270 | 0.007 |
| Solvency rating ratio | 0.364 | 0.043 | 0.241 | 0.001 | 0.238 | 0.020 | 0.518 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.797 | 0.000 | 0.874 | 0.000 | 0.700 | 0.000 | 0.665 | 0.000 |
| Asset Tangibility | 0.831 | 0.049 | 0.447 | 0.000 | 0.687 | 0.001 | 0.808 | 0.001 |
| Total Asset turnover | -0.366 | 0.043 | -0.349 | 0.001 | -0.233 | 0.000 | -0.311 | 0.039 |
| Constant | 0.206 | 0.000 | 0.532 | 0.000 | 0.334 | 0.000 | 0.253 | 0.000 |
| R-square | 0.434 | | 0.593 | | 0.542 | | 0.530 | |
| F-Statistic | 3.080 | | 1.740 | | 2.990 | | 2.240 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.022 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.6 includes the Tobin's q ratio as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$Tobin's\ q_{it}=0.774\ IFR_{it}+0.527\ RE_{it}+0.698\ STD_{it}-0.582\ LTD_{it}-0.539\ TD_{it}+0.743\ SBA_{it}+0.567\ SBR_{it}+0.538\ CS_{it}+0.687\ PS_{it}+0.819\ ER_{it}+0.875\ CCC_{it}-0.656\ TF_{it}-0.799\ RF_{it}-0.272\ FD_{it}+0.215\ CGR_{it}+0.364\ SRR_{it}+0.797\ FS_{it}+0.831\ AT_{it}-0.366\ TAT_{it}+0.206$$

Beta coefficient equation for India

$$Tobin's\ q_{it}=0.864\ IFR_{it}+0.771\ RE_{it}+0.638\ STD_{it}-0.738\ LTD_{it}-0.564\ TD_{it}+0.582\ SBA_{it}+0.480\ SBR_{it}+0.642\ CS_{it}+0.486\ PS_{it}+0.515\ ER_{it}+0.728\ CCC_{it}-0.243\ TF_{it}-0.269\ RF_{it}-0.340\ FD_{it}+0.490\ CGR_{it}+0.241\ SRR_{it}+0.874\ FS_{it}+0.447\ AT_{it}-0.349\ TAT_{it}+0.532$$

Beta coefficient equation for China

$$Tobin's\ q_{it}=0.791\ IFR_{it}+0.879\ RE_{it}+0.718\ STD_{it}-0.609\ LTD_{it}-0.733\ TD_{it}+0.614\ SBA_{it}+0.515\ SBR_{it}+0.615\ CS_{it}+0.767\ PS_{it}+0.472\ ER_{it}+0.621\ CCC_{it}-0.305\ TF_{it}-0.482\ RF_{it}-0.345\ FD_{it}+0.475\ CGR_{it}+0.238\ SRR_{it}+0.700\ FS_{it}+0.687\ AT_{it}-0.233\ TAT_{it}+0.334$$

Beta coefficient equation for Iran

$Tobin's\ q_{it}$=0.524 $IFR_{it}$+0.625 $RE_{it}$+0.620 $STD_{it}$-0.634 $LTD_{it}$-0.559 $TD_{it}$+0.634 $SBA_{it}$ +0.339 $SBR_{it}$+0.675 $CS_{it}$+0.405 $PS_{it}$+0.380 $ER_{it}$+0.675 $CCC_{it}$-0.532 $TF_{it}$-0.385 $RF_{it}$-0.268 $FD_{it}$+0.270 $CGR_{it}$+0.518 $SRR_{it}$+0.665 $FS_{it}$+0.808 $AT_{it}$-0.311 $TAT_{it}$+0.253

#### 4.2.1.7 Financing Alternatives and Earnings Per Share

The proposed model 1.7 determines the panel regression effects of financing alternatives on EPS, with the controlled effect of firm size, asset tangibility, and total asset turnover. Table 4.2.7 shows the panel regression statistics of fixed effect with predictor variable EPS, for four SCO member states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Considering EPS is another market-based financial performance indicator, all the SCO states have obtained a significant level of 5% and high positive beta values for both measures of internal financing under the implication of fixed effect regression statistics. This supports the acceptance of $H$1.1g: There is a significant positive impact of internal financing on earnings per share of nonfinancial companies in the SCO member states. The reference study by Bassey et al. (2016), proved the significant positive influence of retained earnings on EPS. They argued that earnings yield and the price earnings are based upon the capitalization of the earnings. So, earnings should therefore be retained and re-invested hurriedly into the venture. The multiple debt finances: short-term, long-term debts, and total debts, when regressed with EPS, the fixed effect panel estimations proved the statistically significant increased influence on EPS at a significance level of 0.05. The evidenced studies, such as Tifow & Sayilir (2015); Salim & Yadav (2012), reported the same results i-e diverse debt finances have a significant negative influence on EPS. Hence, supported the acceptance of $H$1.2g: There is a significant impact of debt financing on earnings per share of nonfinancial companies in the SCO member states.

The employed measures of shadow bank finances also obtain significant p-values at a 5% significance level and positive beta coefficients of 0.61, 0.63, 0.56 for shadow banking

assets and relatively low values for shadow banking proportion, for all SCO states, under fixed effect regression estimations for EPS. Hence, based upon the estimation results, H1.3g: There is a significant positive impact of shadow bank financing on earnings per share of nonfinancial companies in the SCO member states, is accepted and contributed to pecking order theory. Shadow banking finances are the true and cheapest substitute to traditional commercial bank financing, proving direct influence with other performance measures: ROA, ROE, NPM, Tobin's q. They highlighted EPS as an alternative measure for evaluating the impact of shadow financing services on corporate performance (Zhou & Tewari, 2019). All measures of equity financing have proved significant influence on EPS in fixed effect statistics. Equity finances show positive beta coefficients i-e 0.84, 0.78, 0.69, 0.55 for common shares and relatively weak relationships for preference shares and equity ratio with less positive beta values. The significant p-values i-e less than 0.05 for all equity finance measures satisfy the hypothesis, $H$1.4g: There is a significant positive impact of equity financing on earnings per share of nonfinancial companies in the SCO member states. He proved the significant influence of equity financing share capital on financial development based on earnings per share growth (Shikumo, 2021). Equity financing supports the firm asset growth, major expansions, or acquisitions with assured strong financial growth. The proceedings obtained from equity finances can be an important source of investments in projects with ultimate corporate growth. For regressing supply chain financing-EPS performance effects, all employed measures: CCC, trade finances, account receivable finances, and credit guarantees have p-values less than 0.05 significance level, indicating the acceptance of $H$1.5g: There is a significant impact of supply chain financing on earnings per share of nonfinancial companies in the SCO member states. The reference study, Khan et al. (2016), proved the significant negative influence of supply chain finance on basic earnings power. Chand et al. (2019), proved the significant influence of WCM on EPS for both seasonal and non-seasonal businesses, assuming that limited amounts of money to be invested in WC leads to an increase in corporate profitability.

The decided fixed effect statistics present the significant influence of financing alternatives on financial performance focusing on EPS, of non-finance firms in SCO member states. Hence H1 accepted for EPS. FS, AT, and TAT have significant controlled effects on market-based performance for all SCO member nations, under fixed effect models, with p-values less than 0.05 and positive beta coefficients for FS and AT, decreasing values for TAT shows inefficiency in funds utilization of firms.

The Hausman model adequacy test shows a p-values of 0.000 for all SCO states, supports the validity of fixed effect. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. The values of r-square highlights that explanatory variables show variance proportions of 58%, 46%, 49% and 51% for selected SCO states respectively, for the EPS estimation model. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.7: Model 1.7,** *Panel Regression Analysis for Predictors of Earnings Per Share*

| Financing Alternatives and Earnings Per Share | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: EPS | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.523 | 0.000 | 0.692 | 0.007 | 0.802 | 0.004 | 0.630 | 0.001 |
| Retained Earnings | 0.742 | 0.029 | 0.756 | 0.044 | 0.750 | 0.000 | 0.703 | 0.000 |
| Debt financing | | | | | | | | |
| Short term debt | 0.707 | 0.000 | 0.638 | 0.000 | 0.587 | 0.003 | 0.716 | 0.001 |
| Long term debt | -0.639 | 0.015 | -0.743 | 0.000 | -0.870 | 0.000 | -0.560 | 0.000 |
| Total debt | -0.566 | 0.015 | -0.634 | 0.002 | -0.599 | 0.001 | -0.555 | 0.003 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.560 | 0.000 | 0.555 | 0.035 | 0.634 | 0.000 | 0.614 | 0.032 |
| Shadow banking ratio | 0.417 | 0.045 | 0.513 | 0.007 | 0.345 | 0.001 | 0.378 | 0.001 |
| Equity financing | | | | | | | | |
| Common stocks | 0.837 | 0.032 | 0.554 | 0.000 | 0.688 | 0.013 | 0.784 | 0.000 |
| Preferred stocks | 0.463 | 0.000 | 0.486 | 0.001 | 0.507 | 0.014 | 0.286 | 0.002 |
| Equity ratio | 0.404 | 0.031 | 0.366 | 0.000 | 0.386 | 0.000 | 0.460 | 0.028 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.650 | 0.003 | 0.620 | 0.020 | 0.783 | 0.001 | 0.639 | 0.039 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Trade financing | -0.546 | 0.017 | -0.556 | 0.002 | -0.358 | 0.000 | -0.481 | 0.042 |
| Reverse factoring | -0.443 | 0.020 | -0.592 | 0.013 | -0.370 | 0.011 | -0.489 | 0.004 |
| Factoring | -0.464 | 0.024 | -0.599 | 0.000 | -0.337 | 0.000 | -0.363 | 0.005 |
| Credit guarantees ratio | 0.539 | 0.038 | 0.702 | 0.030 | 0.729 | 0.010 | 0.463 | 0.000 |
| Solvency rating ratio | 0.488 | 0.021 | 0.753 | 0.000 | 0.499 | 0.000 | 0.519 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.690 | 0.000 | 0.647 | 0.000 | 0.696 | 0.000 | 0.706 | 0.000 |
| Asset Tangibility | 0.419 | 0.000 | 0.554 | 0.035 | 0.614 | 0.000 | 0.413 | 0.000 |
| Total Asset turnover | -0.357 | 0.000 | -0.453 | 0.000 | -0.553 | 0.000 | -0.488 | 0.000 |
| Constant | 0.392 | 0.000 | 0.314 | 0.000 | 0.451 | 0.000 | 0.526 | 0.000 |
| R-square | 0.581 | | 0.456 | | 0.492 | | 0.512 | |
| F-Statistic | 468.430 | | 113.890 | | 177.140 | | 17.930 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.002 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 1.7 includes the Earnings per share as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$EPS_{it}=0.523\ IFR_{it}+0.742\ RE_{it}+0.707\ STD_{it}-0.639\ LTD_{it}-0.566\ TD_{it}+0.560\ SBA_{it}+0.417\ SBR_{it}+0.837\ CS_{it}+0.463\ PS_{it}+0.404\ ER_{it}+0.650\ CCC_{it}-0.546\ TF_{it}-0.443\ RF_{it}-0.464 FD_{it}+0.539\ CGR_{it}+0.488\ SRR_{it}+0.690\ FS_{it}+0.419\ AT_{it}-0.357\ TAT_{it}+0.392$$

Beta coefficient equation for India

$$EPS_{it}=0.692\ IFR_{it}+0.756\ RE_{it}+0.638\ STD_{it}-0.743\ LTD_{it}-0.634\ TD_{it}+0.555\ SBA_{it}+0.513\ SBR_{it}+0.554\ CS_{it}+0.486\ PS_{it}+0.366\ ER_{it}+0.620\ CCC_{it}-0.556\ TF_{it}-0.592\ RF_{it}-0.599\ FD_{it}+0.702\ CGR_{it}+0.753\ SRR_{it}+0.647\ FS_{it}+0.554\ AT_{it}-0.453\ TAT_{it}+0.314$$

Beta coefficient equation for China

$$EPS_{it}=0.802\ IFR_{it}+0.750\ RE_{it}+0.587\ STD_{it}-0.870\ LTD_{it}-0.599\ TD_{it}+0.634\ SBA_{it}+0.345\ SBR_{it}+0.688\ CS_{it}+0.507\ PS_{it}+0.386\ ER_{it}+0.783\ CCC_{it}-0.358\ TF_{it}-0.370\ RF_{it}-0.337\ FD_{it}+0.729\ CGR_{it}+0.499\ SRR_{it}+0.696\ FS_{it}+0.614\ AT_{it}-0.553\ TAT_{it}+0.451$$

Beta coefficient equation for Iran

$EPS_{it}$=0.630 $IFR_{it}$+0.703 $RE_{it}$+0.716 $STD_{it}$-0.560 $LTD_{it}$-0.555 $TD_{it}$+0.614 $SBA_{it}$ +0.378 $SBR_{it}$+0.784 $CS_{it}$+0.286 $PS_{it}$+0.460 $ER_{it}$+0.639 $CCC_{it}$-0.481 $TF_{it}$-0.489 $RF_{it}$-0.363 $FD_{it}$+0.463 $CGR_{it}$+0.519 $SRR_{it}$+0.706 $FS_{it}$+0.413 $AT_{it}$-0.488 $TAT_{it}$+0.526

### 4.2.2 Financing Alternatives and Sustainable Performance

For determining the effect of financing alternatives on corporate sustainable performance, the study applied two measures: GRI sustainability performance and sustainable growth rate. The sustainable growth rate is applied for robustness purposes.

The proposed models 2.1 and 2.2 determine the panel regression effects of financing alternatives on GRI sustainability and sustainable growth rate. Table 4.2.8 shows panel fixed effect regression statistics of financing alternatives-GRI sustainability, and Table 4.2.9 shows panel fixed effect regression statistics of financing alternatives-sustainable growth rate for SCO states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable. Pakistan, India, China, and Iran show generalized results for all measures of financing alternatives and proved the significant influence of all financing alternatives on GRI sustainability and sustainable growth rate.

Both internal financing alternatives: retained earnings and internal financing ratio, when regressed with GRI sustainability and SGR, have obtained a significant level of 5%, and positive beta values under the implication of fixed effect regression statistics. This supports the acceptance of two hypotheses $H2.1a$: There is a significant positive impact of internal financing on the GRI sustainability of nonfinancial companies in the SCO member states, and $H2.1b$: There is a significant positive impact of internal financing on the sustainable growth rate of nonfinancial companies in the SCO member states. The firms with high retained earnings will prove the optimal growth rate for companies. The study contributed to pecking order theory in line with the existing studies, such as Zhang & Chen (2017), proved the significant positive influence of internal financing on sustainable growth rate. Chen et al.

(2013), documented that internal equity financing through retained earnings significantly influences the profitability, sustainable growth rate, and optimal growth rate of firms.

The multiple debt finances: short-term, long-term debts, and total debts, when regressed with GRI sustainability and SGR, the estimations under fixed effect statistics proved the statistically significant influence on GRI sustainability and SGR at a significance level of 0.05, with increased beta coefficients for short-run debts and negative beta values for long-run debts and total debt. Hence two hypotheses are satisfied, $H2.2a$: There is a significant impact of debt financing on the GRI sustainability of nonfinancial companies in the SCO member states, and $H2.2b$: There is a significant impact of debt financing on the sustainable growth rate of nonfinancial companies in the SCO member states. The results contributed to trade-off theory, pecking order theory and traditional theory approach, and are in line with the existing studies, such as Ardillah (2020); Zhang & Chen (2017); Rao & Madhav (2015); Lourenco & Branco (2013), they proved the significant influence of debt financing alternatives on the sustainable performance of the corporate sector, specifically focusing sustainable growth rate. Ardillah (2020), discussed the external and internal factors that influence the company's long-term financing decisions: internal factors: financing duration and objectives, nature and size of an enterprise, asset structure and income certainty and regularity, external factors: funding costs, economic variations and seasonal fluctuations, financial market conditions, corporate financing policies, and external competition. Excessive debt proportions limit the financing opportunities, increase the cost of financing, and may increase the firm value for a short duration but, in the long time, it will negatively affect corporate financial performance, this makes the company rely on internal funds, aligned with pecking order theory and trade-off theory.

Both measures of shadow bank finances also obtain significant p-values at a 5% significance level and negative beta values for Pakistan, India, China and Iran, when predicted with GRI sustainability and SGR, for all SCO states, under fixed regression model. The highest significant p-values are 0.042, 0.047, and 0.050 for GRI sustainability. Hence two hypotheses: $H2.3a$: There is a significant impact of shadow bank financing on the GRI sustainability of nonfinancial companies in the SCO member states, and $H2.3b$: There is a significant impact of shadow bank financing on the sustainable growth rate of nonfinancial companies in the SCO member states, are accepted. The findings supported pecking order theory for consideration of shadow banking for short term and market timing theory in line with referenced studies, such as Le et al. (2024), Yang and Shen (2022), and Wang et al. (2022), proved negative shadow

bank financing and long-term performance relationship. The possible reasons for adverse effects include: weak industry competition, non-state-owned business and weak monetary policy, high information asymmetry, financial constraints, improper allocation of financial resources (Yang & Shen, 2022), lack of supporting regulation and oversight, financial instability and associated financial risk (Le et al., 2024). They argued that concerning the modern financing system, shadow banking assets create excessive debt quantities. The investors managed short-run debts obtained through shadow banking practices as a money-like claim, that inhibits the functioning of shadow banking assets (Sunderam, 2015).

The employed measures of equity finances also obtain significant p-values at a 5% significance level for all SCO states. Common shares and equity ratio show positive beta coefficients, while preference stocks show negative beta values under fixed effect model, as fixed income over the long run may deviate the consideration of preference equity financing options. The statistics strongly support $H2.4a$: There is a significant impact of equity financing on the GRI sustainability of nonfinancial companies in the SCO member states, and $H2.4b$: There is a significant impact of equity financing on the sustainable growth rate of nonfinancial companies in the SCO member states. Hence, the results are consistent with the evidenced study, e.g., Kong et al. (2023), proved the ROE shows more financial sustainability. They argued that industrial firms facilitate their major capital expenditure requirements through equity or debt financing, ultimately resulting in corporate financial sustainability.

The multiple measures of supply chain finances: CCC, trade financing, factoring and reverse factoring, and credit guarantees are regressed for NPM and obtained p-values less than 0.05, under fixed effect, random effect, and panel-OLS statistics. Hence, $H2.5a$: There is a significant impact of supply chain financing on the GRI sustainability of nonfinancial companies in the SCO member states, and H2.5$b$: There is a significant impact of supply chain financing on the sustainable growth rate of nonfinancial companies in the SCO member states, are accepted. Theoretical underpinnings: pecking order theory, trade off theory, and traditional theory approach aligned with the existing studies, e.g., Soukhakian and Khodakarami (2019), proved the significant contribution of WCM for long-run financial performance, predicted by economic value added. According to Johnson & Soenen (2003), WCM significantly contributes towards generating liquidity and profitability by concentrating on the speed of the cash operating cycle through managing payables, inventory, and receivables for regular business operations. Soukhakian & Khodakarami (2019), argued that WCM reduces the associated debt cost and cost of capital with increased free cash flow, ultimately resulting in

increased operating income and long-run EVA. The SCF credit guarantees positively influence the total factor productivity by providing secured debts and an eased financing alternative to equity and debt finances (Yu et al., 2022).

The selected fixed effect statistics present the significant influence of financing alternatives on GRI sustainability and SGR of non-finance firms in SCO member states, by significant acceptance of all the proposed hypotheses, indicating acceptance of H2 for GRI and SGR. All three controlled variables have a significant controlled effect on GRI sustainability performance and SGR with p-values less than 0.05, for all SCO member nations, under three mixed panel regression estimation models. For GRI sustainability, the Hausman model specification test shows a p-value<0.05, which supports the validity of fixed effects for selected SCO nations.

The Hausman model test for SGR supports the validity of fixed effect for all SCO states with p-value<0.05 i-e 0.000. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show acceptable explanation variance powers with r-square for GRI sustainability of Pakistan, India, China, and Iran, i-e 56%, 47%, 46%, and 53% respectively, and also for SGR is 48%, 59%, 61%, and 46% respectively. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.2.8: Model 2.1,** *Panel Regression Analysis for Predictors of GRI Sustainability*

| Financing Alternatives and GRI Sustainability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: GRI | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.604 | 0.000 | 0.683 | 0.002 | 0.794 | 0.000 | 0.598 | 0.000 |
| Retained Earnings | 0.799 | 0.000 | 0.782 | 0.041 | 0.837 | 0.001 | 0.631 | 0.002 |
| Debt financing | | | | | | | | |
| Short term debt | 0.628 | 0.002 | 0.853 | 0.011 | 0.572 | 0.001 | 0.662 | 0.001 |
| Long term debt | -0.708 | 0.000 | -0.556 | 0.000 | -0.595 | 0.000 | -0.688 | 0.000 |
| Total debt | -0.730 | 0.000 | -0.565 | 0.034 | -0.562 | 0.000 | -0.564 | 0.000 |
| Shadow bank financing | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking assets | -0.507 | 0.024 | -0.470 | 0.016 | -0.565 | 0.000 | -0.588 | 0.040 |
| Shadow banking ratio | -0.576 | 0.006 | -0.451 | 0.022 | -0.440 | 0.005 | -0.519 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | 0.708 | 0.001 | 0.582 | 0.005 | 0.726 | 0.000 | 0.558 | 0.025 |
| Preferred stocks | -0.392 | 0.006 | -0.378 | 0.001 | -0.572 | 0.047 | -0.347 | 0.003 |
| Equity ratio | 0.478 | 0.029 | 0.541 | 0.000 | 0.492 | 0.049 | 0.317 | 0.009 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.678 | 0.001 | 0.633 | 0.009 | 0.813 | 0.000 | 0.612 | 0.000 |
| Trade financing | 0.701 | 0.022 | 0.724 | 0.049 | 0.656 | 0.001 | 0.627 | 0.003 |
| Reverse factoring | -0.456 | 0.002 | -0.386 | 0.007 | -0.512 | 0.002 | -0.483 | 0.000 |
| Factoring | -0.324 | 0.012 | -0.264 | 0.026 | -0.421 | 0.006 | -0.298 | 0.000 |
| Credit guarantees ratio | 0.679 | 0.022 | 0.549 | 0.024 | 0.520 | 0.019 | 0.633 | 0.000 |
| Solvency rating ratio | 0.526 | 0.014 | 0.279 | 0.048 | 0.465 | 0.003 | 0.291 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.612 | 0.000 | 0.807 | 0.000 | 0.641 | 0.000 | 0.656 | 0.000 |
| Asset Tangibility | 0.482 | 0.005 | 0.475 | 0.000 | 0.526 | 0.001 | 0.382 | 0.009 |
| Total Asset turnover | -0.386 | 0.002 | -0.635 | 0.001 | -0.364 | 0.000 | -0.436 | 0.006 |
| Constant | 0.270 | 0.000 | 0.480 | 0.000 | 0.421 | 0.000 | 0.356 | 0.000 |
| R-square | 0.561 | | 0.470 | | 0.467 | | 0.531 | |
| F-Statistic | 85.500 | | 3.060 | | 111.610 | | 13.440 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.016 | | 0.013 | | 0.007 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: “P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 2.1 includes the GRI Sustainability performance as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem.”

Beta coefficient equation for Pakistan

$GRI_{it}$=0.604 $IFR_{it}$+0.799 $RE_{it}$+0.628 $STD_{it}$-0.708 $LTD_{it}$-0.730 $TD_{it}$-0.507 $SBA_{it}$-0.576 $SBR_{it}$+0.708 $CS_{it}$-0.392 $PS_{it}$+0.478 $ER_{it}$+0.678 $CCC_{it}$+0.701 $TF_{it}$-0.456 $RF_{it}$-0.324 $FD_{it}$+0.679 $CGR_{it}$+0.526 $SRR_{it}$+0.612 $FS_{it}$+0.482 $AT_{it}$-0.386 $TAT_{it}$+0.270

Beta coefficient equation for India

$GRI_{it}$=0.683 $IFR_{it}$+0.782 $RE_{it}$+0.853 $STD_{it}$-0.556 $LTD_{it}$-0.565 $TD_{it}$-0.470 $SBA_{it}$-0.451 $SBR_{it}$+0.582 $CS_{it}$-0.378 $PS_{it}$+0.541 $ER_{it}$+0.633 $CCC_{it}$+0.724 $TF_{it}$-0.386 $RF_{it}$-0.264 $FD_{it}$+0.549 $CGR_{it}$+0.279 $SRR_{it}$+0.807 $FS_{it}$+0.475 $AT_{it}$-0.635 $TAT_{it}$+0.480

Beta coefficient equation for China

$GRI_{it}$=0.794 $IFR_{it}$+0.837 $RE_{it}$+0.572 $STD_{it}$-0.595 $LTD_{it}$-0.562 $TD_{it}$-0.565 $SBA_{it}$-0.440 $SBR_{it}$+0.726 $CS_{it}$-0.572 $PS_{it}$+0.492 $ER_{it}$+0.813 $CCC_{it}$+0.656 $TF_{it}$-0.512 $RF_{it}$-0.421 $FD_{it}$+0.520 $CGR_{it}$+0.465 $SRR_{it}$+0.641 $FS_{it}$+0.526 $AT_{it}$-0.364 $TAT_{it}$+0.421

Beta coefficient equation for Iran

$GRI_{it}$=0.598 $IFR_{it}$+0.631 $RE_{it}$+0.662 $STD_{it}$-0.688 $LTD_{it}$-0.564 $TD_{it}$-0.588 $SBA_{it}$-0.519 $SBR_{it}$+0.558 $CS_{it}$-0.347 $PS_{it}$+0.317 $ER_{it}$+0.612 $CCC_{it}$+0.627 $TF_{it}$-0.483 $RF_{it}$-0.298 $FD_{it}$+0.633 $CGR_{it}$+0.291 $SRR_{it}$+0.656 $FS_{it}$+0.382 $AT_{it}$-0.436 $TAT_{it}$+0.356

**Table 4.2.9: Model 2.2,** *Panel Regression Analysis for Predictors of Sustainable Growth Rate*

| Financing Alternatives and Sustainable Growth Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: SGR | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.849 | 0.046 | 0.786 | 0.000 | 0.721 | 0.009 | 0.495 | 0.028 |
| Retained Earnings | 0.723 | 0.008 | 0.666 | 0.000 | 0.824 | 0.001 | 0.673 | 0.000 |
| Debt financing | | | | | | | | |
| Short term debt | 0.689 | 0.000 | 0.708 | 0.000 | 0.685 | 0.001 | 0.625 | 0.000 |
| Long term debt | -0.705 | 0.000 | -0.674 | 0.000 | -0.694 | 0.000 | -0.680 | 0.000 |
| Total debt | -0.575 | 0.000 | -0.551 | 0.008 | -0.751 | 0.000 | -0.560 | 0.007 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.582 | 0.000 | -0.643 | 0.011 | -0.547 | 0.002 | -0.567 | 0.006 |
| Shadow banking ratio | -0.393 | 0.042 | -0.515 | 0.000 | -0.475 | 0.036 | -0.408 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equity financing | | | | | | | | |
| Common stocks | 0.764 | 0.001 | 0.726 | 0.007 | 0.775 | 0.000 | 0.514 | 0.023 |
| Preferred stocks | -0.280 | 0.016 | -0.399 | 0.000 | -0.470 | 0.000 | -0.284 | 0.001 |
| Equity ratio | 0.478 | 0.015 | 0.425 | 0.000 | 0.608 | 0.000 | 0.519 | 0.008 |
| Supply chain financing | | | | | | | | |
| Cash conversion cycle | 0.848 | 0.032 | 0.721 | 0.024 | 0.440 | 0.001 | 0.562 | 0.018 |
| Trade financing | 0.376 | 0.009 | 0.462 | 0.005 | 0.567 | 0.023 | 0.335 | 0.002 |
| Reverse factoring | -0.369 | 0.000 | -0.435 | 0.000 | -0.544 | 0.005 | -0.396 | 0.001 |
| Factoring | -0.398 | 0.001 | -0.335 | 0.000 | -0.436 | 0.003 | -0.315 | 0.003 |
| Credit guarantees ratio | 0.410 | 0.000 | 0.448 | 0.000 | 0.552 | 0.000 | 0.480 | 0.001 |
| Solvency rating ratio | 0.530 | 0.001 | 0.516 | 0.024 | 0.332 | 0.018 | 0.520 | 0.002 |
| Control variables | | | | | | | | |
| Firm Size | 0.869 | 0.000 | 0.864 | 0.000 | 0.777 | 0.000 | 0.681 | 0.000 |
| Asset Tangibility | 0.534 | 0.000 | 0.583 | 0.000 | 0.414 | 0.006 | 0.282 | 0.049 |
| Total Asset turnover | -0.546 | 0.002 | -0.453 | 0.000 | -0.568 | 0.001 | -0.435 | 0.013 |
| Constant | 0.384 | 0.000 | 0.537 | 0.000 | 0.221 | 0.000 | 0.287 | 0.000 |
| R-square | 0.484 | | 0.592 | | 0.612 | | 0.461 | |
| F-Statistic | 12.11 | | 11.230 | | 17.650 | | 4.130 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 2.2 includes the Sustainable Growth Rate as a regressand variable. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$SGR_{it}=0.849\ IFR_{it}+0.723\ RE_{it}+0.689\ STD_{it}-0.705\ LTD_{it}-0.575\ TD_{it}-0.582\ SBA_{it}-0.393\ SBR_{it}+0.764\ CS_{it}-0.280\ PS_{it}+0.478\ ER_{it}+0.848\ CCC_{it}+0.376\ TF_{it}-0.369\ RF_{it}-0.398\ FD_{it}+0.410\ CGR_{it}+0.530\ SRR_{it}+0.869\ FS_{it}+0.534\ AT_{it}-0.546\ TAT_{it}+0.384$$

Beta coefficient equation for India

$SGR_{it}$=0.786 $IFR_{it}$+0.666 $RE_{it}$+0.708 $STD_{it}$-0.674 $LTD_{it}$-0.551 $TD_{it}$-0.643 $SBA_{it}$-0.515 $SBR_{it}$+0.726 $CS_{it}$-0.399 $PS_{it}$+0.425 $ER_{it}$+0.721 $CCC_{it}$+0.462 $TF_{it}$-0.435 $RF_{it}$-0.335 $FD_{it}$+0.448 $CGR_{it}$+0.516 $SRR_{it}$+0.864 $FS_{it}$+0.583 $AT_{it}$-0.453 $TAT_{it}$+0.537

Beta coefficient equation for China

$SGR_{it}$=0.721 $IFR_{it}$+0.824 $RE_{it}$+0.685 $STD_{it}$-0.694 $LTD_{it}$-0.751 $TD_{it}$-0.547 $SBA_{it}$-0.475 $SBR_{it}$+0.775 $CS_{it}$-0.470 $PS_{it}$+0.608 $ER_{it}$+0.440 $CCC_{it}$+0.567 $TF_{it}$-0.544 $RF_{it}$-0.436 $FD_{it}$+0.552 $CGR_{it}$+0.332 $SRR_{it}$+0.777 $FS_{it}$+0.414 $AT_{it}$-0.568 $TAT_{it}$+0.221

Beta coefficient equation for Iran

$SGR_{it}$=0.495 $IFR_{it}$+0.673 $RE_{it}$+0.625 $STD_{it}$-0.680 $LTD_{it}$-0.560 $TD_{it}$-0.567 $SBA_{it}$-0.408 $SBR_{it}$+0.514 $CS_{it}$-0.284 $PS_{it}$+0.519 $ER_{it}$+0.562 $CCC_{it}$+0.335 $TF_{it}$-0.396 $RF_{it}$-0.315 $FD_{it}$+0.480 $CGR_{it}$+0.520 $SRR_{it}$+0.681 $FS_{it}$+0.282 $AT_{it}$-0.435 $TAT_{it}$+0.287

### 4.3 Mixed Panel Regression Models (Moderation Effect)

#### 4.3.1 Financing Alternatives, Stagflation Cycles, and Financial Performance

The proposed model 3.1 to 3.7 determines the panel regression effects of financing alternatives on financial performance, with the moderation effect of Stagflation cycles, and under the controlled effect of firm size, asset tangibility, and total asset turnover. The financial performance is measured by both accounting-based performance measures: ROA, ROE, NPM, ROCE, and ROIC, and market-based performance metrics: Tobin's q and EPS.

Table 4.3.1 to 4.3.7 shows the fixed effect panel regression statistics for the predictors of ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS, for selected SCO member states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Stagflations were based upon fluctuations in inflations beyond the inflation thresholds. The interaction term for moderating influence is financing alternatives*stagflation cycles, considered as independent variables. The estimated results incorporated financing alternatives:

internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing, as independent variables. Following the three conditions for effective moderation analysis: 1) the effect of stagflation cycles on dependent variables should be insignificant, 2) the effect of financing alternatives*stagflation cycles on dependent variables should be significant, and 3) the two possibilities for the relationship between independent variables and response variable in the presence of a moderator: a) if the relationship is significant, it indicates partial moderation and b) if the relationship is insignificant, it indicates complete moderation.

Based upon the fixed effect estimations, all the models have obtained insignificant influence of stagflation cycles on ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS, with p-values greater than 0.05, the first condition for moderation effect have been fulfilled. Secondly, all the models have obtained significant influence of interaction terms such as internal financing ratio*stagflation cycles, retained earnings*stagflation cycles, long-term debt*stagflation cycles, short-term debt*stagflation cycles, total debt*stagflation cycles, shadow banking assets*stagflation cycles, shadow banking ratio*stagflation cycles, common stocks*stagflation cycles, preferred stocks*stagflation cycles, equity ratio*stagflation cycles, cash conversion cycle*stagflation cycles, trade financing*stagflation cycles, reverse factoring*stagflation cycles, factoring*stagflation cycles, credit guarantees ratio*stagflation cycles, solvency rating ratio*stagflation cycles, with p-value less than 0.05 significance level. The second condition for the moderation effect has been fulfilled.

For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS in the presence of a moderator variable i-e Stagflation cycles. Under P-OLS, random and fixed effect, considering predictors of ROA, ROE, NPM, ROCE, ROIC, and EPS, the measures of internal financing: internal financing ratio and retained earnings show insignificant influence under the interaction effect of stagflation cycles with p-values greater than 0.05 significance level, indicating complete moderation for all SCO states. For the interaction effect of stagflation cycles with the predictor of Tobin's q, the internal financing ratio shows significant partial moderation for Pakistan, India, and China with p-values less than 5% significance level and complete moderation for Iran with p-values>0.05 i-e 0.098 and 0.142, while retained earnings show complete moderation for all selected SCO states. Hence the following hypotheses from *H*3.1a to *H*3.1g, have been supported: i-e stagflation cycles significantly moderate the relationship between internal financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's and EPS of nonfinancial companies in the SCO member states. Stagflation decreases the profitability of

the corporate sector, by decreasing the internally generated funds and restricting external sources of finances with increased interest rates, transaction cost, issuance cost, information asymmetry, and stock undervaluation. For maintaining the profitability during stagflations, firms prefer to utilize internal funds to avoid taxes, transaction fee, interest rate, bankruptcy cost, supporting pecking order theory and market timing theory. Existing studies, e.g., Ahmed et al. (2024) and Simajuntak (2022), proved insignificant influence of macroeconomic fundamentals on earnings retention and firm's share price, considered dividend policy as a measure of earnings retention, and supported dividend irrelevance theory. Soukhakian and Khodakarami (2019), argued that increasing inflation leads to increased production costs and commodity prices with the decrease in demand levels and forecasted sales ultimately decreasing profits. They proved that retained earnings decrease with the increase in macroeconomic turbulence, resulting in restricted internal fund production systems (Ater, 2017).

All the three measures of debt financing: short-term, long-term, and total debt, when regressed for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS under P-OLS, random and fixed effect statistics, the estimations obtained insignificant influence under the interaction effect of stagflation cycles with p-values greater than 0.05 significance level, indicating complete moderation for all SCO states, except for Pakistan when total debt with moderation effect regressed with ROE, and for China when long-run debt, total debt with moderation effect regressed with ROCE and EPS, show partial moderation with p-values less than 0.05 significance level, indicating partial moderation. Hence, based upon the estimations, the following hypothesis from *H*3.2a to *H*3.2g has been supported, stated that the stagflation cycles moderate the relationship between debt financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's and EPS of nonfinancial companies in the SCO member states. The results contributed to trade-off theory, pecking order theory, traditional theory approach, market timing theory, and agency theory, and found in line with past studies, such as Ater (2017); Khodavandloo et al., (2017); Olaniyi et al. (2015), which proved the significant strong negative influence of crisis conditions on leverage-financial performance interrelation. According to Khodavandloo et al. (2017), abnormal market conditions may forcefully reduce the leverage followed by the resulting increase in the cost of debt, financial distress issues, bankruptcy cost, and conflict among lenders and shareholders that leads to devastating effects on corporate performance. The short-leveraged firms outperformed the big leveraged firms during the macroeconomic abnormalities, performance effects are predicted by ROA, ROE, gross profit margin, EPS, and

price-to-earnings ratio. The better management of excessive debts during abnormal macroeconomics may elevate the firm's performance, supporting the agency cost theory. The optimal financial choices during financial distress should be based upon the trade-off between the interest charged, associated issuance cost, and tax-shield benefits.

Shadow banking finances employed shadow banking assets and shadow banking ratio for evaluating the moderating influence of stagflation cycles on financial performance, the fixed effect statistics for ROA, ROE, NPM, ROIC, EPS, and Tobin's q presents the complete moderating influence with p-values above 0.05, while for ROA and ROCE Pakistan and China obtained partial moderation with p-values less than 0.05 i-e 0.001, 0.005, 0.030, 0.037, 0.016 and 0.012. Therefore, the hypotheses from 3.3a to 3.3g have been supported i-e stagflation cycles moderate the relationship between shadow bank financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS of nonfinancial companies in the SCO member states, and aligned with pecking order theory, agency theory and market timing theory. They proved the significant influence of macroeconomic turbulence on shadow bank financing, indicating restricted shadow banking during turbulent conditions (Barbu et al., 2016). The results support the evidenced study, i-e Magkonis et al. (2022), significantly proved the loss of macroeconomic implications of shadow bank financing on TFP (total factor productivity) growth. A possible reason may be the underlying agency cost of information asymmetry because shadow banks are at the disadvantage of acquiring private information about debt holders.

Considering equity financing-stagflation moderating influence on ROA, common stocks statistics for India, preferred stocks for all SCO states, and equity ratio for China and Iran presents p-values greater than 0.05, indicating complete moderating influence, while the remaining statistics proved significant partial moderation with p-values less than 0.05 significance level. Hence satisfies the acceptance, $H3.4a$: The stagflation cycles moderate the relationship between equity financing and returns on assets of nonfinancial companies in the SCO member states. For the moderation effects on ROE, common stocks and equity ratio shows complete moderating influence, and only preferred stocks show significant partial moderation, satisfying the acceptance of $H3.4b$: The stagflation cycles moderate the relationship between equity financing and return on equity of nonfinancial companies in the SCO member states. Both common stocks, preferred stocks, and equity ratio, shows significant partial and complete moderation effects when regressed for the moderation effect of stagflation on NPM for SCO states, so $H3.4c$: The stagflation cycles moderate the relationship between equity financing and net profit margin of nonfinancial companies in the SCO member states,

is accepted. For ROCE, only India shows significant partial moderation with p-values significant at 0.05 significance level, while Pakistan, China, and Iran show complete moderation with p-value>0.05. hence proved the hypothesis, $H3.4d$: The stagflation cycles moderate the relationship between equity financing and returns on capital employed of nonfinancial companies in the SCO member states. For ROIC, considering the moderating influence of stagflation cycles on the relation between common stocks and preferred stocks, Pakistan shows partial moderation, while India, China, and Iran present complete moderation with insignificant regression statistics. For equity ratio, China shows complete moderating influence with insignificant p-values i-e>0.05, while Pakistan, India, and Iran show partial moderation effect, hence $H3.4e$: The stagflation cycles moderate the relationship between equity financing and return on invested capital of nonfinancial companies in the SCO member states. With all the equity finances, stagflation shows complete moderating influence on Tobin's q with p-values>0.05, hence $H3.4f$: The stagflation cycles moderate the relationship between equity financing and Tobin's q of nonfinancial companies in the SCO member states. For the moderating influence of stagflation on the relation between equity finances and EPS, the statistics present complete moderation with all p-values above 0.50 significance for selected SCO states, except Iran shows significant partial moderation for both common socks and preference shares with p-values<0.05 i-e 0.023, 0.033, 0.001, 0.010. The statistics proved the hypothesis $H3.4g$: The stagflation cycles moderate the relationship between equity financing and earnings per share of nonfinancial companies in the SCO member states. The study findings contributed to market timing effect and agency theory, following the existing literature, Sharpe (2002), proved the negative influence of inflation uncertainty on long-run stock returns, resulting in stock undervaluation. Investors avoid investments during stock undervaluation to avoid lower stock returns and therefore, equity financing decreases during macroeconomic turbulence (Paseda & Obademi, 2020). Shahzad et al. (2015), discussed the underlying issue of towering information asymmetry in the equity markets throughout the financial crisis, which ultimately resulted in less equity financing with the decrease in external funding for the firm and hence profitability declines. He proved the negative effect of alternative financing choices on the firm's ROE during the worst financial crisis (Olaniyi et al., 2015). There is limited literature that determined the impact of stagflations on the comprehensive measures of equity finances and financial performance metrics.

For scrutinizing the moderation effect of stagflations between supply chain financing and financial performance, CCC, TF, factoring finances and credit guarantees shows complete

moderation with ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS with p-values above 0.05, except China shows partial moderating influence for ROA, ROE and EPS, and Pakistan and Iran for NPM and ROCE. Credit guarantees have obtained p-values less than 0.05 with ROIC, indicating partial moderation. Hence supported the hypotheses from $H3.5a$ to $H3.5g$, the stagflation cycles moderate the relationship between supply chain financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS of nonfinancial companies in the SCO member states. The findings contributed to market timing theory, and are consistent with Kristanto (2022), and Soukhakian and Khodakarami (2019), which proved the significant interaction effect of macroeconomic variables on WCM and firm performance. Moreover, there was an insignificant moderation effect of GDP and Inflation on the WCM-performance relationship, in favorable economic conditions. The abnormal macroeconomics negatively influences corporate profitability, and optimization of macroeconomics through the extension of CCC and increasing availability of strategic capital, specifically focusing on long run and medium-term credits, will lead to positive profitability effects (Supriyanto et al., 2023). Lu et al. (2019), argued that during high market risk conditions, the SCF credit guarantee approach is preferred for financing the companies with improved profitability obtained through low-cost guaranteed rate (Lu et al., 2019).

Based on the statistical and theoretical acceptance of stated hypotheses for the relation between stagflation cycles, comprehensive financing alternatives, and comprehensive firm performance measures, the study significantly proved the moderating influence of stagflation cycles on the relation between financing alternatives and corporate financial performance. Hence H3 is accepted. All three controlled variables have a significant controlled effect on financial performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. The Hausman model test for ROA, ROE, NPM, ROCE, ROIC, Tobin's q and EPS supports the validity of fixed effect for all SCO states with p-value<0.05 i-e 0.000. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show acceptable explanation powers with r-square values of below 0.70 for financial performance measures, indicating acceptable explained variance for selected SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.1: Model 3.1,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Return on Assets*

| Financing Alternatives, Stagflation Cycles, and Return on Assets | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROA | | | | | Moderator: Stagflation Cycles (SC) | | | |
| Interaction term: Financing alternatives* Stagflation Cycles | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.529 | 0.058 | -0.613 | 0.102 | -0.543 | 0.131 | -0.565 | 0.323 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.535 | 0.134 | -0.532 | 0.883 | -0.342 | 0.113 | -0.358 | 0.221 |
| Internal financing ratio *Stagflation Cycles | 0.388 | 0.000 | 0.354 | 0.000 | 0.671 | 0.005 | 0.588 | 0.000 |
| Retained Earnings | -0.436 | 0.003 | -0.388 | 0.323 | -0.456 | 0.125 | -0.317 | 0.599 |
| Retained Earnings*Stagflation Cycles | 0.294 | 0.010 | 0.427 | 0.000 | 0.244 | 0.010 | 0.732 | 0.024 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.721 | 0.131 | 0.592 | 0.331 | 0.621 | 0.039 | 0.683 | 0.106 |
| Short-term debt*Stagflation Cycles | 0.534 | 0.000 | 0.555 | 0.000 | 0.415 | 0.001 | 0.655 | 0.021 |
| Long-term debt | -0.657 | 0.222 | -0.743 | 0.533 | -0.612 | 0.270 | -0.590 | 0.164 |
| Long-term debt*Stagflation Cycles | -0.546 | 0.003 | -0.486 | 0.000 | -0.499 | 0.000 | -0.512 | 0.000 |
| Total debt | -0.755 | 0.144 | -0.825 | 0.068 | -0.648 | 0.156 | -0.415 | 0.517 |
| Total debt*Stagflation Cycles | -0.757 | 0.029 | -0.430 | 0.002 | -0.828 | 0.000 | -0.734 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.611 | 0.005 | -0.511 | 0.288 | -0.716 | 0.253 | -0.716 | 0.612 |
| Shadow banking assets*Stagflation Cycles | -0.651 | 0.000 | -0.720 | 0.000 | -0.786 | 0.000 | -0.712 | 0.000 |
| Shadow banking ratio | -0.224 | 0.212 | -0.380 | 0.247 | -0.678 | 0.163 | -0.754 | 0.126 |
| Shadow banking ratio*Stagflation Cycles | -0.787 | 0.000 | -0.416 | 0.028 | -0.628 | 0.000 | -0.647 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.886 | 0.045 | -0.560 | 0.927 | -0.730 | 0.039 | -0.529 | 0.001 |
| Common stocks*Stagflation Cycles | -0.344 | 0.003 | -0.634 | 0.000 | -0.310 | 0.014 | -0.680 | 0.000 |
| Preferred stocks | -0.231 | 0.192 | -0.468 | 0.589 | -0.206 | 0.159 | -0.568 | 0.950 |
| Preferred stocks*Stagflation Cycles | -0.603 | 0.000 | -0.486 | 0.000 | -0.222 | 0.025 | -0.375 | 0.000 |
| Equity ratio | -0.419 | 0.036 | -0.684 | 0.000 | -0.233 | 0.764 | -0.200 | 0.197 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equity ratio*Stagflation Cycles | -0.198 | 0.044 | -0.530 | 0.000 | -0.509 | 0.000 | -0.266 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.333 | 0.061 | 0.403 | 0.119 | 0.678 | 0.168 | 0.934 | 0.544 |
| Cash Conversion Cycle*Stagflation Cycles | 0.741 | 0.010 | 0.379 | 0.000 | 0.307 | 0.000 | 0.406 | 0.000 |
| Trade financing | 0.415 | 0.435 | 0.407 | 0.058 | 0.794 | 0.019 | 0.770 | 0.058 |
| Trade financing*Stagflation Cycles | 0.448 | 0.009 | 0.520 | 0.000 | 0.915 | 0.002 | 0.597 | 0.000 |
| Reverse factoring | -0.241 | 0.075 | -0.463 | 0.769 | -0.338 | 0.187 | -0.204 | 0.423 |
| Reverse factoring*Stagflation Cycles | -0.761 | 0.001 | -0.139 | 0.000 | -0.731 | 0.004 | -0.187 | 0.000 |
| Factoring | -0.340 | 0.119 | -0.294 | 0.267 | -0.622 | 0.129 | -0.501 | 0.171 |
| Factoring*Stagflation Cycles | -0.276 | 0.046 | -0.520 | 0.000 | -0.407 | 0.000 | -0.558 | 0.004 |
| Credit guarantees ratio | 0.382 | 0.145 | 0.386 | 0.067 | 0.602 | 0.053 | 0.716 | 0.116 |
| Credit guarantees ratio*Stagflation Cycles | 0.331 | 0.000 | 0.881 | 0.000 | 0.502 | 0.000 | 0.414 | 0.026 |
| Solvency rating ratio | 0.472 | 0.188 | 0.443 | 0.134 | 0.549 | 0.040 | 0.397 | 0.095 |
| Solvency rating ratio*Stagflation Cycles | 0.488 | 0.009 | 0.474 | 0.000 | 0.454 | 0.000 | 0.279 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.566 | 0.000 | -0.678 | 0.000 | -0.440 | 0.025 | -0.346 | 0.001 |
| Asset Tangibility | 0.462 | 0.000 | 0.839 | 0.000 | 0.682 | 0.000 | 0.514 | 0.013 |
| Total Asset turnover | 0.623 | 0.002 | 0.534 | 0.014 | 0.621 | 0.000 | 0.341 | 0.000 |
| Constant | 0.405 | 0.000 | 0.562 | 0.000 | 0.414 | 0.000 | 0.296 | 0.000 |
| R-square | 0.615 | | 0.467 | | 0.389 | | 0.514 | |
| F-Statistic | 8.18 | | 13.360 | | 6.850 | | 7.710 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.1 includes the Return on Assets as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROA_{it} = -0.529\,SC_{it} - 0.535\,IFR_{it} + 0.388\,IFR_{it} * SC_{it} - 0.436\,RE_{it} + 0.294\,RE_{it} * SC_{it} + 0.721\,STD_{it} + 0.534\,STD_{it} * SC_{it} - 0.657\,LTD_{it} - 0.546\,LTD_{it} * SC_{it} - 0.755\,TD_{it} - 0.757\,TD_{it} * SC_{it} - 0.611\,SBA_{it} - 0.651\,SBA_{it} * SC_{it} - 0.224\,SBR_{it} - 0.787\,SBR_{it} * SC_{it} - 0.886\,CS_{it} - 0.344\,CS_{it} * SC_{it} - 0.231\,PS_{it} - 0.603\,PS_{it} * SC_{it} - 0.419\,ER_{it} - 0.198\,ER_{it} * SC_{it} + 0.333\,CCC_{it} + 0.741\,CCC_{it} * SC_{it} + 0.415\,TF_{it} + 0.448\,TF_{it} * SC_{it} - 0.241\,RF_{it} - 0.761\,RF_{it} *$$

$SC_{it}$-0.340 $FD_{it}$-0.276 $FD_{it} * SC_{it}$+0.382 $CGR_{it}$+0.331 $CGR_{it} * SC_{it}$+0.472 $SRR_{it}$+ 0.488 $SRR_{it} * SC_{it}$-0.566 $FS_{it}$+0.462 $AT_{it}$+0.623 $TAT_{it}$+0.405

Beta coefficient equation for India

$ROA_{it}$= -0.613 $SC_{it}$-0.532 $IFR_{it}$+0.354 $IFR_{it} * SC_{it}$ -0.388 $RE_{it}$+0.427 $RE_{it} * SC_{it}$+ 0.592 $STD_{it}$+0.555 $STD_{it} * SC_{it}$-0.743 $LTD_{it}$-0.486 $LTD_{it} * SC_{it}$- 0.825 $TD_{it}$- 0.430 $TD_{it} * SC_{it}$-0.511 $SBA_{it}$-0.720 $SBA_{it} * SC_{it}$-0.380 $SBR_{it}$-0.416 $SBR_{it} * SC_{it}$- 0.560 $CS_{it}$- 0.634 $CS_{it} * SC_{it}$-0.468 $PS_{it}$-0.486 $PS_{it} * SC_{it}$-0.684 $ER_{it}$-0.530 $ER_{it} * SC_{it}$+ 0.403 $CCC_{it}$+0.379 $CCC_{it} * SC_{it}$+0.407 $TF_{it}$+0.520 $TF_{it} * SC_{it}$-0.463 $RF_{it}$ -0.139 $RF_{it} * SC_{it}$-0.294 $FD_{it}$-0.520$FD_{it} * SC_{it}$+0.386 $CGR_{it}$+0.881 $CGR_{it} * SC_{it}$+0.443 $SRR_{it}$+ 0.474 $SRR_{it} * SC_{it}$-0.678 $FS_{it}$+0.839 $AT_{it}$+0.534 $TAT_{it}$+0.562

Beta coefficient equation for China

$ROA_{it}$= -0.543 $SC_{it}$-0.342 $IFR_{it}$+0.671 $IFR_{it} * SC_{it}$ -0.456 $RE_{it}$+0.244 $RE_{it} * SC_{it}$+ 0.621 $STD_{it}$+0.415 $STD_{it} * SC_{it}$-0.612 $LTD_{it}$-0.499 $LTD_{it} * SC_{it}$-0.648 $TD_{it}$- 0.828 $TD_{it} * SC_{it}$-0.716 $SBA_{it}$-0.786 $SBA_{it} * SC_{it}$-0.678 $SBR_{it}$-0.628 $SBR_{it} * SC_{it}$- 0.730 $CS_{it}$- 0.310 $CS_{it} * SC_{it}$-0.206 $PS_{it}$-0.222 $PS_{it} * SC_{it}$-0.233 $ER_{it}$-0.509 $ER_{it} * SC_{it}$+ 0.678 $CCC_{it}$+0.307 $CCC_{it} * SC_{it}$+0.794 $TF_{it}$+0.915 $TF_{it} * SC_{it}$-0.338 $RF_{it}$ -0.731 $RF_{it} * SC_{it}$-0.622 $FD_{it}$-0.407 $FD_{it} * SC_{it}$+0.602 $CGR_{it}$+0.502 $CGR_{it} * SC_{it}$+0.549 $SRR_{it}$+ 0.454 $SRR_{it} * SC_{it}$-0.440 $FS_{it}$+0.682 $AT_{it}$+0.621 $TAT_{it}$+0.414

Beta coefficient equation for Iran

$ROA_{it}$= -0.565 $SC_{it}$-0.358 $IFR_{it}$+0.588 $IFR_{it} * SC_{it}$ -0.317 $RE_{it}$+0.732 $RE_{it} * SC_{it}$+ 0.683 $STD_{it}$+0.655 $STD_{it} * SC_{it}$-0.590 $LTD_{it}$-0.512 $LTD_{it} * SC_{it}$- 0.415 $TD_{it}$- 0.734 $TD_{it} * SC_{it}$-0.716 $SBA_{it}$-0.712 $SBA_{it} * SC_{it}$-0.754 $SBR_{it}$-0.647 $SBR_{it} * SC_{it}$- 0.529 $CS_{it}$- 0.680 $CS_{it} * SC_{it}$-0.568 $PS_{it}$-0.375 $PS_{it} * SC_{it}$-0.200 $ER_{it}$-0.266 $ER_{it} * SC_{it}$+ 0.934 $CCC_{it}$+0.406 $CCC_{it} * SC_{it}$+0.770 $TF_{it}$+0.597 $TF_{it} * SC_{it}$-0.204 $RF_{it}$ -0.187 $RF_{it} * SC_{it}$-0.501 $FD_{it}$-0.558 $FD_{it} * SC_{it}$+0.716 $CGR_{it}$+0.414 $CGR_{it} * SC_{it}$+0.397 $SRR_{it}$+ 0.279 $SRR_{it} * SC_{it}$-0.346 $FS_{it}$+0.514 $AT_{it}$+0.341 $TAT_{it}$+0.296

**Table 4.3.2: Model 3.2,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Return on Equity*

| Financing Alternatives, Stagflation Cycles, and Return on Equity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROE<br>Interaction term: Financing alternatives* Stagflation Cycles | | | | | Moderator: Stagflation Cycles (SC) | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.550 | 0.176 | -0.522 | 0.083 | -0.706 | 0.499 | -0.873 | 0.052 |
| | | | Internal financing | | | | | |
| Internal financing ratio | -0.465 | 0.109 | -0.752 | 0.051 | -0.314 | 0.055 | -0.695 | 0.739 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Internal financing ratio *Stagflation Cycles | 0.627 | 0.000 | 0.358 | 0.008 | 0.284 | 0.000 | 0.398 | 0.002 |
| Retained Earnings | -0.436 | 0.154 | -0.466 | 0.157 | -0.466 | 0.616 | -0.358 | 0.918 |
| Retained Earnings*Stagflation Cycles | 0.390 | 0.005 | 0.575 | 0.000 | 0.282 | 0.000 | 0.480 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.464 | 0.085 | 0.430 | 0.589 | 0.798 | 0.748 | 0.761 | 0.434 |
| Short-term debt*Stagflation Cycles | 0.643 | 0.000 | 0.508 | 0.003 | 0.697 | 0.003 | 0.418 | 0.000 |
| Long-term debt | -0.543 | 0.298 | -0.746 | 0.057 | -0.708 | 0.024 | -0.346 | 0.236 |
| Long-term debt*Stagflation Cycles | -0.499 | 0.000 | -0.682 | 0.001 | -0.727 | 0.000 | -0.327 | 0.000 |
| Total debt | -0.714 | 0.006 | -0.523 | 0.135 | -0.292 | 0.060 | -0.586 | 0.214 |
| Total debt*Stagflation Cycles | -0.730 | 0.002 | -0.622 | 0.000 | -0.680 | 0.007 | -0.812 | 0.045 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.691 | 0.169 | -0.843 | 0.291 | -0.594 | 0.809 | -0.672 | 0.950 |
| Shadow banking assets*Stagflation Cycles | -0.769 | 0.000 | -0.695 | 0.000 | -0.781 | 0.002 | -0.344 | 0.000 |
| Shadow banking ratio | -0.708 | 0.059 | -0.813 | 0.339 | -0.509 | 0.821 | -0.502 | 0.523 |
| Shadow banking ratio*Stagflation Cycles | -0.696 | 0.000 | -0.710 | 0.000 | -0.352 | 0.001 | -0.251 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.604 | 0.262 | -0.425 | 0.243 | -0.884 | 0.071 | -0.503 | 0.423 |
| Common stocks*Stagflation Cycles | -0.449 | 0.000 | -0.395 | 0.000 | -0.563 | 0.000 | -0.580 | 0.008 |
| Preferred stocks | -0.714 | 0.010 | -0.555 | 0.042 | -0.196 | 0.000 | -0.314 | 0.107 |
| Preferred stocks*Stagflation Cycles | -0.252 | 0.002 | -0.395 | 0.035 | -0.360 | 0.002 | -0.504 | 0.000 |
| Equity ratio | -0.262 | 0.090 | -0.157 | 0.147 | -0.703 | 0.189 | -0.626 | 0.073 |
| Equity ratio*Stagflation Cycles | -0.511 | 0.006 | -0.652 | 0.000 | -0.516 | 0.000 | -0.674 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.428 | 0.202 | 0.840 | 0.053 | 0.337 | 0.135 | 0.456 | 0.868 |
| Cash Conversion Cycle*Stagflation Cycles | 0.669 | 0.000 | 0.663 | 0.041 | 0.445 | 0.000 | 0.484 | 0.000 |
| Trade financing | 0.502 | 0.223 | 0.588 | 0.521 | 0.354 | 0.286 | 0.627 | 0.662 |
| Trade financing*Stagflation Cycles | 0.921 | 0.000 | 0.745 | 0.000 | 0.786 | 0.000 | 0.458 | 0.026 |
| Reverse factoring | -0.897 | 0.081 | -0.403 | 0.258 | -0.706 | 0.695 | -0.131 | 0.224 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reverse factoring*Stagflation Cycles | -0.416 | 0.011 | -0.553 | 0.000 | -0.647 | 0.000 | -0.401 | 0.000 |
| Factoring | -0.433 | 0.171 | -0.435 | 0.175 | -0.748 | 0.868 | -0.475 | 0.555 |
| Factoring*Stagflation Cycles | -0.577 | 0.041 | -0.644 | 0.001 | -0.526 | 0.001 | -0.393 | 0.003 |
| Credit guarantees ratio | 0.820 | 0.185 | 0.478 | 0.060 | 0.473 | 0.044 | 0.211 | 0.007 |
| Credit guarantees ratio*Stagflation Cycles | 0.470 | 0.031 | 0.830 | 0.004 | 0.343 | 0.000 | 0.536 | 0.010 |
| Solvency rating ratio | 0.518 | 0.360 | 0.606 | 0.071 | 0.383 | 0.119 | 0.416 | 0.361 |
| Solvency rating ratio*Stagflation Cycles | 0.472 | 0.000 | 0.652 | 0.000 | 0.408 | 0.000 | 0.501 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.390 | 0.026 | -0.751 | 0.000 | -0.468 | 0.027 | -0.504 | 0.024 |
| Asset Tangibility | 0.554 | 0.039 | 0.547 | 0.017 | 0.509 | 0.000 | 0.783 | 0.000 |
| Total Asset turnover | -0.645 | 0.011 | -0.533 | 0.010 | -0.413 | 0.000 | -0.462 | 0.000 |
| Constant | 0.457 | 0.000 | 0.491 | 0.000 | 0.527 | 0.018 | 0.175 | 0.000 |
| R-square | 0.391 | | 0.478 | | 0.567 | | 0.493 | |
| F-Statistic | 2.480 | | 2.910 | | 6.990 | | 2.530 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.2 includes the Return on Equity as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROE_{it} = -0.550\ SC_{it} - 0.465\ IFR_{it} + 0.627\ IFR_{it} * SC_{it} - 0.436\ RE_{it} + 0.390\ RE_{it} * SC_{it} + 0.464\ STD_{it} + 0.643\ STD_{it} * SC_{it} - 0.543\ LTD_{it} - 0.499\ LTD_{it} * SC_{it} - 0.714\ TD_{it} - 0.730\ TD_{it} * SC_{it} - 0.691\ SBA_{it} - 0.769\ SBA_{it} * SC_{it} - 0.708\ SBR_{it} - 0.696\ SBR_{it} * SC_{it} - 0.604\ CS_{it} - 0.449\ CS_{it} * SC_{it} - 0.714\ PS_{it} - 0.252\ PS_{it} * SC_{it} - 0.262\ ER_{it} - 0.511\ ER_{it} * SC_{it} + 0.428\ CCC_{it} + 0.669\ CCC_{it} * SC_{it} + 0.502\ TF_{it} + 0.921\ TF_{it} * SC_{it} - 0.897\ RF_{it} - 0.416\ RF_{it} * SC_{it} - 0.433\ FD_{it} - 0.577\ FD_{it} * SC_{it} + 0.820\ CGR_{it} + 0.470\ CGR_{it} * SC_{it} + 0.518\ SRR_{it} + 0.472\ SRR_{it} * SC_{it} - 0.390\ FS_{it} + 0.554\ AT_{it} - 0.645\ TAT_{it} + 0.457$$

Beta coefficient equation for India

$$ROE_{it} = -0.522\ SC_{it} - 0.752\ IFR_{it} + 0.358\ IFR_{it} * SC_{it} - 0.466\ RE_{it} + 0.575\ RE_{it} * SC_{it} + 0.430\ STD_{it} + 0.508\ STD_{it} * SC_{it} - 0.746\ LTD_{it} - 0.682\ LTD_{it} * SC_{it} - 0.523\ TD_{it} - 0.622\ TD_{it} * SC_{it} - 0.843\ SBA_{it} - 0.695\ SBA_{it} * SC_{it} - 0.813\ SBR_{it} - 0.710\ SBR_{it} * SC_{it} - 0.425\ CS_{it} - 0.395\ CS_{it} * SC_{it} - 0.555\ PS_{it} - 0.395\ PS_{it} * SC_{it} - 0.157\ ER_{it} - 0.652\ ER_{it} * SC_{it} + 0.840\ CCC_{it} + 0.663\ CCC_{it} * SC_{it} + 0.588\ TF_{it} + 0.745\ TF_{it} * SC_{it} - 0.403\ RF_{it} - 0.553\ RF_{it} * SC_{it} - 0.435\ FD_{it} - 0.644\ FD_{it} * SC_{it} + 0.478\ CGR_{it} + 0.830\ CGR_{it} * SC_{it} + 0.606\ SRR_{it} + 0.652\ SRR_{it} * SC_{it} - 0.751\ FS_{it} + 0.547\ AT_{it} - 0.533\ TAT_{it} + 0.491$$

Beta coefficient equation for China

$ROE_{it}$= -0.706 $SC_{it}$-0.314 $IFR_{it}$+0.284 $IFR_{it} * SC_{it}$ -0.466 $RE_{it}$+0.282 $RE_{it} * SC_{it}$+ 0.798 $STD_{it}$+0.697 $STD_{it} * SC_{it}$-0.708 $LTD_{it}$-0.727 $LTD_{it} * SC_{it}$- 0.292 $TD_{it}$- 0.680 $TD_{it} * SC_{it}$-0.594 $SBA_{it}$-0.781 $SBA_{it} * SC_{it}$-0.509 $SBR_{it}$-0.352 $SBR_{it} * SC_{it}$- 0.884 $CS_{it}$- 0.563 $CS_{it} * SC_{it}$-0.196 $PS_{it}$-0.360 $PS_{it} * SC_{it}$-0.703 $ER_{it}$-0.516 $ER_{it} * SC_{it}$+ 0.337 $CCC_{it}$+0.445 $CCC_{it} * SC_{it}$+0.354 $TF_{it}$+0.786 $TF_{it} * SC_{it}$-0.706 $RF_{it}$ -0.647 $RF_{it} * SC_{it}$-0.748 $FD_{it}$-0.526 $FD_{it} * SC_{it}$+0.473 $CGR_{it}$+0.343 $CGR_{it} * SC_{it}$+0.383 $SRR_{it}$+ 0.408 $SRR_{it} * SC_{it}$-0.468 $FS_{it}$+0.509 $AT_{it}$-0.413 $TAT_{it}$+0.527

Beta coefficient equation for Iran

$ROE_{it}$= -0.873 $SC_{it}$-0.695 $IFR_{it}$+0.398 $IFR_{it} * SC_{it}$ -0.358 $RE_{it}$+0.480 $RE_{it} * SC_{it}$+ 0.761 $STD_{it}$+0.418 $STD_{it} * SC_{it}$-0.346 $LTD_{it}$-0.327 $LTD_{it} * SC_{it}$- 0.586 $TD_{it}$-0.812 $TD_{it} * SC_{it}$-0.672 $SBA_{it}$-0.344 $SBA_{it} * SC_{it}$-0.502 $SBR_{it}$-0.251 $SBR_{it} * SC_{it}$- 0.503 $CS_{it}$- 0.580 $CS_{it} * SC_{it}$-0.314 $PS_{it}$-0.504 $PS_{it} * SC_{it}$-0.626 $ER_{it}$-0.674 $ER_{it} * SC_{it}$+ 0.456 $CCC_{it}$+0.484 $CCC_{it} * SC_{it}$+0.627 $TF_{it}$+0.458 $TF_{it} * SC_{it}$-0.131 $RF_{it}$ -0.401 $RF_{it} * SC_{it}$-0.475 $FD_{it}$-0.393$FD_{it} * SC_{it}$+0.211 $CGR_{it}$+0.536 $CGR_{it} * SC_{it}$+0.416 $SRR_{it}$+ 0.501 $SRR_{it} * SC_{it}$-0.504 $FS_{it}$+0.783 $AT_{it}$-0.462 $TAT_{it}$+0.175

**Table 4.3.3: Model 3.3,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Net Profit Margin*

| Financing Alternatives, Stagflation Cycles, and Net Profit Margin | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: NPM Moderator: Stagflation Cycles (SC) Interaction term: Financing alternatives* Stagflation Cycles | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.744 | 0.115 | -0.659 | 0.289 | -0.840 | 0.713 | -0.631 | 0.110 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.470 | 0.088 | -0.463 | 0.190 | -0.538 | 0.059 | -0.748 | 0.159 |
| Internal financing ratio*Stagflation Cycles | 0.270 | 0.000 | 0.435 | 0.008 | 0.447 | 0.000 | 0.182 | 0.001 |
| Retained Earnings | -0.529 | 0.673 | -0.192 | 0.208 | -0.547 | 0.385 | -0.340 | 0.261 |
| Retained Earnings*Stagflation Cycles | 0.610 | 0.038 | 0.348 | 0.000 | 0.530 | 0.000 | 0.519 | 0.002 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.788 | 0.224 | 0.805 | 0.094 | 0.354 | 0.231 | 0.378 | 0.199 |
| Short-term debt*Stagflation Cycles | 0.749 | 0.006 | 0.535 | 0.000 | 0.521 | 0.000 | 0.429 | 0.012 |
| Long-term debt | -0.534 | 0.507 | -0.403 | 0.090 | -0.457 | 0.315 | -0.176 | 0.098 |
| Long-term debt*Stagflation Cycles | -0.211 | 0.000 | -0.353 | 0.002 | -0.327 | 0.000 | -0.277 | 0.002 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total debt | -0.570 | 0.365 | -0.653 | 0.310 | -0.464 | 0.103 | -0.317 | 0.094 |
| Total debt*Stagflation Cycles | -0.565 | 0.001 | -0.324 | 0.000 | -0.418 | 0.000 | -0.263 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.514 | 0.113 | -0.490 | 0.051 | -0.843 | 0.842 | -0.417 | 0.678 |
| Shadow banking assets*Stagflation Cycles | -0.498 | 0.000 | -0.864 | 0.008 | -0.583 | 0.000 | -0.666 | 0.041 |
| Shadow banking ratio | -0.453 | 0.984 | -0.245 | 0.124 | -0.291 | 0.182 | -0.376 | 0.107 |
| Shadow banking ratio*Stagflation Cycles | -0.395 | 0.001 | -0.757 | 0.001 | -0.408 | 0.000 | -0.776 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.797 | 0.000 | -0.505 | 0.438 | -0.430 | 0.976 | -0.218 | 0.195 |
| Common stocks*Stagflation Cycles | -0.179 | 0.000 | -0.323 | 0.029 | -0.570 | 0.000 | -0.563 | 0.002 |
| Preferred stocks | -0.179 | 0.232 | -0.759 | 0.016 | -0.744 | 0.010 | -0.341 | 0.282 |
| Preferred stocks*Stagflation Cycles | -0.673 | 0.000 | -0.205 | 0.003 | -0.647 | 0.000 | -0.265 | 0.037 |
| Equity ratio | -0.593 | 0.347 | -0.605 | 0.380 | -0.408 | 0.023 | -0.443 | 0.144 |
| Equity ratio*Stagflation Cycles | -0.522 | 0.000 | -0.202 | 0.006 | -0.788 | 0.000 | -0.317 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.612 | 0.101 | 0.449 | 0.605 | 0.620 | 0.561 | 0.777 | 0.295 |
| Cash Conversion Cycle*Stagflation Cycles | 0.896 | 0.000 | 0.851 | 0.032 | 0.378 | 0.000 | 0.429 | 0.001 |
| Trade financing | 0.912 | 0.000 | 0.457 | 0.084 | 0.546 | 0.214 | 0.460 | 0.054 |
| Trade financing*Stagflation Cycles | 0.860 | 0.000 | 0.580 | 0.004 | 0.584 | 0.000 | 0.965 | 0.033 |
| Reverse factoring | -0.460 | 0.403 | -0.303 | 0.143 | -0.403 | 0.508 | -0.282 | 0.210 |
| Reverse factoring*Stagflation Cycles | -0.516 | 0.036 | -0.358 | 0.030 | -0.137 | 0.001 | -0.697 | 0.001 |
| Factoring | -0.707 | 0.250 | -0.579 | 0.152 | -0.585 | 0.062 | -0.388 | 0.126 |
| Factoring*Stagflation Cycles | -0.650 | 0.004 | -0.201 | 0.005 | -0.678 | 0.000 | -0.570 | 0.015 |
| Credit guarantees ratio | 0.857 | 0.603 | 0.645 | 0.129 | 0.876 | 0.708 | 0.658 | 0.057 |
| Credit guarantees ratio*Stagflation Cycles | 0.697 | 0.000 | 0.690 | 0.000 | 0.301 | 0.001 | 0.761 | 0.024 |
| Solvency rating ratio | 0.760 | 0.677 | 0.712 | 0.165 | 0.664 | 0.936 | 0.579 | 0.266 |
| Solvency rating ratio*Stagflation Cycles | 0.500 | 0.000 | 0.697 | 0.000 | 0.650 | 0.007 | 0.574 | 0.046 |
| Control variables | | | | | | | | |
| Firm Size | -0.405 | 0.000 | -0.346 | 0.000 | -0.792 | 0.000 | -0.393 | 0.000 |
| Asset Tangibility | 0.462 | 0.005 | 0.883 | 0.001 | 0.589 | 0.045 | 0.429 | 0.038 |
| Total Asset turnover | 0.751 | 0.000 | 0.309 | 0.038 | 0.576 | 0.000 | 0.624 | 0.049 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Constant | 0.589 | 0.000 | 0.583 | 0.000 | 0.706 | 0.000 | 0.415 | 0.000 |
| R-square | 0.632 | | 0.477 | | 0.561 | | 0.392 | |
| F-Statistic | 5.890 | | 4.650 | | 4.570 | | 3.520 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.002 | | 0.000 | | 0.001 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.3 includes the Net profit margin as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$NPM_{it} = -0.744\ SC_{it} - 0.470\ IFR_{it} + 0.270\ IFR_{it} * SC_{it} - 0.529\ RE_{it} + 0.610\ RE_{it} * SC_{it} + 0.788\ STD_{it} + 0.749\ STD_{it} * SC_{it} - 0.534\ LTD_{it} - 0.211\ LTD_{it} * SC_{it} - 0.570\ TD_{it} - 0.565\ TD_{it} * SC_{it} - 0.514\ SBA_{it} - 0.498\ SBA_{it} * SC_{it} - 0.453\ SBR_{it} - 0.395\ SBR_{it} * SC_{it} - 0.797\ CS_{it} - 0.179\ CS_{it} * SC_{it} - 0.179\ PS_{it} - 0.673\ PS_{it} * SC_{it} - 0.593\ ER_{it} - 0.522\ ER_{it} * SC_{it} + 0.612\ CCC_{it} + 0.896\ CCC_{it} * SC_{it} + 0912\ TF_{it} + 0.860\ TF_{it} * SC_{it} - 0.460\ RF_{it} - 0.516\ RF_{it} * SC_{it} - 0.707\ FD_{it} - 0.650\ FD_{it} * SC_{it} + 0.857\ CGR_{it} + 0.697\ CGR_{it} * SC_{it} + 0.760\ SRR_{it} + 0.500\ SRR_{it} * SC_{it} - 0.405\ FS_{it} + 0.462\ AT_{it} + 0.751\ TAT_{it} + 0.589$$

Beta coefficient equation for India

$$NPM_{it} = -0.659\ SC_{it} - 0.463\ IFR_{it} + 0.435\ IFR_{it} * SC_{it} - 0.192\ RE_{it} + 0.348\ RE_{it} * SC_{it} + 0.805\ STD_{it} + 0.535\ STD_{it} * SC_{it} - 0.403\ LTD_{it} - 0.353\ LTD_{it} * SC_{it} - 0.653\ TD_{it} - 0.324\ TD_{it} * SC_{it} - 0.490\ SBA_{it} - 0.864\ SBA_{it} * SC_{it} - 0.245\ SBR_{it} - 0.757\ SBR_{it} * SC_{it} - 0.505\ CS_{it} - 0.323\ CS_{it} * SC_{it} - 0.759\ PS_{it} - 0.205\ PS_{it} * SC_{it} - 0.605\ ER_{it} - 0.202\ ER_{it} * SC_{it} + 0.449\ CCC_{it} + 0.851\ CCC_{it} * SC_{it} + 0.457\ TF_{it} + 0.580\ TF_{it} * SC_{it} - 0.303\ RF_{it} - 0.358\ RF_{it} * SC_{it} - 0.579\ FD_{it} - 0.201\ FD_{it} * SC_{it} + 0.645\ CGR_{it} + 0.690\ CGR_{it} * SC_{it} + 0.712\ SRR_{it} + 0.697\ SRR_{it} * SC_{it} - 0.346\ FS_{it} + 0.883\ AT_{it} + 0.309\ TAT_{it} + 0.583$$

Beta coefficient equation for China

$$NPM_{it} = -0.840\ SC_{it} - 0.538\ IFR_{it} + 0.447\ IFR_{it} * SC_{it} - 0.547\ RE_{it} + 0.530\ RE_{it} * SC_{it} + 0.354\ STD_{it} + 0.521\ STD_{it} * SC_{it} - 0.457\ LTD_{it} - 0.327\ LTD_{it} * SC_{it} - 0.464\ TD_{it} - 0.418\ TD_{it} * SC_{it} - 0.843\ SBA_{it} - 0.583\ SBA_{it} * SC_{it} - 0.291\ SBR_{it} - 0.408\ SBR_{it} * SC_{it} - 0.430\ CS_{it} - 0.570\ CS_{it} * SC_{it} - 0.744\ PS_{it} - 0.647\ PS_{it} * SC_{it} - 0.408\ ER_{it} - 0.788\ ER_{it} * SC_{it} + 0620\ CCC_{it} + 0.378\ CCC_{it} * SC_{it} + 0.546\ TF_{it} + 0.584\ TF_{it} * SC_{it} - 0.403\ RF_{it} - 0.137\ RF_{it} * SC_{it} - 0.585\ FD_{it} - 0.678 * SC_{it} + 0.876\ CGR_{it} + 0.301\ CGR_{it} * SC_{it} + 0.664\ SRR_{it} + 0.650\ SRR_{it} * SC_{it} - 0.792\ FS_{it} + 0.589\ AT_{it} + 0.576\ TAT_{it} + 0.706$$

Beta coefficient equation for Iran

$$NPM_{it} = -0.631\ SC_{it} - 0.748\ IFR_{it} + 0.182\ IFR_{it} * SC_{it} - 0.340\ RE_{it} + 0.519\ RE_{it} * SC_{it} + 0.378\ STD_{it} + 0.429\ STD_{it} * SC_{it} - 0.176\ LTD_{it} - 0.277\ LTD_{it} * SC_{it} - 0.317\ TD_{it} - 0.263\ TD_{it} * SC_{it} - 0.417\ SBA_{it} - 0.666\ SBA_{it} * SC_{it} - 0.376\ SBR_{it} - 0.776\ SBR_{it} * SC_{it} - 0.218\ CS_{it} -$$

$0.563\ CS_{it} * SC_{it}$-0.341 $PS_{it}$-0.265 $PS_{it} * SC_{it}$-0.443 $ER_{it}$-0.317 $ER_{it} * SC_{it}$+ 0.777 $CCC_{it}$+0.429 $CCC_{it} * SC_{it}$+0.460 $TF_{it}$+0.965 $TF_{it} * SC_{it}$-0.282 $RF_{it}$ -0.697 $RF_{it} * SC_{it}$-0.388 $FD_{it}$-0.570 $FD_{it} * SC_{it}$+0.658 $CGR_{it}$+0.761 $CGR_{it} * SC_{it}$+0.579 $SRR_{it}$+ 0.574 $SRR_{it} * SC_{it}$-0.393 $FS_{it}$+0.429 $AT_{it}$+0.624 $TAT_{it}$+0.415

**Table 4.3.4: Model 3.4,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Return on Capital Employed*

| Financing Alternatives, Stagflation Cycles, and Return on Capital Employed | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROCE Moderator: Stagflation Cycles (SC) Interaction term: Financing alternatives* Stagflation Cycles | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.556 | 0.084 | -0.809 | 0.081 | -0.625 | 0.065 | -0.650 | 0.147 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.570 | 0.174 | -0.487 | 0.601 | -0.412 | 0.323 | -0.651 | 0.218 |
| Internal financing ratio*Stagflation Cycles | 0.346 | 0.000 | 0.504 | 0.000 | 0.546 | 0.000 | 0.514 | 0.000 |
| Retained Earnings | -0.647 | 0.783 | -0.378 | 0.212 | -0.437 | 0.624 | -0.245 | 0.529 |
| Retained Earnings*Stagflation Cycles | 0.387 | 0.000 | 0.691 | 0.012 | 0.256 | 0.001 | 0.577 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.510 | 0.855 | 0.604 | 0.278 | 0.372 | 0.058 | 0.404 | 0.376 |
| Short-term debt*Stagflation Cycles | 0.705 | 0.004 | 0.419 | 0.000 | 0.564 | 0.000 | 0.667 | 0.000 |
| Long-term debt | -0.696 | 0.101 | -0.406 | 0.137 | -0.509 | 0.000 | -0.346 | 0.919 |
| Long-term debt*Stagflation Cycles | -0.396 | 0.000 | -0.559 | 0.003 | -0.599 | 0.000 | -0.367 | 0.000 |
| Total debt | -0.549 | 0.859 | -0.373 | 0.410 | -0.333 | 0.000 | -0.323 | 0.181 |
| Total debt*Stagflation Cycles | -0.361 | 0.000 | -0.195 | 0.009 | -0.346 | 0.000 | -0.200 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.496 | 0.013 | -0.592 | 0.534 | -0.514 | 0.994 | -0.813 | 0.862 |
| Shadow banking assets*Stagflation Cycles | -0.342 | 0.000 | -0.531 | 0.000 | -0.433 | 0.000 | -0.894 | 0.005 |
| Shadow banking ratio | -0.527 | 0.030 | -0.448 | 0.727 | -0.319 | 0.012 | -0.674 | 0.994 |
| Shadow banking ratio*Stagflation Cycles | -0.412 | 0.000 | -0.493 | 0.000 | -0.874 | 0.000 | -0.657 | 0.002 |
| Equity financing | | | | | | | | |
| Common stocks | -0.606 | 0.738 | -0.557 | 0.015 | -0.675 | 0.666 | -0.614 | 0.675 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Common stocks*Stagflation Cycles | -0.780 | 0.027 | -0.794 | 0.000 | -0.314 | 0.000 | -0.702 | 0.000 |
| Preferred stocks | -0.606 | 0.475 | -0.437 | 0.004 | -0.138 | 0.194 | -0.837 | 0.196 |
| Preferred stocks*Stagflation Cycles | -0.685 | 0.000 | -0.669 | 0.000 | -0.339 | 0.001 | -0.427 | 0.000 |
| Equity ratio | -0.486 | 0.653 | -0.640 | 0.041 | -0.745 | 0.296 | -0.887 | 0.972 |
| Equity ratio*Stagflation Cycles | -0.458 | 0.018 | -0.514 | 0.000 | -0.504 | 0.019 | -0.476 | 0.043 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.666 | 0.300 | 0.836 | 0.287 | 0.484 | 0.000 | 0.463 | 0.646 |
| Cash Conversion Cycle*Stagflation Cycles | 0.773 | 0.024 | 0.305 | 0.000 | 0.497 | 0.000 | 0.661 | 0.000 |
| Trade financing | 0.499 | 0.048 | 0.273 | 0.514 | 0.426 | 0.709 | 0.775 | 0.536 |
| Trade financing*Stagflation Cycles | 0.790 | 0.001 | 0.771 | 0.000 | 0.584 | 0.000 | 0.614 | 0.001 |
| Reverse factoring | -0.491 | 0.111 | -0.430 | 0.099 | -0.160 | 0.868 | -0.655 | 0.062 |
| Reverse factoring*Stagflation Cycles | -0.397 | 0.001 | -0.396 | 0.018 | -0.505 | 0.000 | -0.752 | 0.023 |
| Factoring | -0.374 | 0.270 | -0.310 | 0.077 | -0.642 | 0.132 | -0.311 | 0.335 |
| Factoring*Stagflation Cycles | -0.393 | 0.025 | -0.396 | 0.019 | -0.473 | 0.000 | -0.210 | 0.000 |
| Credit guarantees ratio | 0.525 | 0.002 | 0.835 | 0.667 | 0.480 | 0.065 | 0.557 | 0.543 |
| Credit guarantees ratio*Stagflation Cycles | 0.898 | 0.000 | 0.335 | 0.002 | 0.350 | 0.042 | 0.376 | 0.008 |
| Solvency rating ratio | 0.809 | 0.032 | 0.838 | 0.767 | 0.338 | 0.137 | 0.864 | 0.039 |
| Solvency rating ratio *Stagflation Cycles | 0.861 | 0.013 | 0.943 | 0.013 | 0.582 | 0.008 | 0.841 | 0.037 |
| Control variables | | | | | | | | |
| Firm Size | -0.447 | 0.000 | -0.772 | 0.000 | -0.513 | 0.000 | -0.660 | 0.006 |
| Asset Tangibility | 0.567 | 0.049 | 0.702 | 0.000 | 0.501 | 0.002 | 0.543 | 0.000 |
| Total Asset turnover | 0.354 | 0.000 | 0.657 | 0.000 | 0.672 | 0.007 | 0.706 | 0.000 |
| Constant | 0.294 | 0.000 | 0.329 | 0.000 | 0.308 | 0.000 | 0.592 | 0.000 |
| R-square | 0.518 | | 0.494 | | 0.582 | | 0.483 | |
| F-Statistic | 2.650 | | 2.490 | | 7.130 | | 6.750 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.012 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.4 includes the Return on Capital Employed as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$ROCE_{it}$= -0.556 $SC_{it}$-0.570 $IFR_{it}$+0.346 $IFR_{it} * SC_{it}$ -0.647 $RE_{it}$+0.387 $RE_{it} * SC_{it}$+ 0.510 $STD_{it}$+0.705 $STD_{it} * SC_{it}$-0.696 $LTD_{it}$-0.396 $LTD_{it} * SC_{it}$-0.549 $TD_{it}$- 0.361 $TD_{it} * SC_{it}$-0.496 $SBA_{it}$-0.342 $SBA_{it} * SC_{it}$-0.527 $SBR_{it}$-0.412 $SBR_{it} * SC_{it}$- 0.606 $CS_{it}$- 0.780 $CS_{it} * SC_{it}$-0.606 $PS_{it}$-0.685 $PS_{it} * SC_{it}$-0.486 $ER_{it}$-0.458 $ER_{it} * SC_{it}$+ 0.666 $CCC_{it}$+0.773 $CCC_{it} * SC_{it}$+0.499 $TF_{it}$+0.790 $TF_{it} * SC_{it}$-0.491 $RF_{it}$ -0.397 $RF_{it} * SC_{it}$-0.374 $FD_{it}$-0.393 $FD_{it} * SC_{it}$+0.525 $CGR_{it}$+0.898 $CGR_{it} * SC_{it}$+0.809 $SRR_{it}$+ 0.861 $SRR_{it} * SC_{it}$-0.447 $FS_{it}$+0.567 $AT_{it}$+0.354 $TAT_{it}$+0.294

Beta coefficient equation for India

$ROCE_{it}$= -0.809 $SC_{it}$-0.487 $IFR_{it}$+0.504 $IFR_{it} * SC_{it}$ -0.378 $RE_{it}$+0.691 $RE_{it} * SC_{it}$+ 0.604 $STD_{it}$+0.419 $STD_{it} * SC_{it}$-0.406 $LTD_{it}$-0.559 $LTD_{it} * SC_{it}$- 0.373 $TD_{it}$- 0.195 $TD_{it} * SC_{it}$-0.592 $SBA_{it}$-0.531 $SBA_{it} * SC_{it}$-0.448 $SBR_{it}$-0.493 $SBR_{it} * SC_{it}$-0.557 $CS_{it}$- 0.794 $CS_{it} * SC_{it}$-0.437 $PS_{it}$-0.669 $PS_{it} * SC_{it}$-0.640 $ER_{it}$-0.514 $ER_{it} * SC_{it}$+ 0.836 $CCC_{it}$+0.305 $CCC_{it} * SC_{it}$+0.273 $TF_{it}$+0.771 $TF_{it} * SC_{it}$-0.430 $RF_{it}$ -0.396 $RF_{it} * SC_{it}$-0.310 $FD_{it}$-0.396 $FD_{it} * SC_{it}$+0.835 $CGR_{it}$+0.335 $CGR_{it} * SC_{it}$+0.838 $SRR_{it}$+ 0.943 $SRR_{it} * SC_{it}$-0.772 $FS_{it}$+0.702 $AT_{it}$+0.657 $TAT_{it}$+0.329

Beta coefficient equation for China

$ROCE_{it}$= -0.625 $SC_{it}$-0.412 $IFR_{it}$+0.546 $IFR_{it} * SC_{it}$ -0.437 $RE_{it}$+0.256 $RE_{it} * SC_{it}$+ 0.372 $STD_{it}$+0.564 $STD_{it} * SC_{it}$-0.509 $LTD_{it}$-0.599 $LTD_{it} * SC_{it}$- 0.333 $TD_{it}$- 0.346 $TD_{it} * SC_{it}$-0.514 $SBA_{it}$-0.433 $SBA_{it} * SC_{it}$-0.319 $SBR_{it}$-0.874 $SBR_{it} * SC_{it}$-0.675 $CS_{it}$- 0.314 $CS_{it} * SC_{it}$-0.138 $PS_{it}$-0.339 $PS_{it} * SC_{it}$-0.745 $ER_{it}$-0.504 $ER_{it} * SC_{it}$+ 0.484 $CCC_{it}$+0.497 $CCC_{it} * SC_{it}$+0.426 $TF_{it}$+0.584 $TF_{it} * SC_{it}$-0.160 $RF_{it}$ -0.505 $RF_{it} * SC_{it}$-0.642 $FD_{it}$-0.473 $FD_{it} * SC_{it}$+0.480 $CGR_{it}$+0.350 $CGR_{it} * SC_{it}$+0.338 $SRR_{it}$+ 0.582 $SRR_{it} * SC_{it}$-0.513 $FS_{it}$+0.501 $AT_{it}$+0.672 $TAT_{it}$+0.308

Beta coefficient equation for Iran

$ROCE_{it}$= -0.650 $SC_{it}$-0.651 $IFR_{it}$+0.514 $IFR_{it} * SC_{it}$ -0.245 $RE_{it}$+0.577 $RE_{it} * SC_{it}$+ 0.404 $STD_{it}$+0.667 $STD_{it} * SC_{it}$-0.346 $LTD_{it}$-0.367 $LTD_{it} * SC_{it}$- 0.323 $TD_{it}$- 0.200 $TD_{it} * SC_{it}$-0.813 $SBA_{it}$-0.894 $SBA_{it} * SC_{it}$-0.674 $SBR_{it}$-0.657 $SBR_{it} * SC_{it}$-0.614 $CS_{it}$- 0.702 $CS_{it} * SC_{it}$-0.837 $PS_{it}$-0.427 $PS_{it} * SC_{it}$-0.887 $ER_{it}$-0.476 $ER_{it} * SC_{it}$+ 0.463 $CCC_{it}$+0.661 $CCC_{it} * SC_{it}$+0.775 $TF_{it}$+0.614 $TF_{it} * SC_{it}$-0.655 $RF_{it}$ -0.752 $RF_{it} * SC_{it}$-0.311 $FD_{it}$-0.210 $FD_{it} * SC_{it}$+0.557 $CGR_{it}$+0.376 $CGR_{it} * SC_{it}$+0.864 $SRR_{it}$+ 0.841 $SRR_{it} * SC_{it}$-0.660 $FS_{it}$+0.543 $AT_{it}$+0.706 $TAT_{it}$+0.592

**Table 4.3.5: Model 3.5,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Return on Invested Capital*

| Financing Alternatives, Stagflation Cycles, and Return on Invested Capital | | | | |
|---|---|---|---|---|
| Regressand: ROIC | | | Moderator: Stagflation Cycles (SC) | |
| Interaction term: Financing alternatives* Stagflation Cycles | | | | |
| | Pakistan | India | China | Iran |
| Regressors | Fixed effect | Fixed effect | Fixed effect | Fixed effect |

| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
|---|---|---|---|---|---|---|---|---|
| Stagflation Cycles | -0.659 | 0.224 | -0.582 | 0.230 | -0.701 | 0.201 | -0.646 | 0.167 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.385 | 0.113 | -0.791 | 0.107 | -0.646 | 0.079 | -0.615 | 0.145 |
| Internal financing ratio *Stagflation Cycles | 0.592 | 0.001 | 0.340 | 0.000 | 0.382 | 0.000 | 0.887 | 0.000 |
| Retained Earnings | -0.354 | 0.118 | -0.758 | 0.079 | -0.774 | 0.007 | -0.611 | 0.381 |
| Retained Earnings*Stagflation Cycles | 0.594 | 0.023 | 0.413 | 0.000 | 0.381 | 0.000 | 0.571 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.460 | 0.136 | 0.317 | 0.076 | 0.807 | 0.725 | 0.715 | 0.681 |
| Short-term debt*Stagflation Cycles | 0.674 | 0.000 | 0.635 | 0.000 | 0.421 | 0.019 | 0.727 | 0.000 |
| Long-term debt | -0.573 | 0.092 | -0.594 | 0.461 | -0.270 | 0.816 | -0.593 | 0.349 |
| Long-term debt*Stagflation Cycles | -0.630 | 0.000 | -0.478 | 0.002 | -0.661 | 0.002 | -0.295 | 0.019 |
| Total debt | -0.586 | 0.377 | -0.357 | 0.979 | -0.736 | 0.728 | -0.678 | 0.056 |
| Total debt*Stagflation Cycles | -0.605 | 0.000 | -0.765 | 0.014 | -0.506 | 0.000 | -0.565 | 0.004 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.483 | 0.065 | -0.409 | 0.307 | -0.536 | 0.755 | -0.771 | 0.253 |
| Shadow banking assets*Stagflation Cycles | -0.230 | 0.004 | -0.470 | 0.002 | -0.519 | 0.000 | -0.710 | 0.002 |
| Shadow banking ratio | -0.529 | 0.075 | -0.739 | 0.224 | -0.460 | 0.254 | -0.830 | 0.120 |
| Shadow banking ratio*Stagflation Cycles | -0.627 | 0.028 | -0.651 | 0.000 | -0.637 | 0.000 | -0.686 | 0.003 |
| Equity financing | | | | | | | | |
| Common stocks | -0.545 | 0.007 | -0.426 | 0.226 | -0.408 | 0.578 | -0.795 | 0.225 |
| Common stocks*Stagflation Cycles | -0.456 | 0.026 | -0.792 | 0.002 | -0.773 | 0.002 | -0.755 | 0.003 |
| Preferred stocks | -0.873 | 0.000 | -0.345 | 0.599 | -0.313 | 0.083 | -0.610 | 0.076 |
| Preferred stocks*Stagflation Cycles | -0.543 | 0.012 | -0.481 | 0.006 | -0.850 | 0.000 | -0.353 | 0.000 |
| Equity ratio | -0.691 | 0.000 | -0.497 | 0.024 | -0.330 | 0.573 | -0.658 | 0.000 |
| Equity ratio*Stagflation Cycles | -0.765 | 0.031 | -0.294 | 0.001 | -0.564 | 0.003 | -0.611 | 0.022 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.493 | 0.116 | 0.345 | 0.831 | 0.654 | 0.295 | 0.752 | 0.502 |
| Cash Conversion Cycle*Stagflation Cycles | 0.345 | 0.014 | 0.614 | 0.000 | 0.659 | 0.002 | 0.260 | 0.003 |
| Trade financing | 0.908 | 0.087 | 0.628 | 0.414 | 0.612 | 0.269 | 0.453 | 0.131 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Trade financing*Stagflation Cycles | 0.481 | 0.014 | 0.770 | 0.007 | 0.541 | 0.000 | 0.383 | 0.000 |
| Reverse factoring | -0.225 | 0.115 | -0.513 | 0.561 | -0.538 | 0.562 | -0.401 | 0.052 |
| Reverse factoring*Stagflation Cycles | -0.247 | 0.035 | -0.308 | 0.016 | -0.619 | 0.000 | -0.430 | 0.033 |
| Factoring | -0.127 | 0.596 | -0.173 | 0.308 | -0.328 | 0.123 | -0.399 | 0.051 |
| Factoring*Stagflation Cycles | -0.161 | 0.023 | -0.367 | 0.005 | -0.301 | 0.001 | -0.608 | 0.000 |
| Credit guarantees ratio | 0.753 | 0.026 | 0.876 | 0.011 | 0.766 | 0.046 | 0.534 | 0.005 |
| Credit guarantees ratio*Stagflation Cycles | 0.485 | 0.003 | 0.894 | 0.028 | 0.585 | 0.005 | 0.709 | 0.008 |
| Solvency rating ratio | 0.580 | 0.035 | 0.950 | 0.122 | 0.677 | 0.010 | 0.445 | 0.007 |
| Solvency rating ratio*Stagflation Cycles | 0.530 | 0.007 | 0.863 | 0.004 | 0.601 | 0.000 | 0.719 | 0.017 |
| Control variables | | | | | | | | |
| Firm Size | -0.355 | 0.001 | -0.456 | 0.000 | -0.361 | 0.026 | -0.510 | 0.009 |
| Asset Tangibility | 0.232 | 0.010 | 0.484 | 0.000 | 0.389 | 0.010 | 0.360 | 0.008 |
| Total Asset turnover | 0.371 | 0.006 | 0.773 | 0.000 | 0.510 | 0.042 | 0.424 | 0.007 |
| Constant | 0.594 | 0.000 | 0.885 | 0.000 | 0.278 | 0.000 | 0.643 | 0.000 |
| R-square | 0.613 | | 0.604 | | 0.590 | | 0.487 | |
| F-Statistic | 1.580 | | 1.740 | | 1.320 | | 1.300 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.001 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.005 | | 0.002 | | 0.000 | |
| Lagrange Multiplier test | 0.040 | | 0.041 | | 0.000 | | 0.021 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.5 includes the Return on Invested Capital as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROIC_{it} = -0.659\ SC_{it} - 0.385\ IFR_{it} + 0.592\ IFR_{it} * SC_{it} - 0.354\ RE_{it} + 0.594\ RE_{it} * SC_{it} + 0.460\ STD_{it} + 0.674\ STD_{it} * SC_{it} - 0.573\ LTD_{it} - 0.630\ LTD_{it} * SC_{it} - 0.586\ TD_{it} - 0.605\ TD_{it} * SC_{it} - 0.483\ SBA_{it} - 0.230\ SBA_{it} * SC_{it} - 0.529\ SBR_{it} - 0.627\ SBR_{it} * SC_{it} - 0.545\ CS_{it} - 0.456\ CS_{it} * SC_{it} - 0.873\ PS_{it} - 0.543\ PS_{it} * SC_{it} - 0.691\ ER_{it} - 0.765\ ER_{it} * SC_{it} + 0.493\ CCC_{it} + 0.345\ CCC_{it} * SC_{it} + 0.908\ TF_{it} + 0.481\ TF_{it} * SC_{it} - 0.225\ RF_{it} - 0.247\ RF_{it} * SC_{it} - 0.127\ FD_{it} - 0.161\ FD_{it} * SC_{it} + 0.753\ CGR_{it} + 0.485\ CGR_{it} * SC_{it} + 0.580\ SRR_{it} + 0.530\ SRR_{it} * SC_{it} - 0.355\ FS_{it} + 0.232\ AT_{it} + 0.371\ TAT_{it} + 0.594$$

Beta coefficient equation for India

$$ROIC_{it} = -0.582\ SC_{it} - 0.791\ IFR_{it} + 0.340\ IFR_{it} * SC_{it} - 0.758\ RE_{it} + 0.413\ RE_{it} * SC_{it} + 0.317\ STD_{it} + 0.635\ STD_{it} * SC_{it} - 0.594\ LTD_{it} - 0.478\ LTD_{it} * SC_{it} - 0.357\ TD_{it} - 0.765\ TD_{it} * SC_{it} - 0.409\ SBA_{it} - 0.470\ SBA_{it} * SC_{it} - 0.739\ SBR_{it} - 0.651\ SBR_{it} * SC_{it} - 0.426\ CS_{it} -$$

$0.792\ CS_{it} * SC_{it}$-$0.345\ PS_{it}$-$0.481\ PS_{it} * SC_{it}$-$0.497\ ER_{it}$-$0.294\ ER_{it} * SC_{it}$+ $0.345\ CCC_{it}$+$0.614\ CCC_{it} * SC_{it}$+$0.628\ TF_{it}$+$0.770\ TF_{it} * SC_{it}$-$0.513\ RF_{it}$ -$0.308\ RF_{it} * SC_{it}$-$0.173\ FD_{it}$-$0.367\ FD_{it} * SC_{it}$+$0.876\ CGR_{it}$+$0.894\ CGR_{it} * SC_{it}$+$0.950\ SRR_{it}$+ $0.863\ SRR_{it} * SC_{it}$-$0.456\ FS_{it}$+$0.484\ AT_{it}$+$0.773\ TAT_{it}$+$0.885$

Beta coefficient equation for China

$ROIC_{it}$= -$0.701\ SC_{it}$-$0.646\ IFR_{it}$+$0.382\ IFR_{it} * SC_{it}$ -$0.774\ RE_{it}$+$0.381\ RE_{it} * SC_{it}$+ $0.807\ STD_{it}$+$0.421\ STD_{it} * SC_{it}$-$0.270\ LTD_{it}$-$0.661\ LTD_{it} * SC_{it}$- $0.736\ TD_{it}$-$0.506\ TD_{it} * SC_{it}$-$0.536\ SBA_{it}$-$0.519\ SBA_{it} * SC_{it}$-$0.460\ SBR_{it}$-$0.637\ SBR_{it} * SC_{it}$-$0.408\ CS_{it}$- $0.773\ CS_{it} * SC_{it}$-$0.313\ PS_{it}$-$0.850\ PS_{it} * SC_{it}$-$0.330\ ER_{it}$-$0.564\ ER_{it} * SC_{it}$+ $0.654\ CCC_{it}$+$0.659\ CCC_{it} * SC_{it}$+$0.612\ TF_{it}$+$0.541\ TF_{it} * SC_{it}$-$0.538\ RF_{it}$ -$0.619\ RF_{it} * SC_{it}$-$0.328\ FD_{it}$-$0.301\ FD_{it} * SC_{it}$+$0.766\ CGR_{it}$+$0.585\ CGR_{it} * SC_{it}$+$0.677\ SRR_{it}$+ $0.601\ SRR_{it} * SC_{it}$-$0.361\ FS_{it}$+$0.389\ AT_{it}$+$0.510\ TAT_{it}$+$0.278$

Beta coefficient equation for Iran

$ROIC_{it}$= -$0.646\ SC_{it}$-$0.615\ IFR_{it}$+$0.887\ IFR_{it} * SC_{it}$ -$0.611\ RE_{it}$+$0.571\ RE_{it} * SC_{it}$+ $0.715\ STD_{it}$+$0.727\ STD_{it} * SC_{it}$-$0.593\ LTD_{it}$-$0.295\ LTD_{it} * SC_{it}$- $0.678\ TD_{it}$- $0.565\ TD_{it} * SC_{it}$-$0.771\ SBA_{it}$-$0.710\ SBA_{it} * SC_{it}$-$0.830\ SBR_{it}$-$0.686\ SBR_{it} * SC_{it}$-$0.795\ CS_{it}$- $0.755\ CS_{it} * SC_{it}$-$0.610\ PS_{it}$-$0.353\ PS_{it} * SC_{it}$-$0.658\ ER_{it}$-$0.611\ ER_{it} * SC_{it}$+ $0.752\ CCC_{it}$+$0.260\ CCC_{it} * SC_{it}$+$0.453\ TF_{it}$+$0.383\ TF_{it} * SC_{it}$-$0.401\ RF_{it}$ -$0.430\ RF_{it} * SC_{it}$-$0.399\ FD_{it}$-$0.608\ FD_{it} * SC_{it}$+$0.534\ CGR_{it}$+$0.709\ CGR_{it} * SC_{it}$+$0.445\ SRR_{it}$+ $0.719\ SRR_{it} * SC_{it}$-$0.510\ FS_{it}$+$0.360\ AT_{it}$+$0.424\ TAT_{it}$+$0.643$

**Table 4.3.6: Model 3.6,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Tobin's Q*

| Financing Alternatives, Stagflation Cycles, and Tobin's Q | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: Tobin's q Moderator: Stagflation Cycles (SC) Interaction term: Financing alternatives* Stagflation Cycles | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.528 | 0.166 | -0.589 | 0.187 | -0.649 | 0.086 | -0.621 | 0.442 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.565 | 0.021 | -0.362 | 0.018 | -0.504 | 0.044 | -0.567 | 0.142 |
| Internal financing ratio*Stagflation Cycles | 0.721 | 0.029 | 0.396 | 0.033 | 0.624 | 0.000 | 0.576 | 0.002 |
| Retained Earnings | -0.744 | 0.179 | -0.272 | 0.307 | -0.310 | 0.772 | -0.267 | 0.369 |
| Retained Earnings*Stagflation Cycles | 0.420 | 0.000 | 0.476 | 0.027 | 0.525 | 0.005 | 0.607 | 0.036 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.641 | 0.409 | 0.597 | 0.144 | 0.414 | 0.932 | 0.559 | 0.148 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Short-term debt*Stagflation Cycles | 0.438 | 0.037 | 0.404 | 0.011 | 0.532 | 0.005 | 0.915 | 0.000 |
| Long-term debt | -0.535 | 0.166 | -0.695 | 0.037 | -0.769 | 0.122 | -0.654 | 0.518 |
| Long-term debt*Stagflation Cycles | -0.549 | 0.003 | -0.713 | 0.001 | -0.456 | 0.006 | -0.515 | 0.002 |
| Total debt | -0.547 | 0.091 | -0.606 | 0.445 | -0.855 | 0.009 | -0.718 | 0.005 |
| Total debt*Stagflation Cycles | -0.573 | 0.039 | -0.875 | 0.001 | -0.862 | 0.000 | -0.345 | 0.002 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.826 | 0.062 | -0.637 | 0.036 | -0.533 | 0.213 | -0.714 | 0.006 |
| Shadow banking assets*Stagflation Cycles | -0.658 | 0.044 | -0.663 | 0.000 | -0.486 | 0.000 | -0.535 | 0.050 |
| Shadow banking ratio | -0.447 | 0.088 | -0.672 | 0.383 | -0.605 | 0.145 | -0.833 | 0.058 |
| Shadow banking ratio*Stagflation Cycles | -0.479 | 0.042 | -0.531 | 0.000 | -0.654 | 0.000 | -0.657 | 0.031 |
| Equity financing | | | | | | | | |
| Common stocks | -0.503 | 0.075 | -0.787 | 0.108 | -0.461 | 0.075 | -0.311 | 0.381 |
| Common stocks*Stagflation Cycles | -0.348 | 0.000 | -0.753 | 0.000 | -0.838 | 0.000 | -0.870 | 0.000 |
| Preferred stocks | -0.761 | 0.053 | -0.856 | 0.296 | -0.644 | 0.487 | -0.806 | 0.597 |
| Preferred stocks*Stagflation Cycles | -0.367 | 0.000 | -0.415 | 0.012 | -0.447 | 0.000 | -0.614 | 0.044 |
| Equity ratio | -0.634 | 0.085 | -0.621 | 0.549 | -0.508 | 0.105 | -0.880 | 0.291 |
| Equity ratio*Stagflation Cycles | -0.572 | 0.000 | -0.383 | 0.013 | -0.773 | 0.000 | -0.685 | 0.001 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.655 | 0.073 | 0.668 | 0.340 | 0.981 | 0.210 | 0.332 | 0.430 |
| Cash Conversion Cycle*Stagflation Cycles | 0.597 | 0.006 | 0.343 | 0.000 | 0.974 | 0.000 | 0.536 | 0.000 |
| Trade financing | 0.830 | 0.111 | 0.483 | 0.198 | 0.470 | 0.376 | 0.398 | 0.164 |
| Trade financing*Stagflation Cycles | 0.692 | 0.034 | 0.972 | 0.000 | 0.489 | 0.000 | 0.842 | 0.012 |
| Reverse factoring | -0.418 | 0.328 | -0.305 | 0.074 | -0.173 | 0.354 | -0.519 | 0.221 |
| Reverse factoring*Stagflation Cycles | -0.205 | 0.005 | -0.370 | 0.005 | -0.251 | 0.021 | -0.450 | 0.002 |
| Factoring | -0.558 | 0.066 | -0.502 | 0.412 | -0.464 | 0.118 | -0.299 | 0.789 |
| Factoring*Stagflation Cycles | -0.635 | 0.000 | -0.490 | 0.003 | -0.442 | 0.000 | -0.504 | 0.022 |
| Credit guarantees ratio | 0.397 | 0.064 | 0.813 | 0.054 | 0.764 | 0.267 | 0.569 | 0.581 |
| Credit guarantees ratio*Stagflation Cycles | 0.419 | 0.038 | 0.621 | 0.012 | 0.667 | 0.000 | 0.887 | 0.010 |
| Solvency rating ratio | 0.518 | 0.062 | 0.805 | 0.061 | 0.425 | 0.369 | 0.747 | 0.181 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio*Stagflation Cycles | 0.443 | 0.002 | 0.527 | 0.000 | 0.342 | 0.000 | 0.381 | 0.036 |
| Control variables | | | | | | | | |
| Firm Size | -0.706 | 0.002 | -0.304 | 0.000 | -0.817 | 0.000 | -0.880 | 0.011 |
| Asset Tangibility | 0.449 | 0.037 | 0.816 | 0.002 | 0.710 | 0.000 | 0.712 | 0.000 |
| Total Asset turnover | -0.477 | 0.035 | -0.365 | 0.030 | -0.380 | 0.000 | -0.519 | 0.000 |
| Constant | 0.817 | 0.000 | 0.792 | 0.000 | 0.639 | 0.000 | 0.427 | 0.000 |
| R-square | 0.463 | | 0.514 | | 0.560 | | 0.488 | |
| F-Statistic | 1.560 | | 1.680 | | 1.470 | | 1.340 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.046 | | 0.000 | | 0.001 | |
| Lagrange Multiplier test | 0.001 | | 0.000 | | 0.000 | | 0.002 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.6 includes Tobin's q as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$Tobin's\ q_{it} = -0.528\ SC_{it} - 0.565\ IFR_{it} + 0.721\ IFR_{it} * SC_{it} - 0.744\ RE_{it} + 0.420\ RE_{it} * SC_{it} + 0.641\ STD_{it} + 0.438\ STD_{it} * SC_{it} - 0.535\ LTD_{it} - 0.549\ LTD_{it} * SC_{it} - 0.547\ TD_{it} - 0.573\ TD_{it} * SC_{it} - 0.826\ SBA_{it} - 0.658\ SBA_{it} * SC_{it} - 0.447\ SBR_{it} - 0.479\ SBR_{it} * SC_{it} - 0.503\ CS_{it} - 0.348\ CS_{it} * SC_{it} - 0.761\ PS_{it} - 0.367\ PS_{it} * SC_{it} - 0.634\ ER_{it} - 0.572\ ER_{it} * SC_{it} + 0.655\ CCC_{it} + 0.597\ CCC_{it} * SC_{it} + 0.830\ TF_{it} + 0.692\ TF_{it} * SC_{it} - 0.418\ RF_{it} - 0.205\ RF_{it} * SC_{it} - 0.558\ FD_{it} - 0.635\ FD_{it} * SC_{it} + 0.397\ CGR_{it} + 0.419\ CGR_{it} * SC_{it} + 0.518\ SRR_{it} + 0.443\ SRR_{it} * SC_{it} - 0.706\ FS_{it} + 0.449\ AT_{it} - 0.477\ TAT_{it} + 0.817$$

Beta coefficient equation for India

$$Tobin's\ q_{it} = -0.589\ SC_{it} - 0.362\ IFR_{it} + 0.396\ IFR_{it} * SC_{it} - 0.272\ RE_{it} + 0.476\ RE_{it} * SC_{it} + 0.597\ STD_{it} + 0.404\ STD_{it} * SC_{it} - 0.695\ LTD_{it} - 0.713\ LTD_{it} * SC_{it} - 0.606\ TD_{it} - 0.875\ TD_{it} * SC_{it} - 0.637\ SBA_{it} - 0.663\ SBA_{it} * SC_{it} - 0.672\ SBR_{it} - 0.531\ SBR_{it} * SC_{it} - 0.787\ CS_{it} - 0.753\ CS_{it} * SC_{it} - 0.856\ PS_{it} - 0.415\ PS_{it} * SC_{it} - 0.621\ ER_{it} - 0.383\ ER_{it} * SC_{it} + 0.668\ CCC_{it} + 0.343\ CCC_{it} * SC_{it} + 0.483\ TF_{it} + 0.972\ TF_{it} * SC_{it} - 0.305\ RF_{it} - 0.370\ RF_{it} * SC_{it} - 0.502\ FD_{it} - 0.490\ FD_{it} * SC_{it} + 0.813\ CGR_{it} + 0.621\ CGR_{it} * SC_{it} + 0.805\ SRR_{it} + 0.527\ SRR_{it} * SC_{it} - 0.304\ FS_{it} + 0.816\ AT_{it} - 0.365\ TAT_{it} + 0.792$$

Beta coefficient equation for China

$$Tobin's\ q_{it} = -0.649\ SC_{it} - 0.504\ IFR_{it} + 0.624\ IFR_{it} * SC_{it} - 0.310\ RE_{it} + 0.525\ RE_{it} * SC_{it} + 0.414\ STD_{it} + 0.532\ STD_{it} * SC_{it} - 0.769\ LTD_{it} - 0.456\ LTD_{it} * SC_{it} - 0.855\ TD_{it} - 0.862\ TD_{it} * SC_{it} - 0.533\ SBA_{it} - 0.486\ SBA_{it} * SC_{it} - 0.605\ SBR_{it} - 0.654\ SBR_{it} * SC_{it} - 0.461\ CS_{it} - 0.838\ CS_{it} * SC_{it} - 0.644\ PS_{it} - 0.447\ PS_{it} * SC_{it} - 0.508\ ER_{it} - 0.773\ ER_{it} * SC_{it} + 0.981\ CCC_{it} + 0.974\ CCC_{it} * SC_{it} + 0.470\ TF_{it} + 0.489\ TF_{it} * SC_{it} - 0.173\ RF_{it} - 0.251\ RF_{it} * SC_{it} - 0.464\ FD_{it} - 0.442\ FD_{it} * SC_{it} + 0.764\ CGR_{it} + 0.667\ CGR_{it} * SC_{it} + 0.425\ SRR_{it} + 0.342\ SRR_{it} * SC_{it} - 0.817\ FS_{it} + 0.710\ AT_{it} - 0.380\ TAT_{it} + 0.639$$

Beta coefficient equation for Iran

$Tobin's\ q_{it}$= -0.621 $SC_{it}$-0.567 $IFR_{it}$+0.576 $IFR_{it} * SC_{it}$ -0.267 $RE_{it}$+0.607 $RE_{it} * SC_{it}$+ 0.559 $STD_{it}$+0.915 $STD_{it} * SC_{it}$-0.654 $LTD_{it}$-0.515 $LTD_{it} * SC_{it}$- 0.718 $TD_{it}$-0.345 $TD_{it} * SC_{it}$-0.714 $SBA_{it}$-0.535 $SBA_{it} * SC_{it}$-0.833 $SBR_{it}$-0.657 $SBR_{it} * SC_{it}$-0.311 $CS_{it}$- 0.870 $CS_{it} * SC_{it}$-0.806 $PS_{it}$-0.614 $PS_{it} * SC_{it}$-0.880 $ER_{it}$- 0.685 $ER_{it} * SC_{it}$+ 0.332 $CCC_{it}$+0.536 $CCC_{it} * SC_{it}$+0.398 $TF_{it}$+0.842 $TF_{it} * SC_{it}$-0.519 $RF_{it}$ -0.450 $RF_{it} * SC_{it}$-0.299 $FD_{it}$-0.504 $FD_{it} * SC_{it}$+0.569 $CGR_{it}$+0.887 $CGR_{it} * SC_{it}$+0.747 $SRR_{it}$+ 0.381 $SRR_{it} * SC_{it}$-0.880 $FS_{it}$+0.712 $AT_{it}$-0.519 $TAT_{it}$+0.427

**Table 4.3.7: Model 3.7,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Earnings Per Share*

| Financing Alternatives, Stagflation Cycles, and Earnings Per Share | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: EPS<br>Interaction term: Financing alternatives* Stagflation Cycles | | | | | Moderator: Stagflation Cycles (SC) | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.510 | 0.098 | -0.407 | 0.130 | -0.572 | 0.121 | -0.339 | 0.119 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.573 | 0.283 | -0.360 | 0.905 | -0.355 | 0.247 | -0.463 | 0.657 |
| Internal financing ratio*Stagflation Cycles | 0.506 | 0.011 | 0.490 | 0.038 | 0.433 | 0.000 | 0.530 | 0.004 |
| Retained Earnings | -0.556 | 0.088 | -0.359 | 0.078 | -0.701 | 0.626 | -0.718 | 0.663 |
| Retained Earnings*Stagflation Cycles | 0.283 | 0.000 | 0.318 | 0.000 | 0.575 | 0.000 | 0.586 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.560 | 0.086 | 0.577 | 0.135 | 0.637 | 0.005 | 0.469 | 0.406 |
| Short-term debt*Stagflation Cycles | 0.730 | 0.014 | 0.841 | 0.026 | 0.729 | 0.000 | 0.576 | 0.006 |
| Long-term debt | -0.501 | 0.385 | -0.613 | 0.311 | -0.632 | 0.025 | -0.620 | 0.161 |
| Long-term debt*Stagflation Cycles | -0.483 | 0.002 | -0.515 | 0.000 | -0.570 | 0.000 | -0.664 | 0.019 |
| Total debt | -0.769 | 0.305 | -0.614 | 0.416 | -0.813 | 0.009 | -0.621 | 0.961 |
| Total debt*Stagflation Cycles | -0.512 | 0.000 | -0.576 | 0.000 | -0.576 | 0.002 | -0.776 | 0.004 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.502 | 0.290 | -0.496 | 0.689 | -0.598 | 0.085 | -0.387 | 0.372 |
| Shadow banking assets*Stagflation Cycles | -0.664 | 0.028 | -0.393 | 0.000 | -0.812 | 0.000 | -0.456 | 0.004 |
| Shadow banking ratio | -0.453 | 0.188 | -0.333 | 0.137 | -0.804 | 0.235 | -0.304 | 0.541 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking ratio*Stagflation Cycles | -0.636 | 0.000 | -0.227 | 0.000 | -0.894 | 0.000 | -0.275 | 0.001 |
| Equity financing | | | | | | | | |
| Common stocks | -0.408 | 0.051 | -0.476 | 0.296 | -0.835 | 0.679 | -0.867 | 0.033 |
| Common stocks*Stagflation Cycles | -0.396 | 0.048 | -0.573 | 0.000 | -0.862 | 0.026 | -0.490 | 0.000 |
| Preferred stocks | -0.517 | 0.095 | -0.738 | 0.445 | -0.424 | 0.518 | -0.197 | 0.001 |
| Preferred stocks*Stagflation Cycles | -0.621 | 0.035 | -0.832 | 0.000 | -0.299 | 0.000 | -0.426 | 0.000 |
| Equity ratio | -0.746 | 0.818 | -0.594 | 0.545 | -0.835 | 0.865 | -0.615 | 0.180 |
| Equity ratio*Stagflation Cycles | -0.638 | 0.003 | -0.782 | 0.007 | -0.872 | 0.007 | -0.512 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.446 | 0.311 | 0.453 | 0.010 | 0.506 | 0.036 | 0.610 | 0.129 |
| Cash Conversion Cycle*Stagflation Cycles | 0.794 | 0.000 | 0.643 | 0.000 | 0.340 | 0.000 | 0.646 | 0.000 |
| Trade financing | 0.358 | 0.163 | 0.464 | 0.055 | 0.499 | 0.089 | 0.658 | 0.495 |
| Trade financing*Stagflation Cycles | 0.696 | 0.000 | 0.834 | 0.022 | 0.756 | 0.000 | 0.794 | 0.006 |
| Reverse factoring | -0.571 | 0.058 | -0.192 | 0.475 | -0.549 | 0.001 | -0.164 | 0.011 |
| Reverse factoring*Stagflation Cycles | -0.500 | 0.004 | -0.591 | 0.000 | -0.600 | 0.000 | -0.328 | 0.000 |
| Factoring | -0.269 | 0.546 | -0.136 | 0.062 | -0.591 | 0.599 | -0.635 | 0.103 |
| Factoring*Stagflation Cycles | -0.385 | 0.020 | -0.509 | 0.000 | -0.261 | 0.000 | -0.555 | 0.000 |
| Credit guarantees ratio | 0.716 | 0.854 | 0.774 | 0.174 | 0.547 | 0.192 | 0.846 | 0.797 |
| Credit guarantees ratio*Stagflation Cycles | 0.402 | 0.006 | 0.679 | 0.003 | 0.602 | 0.007 | 0.525 | 0.004 |
| Solvency rating ratio | 0.547 | 0.148 | 0.494 | 0.353 | 0.393 | 0.853 | 0.574 | 0.759 |
| Solvency rating ratio*Stagflation Cycles | 0.586 | 0.013 | 0.777 | 0.000 | 0.673 | 0.018 | 0.514 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.533 | 0.000 | -0.352 | 0.000 | -0.879 | 0.007 | -0.825 | 0.024 |
| Asset Tangibility | 0.496 | 0.000 | 0.400 | 0.003 | 0.902 | 0.001 | 0.487 | 0.034 |
| Total Asset turnover | -0.444 | 0.000 | -0.305 | 0.000 | -0.265 | 0.000 | -0.445 | 0.000 |
| Constant | 0.220 | 0.000 | 0.628 | 0.364 | 0.709 | 0.000 | 0.378 | 0.012 |
| R-square | 0.452 | | 0.563 | | 0.361 | | 0.344 | |
| F-Statistic | 1.340 | | 1.750 | | 1.480 | | 1.930 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.030 | | 0.000 | | 0.000 | | 0.001 | |
| Lagrange Multiplier test | 0.001 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 3.7 includes the Earnings Per Share as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$EPS_{it} = -0.510\ SC_{it} - 0.573\ IFR_{it} + 0.506\ IFR_{it} * SC_{it} - 0.556\ RE_{it} + 0.283\ RE_{it} * SC_{it} + 0.560\ STD_{it} + 0.730\ STD_{it} * SC_{it} - 0.501\ LTD_{it} - 0.483\ LTD_{it} * SC_{it} - 0.769\ TD_{it} - 0.512\ TD_{it} * SC_{it} - 0.502\ SBA_{it} - 0.664\ SBA_{it} * SC_{it} - 0.453\ SBR_{it} - 0.636\ SBR_{it} * SC_{it} - 0.408\ CS_{it} - 0.396\ CS_{it} * SC_{it} - 0.517\ PS_{it} - 0.621\ PS_{it} * SC_{it} - 0.746\ ER_{it} - 0.638\ ER_{it} * SC_{it} + 0.446\ CCC_{it} + 0.794\ CCC_{it} * SC_{it} + 0.358\ TF_{it} + 0.696\ TF_{it} * SC_{it} - 0.571\ RF_{it} - 0.500\ RF_{it} * SC_{it} - 0.269\ FD_{it} - 0.385\ FD_{it} * SC_{it} + 0.716\ CGR_{it} + 0.402\ CGR_{it} * SC_{it} + 0.547\ SRR_{it} + 0.586\ SRR_{it} * SC_{it} - 0.533\ FS_{it} + 0.496\ AT_{it} - 0.444\ TAT_{it} + 0.220$$

Beta coefficient equation for India

$$EPS_{it} = -0.407\ SC_{it} - 0.360\ IFR_{it} + 0.490\ IFR_{it} * SC_{it} - 0.359\ RE_{it} + 0.318\ RE_{it} * SC_{it} + 0.577\ STD_{it} + 0.841\ STD_{it} * SC_{it} - 0.613\ LTD_{it} - 0.515\ LTD_{it} * SC_{it} - 0.614\ TD_{it} - 0.576\ TD_{it} * SC_{it} - 0.496\ SBA_{it} - 0.393\ SBA_{it} * SC_{it} - 0.333\ SBR_{it} - 0.227\ SBR_{it} * SC_{it} - 0.476\ CS_{it} - 0.573\ CS_{it} * SC_{it} - 0.738\ PS_{it} - 0.832\ PS_{it} * SC_{it} - 0.594\ ER_{it} - 0.782\ ER_{it} * SC_{it} + 0.453\ CCC_{it} + 0.643\ CCC_{it} * SC_{it} + 0.464\ TF_{it} + 0.834\ TF_{it} * SC_{it} - 0.192\ RF_{it} - 0.591\ RF_{it} * SC_{it} - 0.136\ FD_{it} - 0.509\ FD_{it} * SC_{it} + 0.774\ CGR_{it} + 0.679\ CGR_{it} * SC_{it} + 0.494\ SRR_{it} + 0.777\ SRR_{it} * SC_{it} - 0.352\ FS_{it} + 0.400\ AT_{it} - 0.305\ TAT_{it} + 0.628$$

Beta coefficient equation for China

$$EPS_{it} = -0.572\ SC_{it} - 0.355\ IFR_{it} + 0.433\ IFR_{it} * SC_{it} - 0.701\ RE_{it} + 0.575\ RE_{it} * SC_{it} + 0.637\ STD_{it} + 0.729\ STD_{it} * SC_{it} - 0.632\ LTD_{it} - 0.570\ LTD_{it} * SC_{it} - 0.813\ TD_{it} - 0.576\ TD_{it} * SC_{it} - 0.598\ SBA_{it} - 0.812\ SBA_{it} * SC_{it} - 0.804\ SBR_{it} - 0.894\ SBR_{it} * SC_{it} - 0.835\ CS_{it} - 0.862\ CS_{it} * SC_{it} - 0.424\ PS_{it} - 0.299\ PS_{it} * SC_{it} - 0.835\ ER_{it} - 0.872\ ER_{it} * SC_{it} + 0.506\ CCC_{it} + 0.340\ CCC_{it} * SC_{it} + 0.499\ TF_{it} + 0.756\ TF_{it} * SC_{it} - 0.549\ RF_{it} - 0.600\ RF_{it} * SC_{it} - 0.591\ FD_{it} - 0.261\ FD_{it} * SC_{it} + 0.547\ CGR_{it} + 0.602\ CGR_{it} * SC_{it} + 0.393\ SRR_{it} + 0.673\ SRR_{it} * SC_{it} - 0.879\ FS_{it} + 0.902\ AT_{it} - 0.265\ TAT_{it} + 0.709$$

Beta coefficient equation for Iran

$$EPS_{it} = -0.339\ SC_{it} - 0.463\ IFR_{it} + 0.530\ IFR_{it} * SC_{it} - 0.718\ RE_{it} + 0.586\ RE_{it} * SC_{it} + 0.469\ STD_{it} + 0.576\ STD_{it} * SC_{it} - 0.620\ LTD_{it} - 0.664\ LTD_{it} * SC_{it} - 0.621\ TD_{it} - 0.776\ TD_{it} * SC_{it} - 0.387\ SBA_{it} - 0.456\ SBA_{it} * SC_{it} - 0.304\ SBR_{it} - 0.275\ SBR_{it} * SC_{it} - 0.867\ CS_{it} - 0.490\ CS_{it} * SC_{it} - 0.197\ PS_{it} - 0.426\ PS_{it} * SC_{it} - 0.615\ ER_{it} - 0.512\ ER_{it} * SC_{it} + 0.610\ CCC_{it} + 0.646\ CCC_{it} * SC_{it} + 0.658\ TF_{it} + 0.794\ TF_{it} * SC_{it} - 0.164\ RF_{it} - 0.328\ RF_{it} * SC_{it} - 0.635\ FD_{it} - 0.555\ FD_{it} * SC_{it} + 0.846\ CGR_{it} + 0.525\ CGR_{it} * SC_{it} + 0.574\ SRR_{it} + 0.514\ SRR_{it} * SC_{it} - 0.825\ FS_{it} + 0.487\ AT_{it} - 0.445\ TAT_{it} + 0.378$$

### 4.3.2 Financing Alternatives, Stagflation Cycles, and Sustainable Performance

The proposed model 4.1 and 4.2 determines the panel regression effects of financing alternatives on sustainable performance, with the moderation effect of Stagflation cycles, and under the controlled effect of firm size, asset tangibility, and total asset turnover. Sustainable performance is measured by GRI sustainability and sustainable growth rate. Table 4.3.8 and 4.3.9 show the panel regression statistics for GRI sustainability and SGR, under fixed effect model for selected SCO member states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable. Pakistan, India, China, and Iran show generalized results for all measures of financing alternatives and proved the significant moderation influence of stagflations between financing alternatives and GRI sustainability and sustainable growth rate.

Based upon the estimations, fixed effect statistics have obtained insignificant influence of stagflation cycles on GRI sustainability and SGR, with p-values greater than 0.05, the first condition for moderation effect has been fulfilled. Secondly, fixed effect statistics have obtained significant influence of interaction terms, indicating satisfaction with the second condition. For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for GRI sustainability and SGR in the stagflation cycles as a moderator variable. The estimations show that stagflation cycles have a complete moderation effect on both internal financing ratio and retained earnings when regressed for GRI sustainability and SGR with insignificant p-value i-e greater than 0.05, only India shows partial moderation with SGR with significant p-values under P-OLS and fixed effect estimations. Hence satisfies the hypotheses H4.1a and H4.1b, the stagflation cycles moderate the relationship between internal financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. The P-OLS and fixed effect estimations, and stagflation cycles appeared as complete moderators for both short-term, long-term, and total debt with insignificant p-values i-e greater than 0.05 level. Hence supported hypotheses H4.2a and

H4.2b, the stagflation cycles moderate the relationship between debt financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. Shadow banking assets and shadow banking ratio also present a complete moderating influence of stagflation cycles for predictors of GRI sustainability and SGR for all SCO states, with a p-value above a 5% significance level. Hence P-OLS and fixed effect estimations satisfy the hypotheses $H$4.3a and $H$4.3b, i-e stagflation cycles moderate the relationship between shadow bank financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. Stagflation shows a complete moderation effect with common stocks, preferred stocks, and equity ratio when regressed for GRI sustainability and SGR, with p-values above 0.05 significance for selected SCO states, except Pakistan shows partial moderation with common stocks and GRI sustainability and China shows partial moderation with equity ratio and SGR with significant p-values. Under fixed effect, the results support the hypotheses $H$4.4a and $H$4.4b: There is a significant impact of equity financing on the GRI sustainability and SGR of nonfinancial companies in the SCO member states.

Among the sources of supply chain financing, CCC, factoring finances, trade financing, and credit guarantees shows complete moderation effects of stagflation cycles for the predictors of GRI sustainability and SGR with p-values above 0.05 for selected SCO states, except Pakistan and China show significant partial moderation for factoring finances and credit guarantees with p-values less than 5% significance, under fixed effect model. Consequently, the results support the hypotheses $H$4.5a and $H$4.5b: There is a significant impact of supply chain finances on the GRI sustainability and SGR of nonfinancial companies in the SCO member states. Johnson (1981), applied the formula derived by Higgins in 1977 for sustainable growth rate and proved that higher Inflation negatively impacts the sustainable growth rate of the company. When companies follow a target financing structure than a capital structure, this reduces the adverse effects of inflation uncertainty on sustainable growth rate.

The study findings contributed to market timing effect by reducing the external borrowing options over the long-run due to increased interest, borrowing cost, bankruptcy risk, high lending rate, and pecking order theory supports the preference of internal financing during long-run stagflation cycles because of low transaction cost than external borrowing. Equity financing is the least preferable financing option in the countries with high macroeconomic volatility, will result in negative long-term performance impacts. The findings aligned with the existing studies, e.g., Mokhova and Zinecker (2014), argued that macroeconomic fundamentals in any country significantly influence the companies' financial performance as well as their

future sustainable growth and development. (Rehman, 2016) He identified that an appropriate combination of financing alternatives mitigates the macroeconomic volatility and therefore, positively influences the value of companies over the long run. (Soukhakian & Khodakarami, 2019) Inflation resulted in decreased firm revenues and consequently, profit margins, so firms can compensate for their long-term profit margins by extending their sales credit receivables, which leads to longer cash conversion cycles (Enqvist et al., 2014). The existing studies highlighted mixed and inconclusive results, such as Kaminsky et al. (2002), indicating the negative interaction influence of inflation between the capital structure and EVA due to an increase in underlying issuance cost and transaction cost of capital. Alternately, Rehman (2016), proved the positive influence of inflation on EVA. Aboudi and Khanchaoui (2021), argued that good inflations trigger economic activity free of economic distortions, and positively influence sustainable growth rate. The evidenced study proved the significant moderation effect of macroeconomics on the relation between WCM and corporate long-run performance, measured through refined economic value added (Soukhakian & Khodakarami, 2019). Following the market timing theory, inflations negatively influence profitability during the economic downturn, companies experience a decline in the average collection of receivables with the increase in asset turnover ratio, resulting in decreased cash inflows and profit margins. Very few studies contributed to determining the interaction effect of macroeconomic volatility between capital structure and corporate sustainability, specifically focusing on sustainable growth rate. To the best of the researcher's knowledge, no study has applied GRI sustainability for evaluating the interaction effects.

Based on the statistical and theoretical acceptance of stated hypotheses for the relation between stagflation cycles, comprehensive financing alternatives, and sustainable performance measures, the study significantly proved the moderating influence of stagflation cycles on the relation between financing alternatives and sustainable performance. Hence H4 is accepted. All three controlled variables have a significant controlled effect on sustainable performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. For GRI sustainability and SGR, the Hausman model specification test shows the p-value<0.05, which supports the validity of fixed effect for selected SCO nations. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show acceptable variance explanation powers with r-square values of below 0.60 for sustainable

performance measures, for selected SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.8: Model 4.1,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and GRI Sustainability*

| Financing Alternatives, Stagflation Cycles, and GRI Sustainability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: GRI Moderator: Stagflation Cycles (SC) Interaction term: Financing alternatives* Stagflation Cycles | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Stagflation Cycles | -0.455 | 0.195 | -0.554 | 0.315 | -0.726 | 0.096 | -0.348 | 0.086 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.687 | 0.060 | -0.499 | 0.118 | -0.765 | 0.159 | -0.426 | 0.188 |
| Internal financing ratio *Stagflation Cycles | 0.561 | 0.000 | 0.558 | 0.000 | 0.358 | 0.000 | 0.693 | 0.000 |
| Retained Earnings | -0.368 | 0.112 | -0.709 | 0.325 | -0.683 | 0.356 | -0.357 | 0.740 |
| Retained Earnings*Stagflation Cycles | 0.286 | 0.000 | 0.214 | 0.000 | 0.276 | 0.000 | 0.421 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.793 | 0.233 | 0.778 | 0.192 | 0.507 | 0.403 | 0.864 | 0.470 |
| Short-term debt*Stagflation Cycles | 0.564 | 0.000 | 0.411 | 0.000 | 0.560 | 0.000 | 0.560 | 0.000 |
| Long-term debt | -0.545 | 0.249 | -0.531 | 0.133 | -0.592 | 0.087 | -0.724 | 0.098 |
| Long-term debt*Stagflation Cycles | -0.641 | 0.000 | -0.600 | 0.000 | -0.567 | 0.000 | -0.745 | 0.025 |
| Total debt | -0.807 | 0.570 | -0.595 | 0.275 | -0.675 | 0.216 | -0.874 | 0.151 |
| Total debt*Stagflation Cycles | -0.481 | 0.000 | -0.471 | 0.000 | -0.632 | 0.000 | -0.533 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.766 | 0.736 | -0.527 | 0.338 | -0.557 | 0.257 | -0.624 | 0.295 |
| Shadow banking assets*Stagflation Cycles | -0.345 | 0.000 | -0.639 | 0.000 | -0.817 | 0.000 | -0.450 | 0.000 |
| Shadow banking ratio | -0.704 | 0.490 | -0.677 | 0.214 | -0.442 | 0.057 | -0.611 | 0.297 |
| Shadow banking ratio*Stagflation Cycles | -0.303 | 0.001 | -0.574 | 0.000 | -0.521 | 0.000 | -0.664 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.539 | 0.019 | -0.382 | 0.155 | -0.648 | 0.253 | -0.738 | 0.199 |
| Common stocks*Stagflation Cycles | -0.355 | 0.000 | -0.749 | 0.000 | -0.489 | 0.000 | -0.732 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Preferred stocks | -0.464 | 0.152 | -0.241 | 0.152 | -0.378 | 0.891 | -0.452 | 0.212 |
| Preferred stocks*Stagflation Cycles | -0.611 | 0.000 | -0.264 | 0.000 | -0.318 | 0.000 | -0.508 | 0.000 |
| Equity ratio | -0.351 | 0.221 | -0.575 | 0.973 | -0.424 | 0.133 | -0.680 | 0.186 |
| Equity ratio*Stagflation Cycles | -0.263 | 0.000 | -0.404 | 0.000 | -0.694 | 0.004 | -0.418 | 0.001 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.757 | 0.213 | 0.429 | 0.327 | 0.521 | 0.070 | 0.572 | 0.082 |
| Cash Conversion Cycle*Stagflation Cycles | 0.266 | 0.039 | 0.502 | 0.000 | 0.531 | 0.016 | 0.755 | 0.044 |
| Trade financing | 0.388 | 0.760 | 0.623 | 0.612 | 0.623 | 0.166 | 0.744 | 0.189 |
| Trade financing*Stagflation Cycles | 0.746 | 0.046 | 0.433 | 0.000 | 0.718 | 0.018 | 0.620 | 0.003 |
| Reverse factoring | -0.433 | 0.019 | -0.353 | 0.031 | -0.492 | 0.131 | -0.265 | 0.136 |
| Reverse factoring*Stagflation Cycles | -0.733 | 0.026 | -0.245 | 0.000 | -0.350 | 0.021 | -0.367 | 0.019 |
| Factoring | -0.540 | 0.127 | -0.605 | 0.131 | -0.705 | 0.336 | -0.240 | 0.375 |
| Factoring*Stagflation Cycles | -0.462 | 0.000 | -0.400 | 0.000 | -0.675 | 0.002 | -0.527 | 0.012 |
| Credit guarantees ratio | 0.535 | 0.004 | 0.469 | 0.055 | 0.384 | 0.670 | 0.803 | 0.251 |
| Credit guarantees ratio*Stagflation Cycles | 0.410 | 0.023 | 0.433 | 0.000 | 0.461 | 0.006 | 0.764 | 0.025 |
| Solvency rating ratio | 0.619 | 0.306 | 0.384 | 0.533 | 0.746 | 0.091 | 0.828 | 0.086 |
| Solvency rating ratio*Stagflation Cycles | 0.677 | 0.045 | 0.691 | 0.000 | 0.820 | 0.016 | 0.292 | 0.006 |
| Control variables | | | | | | | | |
| Firm Size | -0.468 | 0.009 | -0.913 | 0.000 | -0.513 | 0.017 | -0.681 | 0.047 |
| Asset Tangibility | 0.235 | 0.007 | 0.306 | 0.007 | 0.853 | 0.001 | 0.682 | 0.049 |
| Total Asset turnover | 0.268 | 0.005 | 0.350 | 0.006 | 0.661 | 0.035 | 0.820 | 0.001 |
| Constant | 0.299 | 0.000 | 0.450 | 0.000 | 0.659 | 0.000 | 0.325 | 0.000 |
| R-square | 0.560 | | 0.489 | | 0.475 | | 0.462 | |
| F-Statistic | 2.000 | | 2.730 | | 2.160 | | 2.350 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.046 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 4.1 includes the GRI Sustainability performance as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$GRI_{it}$= -0.455 $SC_{it}$-0.687 $IFR_{it}$+0.561 $IFR_{it} * SC_{it}$ -0.368 $RE_{it}$+0.286$RE_{it} * SC_{it}$+ 0.793 $STD_{it}$+0.564 $STD_{it} * SC_{it}$-0.545 $LTD_{it}$-0.641 $LTD_{it} * SC_{it}$- 0.807 $TD_{it}$- 0.481 $TD_{it} * SC_{it}$-0.766 $SBA_{it}$-0.345 $SBA_{it} * SC_{it}$-0.704 $SBR_{it}$-0.303 $SBR_{it} * SC_{it}$-0.539 $CS_{it}$- 0.355 $CS_{it} * SC_{it}$-0.464 $PS_{it}$-0.611 $PS_{it} * SC_{it}$-0.351 $ER_{it}$- 0.263 $ER_{it} * SC_{it}$+ 0.757 $CCC_{it}$+0.266 $CCC_{it} * SC_{it}$+0.388 $TF_{it}$+0.746 $TF_{it} * SC_{it}$-0.433 $RF_{it}$ -0.733 $RF_{it} * SC_{it}$-0.540 $FD_{it}$-0.462 $FD_{it} * SC_{it}$+0.535 $CGR_{it}$+0.410 $CGR_{it} * SC_{it}$+0.619 $SRR_{it}$+ 0.677 $SRR_{it} * SC_{it}$-0.468 $FS_{it}$+0.235 $AT_{it}$+0.268 $TAT_{it}$+0.299

Beta coefficient equation for India

$GRI_{it}$= -0.554 $SC_{it}$-0.499 $IFR_{it}$+0.558 $IFR_{it} * SC_{it}$ -0.709 $RE_{it}$+0.214 $RE_{it} * SC_{it}$+ 0.778 $STD_{it}$+0.411 $STD_{it} * SC_{it}$-0.531 $LTD_{it}$-0.600 $LTD_{it} * SC_{it}$- 0.595 $TD_{it}$- 0.471 $TD_{it} * SC_{it}$-0.527 $SBA_{it}$-0.639 $SBA_{it} * SC_{it}$-0.677 $SBR_{it}$-0.574 $SBR_{it} * SC_{it}$-0.382 $CS_{it}$- 0.749 $CS_{it} * SC_{it}$-0.241 $PS_{it}$-0.264 $PS_{it} * SC_{it}$-0.575 $ER_{it}$- 0.404 $ER_{it} * SC_{it}$+ 0.429 $CCC_{it}$+0.502 $CCC_{it} * SC_{it}$+0.623 $TF_{it}$+0.433 $TF_{it} * SC_{it}$-0.353 $RF_{it}$ -0.245 $RF_{it} * SC_{it}$-0.605 $FD_{it}$-0.400 $FD_{it} * SC_{it}$+0.469 $CGR_{it}$+0.433 $CGR_{it} * SC_{it}$+0.384 $SRR_{it}$+ 0.691 $SRR_{it} * SC_{it}$-0.913 $FS_{it}$+0.306 $AT_{it}$+0.350 $TAT_{it}$+0.450

Beta coefficient equation for China

$GRI_{it}$= -0.726 $SC_{it}$-0.765 $IFR_{it}$+0.358 $IFR_{it} * SC_{it}$ -0.683 $RE_{it}$+0.276 $RE_{it} * SC_{it}$+ 0.507 $STD_{it}$+0.560 $STD_{it} * SC_{it}$-0.592 $LTD_{it}$-0.567 $LTD_{it} * SC_{it}$- 0.675 $TD_{it}$- 0.632 $TD_{it} * SC_{it}$-0.557 $SBA_{it}$-0.817 $SBA_{it} * SC_{it}$-0.442 $SBR_{it}$-0.521 $SBR_{it} * SC_{it}$-0.648 $CS_{it}$- 0.489 $CS_{it} * SC_{it}$-0.378 $PS_{it}$-0.318 $PS_{it} * SC_{it}$-0.424 $ER_{it}$- 0.694 $ER_{it} * SC_{it}$+ 0.521 $CCC_{it}$+0.531 $CCC_{it} * SC_{it}$+0.623 $TF_{it}$+0.718 $TF_{it} * SC_{it}$-0.492 $RF_{it}$ -0.350 $RF_{it} * SC_{it}$-0.705 $FD_{it}$-0.675 $FD_{it} * SC_{it}$+0.384 $CGR_{it}$+0.461 $CGR_{it} * SC_{it}$+0.746 $SRR_{it}$+ 0.820 $SRR_{it} * SC_{it}$-0.513 $FS_{it}$+0.853 $AT_{it}$+0.661 $TAT_{it}$+0.659

Beta coefficient equation for Iran

$GRI_{it}$= -0.348 $SC_{it}$-0.426 $IFR_{it}$+0.693 $IFR_{it} * SC_{it}$ -0.357 $RE_{it}$+0.421 $RE_{it} * SC_{it}$+ 0.864 $STD_{it}$+0.560 $STD_{it} * SC_{it}$-0.724 $LTD_{it}$-0.745 $LTD_{it} * SC_{it}$- 0.874 $TD_{it}$-0.533 $TD_{it} * SC_{it}$-0.624 $SBA_{it}$-0.450 $SBA_{it} * SC_{it}$-0.611 $SBR_{it}$-0.664 $SBR_{it} * SC_{it}$-0.738 $CS_{it}$- 0.732 $CS_{it} * SC_{it}$-0.452 $PS_{it}$-0.508 $PS_{it} * SC_{it}$-0.680 $ER_{it}$- 0.418 $ER_{it} * SC_{it}$+ 0.572 $CCC_{it}$+0.755 $CCC_{it} * SC_{it}$+0.744 $TF_{it}$+0.620 $TF_{it} * SC_{it}$-0.265 $RF_{it}$ -0.367 $RF_{it} * SC_{it}$-0.240 $FD_{it}$-0.527 $FD_{it} * SC_{it}$+0.803 $CGR_{it}$+0.764 $CGR_{it} * SC_{it}$+0.828 $SRR_{it}$+ 0.292 $SRR_{it} * SC_{it}$-0.681 $FS_{it}$+0.682 $AT_{it}$+0.820 $TAT_{it}$+0.325

**Table 4.3.9: Model 4.2,** *Panel Regression Analysis for Financing Alternatives, Stagflation Cycles, and Sustainable Growth Rate*

| Financing Alternatives, Stagflation Cycles, and Sustainable Growth Rate | | | | |
|---|---|---|---|---|
| Regressand: SGR | | | Moderator: Stagflation Cycles (SC) | |
| Interaction term: Financing alternatives* Stagflation Cycles | | | | |
| | Pakistan | India | China | Iran |
| Regressors | Fixed effect | Fixed effect | Fixed effect | Fixed effect |

| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
|---|---|---|---|---|---|---|---|---|
| Stagflation Cycles | -0.535 | 0.081 | -0.694 | 0.888 | -0.479 | 0.132 | -0.695 | 0.752 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.570 | 0.164 | -0.593 | 0.189 | -0.499 | 0.093 | -0.447 | 0.184 |
| Internal financing ratio *Stagflation Cycles | 0.313 | 0.000 | 0.505 | 0.004 | 0.472 | 0.000 | 0.652 | 0.002 |
| Retained Earnings | -0.498 | 0.100 | -0.397 | 0.013 | -0.380 | 0.145 | -0.283 | 0.168 |
| Retained Earnings*Stagflation Cycles | 0.322 | 0.002 | 0.525 | 0.000 | 0.444 | 0.000 | 0.386 | 0.006 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.724 | 0.135 | 0.575 | 0.181 | 0.848 | 0.490 | 0.397 | 0.196 |
| Short-term debt*Stagflation Cycles | 0.421 | 0.003 | 0.760 | 0.023 | 0.507 | 0.042 | 0.498 | 0.002 |
| Long-term debt | -0.512 | 0.083 | -0.752 | 0.303 | -0.617 | 0.326 | -0.710 | 0.414 |
| Long-term debt*Stagflation Cycles | -0.446 | 0.005 | -0.558 | 0.007 | -0.491 | 0.019 | -0.503 | 0.028 |
| Total debt | -0.655 | 0.119 | -0.657 | 0.105 | -0.738 | 0.348 | -0.669 | 0.193 |
| Total debt*Stagflation Cycles | -0.421 | 0.025 | -0.866 | 0.000 | -0.658 | 0.003 | -0.559 | 0.020 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | -0.659 | 0.072 | -0.811 | 0.434 | -0.655 | 0.248 | -0.757 | 0.313 |
| Shadow banking assets*Stagflation Cycles | -0.637 | 0.000 | -0.541 | 0.000 | -0.556 | 0.000 | -0.643 | 0.004 |
| Shadow banking ratio | -0.756 | 0.092 | -0.852 | 0.764 | -0.355 | 0.528 | -0.559 | 0.154 |
| Shadow banking ratio*Stagflation Cycles | -0.374 | 0.043 | -0.535 | 0.017 | -0.475 | 0.004 | -0.795 | 0.044 |
| Equity financing | | | | | | | | |
| Common stocks | -0.499 | 0.131 | -0.596 | 0.440 | -0.688 | 0.302 | -0.614 | 0.164 |
| Common stocks*Stagflation Cycles | -0.329 | 0.000 | -0.298 | 0.000 | -0.677 | 0.000 | -0.347 | 0.000 |
| Preferred stocks | -0.510 | 0.064 | -0.355 | 0.328 | -0.670 | 0.110 | -0.534 | 0.158 |
| Preferred stocks*Stagflation Cycles | -0.612 | 0.000 | -0.306 | 0.000 | -0.714 | 0.003 | -0.400 | 0.001 |
| Equity ratio | -0.299 | 0.804 | -0.480 | 0.005 | -0.341 | 0.784 | -0.525 | 0.075 |
| Equity ratio*Stagflation Cycles | -0.564 | 0.000 | -0.537 | 0.000 | -0.335 | 0.000 | -0.601 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.729 | 0.107 | 0.800 | 0.241 | 0.378 | 0.086 | 0.670 | 0.083 |
| Cash Conversion Cycle*Stagflation Cycles | 0.924 | 0.000 | 0.506 | 0.001 | 0.627 | 0.000 | 0.686 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Trade financing | 0.568 | 0.019 | 0.523 | 0.741 | 0.479 | 0.059 | 0.541 | 0.752 |
| Trade financing*Stagflation Cycles | 0.765 | 0.007 | 0.340 | 0.001 | 0.518 | 0.000 | 0.602 | 0.000 |
| Reverse factoring | -0.603 | 0.115 | -0.200 | 0.223 | -0.397 | 0.023 | -0.203 | 0.463 |
| Reverse factoring*Stagflation Cycles | -0.434 | 0.000 | -0.660 | 0.000 | -0.599 | 0.020 | -0.513 | 0.000 |
| Factoring | -0.259 | 0.014 | -0.485 | 0.060 | -0.399 | 0.001 | -0.501 | 0.063 |
| Factoring*Stagflation Cycles | -0.121 | 0.000 | -0.401 | 0.004 | -0.283 | 0.000 | -0.320 | 0.019 |
| Credit guarantees ratio | 0.616 | 0.118 | 0.610 | 0.436 | 0.670 | 0.000 | 0.562 | 0.167 |
| Credit guarantees ratio *Stagflation Cycles | 0.593 | 0.000 | 0.327 | 0.000 | 0.493 | 0.000 | 0.386 | 0.018 |
| Solvency rating ratio | 0.682 | 0.215 | 0.640 | 0.310 | 0.927 | 0.166 | 0.530 | 0.232 |
| Solvency rating ratio*Stagflation Cycles | 0.588 | 0.000 | 0.505 | 0.000 | 0.494 | 0.000 | 0.634 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.411 | 0.014 | -0.802 | 0.004 | -0.853 | 0.000 | -0.472 | 0.000 |
| Asset Tangibility | 0.471 | 0.041 | 0.877 | 0.015 | 0.509 | 0.034 | 0.395 | 0.001 |
| Total Asset turnover | 0.569 | 0.000 | 0.641 | 0.001 | 0.427 | 0.001 | 0.218 | 0.010 |
| Constant | 0.288 | 0.520 | 0.829 | 0.002 | 0.301 | 0.001 | 0.349 | 0.000 |
| R-square | 0.587 | | 0.408 | | 0.594 | | 0.604 | |
| F-Statistic | 1.440 | | 2.640 | | 1.530 | | 1.540 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.007 | |
| Lagrange Multiplier test | 0.003 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 4.2 includes the Sustainable growth rate as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives* Stagflation Cycles. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$SGR_{it} = -0.535\ SC_{it} - 0.570\ IFR_{it} + 0.313\ IFR_{it} * SC_{it} - 0.498\ RE_{it} + 0.322\ RE_{it} * SC_{it} + 0.724\ STD_{it} + 0.421\ STD_{it} * SC_{it} - 0.512\ LTD_{it} - 0.446\ LTD_{it} * SC_{it} - 0.655\ TD_{it} - 0.421\ TD_{it} * SC_{it} - 0.659\ SBA_{it} - 0.637\ SBA_{it} * SC_{it} - 0.756\ SBR_{it} - 0.374\ SBR_{it} * SC_{it} - 0.499\ CS_{it} - 0.329\ CS_{it} * SC_{it} - 0.510\ PS_{it} - 0.612\ PS_{it} * SC_{it} - 0.299\ ER_{it} - 0.564\ ER_{it} * SC_{it} + 0.729\ CCC_{it} + 0.924\ CCC_{it} * SC_{it} + 0.568\ TF_{it} + 0.765\ TF_{it} * SC_{it} - 0.603\ RF_{it} - 0.434\ RF_{it} * SC_{it} - 0.259\ FD_{it} - 0.121\ FD_{it} * SC_{it} + 0.616\ CGR_{it} + 0.593\ CGR_{it} * SC_{it} + 0.682\ SRR_{it} + 0.588\ SRR_{it} * SC_{it} - 0.411\ FS_{it} + 0.471\ AT_{it} + 0.569\ TAT_{it} + 0.288$$

Beta coefficient equation for India

$$SGR_{it} = -0.694\ SC_{it} - 0.593\ IFR_{it} + 0.505\ IFR_{it} * SC_{it} - 0.397\ RE_{it} + 0.525\ RE_{it} * SC_{it} + 0.575\ STD_{it} + 0.760\ STD_{it} * SC_{it} - 0.752\ LTD_{it} - 0.558\ LTD_{it} * SC_{it} - 0.657\ TD_{it} - 0.866\ TD_{it} * SC_{it} - 0.811\ SBA_{it} - 0.541\ SBA_{it} * SC_{it} - 0.852\ SBR_{it} - 0.535\ SBR_{it} * SC_{it} - 0.596\ CS_{it} -$$

$0.298\ CS_{it} * SC_{it}$-$0.355\ PS_{it}$-$0.306\ PS_{it} * SC_{it}$-$0.480\ ER_{it}$- $0.537\ ER_{it} * SC_{it}$+ $0.800\ CCC_{it}$+$0.506\ CCC_{it} * SC_{it}$+$0.523\ TF_{it}$+$0.340\ TF_{it} * SC_{it}$-$0.200\ RF_{it}$ -$0.660\ RF_{it} * SC_{it}$-$0.485\ FD_{it}$-$0.401\ FD_{it} * SC_{it}$+$0.610\ CGR_{it}$+$0.327\ CGR_{it} * SC_{it}$+$0.640\ SRR_{it}$+ $0.505\ SRR_{it} * SC_{it}$-$0.802\ FS_{it}$+$0.877\ AT_{it}$+$0.641\ TAT_{it}$+$0.829$

Beta coefficient equation for China

$SGR_{it}$= -$0.479\ SC_{it}$-$0.499\ IFR_{it}$+$0.472\ IFR_{it} * SC_{it}$ -$0.380\ RE_{it}$+$0.444\ RE_{it} * SC_{it}$+ $0.848\ STD_{it}$+$0.507\ STD_{it} * SC_{it}$-$0.617\ LTD_{it}$-$0.491\ LTD_{it} * SC_{it}$- $0.738\ TD_{it}$-$0.658\ TD_{it} * SC_{it}$-$0.655\ SBA_{it}$-$0.556\ SBA_{it} * SC_{it}$-$0.355\ SBR_{it}$-$0.475\ SBR_{it} * SC_{it}$-$0.688\ CS_{it}$- $0.677\ CS_{it} * SC_{it}$-$0.670\ PS_{it}$-$0.714\ PS_{it} * SC_{it}$-$0.341\ ER_{it}$- $0.335\ ER_{it} * SC_{it}$+ $0.378\ CCC_{it}$+$0.627\ CCC_{it} * SC_{it}$+$0.479\ TF_{it}$+$0.518\ TF_{it} * SC_{it}$-$0.397\ RF_{it}$ -$0.599\ RF_{it} * SC_{it}$-$0.399\ FD_{it}$-$0.283\ FD_{it} * SC_{it}$+$0.670\ CGR_{it}$+$0.493\ CGR_{it} * SC_{it}$+$0.927\ SRR_{it}$+ $0.494\ SRR_{it} * SC_{it}$-$0.853\ FS_{it}$+$0.509\ AT_{it}$+$0.427\ TAT_{it}$+$0.301$

Beta coefficient equation for Iran

$SGR_{it}$= -$0.695\ SC_{it}$-$0.447\ IFR_{it}$+$0.652\ IFR_{it} * SC_{it}$ -$0.283\ RE_{it}$+$0.386\ RE_{it} * SC_{it}$+ $0.397\ STD_{it}$+$0.498\ STD_{it} * SC_{it}$-$0.710\ LTD_{it}$-$0.503\ LTD_{it} * SC_{it}$- $0.669\ TD_{it}$-$0.559\ TD_{it} * SC_{it}$-$0.757\ SBA_{it}$-$0.643\ SBA_{it} * SC_{it}$-$0.559\ SBR_{it}$-$0.795\ SBR_{it} * SC_{it}$-$0.614\ CS_{it}$- $0.347\ CS_{it} * SC_{it}$-$0.534\ PS_{it}$-$0.400\ PS_{it} * SC_{it}$-$0.525\ ER_{it}$- $0.601\ ER_{it} * SC_{it}$+ $0.670\ CCC_{it}$+$0.686\ CCC_{it} * SC_{it}$+$0.541\ TF_{it}$+$0.602\ TF_{it} * SC_{it}$-$0.203\ RF_{it}$ -$0.513\ RF_{it} * SC_{it}$-$0.501\ FD_{it}$-$0.320\ FD_{it} * SC_{it}$+$0.562\ CGR_{it}$+$0.386\ CGR_{it} * SC_{it}$+$0.530\ SRR_{it}$+ $0.634\ SRR_{it} * SC_{it}$-$0.472\ FS_{it}$+$0.395\ AT_{it}$+$0.218\ TAT_{it}$+$0.349$

### 4.3.3 Financing Alternatives, Financial Constraints, and Financial Performance

The proposed model 5.1 to 5.7 determines the moderation effect of financial constraints on the relation between financing alternatives and financial performance, under the controlled effect of firm size, asset tangibility, and total asset turnover. The decided fixed effect panel regression estimates for the predictors of ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS are reported in Tables 4.3.10 to 4.3.16. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

The interaction term for moderating influence is financing alternatives*financial constraints, considered as independent variables. The estimated results incorporated financing alternatives: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing, as independent variables. Following the three conditions for effective moderation analysis: 1) the effect of financial constraints on dependent variables should be insignificant, 2) the effect of financing alternatives*financial constraints on dependent variables should be significant and 3) the classification of moderation results into partial and complete moderation based upon the significance of the relationship between independent variables and predictor variables in the presence of the moderator.

Based upon the estimations, the fixed effect statistics have obtained insignificant influence of financial constraints on ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS, with p-values greater than 0.05, the first condition for moderation effect has been fulfilled. Secondly, fixed effect statistics have obtained significant influence of interaction terms such as internal financing ratio*financial constraints, retained earnings*financial constraints, long-term debt*financial constraints, short-term debt*financial constraints, total debt*financial constraints, shadow banking assets*financial constraints, shadow banking ratio*financial constraints, common stocks*financial constraints, preferred stocks*financial constraints, equity ratio*financial constraints, cash conversion cycle*financial constraints, trade financing*financial constraints, reverse factoring*financial constraints, factoring*financial constraints, credit guarantees ratio*financial constraints, solvency rating ratio*financial constraints, with p-value less than 0.05 significance level. The second condition for the moderation effect has been fulfilled.

For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS in the presence of a moderator variable i-e financial constraints. Under P-OLS, random and fixed effect estimates, considering predictors of ROA, ROE, NPM, ROCE, ROIC, EPS, and Tobin's q, the measures of internal financing: internal financing ratio and retained earnings show insignificant p-values i-e above 0.05 under the interaction effect of financial constraints, indicating complete moderation for all SCO states. Hence the following hypotheses from $H5.1a$ to $H5.1g$, have been supported: i-e The financial constraints moderate the relationship between internal financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's q and EPS of nonfinancial companies in the SCO member states. According to Quader (2013), corporate performance is highly dependent upon the availability of internally generated funds, when the profits decline,

resulting in insufficient funds. Schworm (1980), argued that when the firm is financially constrained, accumulated capital i-e retained earnings, is the only source to finance future investments. He highlighted retained earnings as a source of borrowing supplementary funds from the corporate shareholders and generating profitable future investments. All the three measures of debt financing: short-term, long-term, and total debt, when regressed for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS under P-OLS, random and fixed effect statistics, the estimations obtained complete moderating influence for ROA, ROE, NPM, ROCE, Tobin's q and EPS with p-values above 0.05, except only India, Pakistan, China and Iran show partial moderation for debt finances-ROIC interrelation. Hence, based upon the estimations, the following hypothesis from $H5.2a$ to $H5.2g$ has been supported, stated as the financial constraints moderate the relationship between debt financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's and EPS of nonfinancial companies in the SCO member states. The results contributed to the pecking order theory by giving preference to external outstanding debts when the firms are internally financially constrained. Rashid and Jabeen (2018), argued that financially constrained firms are more restricted to obtain a larger proportion of leverage in their financing structure due to increased underlying transaction cost, interest rates, debt issuing cost, and information asymmetry. (Hoang et al., 2019) Highlighted debt maturity as an important factor that influences the market value and financial performance of financially constrained firms. The existing studies proved the positive interaction influence of financial constraints, short-term debt, and firm performance, such as (Flynn, 2017). For long-term debts and total debts, Phan (2018), documented that the underlying rising debt overhang constraints decrease the organization's reliance on long-run debts for future external borrowings. Hence long-run debts negatively influence the profitability of financially constrained firms. The results are in line with the existing study, e.g., Poursoleiman et al. (2020), which proved the significant influence of financial constraints on debt finances-performance effects. In line with the mentioned studies, the trade-off theory, traditional theory approach and market timing theory supports the utilization of short-run debts with minimum WACC, interest, borrowing cost, and credit risk.

Shadow banking finances employed shadow banking assets and shadow banking ratio for evaluating the moderating influence of financial constraints on financial performance, the statistics under fixed effect statistics with ROA, ROE, NPM, ROCE, ROIC, EPS, and Tobin's q presents the complete moderation influence with p-values above 0.05, except Pakistan for ROE and EPS, Iran and China for Tobin's q obtained partial moderation with p-values less

than 0.05 i-e 0.009, 0.023, 0.000, 0.023, 0.015, 0.004, 0.036 and 0.043. Therefore, the hypotheses from 5.3a to 5.3g have been supported i-e financial constraints moderate the relationship between shadow bank financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS of nonfinancial companies in the SCO member states. When debt finances from traditional commercial banks are highly restricted, firms can fulfill their financing requirements through inexpensive shadow banking assets with low lending rates, supported pecking order theory. Poeschl (2023), documented that during recessions, the leverage obtained from the retail banking industry becomes binding and the availability of shadow credit may elevate the credit spreads over the wholesale lending market and relax the financing constraints of both shadow banks and retail banks. Therefore, the availability of shadow funds enhances the performance of the corporate sector, and the findings are significantly supported by the current study.

Considering equity financing-financial constraints moderating influence on ROA: only common stock statistics for all SCO states indicate complete moderating influence with p-values above 0.05 significance level. The preferred stocks for all SCO states and equity ratio for Pakistan, India, and Iran, present p-values less than 0.05, indicating partial moderation effect. Hence, satisfies the acceptance, $H5.4a$: The financial constraints moderate the relationship between equity financing and return on asset of nonfinancial companies in the SCO member states. For the moderation effects on ROE, common stocks show complete moderating influence, while preferred stocks for China and equity ratio for Pakistan show partial moderation with p-values below 0.05 significance level i-e 0.012, 0.009, 0.035, 0.012, satisfies the acceptance of $H5.4b$: The financial constraints moderate the relationship between equity financing and return on equity of nonfinancial companies in the SCO member states. The financial constraints show partial moderation for equity finances-NPM for Iran, Pakistan, and China, equity finances-ROCE for India, Pakistan, and China and equity finances-EPS for Pakistan and Iran, equity finances-ROIC and Tobin's q for India and China with p-values less than 0.05, while the remaining shows complete moderating influence with insignificant p-values. The estimation with both partial and complete moderations satisfies the hypotheses from $H5.4$c to $H5.4$g i-e financial constraints moderate the relationship between equity finances and NPM, ROCE, ROIC, Tobin's q, and EPS of nonfinancial companies in the SCO member states. The study findings aligned with pecking order theory, when firms are externally credit constrained, they prefer equity finances as a financing source. Pakistan, India, and Iran consider the least reliance on equity finances and China prefers equity finances to debt finances. Abad

et al., 2018, argued that firms' consideration of equity finances may be due to strict monitoring of managers' incentives, and tax-shield benefits (Liem et al., 2018). Financially constrained firms avoid equity finances during recessions due to stock undervaluation, which negatively affects firm performance, as these firms experience more information asymmetries which escalates the external equity financing cost (Chang et al., 2019). Financially constrained firms are more focused on exploiting stock overvaluation during favorable equity market times, which leads to positive performance effects. Hence the present study proved the aligned results with comprehensive performance predictors.

For scrutinizing the moderation effect of financial constraints between supply chain financing and financial performance, CCC, shows complete moderation with ROA, ROE, ROCE, and EPS with p-values above 0.05, except Iran and Pakistan show partial moderating influence for ROA, China, and India for ROE, Pakistan, and China for ROCE and only China for EPS, with p-values less than 0.05.The predictor of supply chain finances-NPM, ROIC, and Tobin's q shows partial moderation of financial constraints for India, China, and Iran with significant p-values less than 5% significance level, and Pakistan shows complete moderation for most of the supply chain finances. Hence, the resulting estimations, support the hypotheses from *H*5.5a to *H*5.5g i-e financial constraints moderate the relationship between supply chain finances and ROA, ROE, NPM, ROCE, ROIC, Tobin's q and EPS of nonfinancial companies in the SCO member states. Another financing alternative to restricted debt and equity finances is supply chain financing, which could be adopted as a viable financing instrument. He identified that credit-constrained companies were preferably attracted towards financing through trade credits and followed the delayed payments to employees or suppliers for survival during the pandemic-related cash flow restrictions (Khan, 2022). Wetzel and Hofmann (2019), reported the aligned results and proved the positive interaction influence of financial constraints on the supply chain working capital management and corporate performance effects, with the increase in the amount of working capital. They also proved that comprehensive collaborative supply chain finance approaches also lead to performance improvement of credit-constrained companies, followed by decreased debt cost and optimized working capital. Baker et al. (2022), proved trade credit receivables and payables as a preferable financing alternative when the firm is both internally and externally financially constrained. In line with mentioned studies, the findings contributed to pecking order theory and market timing theory.

Based on the statistical and theoretical acceptance of stated hypotheses for the interrelation between financial constraints, comprehensive financing alternatives, and financial performance measures, the study significantly proved the moderating influence of financial constraints on the relation between financing alternatives and financial performance indicating acceptance of H5. All three controlled variables have a significant controlled effect on financial performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. Poeschl (2020), argued that smaller firms are more financially constrained than larger size firms. For all predictors of financial performance, the Hausman model specification test shows the p-value<0.05, supporting the validity of fixed effect for selected SCO nations. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show comparatively the relatively acceptable explanation powers with r-square values of less than 0.70 for financial performance measures, for selected SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.10: Model 5.1,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Return on Assets*

| Financing Alternatives, Financial Constraints, and Return on Assets | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROA | | | | | Moderator: Financial Constraints (FC) | | | |
| Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.172 | 0.096 | -0.648 | 0.227 | -0.570 | 0.926 | -0.365 | 0.171 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.421 | 0.115 | -0.192 | 0.181 | -0.363 | 0.524 | -0.301 | 0.143 |
| Internal financing ratio *Financial constraints | 0.326 | 0.000 | 0.259 | 0.000 | 0.463 | 0.038 | 0.529 | 0.025 |
| Retained Earnings | -0.517 | 0.084 | -0.551 | 0.306 | -0.583 | 0.722 | -0.217 | 0.288 |
| Retained Earnings*Financial constraints | 0.411 | 0.000 | 0.522 | 0.000 | 0.586 | 0.000 | 0.238 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.903 | 0.077 | 0.644 | 0.090 | 0.483 | 0.450 | 0.753 | 0.340 |
| Short-term debt*Financial constraints | 0.705 | 0.000 | 0.544 | 0.000 | 0.556 | 0.000 | 0.587 | 0.000 |
| Long-term debt | -0.303 | 0.974 | -0.457 | 0.154 | -0.178 | 0.784 | -0.522 | 0.140 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Long-term debt*Financial constraints | -0.137 | 0.030 | -0.362 | 0.027 | -0.246 | 0.000 | -0.353 | 0.000 |
| Total debt | -0.618 | 0.164 | -0.321 | 0.097 | -0.421 | 0.281 | -0.343 | 0.182 |
| Total debt*Financial constraints | -0.475 | 0.005 | -0.354 | 0.043 | -0.508 | 0.000 | -0.370 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.458 | 0.167 | 0.496 | 0.154 | 0.491 | 0.087 | 0.522 | 0.121 |
| Shadow banking assets*Financial constraints | 0.758 | 0.000 | 0.608 | 0.000 | 0.590 | 0.000 | 0.333 | 0.000 |
| Shadow banking ratio | 0.464 | 0.326 | 0.463 | 0.190 | 0.447 | 0.475 | 0.352 | 0.292 |
| Shadow banking ratio*Financial constraints | 0.581 | 0.000 | 0.624 | 0.005 | 0.438 | 0.000 | 0.847 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.440 | 0.185 | -0.444 | 0.805 | 0.211 | 0.995 | -0.450 | 0.756 |
| Common stocks*Financial constraints | -0.496 | 0.000 | -0.415 | 0.000 | 0.414 | 0.000 | -0.228 | 0.000 |
| Preferred stocks | -0.456 | 0.000 | -0.251 | 0.000 | 0.853 | 0.000 | -0.576 | 0.007 |
| Preferred stocks*Financial constraints | -0.269 | 0.000 | -0.538 | 0.044 | 0.348 | 0.008 | -0.178 | 0.009 |
| Equity ratio | -0.547 | 0.000 | -0.465 | 0.001 | 0.855 | 0.926 | -0.293 | 0.001 |
| Equity ratio*Financial constraints | -0.499 | 0.019 | -0.313 | 0.028 | 0.702 | 0.000 | -0.532 | 0.023 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.306 | 0.334 | 0.608 | 0.183 | 0.259 | 0.178 | 0.322 | 0.000 |
| Cash Conversion Cycle*Financial constraints | 0.378 | 0.003 | 0.279 | 0.000 | 0.264 | 0.000 | 0.303 | 0.000 |
| Trade financing | 0.556 | 0.040 | 0.265 | 0.207 | 0.498 | 0.150 | 0.763 | 0.697 |
| Trade financing*Financial constraints | 0.495 | 0.000 | 0.334 | 0.000 | 0.474 | 0.000 | 0.979 | 0.004 |
| Reverse factoring | 0.496 | 0.096 | 0.482 | 0.237 | 0.518 | 0.060 | 0.231 | 0.160 |
| Reverse factoring*Financial constraints | 0.417 | 0.000 | 0.390 | 0.000 | 0.327 | 0.000 | 0.490 | 0.000 |
| Factoring | 0.264 | 0.222 | 0.336 | 0.060 | 0.423 | 0.117 | 0.588 | 0.182 |
| Factoring*Financial constraints | 0.369 | 0.000 | 0.303 | 0.000 | 0.292 | 0.002 | 0.850 | 0.000 |
| Credit guarantees ratio | 0.516 | 0.214 | 0.271 | 0.377 | 0.442 | 0.406 | 0.607 | 0.100 |
| Credit guarantees ratio *Financial constraints | 0.466 | 0.025 | 0.344 | 0.000 | 0.298 | 0.001 | 0.582 | 0.006 |
| Solvency rating ratio | 0.639 | 0.345 | 0.321 | 0.588 | 0.315 | 0.402 | 0.706 | 0.821 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio *Financial constraints | 0.337 | 0.029 | 0.241 | 0.025 | 0.224 | 0.000 | 0.664 | 0.023 |
| Control variables | | | | | | | | |
| Firm Size | -0.466 | 0.000 | -0.382 | 0.010 | -0.383 | 0.000 | -0.196 | 0.036 |
| Asset Tangibility | -0.385 | 0.048 | -0.575 | 0.043 | -0.272 | 0.000 | -0.493 | 0.000 |
| Total Asset turnover | 0.324 | 0.000 | 0.351 | 0.038 | 0.900 | 0.030 | 0.825 | 0.041 |
| Constant | 0.383 | 0.000 | 0.887 | 0.000 | 0.530 | 0.000 | 0.314 | 0.000 |
| R-square | 0.525 | | 0.386 | | 0.587 | | 0.369 | |
| F-Statistic | 3.020 | | 8.980 | | 8.890 | | 3.210 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.001 | | 0.000 | | 0.000 | | 0.007 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.1 includes the Return on Assets as a regressand variable, financial Constraints as moderators, and interaction term: Financing alternatives* Financial constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROA_{it} = -0.172\ FC_{it} - 0.421\ IFR_{it} + 0.326\ IFR_{it} * FC_{it} - 0.517\ RE_{it} + 0.411\ RE_{it} * FC_{it} + 0.903\ STD_{it} + 0.705\ STD_{it} * FC_{it} - 0.303\ LTD_{it} - 0.137\ LTD_{it} * FC_{it} - 0.618\ TD_{it} - 0.475\ TD_{it} * FC_{it} + 0.458\ SBA_{it} + 0.758\ SBA_{it} * FC_{it} + 0.464\ SBR_{it} + 0.581\ SBR_{it} * FC_{it} - 0.440\ CS_{it} - 0.496\ CS_{it} * FC_{it} - 0.456\ PS_{it} - 0.269\ PS_{it} * FC_{it} - 0.547\ ER_{it} - 0.499\ ER_{it} * FC_{it} + 0.306\ CCC_{it} + 0.378\ CCC_{it} * FC_{it} + 0.556\ TF_{it} + 0.495\ TF_{it} * FC_{it} + 0.496\ RF_{it} + 0.417\ RF_{it} * FC_{it} + 0.264\ FD_{it} + 0.369\ FD_{it} * FC_{it} + 0.516\ CGR_{it} + 0.466\ CGR_{it} * FC_{it} + 0.639\ SRR_{it} + 0.337\ SRR_{it} * FC_{it} - 0.466\ FS_{it} - 0.385\ AT_{it} + 0.324\ TAT_{it} + 0.383$$

Beta coefficient equation for India

$$ROA_{it} = -0.648\ FC_{it} - 0.192\ IFR_{it} + 0.259\ IFR_{it} * FC_{it} - 0.551\ RE_{it} + 0.522\ RE_{it} * FC_{it} + 0.644\ STD_{it} + 0.544\ STD_{it} * FC_{it} - 0.457\ LTD_{it} - 0.362\ LTD_{it} * FC_{it} - 0.321\ TD_{it} - 0.354\ TD_{it} * FC_{it} + 0.496\ SBA_{it} + 0.608\ SBA_{it} * FC_{it} + 0.463\ SBR_{it} + 0.624\ SBR_{it} * FC_{it} - 0.444\ CS_{it} - 0.415\ CS_{it} * FC_{it} - 0.251\ PS_{it} - 0.538\ PS_{it} * FC_{it} - 0.465\ ER_{it} - 0.313\ ER_{it} * FC_{it} + 0.608\ CCC_{it} + 0.279\ CCC_{it} * FC_{it} + 0.265\ TF_{it} + 0.334\ TF_{it} * FC_{it} + 0.482\ RF_{it} + 0.390\ RF_{it} * FC_{it} + 0.336\ FD_{it} + 0.303\ FD_{it} * FC_{it} + 0.271\ CGR_{it} + 0.344\ CGR_{it} * FC_{it} + 0.321\ SRR_{it} + 0.241\ SRR_{it} * FC_{it} - 0.382\ FS_{it} - 0.575\ AT_{it} + 0.351\ TAT_{it} + 0.887$$

Beta coefficient equation for China

$$ROA_{it} = -0.570\ FC_{it} - 0.363\ IFR_{it} + 0.463\ IFR_{it} * FC_{it} - 0.583\ RE_{it} + 0.586\ RE_{it} * FC_{it} + 0.483\ STD_{it} + 0.556\ STD_{it} * FC_{it} - 0.178\ LTD_{it} - 0.246\ LTD_{it} * FC_{it} - 0.421\ TD_{it} - 0.508\ TD_{it} * FC_{it} + 0.491\ SBA_{it} + 0.590\ SBA_{it} * FC_{it} + 0.447\ SBR_{it} + 0.438\ SBR_{it} * FC_{it} + 0.211\ CS_{it} + 0.414\ CS_{it} * FC_{it} + 0.853\ PS_{it} + 0.348\ PS_{it} * FC_{it} + 0.855\ ER_{it} + 0.702\ ER_{it} * FC_{it} + 0.259\ CCC_{it} + 0.264\ CCC_{it} * FC_{it} + 0.498\ TF_{it} + 0.474\ TF_{it} * FC_{it} + 0.518\ RF_{it}$$

$+0.327\ RF_{it} * FC_{it}+0.423\ FD_{it}+0.292\ FD_{it} * FC_{it}+0.442\ CGR_{it}+0.298\ CGR_{it} * FC_{it}+0.315\ SRR_{it}+ 0.224\ SRR_{it} * FC_{it}-0.383FS_{it}-0.272\ AT_{it}+0.900\ TAT_{it}+0.530$

Beta coefficient equation for Iran

$ROA_{it}$= $-0.365\ FC_{it}-0.301\ IFR_{it}+0.529\ IFR_{it} * FC_{it}\ -0.217\ RE_{it}+0.238\ RE_{it} * FC_{it}+ 0.753\ STD_{it}+0.587\ STD_{it} * FC_{it}-0.522\ LTD_{it}-0.353\ LTD_{it} * FC_{it}-\ 0.343\ TD_{it}-\ 0.370\ TD_{it} * FC_{it}+0.522\ SBA_{it}+0.333\ SBA_{it} * FC_{it}+0.352\ SBR_{it}+0.847\ SBR_{it} * FC_{it}-\ 0.450\ CS_{it}-0.228\ CS_{it} * FC_{it}-0.576\ PS_{it}-0.178\ PS_{it} * FC_{it}-0.293\ ER_{it}-0.532\ ER_{it} * FC_{it}+ 0.322\ CCC_{it}+0.303\ CCC_{it} * FC_{it}+0.763\ TF_{it}+0.979\ TF_{it} * FC_{it}+0.231\ RF_{it}\ +0.490\ RF_{it} * FC_{it}+0.588\ FD_{it}+0.850\ FD_{it} * FC_{it}+0.607\ CGR_{it}+0.582\ CGR_{it} * FC_{it}+0.706\ SRR_{it}+ 0.664\ SRR_{it} * FC_{it}-0.196\ FS_{it}-0.493\ AT_{it}+0.825\ TAT_{it}+0.314$

**Table 4.3.11: Model 5.2,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Return on Equity*

| Financing Alternatives, Financial Constraints, and Return on Equity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROE Moderator: Financial Constraints (FC) Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.531 | 0.103 | -0.316 | 0.226 | -0.413 | 0.237 | -0.474 | 0.175 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.535 | 0.260 | -0.135 | 0.235 | -0.440 | 0.205 | -0.210 | 0.199 |
| Internal financing ratio *Financial constraints | 0.306 | 0.000 | 0.373 | 0.001 | 0.658 | 0.049 | 0.247 | 0.000 |
| Retained Earnings | -0.224 | 0.608 | -0.191 | 0.138 | -0.268 | 0.597 | -0.555 | 0.099 |
| Retained Earnings*Financial constraints | 0.136 | 0.026 | 0.188 | 0.047 | 0.575 | 0.000 | 0.464 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.630 | 0.146 | 0.379 | 0.103 | 0.815 | 0.114 | 0.578 | 0.289 |
| Short-term debt*Financial constraints | 0.695 | 0.000 | 0.825 | 0.015 | 0.468 | 0.000 | 0.282 | 0.000 |
| Long-term debt | -0.564 | 0.659 | -0.569 | 0.486 | -0.229 | 0.977 | -0.387 | 0.168 |
| Long-term debt*Financial constraints | -0.242 | 0.000 | -0.507 | 0.000 | -0.386 | 0.002 | -0.240 | 0.000 |
| Total debt | -0.241 | 0.136 | -0.140 | 0.524 | -0.425 | 0.056 | -0.435 | 0.350 |
| Total debt*Financial constraints | -0.380 | 0.000 | -0.175 | 0.000 | -0.316 | 0.028 | -0.392 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.472 | 0.190 | 0.448 | 0.191 | 0.626 | 0.131 | 0.829 | 0.622 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking assets*Financial constraints | 0.506 | 0.000 | 0.439 | 0.000 | 0.874 | 0.001 | 0.813 | 0.000 |
| Shadow banking ratio | 0.584 | 0.023 | 0.498 | 0.058 | 0.696 | 0.573 | 0.592 | 0.273 |
| Shadow banking ratio*Financial constraints | 0.382 | 0.000 | 0.532 | 0.000 | 0.517 | 0.000 | 0.382 | 0.001 |
| Equity financing | | | | | | | | |
| Common stocks | -0.457 | 0.120 | -0.360 | 0.058 | 0.390 | 0.215 | -0.606 | 0.602 |
| Common stocks*Financial constraints | -0.193 | 0.038 | -0.303 | 0.000 | 0.535 | 0.007 | -0.441 | 0.000 |
| Preferred stocks | -0.189 | 0.245 | -0.353 | 0.608 | 0.536 | 0.009 | -0.618 | 0.932 |
| Preferred stocks*Financial constraints | -0.845 | 0.025 | -0.464 | 0.032 | 0.559 | 0.000 | -0.504 | 0.000 |
| Equity ratio | -0.378 | 0.012 | -0.320 | 0.898 | 0.465 | 0.062 | -0.610 | 0.988 |
| Equity ratio*Financial constraints | -0.463 | 0.006 | -0.337 | 0.000 | 0.617 | 0.045 | -0.501 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.807 | 0.276 | 0.695 | 0.632 | 0.333 | 0.018 | 0.375 | 0.962 |
| Cash Conversion Cycle*Financial constraints | 0.576 | 0.000 | 0.829 | 0.015 | 0.264 | 0.000 | 0.300 | 0.000 |
| Trade financing | 0.579 | 0.598 | 0.604 | 0.569 | 0.293 | 0.244 | 0.292 | 0.363 |
| Trade financing*Financial constraints | 0.807 | 0.049 | 0.353 | 0.000 | 0.377 | 0.008 | 0.790 | 0.000 |
| Reverse factoring | 0.406 | 0.095 | 0.708 | 0.211 | 0.434 | 0.919 | 0.715 | 0.595 |
| Reverse factoring*Financial constraints | 0.527 | 0.049 | 0.463 | 0.000 | 0.360 | 0.000 | 0.654 | 0.007 |
| Factoring | 0.635 | 0.122 | 0.424 | 0.679 | 0.231 | 0.000 | 0.597 | 0.315 |
| Factoring*Financial constraints | 0.287 | 0.000 | 0.374 | 0.000 | 0.215 | 0.000 | 0.610 | 0.016 |
| Credit guarantees ratio | 0.354 | 0.901 | 0.447 | 0.116 | 0.745 | 0.413 | 0.656 | 0.419 |
| Credit guarantees ratio *Financial constraints | 0.757 | 0.047 | 0.462 | 0.000 | 0.325 | 0.009 | 0.570 | 0.028 |
| Solvency rating ratio | 0.420 | 0.054 | 0.306 | 0.000 | 0.411 | 0.007 | 0.513 | 0.417 |
| Solvency rating ratio *Financial constraints | 0.338 | 0.004 | 0.361 | 0.000 | 0.323 | 0.000 | 0.459 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.482 | 0.000 | -0.175 | 0.000 | -0.184 | 0.003 | -0.554 | 0.005 |
| Asset Tangibility | -0.573 | 0.000 | -0.235 | 0.000 | -0.391 | 0.001 | -0.418 | 0.000 |
| Total Asset turnover | 0.702 | 0.000 | 0.523 | 0.005 | 0.534 | 0.000 | 0.398 | 0.003 |
| Constant | 0.292 | 0.000 | 0.537 | 0.000 | 0.452 | 0.000 | 0.535 | 0.000 |
| R-square | 0.494 | | 0.544 | | 0.429 | | 0.489 | |
| F-Statistic | 2.580 | | 6.640 | | 2.740 | | 1.720 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

| | | | | |
|---|---|---|---|---|
| Wald test | 0.000 | 0.000 | 0.000 | 0.000 |
| Hausman test | 0.000 | 0.000 | 0.000 | 0.000 |
| Lagrange Multiplier test | 0.003 | 0.000 | 0.000 | 0.000 |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.2 includes the Return on Equity as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROE_{it}= -0.531\ FC_{it}-0.535\ IFR_{it}+0.306\ IFR_{it} * FC_{it}\ -0.224\ RE_{it}+0.136\ RE_{it} * FC_{it}+ 0.630\ STD_{it}+0.695\ STD_{it} * FC_{it}-0.564\ LTD_{it}-0.242\ LTD_{it} * FC_{it}-\ 0.241\ TD_{it}-\ 0.380\ TD_{it} * FC_{it}+0.472\ SBA_{it}+0.506\ SBA_{it} * FC_{it}+0.584\ SBR_{it}+0.382\ SBR_{it} * FC_{it}-\ 0.457\ CS_{it}- 0.193\ CS_{it} * FC_{it}-0.189\ PS_{it}-0.845\ PS_{it} * FC_{it}-0.378\ ER_{it}-0.463\ ER_{it} * FC_{it}+ 0.807\ CCC_{it}+0.576\ CCC_{it} * FC_{it}+0.579\ TF_{it}+0.807\ TF_{it} * FC_{it}+0.406\ RF_{it}\ +0.527\ RF_{it} * FC_{it}+0.635\ FD_{it}+0.287\ FD_{it} * FC_{it}+0.354\ CGR_{it}+0.757\ CGR_{it} * FC_{it}+0.420\ SRR_{it}+ 0.338\ SRR_{it} * FC_{it}-0.482\ FS_{it}-0.573\ AT_{it}+0.702\ TAT_{it}+0.292$$

Beta coefficient equation for India

$$ROE_{it}= -0.316\ FC_{it}-0.135\ IFR_{it}+0.373\ IFR_{it} * FC_{it}\ -0.191\ RE_{it}+0.188\ RE_{it} * FC_{it}+ 0.379\ STD_{it}+0.825\ STD_{it} * FC_{it}-0.569\ LTD_{it}-0.507\ LTD_{it} * FC_{it}-\ 0.140\ TD_{it}-\ 0.175\ TD_{it} * FC_{it}+0.448\ SBA_{it}+0.439\ SBA_{it} * FC_{it}+0.498\ SBR_{it}+0.532\ SBR_{it} * FC_{it}-\ 0.360\ CS_{it}- 0.303\ CS_{it} * FC_{it}-0.353\ PS_{it}-0.464\ PS_{it} * FC_{it}-0.320\ ER_{it}-0.337\ ER_{it} * FC_{it}+ 0.695\ CCC_{it}+0.829\ CCC_{it} * FC_{it}+0.604\ TF_{it}+0.353\ TF_{it} * FC_{it}+0.708\ RF_{it}\ +0.463\ RF_{it} * FC_{it}+0.424\ FD_{it}+0.374\ FD_{it} * FC_{it}+0.447\ CGR_{it}+0.462\ CGR_{it} * FC_{it}+0.306\ SRR_{it}+ 0.361\ SRR_{it} * FC_{it}-0.175\ FS_{it}-0.235\ AT_{it}+0.523\ TAT_{it}+0.537$$

Beta coefficient equation for China

$$ROE_{it}= -0.413\ FC_{it}-0.440\ IFR_{it}+0.658\ IFR_{it} * FC_{it}\ -0.268\ RE_{it}+0.575\ RE_{it} * FC_{it}+ 0.815\ STD_{it}+0.468\ STD_{it} * FC_{it}-0.229\ LTD_{it}-0.386\ LTD_{it} * FC_{it}-\ 0.425\ TD_{it}-\ 0.316\ TD_{it} * FC_{it}+0.626\ SBA_{it}+0.874\ SBA_{it} * FC_{it}+0.696\ SBR_{it}+0.517\ SBR_{it} * FC_{it}+ 0.390\ CS_{it}+0.535\ CS_{it} * FC_{it}+0.536\ PS_{it}+0.559\ PS_{it} * FC_{it}+0.465\ ER_{it}+0.617\ ER_{it} * FC_{it}+\ 0.333\ CCC_{it}+0.264\ CCC_{it} * FC_{it}+0.293\ TF_{it}+0.377\ TF_{it} * FC_{it}+0.434\ RF_{it} +0.360\ RF_{it} * FC_{it}+0.231\ FD_{it}+0.215\ FD_{it} * FC_{it}+0.745\ CGR_{it}+0.325\ CGR_{it} * FC_{it}+0.411\ SRR_{it}+\ 0.323\ SRR_{it} * FC_{it}-0.184\ FS_{it}-0.391\ AT_{it}+0.534\ TAT_{it}+0.452$$

Beta coefficient equation for Iran

$$ROE_{it}= -0.474\ FC_{it}-0.210\ IFR_{it}+0.247\ IFR_{it} * FC_{it}\ -0.555\ RE_{it}+0.464\ RE_{it} * FC_{it}+ 0.578\ STD_{it}+0.282\ STD_{it} * FC_{it}-0.387\ LTD_{it}-0.240\ LTD_{it} * FC_{it}-\ 0.435\ TD_{it}-\ 0.392\ TD_{it} * FC_{it}+0.829\ SBA_{it}+0.813\ SBA_{it} * FC_{it}+0.592\ SBR_{it}+0.382\ SBR_{it} * FC_{it}-\ 0.606\ CS_{it}- 0.441\ CS_{it} * FC_{it}-0.618\ PS_{it}-0.504\ PS_{it} * FC_{it}-0.610\ ER_{it}-0.501\ ER_{it} * FC_{it}+ 0.375\ CCC_{it}+0.300\ CCC_{it} * FC_{it}+0.292\ TF_{it}+0.790\ TF_{it} * FC_{it}+0.715\ RF_{it}\ +0.654\ RF_{it} *$$

$FC_{it}$+0.597 $FD_{it}$+0.610 $FD_{it} * FC_{it}$+0.656 $CGR_{it}$+0.570 $CGR_{it} * FC_{it}$+0.513 $SRR_{it}$+ 0.459 $SRR_{it} * FC_{it}$-0.554 $FS_{it}$-0.418 $AT_{it}$+0.398 $TAT_{it}$+0.535

**Table 4.3.12: Model 5.3,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Net Profit Margin*

| Financing Alternatives, Financial Constraints, and Net Profit Margin | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: NPM | | | | | Moderator: Financial Constraints (FC) | | | |
| Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.404 | 0.708 | -0.310 | 0.629 | -0.441 | 0.076 | -0.582 | 0.057 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.510 | 0.841 | -0.241 | 0.777 | -0.501 | 0.019 | -0.409 | 0.177 |
| Internal financing ratio *Financial constraints | 0.418 | 0.000 | 0.172 | 0.000 | 0.460 | 0.000 | 0.117 | 0.000 |
| Retained Earnings | -0.300 | 0.000 | -0.527 | 0.090 | -0.432 | 0.229 | -0.406 | 0.088 |
| Retained Earnings*Financial constraints | 0.210 | 0.000 | 0.557 | 0.000 | 0.531 | 0.000 | 0.476 | 0.001 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.807 | 0.462 | 0.662 | 0.329 | 0.395 | 0.091 | 0.504 | 0.793 |
| Short-term debt*Financial constraints | 0.344 | 0.000 | 0.721 | 0.000 | 0.777 | 0.000 | 0.991 | 0.000 |
| Long-term debt | -0.514 | 0.346 | -0.300 | 0.127 | -0.336 | 0.627 | -0.627 | 0.360 |
| Long-term debt*Financial constraints | -0.356 | 0.000 | -0.167 | 0.000 | -0.303 | 0.000 | -0.275 | 0.000 |
| Total debt | -0.389 | 0.095 | -0.219 | 0.570 | -0.443 | 0.802 | -0.465 | 0.206 |
| Total debt*Financial constraints | -0.565 | 0.000 | -0.440 | 0.000 | -0.509 | 0.000 | -0.384 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.513 | 0.283 | 0.507 | 0.177 | 0.653 | 0.075 | 0.549 | 0.087 |
| Shadow banking assets*Financial constraints | 0.917 | 0.000 | 0.297 | 0.000 | 0.898 | 0.000 | 0.464 | 0.035 |
| Shadow banking ratio | 0.673 | 0.292 | 0.508 | 0.098 | 0.533 | 0.860 | 0.839 | 0.284 |
| Shadow banking ratio*Financial constraints | 0.802 | 0.000 | 0.547 | 0.000 | 0.564 | 0.000 | 0.539 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.670 | 0.249 | -0.517 | 0.060 | 0.632 | 0.090 | -0.437 | 0.015 |
| Common stocks*Financial constraints | -0.285 | 0.000 | -0.194 | 0.000 | 0.352 | 0.000 | -0.498 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Preferred stocks | -0.192 | 0.047 | -0.402 | 0.092 | 0.431 | 0.017 | -0.322 | 0.095 |
| Preferred stocks*Financial constraints | -0.314 | 0.001 | -0.412 | 0.009 | 0.314 | 0.000 | -0.448 | 0.000 |
| Equity ratio | -0.476 | 0.298 | -0.329 | 0.482 | 0.460 | 0.413 | -0.412 | 0.294 |
| Equity ratio*Financial constraints | -0.442 | 0.000 | -0.375 | 0.016 | 0.439 | 0.000 | -0.423 | 0.004 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.844 | 0.198 | 0.863 | 0.000 | 0.822 | 0.091 | 0.767 | 0.206 |
| Cash Conversion Cycle*Financial constraints | 0.711 | 0.035 | 0.349 | 0.000 | 0.509 | 0.000 | 0.483 | 0.000 |
| Trade financing | 0.437 | 0.017 | 0.253 | 0.001 | 0.693 | 0.743 | 0.803 | 0.261 |
| Trade financing*Financial constraints | 0.696 | 0.023 | 0.437 | 0.000 | 0.303 | 0.000 | 0.331 | 0.000 |
| Reverse factoring | 0.624 | 0.278 | 0.945 | 0.028 | 0.402 | 0.451 | 0.801 | 0.069 |
| Reverse factoring*Financial constraints | 0.859 | 0.000 | 0.899 | 0.010 | 0.497 | 0.000 | 0.372 | 0.000 |
| Factoring | 0.579 | 0.322 | 0.636 | 0.140 | 0.526 | 0.186 | 0.432 | 0.027 |
| Factoring*Financial constraints | 0.702 | 0.037 | 0.610 | 0.015 | 0.774 | 0.000 | 0.514 | 0.004 |
| Credit guarantees ratio | 0.719 | 0.862 | 0.838 | 0.312 | 0.399 | 0.049 | 0.508 | 0.003 |
| Credit guarantees ratio*Financial constraints | 0.625 | 0.002 | 0.347 | 0.000 | 0.574 | 0.000 | 0.466 | 0.010 |
| Solvency rating ratio | 0.656 | 0.138 | 0.274 | 0.000 | 0.715 | 0.039 | 0.620 | 0.159 |
| Solvency rating ratio *Financial constraints | 0.329 | 0.010 | 0.628 | 0.000 | 0.472 | 0.001 | 0.428 | 0.001 |
| Control variables | | | | | | | | |
| Firm Size | -0.433 | 0.000 | -0.427 | 0.002 | -0.373 | 0.000 | -0.366 | 0.000 |
| Asset Tangibility | -0.368 | 0.000 | -0.356 | 0.000 | -0.572 | 0.034 | -0.409 | 0.023 |
| Total Asset turnover | 0.587 | 0.000 | 0.687 | 0.000 | 0.494 | 0.000 | 0.309 | 0.001 |
| Constant | 0.580 | 0.000 | 0.362 | 0.000 | 0.430 | 0.000 | 0.626 | 0.000 |
| R-square | 0.419 | | 0.515 | | 0.334 | | 0.495 | |
| F-Statistic | 2.950 | | 3.300 | | 2.080 | | 1.780 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.3 includes the Net profit margin as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$NPM_{it} = -0.404\ FC_{it} - 0.510\ IFR_{it} + 0.418\ IFR_{it} * FC_{it} - 0.300\ RE_{it} + 0.210\ RE_{it} * FC_{it} + 0.807\ STD_{it} + 0.344\ STD_{it} * FC_{it} - 0.514\ LTD_{it} - 0.356\ LTD_{it} * FC_{it} - 0.389\ TD_{it} - 0.565\ TD_{it} * FC_{it} + 0.513\ SBA_{it} + 0.917\ SBA_{it} * FC_{it} + 0.673\ SBR_{it} + 0.802\ SBR_{it} * FC_{it} - 0.670\ CS_{it} - 0.285\ CS_{it} * FC_{it} - 0.192\ PS_{it} - 0.314\ PS_{it} * FC_{it} - 0.476\ ER_{it} - 0.442\ ER_{it} * FC_{it} + 0.844\ CCC_{it} + 0.711\ CCC_{it} * FC_{it} + 0.437\ TF_{it} + 0.696\ TF_{it} * FC_{it} + 0.624\ RF_{it} + 0.859\ RF_{it} * FC_{it} + 0.579\ FD_{it} + 0.702\ FD_{it} * FC_{it} + 0.719\ CGR_{it} + 0.625\ CGR_{it} * FC_{it} + 0.656\ SRR_{it} + 0.329\ SRR_{it} * FC_{it} - 0.433\ FS_{it} - 0.368\ AT_{it} + 0.587\ TAT_{it} + 0.580$$

Beta coefficient equation for India

$$NPM_{it} = -0.310\ FC_{it} - 0.241\ IFR_{it} + 0.172\ IFR_{it} * FC_{it} - 0.527\ RE_{it} + 0.557\ RE_{it} * FC_{it} + 0.662\ STD_{it} + 0.721\ STD_{it} * FC_{it} - 0.300\ LTD_{it} - 0.167\ LTD_{it} * FC_{it} - 0.219\ TD_{it} - 0.440\ TD_{it} * FC_{it} + 0.507 SBA_{it} + 0.297\ SBA_{it} * FC_{it} + 0.508\ SBR_{it} + 0.547\ SBR_{it} * FC_{it} - 0.517\ CS_{it} - 0.194\ CS_{it} * FC_{it} - 0.402\ PS_{it} - 0.412\ PS_{it} * FC_{it} - 0.329\ ER_{it} - 0.375\ ER_{it} * FC_{it} + 0.863\ CCC_{it} + 0.349\ CCC_{it} * FC_{it} + 0.253\ TF_{it} + 0.437\ TF_{it} * FC_{it} + 0.945\ RF_{it} + 0.899\ RF_{it} * FC_{it} + 0.636\ FD_{it} + 0.610\ FD_{it} * FC_{it} + 0.838\ CGR_{it} + 0.347\ CGR_{it} * FC_{it} + 0.274\ SRR_{it} + 0.628\ SRR_{it} * FC_{it} - 0.427\ FS_{it} - 0.356\ AT_{it} + 0.687\ TAT_{it} + 0.362$$

Beta coefficient equation for China

$$NPM_{it} = -0.441\ FC_{it} - 0.501\ IFR_{it} + 0.460\ IFR_{it} * FC_{it} - 0.432\ RE_{it} + 0.531\ RE_{it} * FC_{it} + 0.395\ STD_{it} + 0.777\ STD_{it} * FC_{it} - 0.336\ LTD_{it} - 0.303\ LTD_{it} * FC_{it} - 0.443\ TD_{it} - 0.509\ TD_{it} * FC_{it} + 0.653\ SBA_{it} + 0.898\ SBA_{it} * FC_{it} + 0.533\ SBR_{it} + 0.564\ SBR_{it} * FC_{it} + 0.632\ CS_{it} + 0.352\ CS_{it} * FC_{it} + 0.431\ PS_{it} + 0.314\ PS_{it} * FC_{it} + 0.460\ ER_{it} + 0.439\ ER_{it} * FC_{it} + 0.822\ CCC_{it} + 0.509\ CCC_{it} * FC_{it} + 0.693\ TF_{it} + 0.303\ TF_{it} * FC_{it} + 0.402\ RF_{it} + 0.497\ RF_{it} * FC_{it} + 0.526\ FD_{it} + 0.774\ FD_{it} * FC_{it} + 0.399\ CGR_{it} + 0.574\ CGR_{it} * FC_{it} + 0.715\ SRR_{it} + 0.472\ SRR_{it} * FC_{it} - 0.373\ FS_{it} - 0.572\ AT_{it} + 0.494\ TAT_{it} + 0.430$$

Beta coefficient equation for Iran

$$NPM_{it} = -0.582\ FC_{it} - 0.409\ IFR_{it} + 0.117\ IFR_{it} * FC_{it} - 0.406\ RE_{it} + 0.476\ RE_{it} * FC_{it} + 0.504\ STD_{it} + 0.991\ STD_{it} * FC_{it} - 0.627\ LTD_{it} - 0.275\ LTD_{it} * FC_{it} - 0.465\ TD_{it} - 0.384\ TD_{it} * FC_{it} + 0.549\ SBA_{it} + 0.464\ SBA_{it} * FC_{it} + 0.839\ SBR_{it} + 0.539\ SBR_{it} * FC_{it} - 0.437\ CS_{it} - 0.498\ CS_{it} * FC_{it} - 0.322\ PS_{it} - 0.448\ PS_{it} * FC_{it} - 0.412\ ER_{it} - 0.423\ ER_{it} * FC_{it} + 0.767\ CCC_{it} + 0.483\ CCC_{it} * FC_{it} + 0.803\ TF_{it} + 0.331\ TF_{it} * FC_{it} + 0.801\ RF_{it} + 0.372\ RF_{it} * FC_{it} + 0.432\ FD_{it} + 0.514\ FD_{it} * FC_{it} + 0.508\ CGR_{it} + 0.466\ CGR_{it} * FC_{it} + 0.620\ SRR_{it} + 0.428\ SRR_{it} * FC_{it} - 0.366\ FS_{it} - 0.409\ AT_{it} + 0.309\ TAT_{it} + 0.626$$

**Table 4.3.13: Model 5.4,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Return on Capital Employed*

| Financing Alternatives, Financial Constraints, and Return on Capital Employed | | | | |
|---|---|---|---|---|
| Regressand: ROCE | | | Moderator: Financial Constraints (FC) | |
| Interaction term: Financing alternatives* Financial Constraints | | | | |
| | Pakistan | India | China | Iran |

| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
|---|---|---|---|---|---|---|---|---|
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.194 | 0.083 | -0.413 | 0.661 | -0.548 | 0.428 | -0.427 | 0.060 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.335 | 0.180 | -0.180 | 0.185 | -0.284 | 0.170 | -0.321 | 0.090 |
| Internal financing ratio *Financial constraints | 0.404 | 0.000 | 0.160 | 0.000 | 0.527 | 0.000 | 0.282 | 0.023 |
| Retained Earnings | -0.477 | 0.114 | -0.314 | 0.208 | -0.480 | 0.582 | -0.289 | 0.281 |
| Retained Earnings*Financial constraints | 0.379 | 0.002 | 0.388 | 0.000 | 0.490 | 0.000 | 0.438 | 0.033 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.825 | 0.381 | 0.325 | 0.075 | 0.301 | 0.866 | 0.278 | 0.519 |
| Short-term debt*Financial constraints | 0.686 | 0.000 | 0.683 | 0.029 | 0.396 | 0.000 | 0.416 | 0.000 |
| Long-term debt | -0.492 | 0.060 | -0.219 | 0.069 | -0.167 | 0.128 | -0.386 | 0.061 |
| Long-term debt*Financial constraints | -0.540 | 0.000 | -0.486 | 0.000 | -0.327 | 0.032 | -0.274 | 0.000 |
| Total debt | -0.264 | 0.697 | -0.337 | 0.701 | -0.369 | 0.292 | -0.495 | 0.100 |
| Total debt*Financial constraints | -0.248 | 0.000 | -0.467 | 0.000 | -0.443 | 0.000 | -0.302 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.572 | 0.267 | 0.248 | 0.876 | 0.758 | 0.292 | 0.383 | 0.262 |
| Shadow banking assets*Financial constraints | 0.297 | 0.002 | 0.496 | 0.015 | 0.809 | 0.011 | 0.390 | 0.000 |
| Shadow banking ratio | 0.385 | 0.300 | 0.300 | 0.061 | 0.494 | 0.087 | 0.378 | 0.438 |
| Shadow banking ratio*Financial constraints | 0.784 | 0.031 | 0.688 | 0.040 | 0.938 | 0.000 | 0.391 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.574 | 0.000 | -0.273 | 0.086 | 0.425 | 0.062 | -0.541 | 0.114 |
| Common stocks*Financial constraints | -0.555 | 0.000 | -0.309 | 0.000 | 0.303 | 0.000 | -0.616 | 0.026 |
| Preferred stocks | -0.465 | 0.001 | -0.337 | 0.237 | 0.307 | 0.423 | -0.639 | 0.123 |
| Preferred stocks*Financial constraints | -0.267 | 0.000 | -0.353 | 0.001 | 0.452 | 0.000 | -0.494 | 0.017 |
| Equity ratio | -0.430 | 0.000 | -0.463 | 0.000 | 0.630 | 0.000 | -0.706 | 0.434 |
| Equity ratio*Financial constraints | -0.609 | 0.000 | -0.673 | 0.000 | 0.319 | 0.000 | -0.400 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.271 | 0.131 | 0.614 | 0.505 | 0.478 | 0.322 | 0.441 | 0.958 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cash Conversion Cycle*Financial constraints | 0.384 | 0.000 | 0.358 | 0.000 | 0.432 | 0.000 | 0.801 | 0.000 |
| Trade financing | 0.458 | 0.000 | 0.775 | 0.065 | 0.375 | 0.746 | 0.749 | 0.482 |
| Trade financing*Financial constraints | 0.770 | 0.000 | 0.725 | 0.000 | 0.895 | 0.001 | 0.635 | 0.000 |
| Reverse factoring | 0.395 | 0.043 | 0.609 | 0.069 | 0.288 | 0.155 | 0.640 | 0.059 |
| Reverse factoring*Financial constraints | 0.634 | 0.000 | 0.688 | 0.000 | 0.476 | 0.013 | 0.677 | 0.000 |
| Factoring | 0.597 | 0.193 | 0.516 | 0.141 | 0.673 | 0.310 | 0.465 | 0.586 |
| Factoring*Financial constraints | 0.217 | 0.000 | 0.249 | 0.000 | 0.503 | 0.038 | 0.702 | 0.000 |
| Credit guarantees ratio | 0.280 | 0.666 | 0.638 | 0.089 | 0.818 | 0.440 | 0.791 | 0.541 |
| Credit guarantees ratio*Financial constraints | 0.287 | 0.003 | 0.332 | 0.000 | 0.820 | 0.000 | 0.589 | 0.000 |
| Solvency rating ratio | 0.298 | 0.179 | 0.225 | 0.071 | 0.778 | 0.000 | 0.551 | 0.630 |
| Solvency rating ratio *Financial constraints | 0.301 | 0.003 | 0.295 | 0.047 | 0.675 | 0.004 | 0.895 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.443 | 0.000 | -0.554 | 0.037 | -0.344 | 0.000 | -0.555 | 0.000 |
| Asset Tangibility | -0.521 | 0.000 | -0.402 | 0.000 | -0.527 | 0.002 | -0.483 | 0.000 |
| Total Asset turnover | 0.469 | 0.000 | 0.600 | 0.050 | 0.419 | 0.000 | 0.624 | 0.036 |
| Constant | 0.355 | 0.000 | 0.678 | 0.000 | 0.535 | 0.000 | 0.834 | 0.000 |
| R-square | 0.378 | | 0.497 | | 0.548 | | 0.486 | |
| F-Statistic | 2.970 | | 4.380 | | 3.010 | | 3.000 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.002 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.4 includes the Return on Capital Employed as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROCE_{it} = -0.194\,FC_{it} - 0.335\,IFR_{it} + 0.404\,IFR_{it} * FC_{it} - 0.477\,RE_{it} + 0.379\,RE_{it} * FC_{it} + 0.825\,STD_{it} + 0.686\,STD_{it} * FC_{it} - 0.492\,LTD_{it} - 0.540\,LTD_{it} * FC_{it} - 0.264\,TD_{it} - 0.248\,TD_{it} * FC_{it} + 0.572\,SBA_{it} + 0.297\,SBA_{it} * FC_{it} + 0.385\,SBR_{it} + 0.784\,SBR_{it} * FC_{it} - 0.574\,CS_{it} - 0.555\,CS_{it} * FC_{it} - 0.465\,PS_{it} - 0.267\,PS_{it} * FC_{it} - 0.430\,ER_{it} - 0.609\,ER_{it} * FC_{it} + 0.271\,CCC_{it} + 0.384\,CCC_{it} * FC_{it} + 0.458\,TF_{it} + 0.770\,TF_{it} * FC_{it} + 0.395\,RF_{it} + 0.634\,RF_{it} * FC_{it} + 0.597\,FD_{it} + 0.217\,FD_{it} * FC_{it} + 0.280\,CGR_{it} + 0.287\,CGR_{it} * FC_{it} + 0.298\,SRR_{it} + 0.301\,SRR_{it} * FC_{it} - 0.443\,FS_{it} - 0.521\,AT_{it} + 0.469\,TAT_{it} + 0.355$$

Beta coefficient equation for India

$ROCE_{it}$= -0.413 $FC_{it}$-0.180 $IFR_{it}$+0.160 $IFR_{it} * FC_{it}$ -0.314 $RE_{it}$+0.388 $RE_{it} * FC_{it}$+ 0.325 $STD_{it}$+0.683 $STD_{it} * FC_{it}$-0.219 $LTD_{it}$-0.486 $LTD_{it} * FC_{it}$- 0.337 $TD_{it}$- 0.467 $TD_{it} * FC_{it}$+0.248 $SBA_{it}$+0.496 $SBA_{it} * FC_{it}$+0.300 $SBR_{it}$+0.688 $SBR_{it} * FC_{it}$-0.273 $CS_{it}$- 0.309 $CS_{it} * FC_{it}$-0.337 $PS_{it}$-0.353 $PS_{it} * FC_{it}$-0.463 $ER_{it}$-0.673 $ER_{it} * FC_{it}$+ 0.614 $CCC_{it}$+0.358 $CCC_{it} * FC_{it}$+0.775 $TF_{it}$+0.725 $TF_{it} * FC_{it}$+0.609 $RF_{it}$ +0.688 $RF_{it} * FC_{it}$+0.516 $FD_{it}$+0.249 $FD_{it} * FC_{it}$+0.638 $CGR_{it}$+0.332 $CGR_{it} * FC_{it}$+0.225 $SRR_{it}$+ 0.295 $SRR_{it} * FC_{it}$-0.554 $FS_{it}$-0.402 $AT_{it}$+0.600 $TAT_{it}$+0.678

Beta coefficient equation for China

$ROCE_{it}$= -0.548 $FC_{it}$-0.284 $IFR_{it}$+0.527 $IFR_{it} * FC_{it}$ -0.480 $RE_{it}$+0.490 $RE_{it} * FC_{it}$+ 0.301 $STD_{it}$+0.396 $STD_{it} * FC_{it}$-0.167 $LTD_{it}$-0.327 $LTD_{it} * FC_{it}$- 0.369 $TD_{it}$- 0.443 $TD_{it} * FC_{it}$+0.758 $SBA_{it}$+0.809 $SBA_{it} * FC_{it}$+0.494 $SBR_{it}$+0.938 $SBR_{it} * FC_{it}$+0.425 $CS_{it}$+ 0.303 $CS_{it} * FC_{it}$+0.307 $PS_{it}$+0.452 $PS_{it} * FC_{it}$+0.630 $ER_{it}$+0.319 $ER_{it} * FC_{it}$+ 0.478 $CCC_{it}$+0.432 $CCC_{it} * FC_{it}$+0.375 $TF_{it}$+0.895 $TF_{it} * FC_{it}$+0.288 $RF_{it}$ +0.476 $RF_{it} * FC_{it}$+0.673 $FD_{it}$+0.503 $FD_{it} * FC_{it}$+0.818 $CGR_{it}$+0.820 $CGR_{it} * FC_{it}$+0.778 $SRR_{it}$+ 0.675 $SRR_{it} * FC_{it}$-0.344 $FS_{it}$-0.527 $AT_{it}$+0.419 $TAT_{it}$+0.535

Beta coefficient equation for Iran

$ROCE_{it}$= -0.427 $FC_{it}$-0.321 $IFR_{it}$+0.282 $IFR_{it} * FC_{it}$ -0.289 $RE_{it}$+0.438 $RE_{it} * FC_{it}$+ 0.278 $STD_{it}$+0.416 $STD_{it} * FC_{it}$-0.386 $LTD_{it}$-0.274 $LTD_{it} * FC_{it}$- 0.495 $TD_{it}$- 0.302 $TD_{it} * FC_{it}$+0.383 $SBA_{it}$+0.390 $SBA_{it} * FC_{it}$+0.378 $SBR_{it}$+0.391 $SBR_{it} * FC_{it}$-0.541 $CS_{it}$- 0.616 $CS_{it} * FC_{it}$-0.639 $PS_{it}$-0.494 $PS_{it} * FC_{it}$-0.706 $ER_{it}$-0.400 $ER_{it} * FC_{it}$+ 0.441 $CCC_{it}$+0.801 $CCC_{it} * FC_{it}$+0.749 $TF_{it}$+0.635 $TF_{it} * FC_{it}$+0.640 $RF_{it}$ +0.677 $RF_{it} * FC_{it}$+0.465 $FD_{it}$+0.702 $FD_{it} * FC_{it}$+0.791 $CGR_{it}$+0.589 $CGR_{it} * FC_{it}$+0.551 $SRR_{it}$+ 0.895 $SRR_{it} * FC_{it}$-0.555 $FS_{it}$-0.483 $AT_{it}$+0.624 $TAT_{it}$+0.834

**Table 4.3.14: Model 5.5,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Return on Invested Capital*

| Financing Alternatives, Financial Constraints, and Return on Invested Capital | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROIC Moderator: Financial Constraints (FC) Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.392 | 0.938 | -0.470 | 0.885 | -0.346 | 0.134 | -0.541 | 0.114 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.419 | 0.943 | -0.543 | 0.092 | -0.557 | 0.154 | -0.506 | 0.182 |
| Internal financing ratio *Financial constraints | 0.519 | 0.000 | 0.451 | 0.001 | 0.495 | 0.000 | 0.241 | 0.000 |
| Retained Earnings | -0.352 | 0.100 | -0.506 | 0.154 | -0.501 | 0.327 | -0.408 | 0.594 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Retained Earnings*Financial constraints | 0.407 | 0.000 | 0.489 | 0.000 | 0.213 | 0.000 | 0.354 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.829 | 0.158 | 0.438 | 0.010 | 0.407 | 0.020 | 0.896 | 0.251 |
| Short-term debt*Financial constraints | 0.502 | 0.000 | 0.248 | 0.020 | 0.351 | 0.001 | 0.739 | 0.000 |
| Long-term debt | -0.639 | 0.027 | -0.330 | 0.134 | -0.360 | 0.350 | -0.504 | 0.126 |
| Long-term debt*Financial constraints | -0.330 | 0.000 | -0.186 | 0.000 | -0.255 | 0.000 | -0.397 | 0.004 |
| Total debt | -0.387 | 0.360 | -0.130 | 0.885 | -0.427 | 0.000 | -0.467 | 0.005 |
| Total debt*Financial constraints | -0.423 | 0.000 | -0.275 | 0.000 | -0.281 | 0.000 | -0.419 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.469 | 0.013 | 0.888 | 0.327 | 0.915 | 0.384 | 0.618 | 0.015 |
| Shadow banking assets*Financial constraints | 0.798 | 0.000 | 0.924 | 0.001 | 0.606 | 0.000 | 0.916 | 0.000 |
| Shadow banking ratio | 0.345 | 0.060 | 0.350 | 0.384 | 0.267 | 0.154 | 0.296 | 0.204 |
| Shadow banking ratio*Financial constraints | 0.622 | 0.039 | 0.377 | 0.000 | 0.357 | 0.000 | 0.227 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.227 | 0.012 | -0.161 | 0.002 | 0.367 | 0.000 | -0.464 | 0.103 |
| Common stocks*Financial constraints | -0.156 | 0.026 | -0.471 | 0.002 | 0.354 | 0.001 | -0.287 | 0.030 |
| Preferred stocks | -0.848 | 0.877 | -0.349 | 0.001 | 0.853 | 0.502 | -0.526 | 0.050 |
| Preferred stocks*Financial constraints | -0.710 | 0.012 | -0.569 | 0.000 | 0.317 | 0.000 | -0.928 | 0.004 |
| Equity ratio | -0.546 | 0.543 | -0.745 | 0.000 | 0.281 | 0.001 | -0.604 | 0.235 |
| Equity ratio*Financial constraints | -0.698 | 0.005 | -0.313 | 0.000 | 0.704 | 0.000 | -0.220 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.569 | 0.060 | 0.605 | 0.066 | 0.411 | 0.092 | 0.416 | 0.034 |
| Cash Conversion Cycle*Financial constraints | 0.329 | 0.013 | 0.499 | 0.000 | 0.523 | 0.000 | 0.396 | 0.009 |
| Trade financing | 0.457 | 0.502 | 0.669 | 0.002 | 0.350 | 0.201 | 0.424 | 0.103 |
| Trade financing*Financial constraints | 0.660 | 0.001 | 0.390 | 0.000 | 0.412 | 0.000 | 0.507 | 0.027 |
| Reverse factoring | 0.772 | 0.943 | 0.350 | 0.264 | 0.297 | 0.264 | 0.285 | 0.055 |
| Reverse factoring*Financial constraints | 0.498 | 0.009 | 0.353 | 0.000 | 0.335 | 0.013 | 0.270 | 0.013 |
| Factoring | 0.782 | 0.006 | 0.623 | 0.098 | 0.427 | 0.000 | 0.395 | 0.001 |
| Factoring*Financial constraints | 0.501 | 0.011 | 0.561 | 0.000 | 0.523 | 0.000 | 0.442 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Credit guarantees ratio | 0.288 | 0.123 | 0.931 | 0.000 | 0.423 | 0.000 | 0.384 | 0.000 |
| Credit guarantees ratio*Financial constraints | 0.456 | 0.007 | 0.497 | 0.000 | 0.509 | 0.000 | 0.649 | 0.001 |
| Solvency rating ratio | 0.509 | 0.001 | 0.627 | 0.000 | 0.447 | 0.000 | 0.437 | 0.000 |
| Solvency rating ratio *Financial constraints | 0.621 | 0.000 | 0.483 | 0.000 | 0.701 | 0.000 | 0.398 | 0.011 |
| Control variables | | | | | | | | |
| Firm Size | -0.371 | 0.000 | -0.491 | 0.000 | -0.198 | 0.000 | -0.308 | 0.000 |
| Asset Tangibility | -0.485 | 0.000 | -0.298 | 0.000 | -0.268 | 0.000 | -0.353 | 0.000 |
| Total Asset turnover | 0.817 | 0.000 | 0.513 | 0.000 | 0.492 | 0.000 | 0.399 | 0.000 |
| Constant | 0.337 | 0.000 | 0.699 | 0.000 | 0.425 | 0.000 | 0.742 | 0.000 |
| R-square | 0.387 | | 0.496 | | 0.417 | | 0.523 | |
| F-Statistic | 1.740 | | 1.690 | | 1.730 | | 1.734 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.5 includes the Return on Invested Capital as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROIC_{it} = -0.392\ FC_{it} - 0.419\ IFR_{it} + 0.519\ IFR_{it} * FC_{it} - 0.352\ RE_{it} + 0.407\ RE_{it} * FC_{it} + 0.829\ STD_{it} + 0.502\ STD_{it} * FC_{it} - 0.639\ LTD_{it} - 0.330\ LTD_{it} * FC_{it} - 0.387\ TD_{it} - 0.423\ TD_{it} * FC_{it} + 0.469\ SBA_{it} + 0.798\ SBA_{it} * FC_{it} + 0.345\ SBR_{it} + 0.622\ SBR_{it} * FC_{it} - 0.227\ CS_{it} - 0.156\ CS_{it} * FC_{it} - 0.848\ PS_{it} - 0.710\ PS_{it} * FC_{it} - 0.546\ ER_{it} - 0.698\ ER_{it} * FC_{it} + 0.569\ CCC_{it} + 0.329\ CCC_{it} * FC_{it} + 0.457\ TF_{it} + 0.660\ TF_{it} * FC_{it} + 0.772\ RF_{it} + 0.498\ RF_{it} * FC_{it} + 0.782\ FD_{it} + 0.501\ FD_{it} * FC_{it} + 0.288\ CGR_{it} + 0.456\ CGR_{it} * FC_{it} + 0.509\ SRR_{it} + 0.621\ SRR_{it} * FC_{it} - 0.371\ FS_{it} - 0.485\ AT_{it} + 0.817\ TAT_{it} + 0.337$$

Beta coefficient equation for India

$$ROIC_{it} = -0.470\ FC_{it} - 0.543\ IFR_{it} + 0.451\ IFR_{it} * FC_{it} - 0.506\ RE_{it} + 0.489\ RE_{it} * FC_{it} + 0.438\ STD_{it} + 0.248\ STD_{it} * FC_{it} - 0.330\ LTD_{it} - 0.186\ LTD_{it} * FC_{it} - 0.130\ TD_{it} - 0.275\ TD_{it} * FC_{it} + 0.888\ SBA_{it} + 0.924\ SBA_{it} * FC_{it} + 0.350\ SBR_{it} + 0.377\ SBR_{it} * FC_{it} - 0.161\ CS_{it} - 0.471\ CS_{it} * FC_{it} - 0.349\ PS_{it} - 0.569\ PS_{it} * FC_{it} - 0.745\ ER_{it} - 0.313\ ER_{it} * FC_{it} + 0.605\ CCC_{it} + 0.499\ CCC_{it} * FC_{it} + 0.669\ TF_{it} + 0.390\ TF_{it} * FC_{it} + 0.350\ RF_{it} + 0.353\ RF_{it} * FC_{it} + 0.623\ FD_{it} + 0.561\ FD_{it} * FC_{it} + 0.931\ CGR_{it} + 0.497\ CGR_{it} * FC_{it} + 0.627\ SRR_{it} + 0.483\ SRR_{it} * FC_{it} - 0.491\ FS_{it} - 0.298\ AT_{it} + 0.513\ TAT_{it} + 0.699$$

Beta coefficient equation for China

$ROIC_{it}$= -0.346 $FC_{it}$-0.557 $IFR_{it}$+0.495 $IFR_{it} * FC_{it}$ -0.501 $RE_{it}$+0.213 $RE_{it} * FC_{it}$+ 0.407 $STD_{it}$+0.351 $STD_{it} * FC_{it}$-0.360 $LTD_{it}$-0.255 $LTD_{it} * FC_{it}$-0.427 $TD_{it}$-0.281 $TD_{it} * FC_{it}$+0.915 $SBA_{it}$+0.606 $SBA_{it} * FC_{it}$+0.267 $SBR_{it}$+0.357 $SBR_{it} * FC_{it}$+0.367 $CS_{it}$+ 0.354 $CS_{it} * FC_{it}$+0.853 $PS_{it}$+0.317 $PS_{it} * FC_{it}$+0.281 $ER_{it}$+0.704 $ER_{it} * FC_{it}$+ 0.411 $CCC_{it}$+0.523 $CCC_{it} * FC_{it}$+0.350 $TF_{it}$+0.412 $TF_{it} * FC_{it}$+0.297 $RF_{it}$ +0.335 $RF_{it} * FC_{it}$+0.427 $FD_{it}$+0.523 $FD_{it} * FC_{it}$+0.423 $CGR_{it}$+0.509 $CGR_{it} * FC_{it}$+0.447 $SRR_{it}$+ 0.701 $SRR_{it} * FC_{it}$-0.198 $FS_{it}$-0.268 $AT_{it}$+0.492 $TAT_{it}$+0.425

Beta coefficient equation for Iran

$ROIC_{it}$= -0.541 $FC_{it}$-0.506 $IFR_{it}$+0.241 $IFR_{it} * FC_{it}$ -0.408 $RE_{it}$+0.354 $RE_{it} * FC_{it}$+ 0.896 $STD_{it}$+0.739 $STD_{it} * FC_{it}$-0.504 $LTD_{it}$-0.397 $LTD_{it} * FC_{it}$- 0.467 $TD_{it}$- 0.419 $TD_{it} * FC_{it}$+0.618 $SBA_{it}$+0.916 $SBA_{it} * FC_{it}$+0.296 $SBR_{it}$+0.227 $SBR_{it} * FC_{it}$-0.464 $CS_{it}$- 0.287 $CS_{it} * FC_{it}$-0.526 $PS_{it}$-0.928 $PS_{it} * FC_{it}$-0.604 $ER_{it}$-0.220 $ER_{it} * FC_{it}$+ 0.416 $CCC_{it}$+0.396 $CCC_{it} * FC_{it}$+0.424 $TF_{it}$+0.507 $TF_{it} * FC_{it}$+0.285 $RF_{it}$ +0.270 $RF_{it} * FC_{it}$+0.395 $FD_{it}$+0.442 $FD_{it} * FC_{it}$+0.384 $CGR_{it}$+0.649 $CGR_{it} * FC_{it}$+0.437 $SRR_{it}$+ 0.398 $SRR_{it} * FC_{it}$-0.308 $FS_{it}$-0.353 $AT_{it}$+0.399 $TAT_{it}$+0.742

**Table 4.3.15: Model 5.6,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Tobin's q*

| Financing Alternatives, Financial Constraints, and Tobin's Q | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: Tobin's q Moderator: Financial Constraints (FC) Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.306 | 0.127 | -0.255 | 0.468 | -0.404 | 0.516 | -0.125 | 0.453 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.455 | 0.665 | -0.451 | 0.175 | -0.467 | 0.282 | -0.569 | 0.074 |
| Internal financing ratio *Financial constraints | 0.318 | 0.000 | 0.309 | 0.005 | 0.328 | 0.000 | 0.293 | 0.000 |
| Retained Earnings | -0.328 | 0.737 | -0.508 | 0.661 | -0.375 | 0.358 | -0.172 | 0.173 |
| Retained Earnings*Financial constraints | 0.385 | 0.001 | 0.363 | 0.000 | 0.268 | 0.000 | 0.303 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.465 | 0.000 | 0.376 | 0.094 | 0.552 | 0.077 | 0.575 | 0.106 |
| Short-term debt*Financial constraints | 0.562 | 0.001 | 0.499 | 0.000 | 0.558 | 0.000 | 0.630 | 0.000 |
| Long-term debt | -0.408 | 0.173 | -0.374 | 0.154 | -0.399 | 0.061 | -0.502 | 0.767 |
| Long-term debt*Financial constraints | -0.138 | 0.000 | -0.244 | 0.000 | -0.229 | 0.000 | -0.384 | 0.000 |
| Total debt | -0.457 | 0.021 | -0.337 | 0.915 | -0.310 | 0.234 | -0.553 | 0.132 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total debt*Financial constraints | -0.336 | 0.000 | -0.440 | 0.002 | -0.514 | 0.000 | -0.180 | 0.004 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.639 | 0.324 | 0.217 | 0.437 | 0.958 | 0.004 | 0.319 | 0.053 |
| Shadow banking assets*Financial constraints | 0.228 | 0.000 | 0.298 | 0.002 | 0.252 | 0.008 | 0.394 | 0.000 |
| Shadow banking ratio | 0.476 | 0.158 | 0.975 | 0.590 | 0.765 | 0.110 | 0.671 | 0.043 |
| Shadow banking ratio*Financial constraints | 0.901 | 0.000 | 0.740 | 0.000 | 0.770 | 0.000 | 0.705 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.356 | 0.104 | -0.303 | 0.022 | 0.304 | 0.230 | -0.306 | 0.843 |
| Common stocks*Financial constraints | -0.391 | 0.001 | -0.479 | 0.000 | 0.562 | 0.000 | -0.445 | 0.003 |
| Preferred stocks | -0.629 | 0.110 | -0.281 | 0.225 | 0.711 | 0.046 | -0.288 | 0.352 |
| Preferred stocks*Financial constraints | -0.891 | 0.000 | -0.576 | 0.009 | 0.676 | 0.000 | -0.760 | 0.004 |
| Equity ratio | -0.208 | 0.342 | -0.694 | 0.047 | 0.839 | 0.038 | -0.820 | 0.437 |
| Equity ratio*Financial constraints | -0.909 | 0.000 | -0.939 | 0.000 | 0.886 | 0.000 | -0.582 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.430 | 0.160 | 0.258 | 0.085 | 0.492 | 0.000 | 0.880 | 0.656 |
| Cash Conversion Cycle*Financial constraints | 0.811 | 0.001 | 0.717 | 0.000 | 0.492 | 0.000 | 0.234 | 0.000 |
| Trade financing | 0.586 | 0.142 | 0.532 | 0.166 | 0.756 | 0.390 | 0.563 | 0.039 |
| Trade financing*Financial constraints | 0.470 | 0.000 | 0.695 | 0.003 | 0.474 | 0.000 | 0.743 | 0.000 |
| Reverse factoring | 0.458 | 0.061 | 0.731 | 0.642 | 0.399 | 0.003 | 0.581 | 0.036 |
| Reverse factoring*Financial constraints | 0.634 | 0.000 | 0.491 | 0.000 | 0.609 | 0.000 | 0.553 | 0.008 |
| Factoring | 0.459 | 0.004 | 0.531 | 0.127 | 0.879 | 0.388 | 0.313 | 0.337 |
| Factoring*Financial constraints | 0.446 | 0.006 | 0.432 | 0.000 | 0.756 | 0.000 | 0.465 | 0.000 |
| Credit guarantees ratio | 0.319 | 0.002 | 0.592 | 0.326 | 0.509 | 0.738 | 0.480 | 0.517 |
| Credit guarantees ratio *Financial constraints | 0.507 | 0.000 | 0.230 | 0.000 | 0.514 | 0.000 | 0.788 | 0.009 |
| Solvency rating ratio | 0.451 | 0.144 | 0.518 | 0.809 | 0.362 | 0.208 | 0.582 | 0.011 |
| Solvency rating ratio *Financial constraints | 0.560 | 0.007 | 0.946 | 0.032 | 0.246 | 0.000 | 0.697 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.317 | 0.040 | -0.478 | 0.001 | -0.563 | 0.000 | -0.180 | 0.010 |
| Asset Tangibility | -0.422 | 0.003 | -0.513 | 0.000 | -0.197 | 0.001 | -0.460 | 0.011 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Asset turnover | 0.701 | 0.001 | 0.350 | 0.020 | 0.770 | 0.000 | 0.414 | 0.000 |
| Constant | 0.463 | 0.000 | 0.594 | 0.000 | 0.827 | 0.000 | 0.468 | 0.000 |
| R-square | 0.368 | | 0.532 | | 0.548 | | 0.449 | |
| F-Statistic | 1.560 | | 1.440 | | 1.510 | | 1.470 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.005 | |
| Lagrange Multiplier test | 0.000 | | 0.025 | | 0.000 | | 0.004 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.6 includes Tobin's q as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$Tobin's\ q_{it} = -0.306\ FC_{it} - 0.455\ IFR_{it} + 0.318\ IFR_{it} * FC_{it} - 0.328\ RE_{it} + 0.385\ RE_{it} * FC_{it} + 0.465\ STD_{it} + 0.562\ STD_{it} * FC_{it} - 0.408\ LTD_{it} - 0.138\ LTD_{it} * FC_{it} - 0.457\ TD_{it} - 0.336\ TD_{it} * FC_{it} + 0.639\ SBA_{it} + 0.228\ SBA_{it} * FC_{it} + 0.476\ SBR_{it} + 0.901\ SBR_{it} * FC_{it} - 0.356\ CS_{it} - 0.391\ CS_{it} * FC_{it} - 0.629\ PS_{it} - 0.891\ PS_{it} * FC_{it} - 0.208\ ER_{it} - 0.909\ ER_{it} * FC_{it} + 0.430\ CCC_{it} + 0.811\ CCC_{it} * FC_{it} + 0.586\ TF_{it} + 0.470\ TF_{it} * FC_{it} + 0.458\ RF_{it} + 0.634\ RF_{it} * FC_{it} + 0.459\ FD_{it} + 0.446\ FD_{it} * FC_{it} + 0.319\ CGR_{it} + 0.507\ CGR_{it} * FC_{it} + 0.451\ SRR_{it} + 0.560\ SRR_{it} * FC_{it} - 0.317\ FS_{it} - 0.422\ AT_{it} + 0.701\ TAT_{it} + 0.463$$

Beta coefficient equation for India

$$Tobin's\ q_{it} = -0.255\ FC_{it} - 0.451\ IFR_{it} + 0.309\ IFR_{it} * FC_{it} - 0.508\ RE_{it} + 0.363\ RE_{it} * FC_{it} + 0.376\ STD_{it} + 0.499\ STD_{it} * FC_{it} - 0.374\ LTD_{it} - 0.244\ LTD_{it} * FC_{it} - 0.337\ TD_{it} - 0.440\ TD_{it} * FC_{it} + 0.217\ SBA_{it} + 0.298\ SBA_{it} * FC_{it} + 0.975\ SBR_{it} + 0.740\ SBR_{it} * FC_{it} - 0.303\ CS_{it} - 0.479\ CS_{it} * FC_{it} - 0.281\ PS_{it} - 0.576\ PS_{it} * FC_{it} - 0.694\ ER_{it} - 0.939\ ER_{it} * FC_{it} + 0.258\ CCC_{it} + 0.717\ CCC_{it} * FC_{it} + 0.532\ TF_{it} + 0.695\ TF_{it} * FC_{it} + 0.731\ RF_{it} + 0.491\ RF_{it} * FC_{it} + 0.531\ FD_{it} + 0.432\ FD_{it} * FC_{it} + 0.592\ CGR_{it} + 0.230\ CGR_{it} * FC_{it} + 0.518\ SRR_{it} + 0.946\ SRR_{it} * FC_{it} - 0.478\ FS_{it} - 0.513\ AT_{it} + 0.350\ TAT_{it} + 0.594$$

Beta coefficient equation for China

$$Tobin's\ q_{it} = -0.404\ FC_{it} - 0.467\ IFR_{it} + 0.328\ IFR_{it} * FC_{it} - 0.375\ RE_{it} + 0.268\ RE_{it} * FC_{it} + 0.552\ STD_{it} + 0.558\ STD_{it} * FC_{it} - 0.399\ LTD_{it} - 0.229\ LTD_{it} * FC_{it} - 0.310\ TD_{it} - 0.514\ TD_{it} * FC_{it} + 0.958\ SBA_{it} + 0.252\ SBA_{it} * FC_{it} + 0.765\ SBR_{it} + 0.770\ SBR_{it} * FC_{it} + 0.304\ CS_{it} + 0.562\ CS_{it} * FC_{it} + 0.711\ PS_{it} + 0.676\ PS_{it} * FC_{it} + 0.839\ ER_{it} + 0.886\ ER_{it} * FC_{it} + 0.492\ CCC_{it} + 0.492\ CCC_{it} * FC_{it} + 0.756\ TF_{it} + 0.474\ TF_{it} * FC_{it} + 0.399\ RF_{it} + 0.609\ RF_{it} * FC_{it} + 0.879\ FD_{it} + 0.756\ FD_{it} * FC_{it} + 0.509\ CGR_{it} + 0.514\ CGR_{it} * FC_{it} + 0.362\ SRR_{it} + 0.246\ SRR_{it} * FC_{it} - 0.563\ FS_{it} - 0.197\ AT_{it} + 0.770\ TAT_{it} + 0.827$$

Beta coefficient equation for Iran

$Tobin's\ q_{it}$= -0.125 $FC_{it}$-0.569 $IFR_{it}$+0.293 $IFR_{it} * FC_{it}$ -0.172 $RE_{it}$+0.303 $RE_{it} * FC_{it}$+ 0.575 $STD_{it}$+0.630 $STD_{it} * FC_{it}$-0.502 $LTD_{it}$-0.384 $LTD_{it} * FC_{it}$-0.553 $TD_{it}$-0.180 $TD_{it} * FC_{it}$+0.319 $SBA_{it}$+0.394 $SBA_{it} * FC_{it}$+0.671 $SBR_{it}$+0.705 $SBR_{it} * FC_{it}$-0.306 $CS_{it}$- 0.445 $CS_{it} * FC_{it}$-0.288 $PS_{it}$-0.760 $PS_{it} * FC_{it}$-0.820 $ER_{it}$-0.582 $ER_{it} * FC_{it}$+ 0.880 $CCC_{it}$+0.234 $CCC_{it} * FC_{it}$+0.563 $TF_{it}$+0.743 $TF_{it} * FC_{it}$+0.581 $RF_{it}$ +0.553 $RF_{it} * FC_{it}$+0.313 $FD_{it}$+0.465 $FD_{it} * FC_{it}$+0.480 $CGR_{it}$+0.788 $CGR_{it} * FC_{it}$+0.582 $SRR_{it}$+ 0.697 $SRR_{it} * FC_{it}$-0.180 $FS_{it}$-0.460 $AT_{it}$+0.414 $TAT_{it}$+0.468

**Table 4.3.16: Model 5.7,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints and Earnings Per Share*

| Financing Alternatives, Financial Constraints, and Earnings Per Share | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: EPS Moderator: Financial Constraints (FC) Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.473 | 0.666 | -0.410 | 0.428 | -0.303 | 0.737 | -0.369 | 0.840 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.420 | 0.113 | -0.379 | 0.075 | -0.490 | 0.246 | -0.490 | 0.295 |
| Internal financing ratio *Financial constraints | 0.252 | 0.000 | 0.363 | 0.000 | 0.302 | 0.001 | 0.133 | 0.000 |
| Retained Earnings | -0.258 | 0.181 | -0.269 | 0.355 | -0.281 | 0.732 | -0.351 | 0.200 |
| Retained Earnings*Financial constraints | 0.182 | 0.000 | 0.503 | 0.000 | 0.250 | 0.000 | 0.408 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.627 | 0.081 | 0.907 | 0.166 | 0.885 | 0.063 | 0.401 | 0.808 |
| Short-term debt*Financial constraints | 0.820 | 0.000 | 0.855 | 0.001 | 0.823 | 0.000 | 0.375 | 0.000 |
| Long-term debt | -0.295 | 0.179 | -0.637 | 0.211 | -0.332 | 0.000 | -0.381 | 0.000 |
| Long-term debt*Financial constraints | -0.544 | 0.004 | -0.170 | 0.000 | -0.380 | 0.000 | -0.253 | 0.000 |
| Total debt | -0.530 | 0.742 | -0.549 | 0.125 | -0.296 | 0.051 | -0.326 | 0.491 |
| Total debt*Financial constraints | -0.455 | 0.000 | -0.237 | 0.000 | -0.463 | 0.003 | -0.344 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.646 | 0.023 | 0.293 | 0.175 | 0.904 | 0.883 | 0.213 | 0.888 |
| Shadow banking assets*Financial constraints | 0.943 | 0.000 | 0.584 | 0.000 | 0.370 | 0.009 | 0.438 | 0.609 |
| Shadow banking ratio | 0.775 | 0.169 | 0.229 | 0.228 | 0.600 | 0.744 | 0.734 | 0.075 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking ratio*Financial constraints | 0.479 | 0.000 | 0.281 | 0.005 | 0.468 | 0.002 | 0.531 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.207 | 0.013 | -0.538 | 0.325 | 0.459 | 0.170 | -0.365 | 0.073 |
| Common stocks*Financial constraints | -0.401 | 0.002 | -0.415 | 0.000 | 0.207 | 0.003 | -0.508 | 0.000 |
| Preferred stocks | -0.623 | 0.025 | -0.606 | 0.118 | 0.266 | 0.152 | -0.452 | 0.542 |
| Preferred stocks*Financial constraints | -0.766 | 0.000 | -0.516 | 0.000 | 0.477 | 0.000 | -0.371 | 0.006 |
| Equity ratio | -0.645 | 0.628 | -0.429 | 0.752 | 0.876 | 0.348 | -0.703 | 0.006 |
| Equity ratio*Financial constraints | -0.827 | 0.000 | -0.829 | 0.000 | 0.659 | 0.002 | -0.435 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.758 | 0.088 | 0.903 | 0.082 | 0.527 | 0.188 | 0.879 | 0.820 |
| Cash Conversion Cycle*Financial constraints | 0.268 | 0.000 | 0.404 | 0.000 | 0.633 | 0.003 | 0.715 | 0.023 |
| Trade financing | 0.288 | 0.252 | 0.659 | 0.183 | 0.853 | 0.000 | 0.693 | 0.052 |
| Trade financing*Financial constraints | 0.342 | 0.000 | 0.310 | 0.000 | 0.871 | 0.000 | 0.509 | 0.000 |
| Reverse factoring | 0.644 | 0.066 | 0.427 | 0.257 | 0.463 | 0.001 | 0.428 | 0.589 |
| Reverse factoring*Financial constraints | 0.575 | 0.000 | 0.717 | 0.008 | 0.612 | 0.000 | 0.646 | 0.005 |
| Factoring | 0.511 | 0.122 | 0.226 | 0.123 | 0.369 | 0.152 | 0.372 | 0.318 |
| Factoring*Financial constraints | 0.512 | 0.000 | 0.605 | 0.018 | 0.627 | 0.000 | 0.303 | 0.000 |
| Credit guarantees ratio | 0.581 | 0.162 | 0.677 | 0.364 | 0.879 | 0.139 | 0.540 | 0.171 |
| Credit guarantees ratio*Financial constraints | 0.493 | 0.000 | 0.590 | 0.046 | 0.891 | 0.017 | 0.673 | 0.041 |
| Solvency rating ratio | 0.450 | 0.499 | 0.339 | 0.535 | 0.968 | 0.442 | 0.321 | 0.213 |
| Solvency rating ratio *Financial constraints | 0.468 | 0.000 | 0.434 | 0.021 | 0.448 | 0.000 | 0.764 | 0.015 |
| Control variables | | | | | | | | |
| Firm Size | -0.493 | 0.014 | -0.536 | 0.028 | -0.316 | 0.000 | -0.563 | 0.013 |
| Asset Tangibility | -0.502 | 0.000 | -0.361 | 0.039 | -0.387 | 0.011 | -0.335 | 0.015 |
| Total Asset turnover | 0.665 | 0.027 | 0.627 | 0.033 | 0.702 | 0.001 | 0.627 | 0.014 |
| Constant | 0.813 | 0.000 | 0.466 | 0.852 | 0.516 | 0.508 | 0.590 | 0.814 |
| R-square | 0.495 | | 0.549 | | 0.606 | | 0.485 | |
| F-Statistic | 3.700 | | 4.230 | | 5.110 | | 2.270 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 5.7 includes the Earnings Per Share as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$EPS_{it} = -0.473\ FC_{it} - 0.420\ IFR_{it} + 0.252\ IFR_{it} * FC_{it} - 0.258\ RE_{it} + 0.182\ RE_{it} * FC_{it} + 0.627\ STD_{it} + 0.820\ STD_{it} * FC_{it} - 0.295\ LTD_{it} - 0.544\ LTD_{it} * FC_{it} - 0.530\ TD_{it} - 0.455\ TD_{it} * FC_{it} + 0.646\ SBA_{it} + 0.943\ SBA_{it} * FC_{it} + 0.775\ SBR_{it} + 0.479\ SBR_{it} * FC_{it} - 0.207\ CS_{it} - 0.401\ CS_{it} * FC_{it} - 0.623\ PS_{it} - 0.766\ PS_{it} * FC_{it} - 0.645\ ER_{it} - 0.827\ ER_{it} * FC_{it} + 0.758\ CCC_{it} + 0.268\ CCC_{it} * FC_{it} + 0.288\ TF_{it} + 0.342\ TF_{it} * FC_{it} + 0.644\ RF_{it} + 0.575\ RF_{it} * FC_{it} + 0.511\ FD_{it} + 0.512\ FD_{it} * FC_{it} + 0.581\ CGR_{it} + 0.493\ CGR_{it} * FC_{it} + 0.450\ SRR_{it} + 0.468\ SRR_{it} * FC_{it} - 0.493\ FS_{it} - 0.502\ AT_{it} + 0.665\ TAT_{it} + 0.813$$

Beta coefficient equation for India

$$EPS_{it} = -0.410\ FC_{it} - 0.379\ IFR_{it} + 0.363\ IFR_{it} * FC_{it} - 0.269\ RE_{it} + 0.503\ RE_{it} * FC_{it} + 0.907\ STD_{it} + 0.855\ STD_{it} * FC_{it} - 0.637\ LTD_{it} - 0.170\ LTD_{it} * FC_{it} - 0.549\ TD_{it} - 0.237\ TD_{it} * FC_{it} + 0.293\ SBA_{it} + 0.584\ SBA_{it} * FC_{it} + 0.229\ SBR_{it} + 0.281\ SBR_{it} * FC_{it} - 0.538\ CS_{it} - 0.415\ CS_{it} * FC_{it} - 0.606\ PS_{it} - 0.516\ PS_{it} * FC_{it} - 0.429\ ER_{it} - 0.829\ ER_{it} * FC_{it} + 0.903\ CCC_{it} + 0.404\ CCC_{it} * FC_{it} + 0.659\ TF_{it} + 0.310\ TF_{it} * FC_{it} + 0.427\ RF_{it} + 0.717\ RF_{it} * FC_{it} + 0.226\ FD_{it} + 0.605\ FD_{it} * FC_{it} + 0.677\ CGR_{it} + 0.590\ CGR_{it} * FC_{it} + 0.339\ SRR_{it} + 0.434\ SRR_{it} * FC_{it} - 0.536\ FS_{it} - 0.361\ AT_{it} + 0.627\ TAT_{it} + 0.466$$

Beta coefficient equation for China

$$EPS_{it} = -0.303\ FC_{it} - 0.490\ IFR_{it} + 0.302\ IFR_{it} * FC_{it} - 0.281\ RE_{it} + 0.250\ RE_{it} * FC_{it} + 0.885\ STD_{it} + 0.823\ STD_{it} * FC_{it} - 0.332\ LTD_{it} - 0.380\ LTD_{it} * FC_{it} - 0.296\ TD_{it} - 0.463\ TD_{it} * FC_{it} + 0.904\ SBA_{it} + 0.370\ SBA_{it} * FC_{it} + 0.600\ SBR_{it} + 0.468\ SBR_{it} * FC_{it} + 0.459\ CS_{it} + 0.207\ CS_{it} * FC_{it} + 0.266\ PS_{it} + 0.477\ PS_{it} * FC_{it} + 0.876\ ER_{it} + 0.659\ ER_{it} * FC_{it} + 0.527\ CCC_{it} + 0.633\ CCC_{it} * FC_{it} + 0.853\ TF_{it} + 0.871\ TF_{it} * FC_{it} + 0.463\ RF_{it} + 0.612\ RF_{it} * FC_{it} + 0.369\ FD_{it} + 0.627\ FD_{it} * FC_{it} + 0.879\ CGR_{it} + 0.891\ CGR_{it} * FC_{it} + 0.968\ SRR_{it} + 0.448\ SRR_{it} * FC_{it} - 0.316\ FS_{it} - 0.387\ AT_{it} + 0.702\ TAT_{it} + 0.516$$

Beta coefficient equation for Iran

$$EPS_{it} = -0.369\ FC_{it} - 0.490\ IFR_{it} + 0.133\ IFR_{it} * FC_{it} - 0.351\ RE_{it} + 0.408\ RE_{it} * FC_{it} + 0.401 STD_{it} + 0.375\ STD_{it} * FC_{it} - 0.381\ LTD_{it} - 0.253\ LTD_{it} * FC_{it} - 0.326\ TD_{it} - 0.344\ TD_{it} * FC_{it} + 0.213\ SBA_{it} + 0.438\ SBA_{it} * FC_{it} + 0.734\ SBR_{it} + 0.531\ SBR_{it} * FC_{it} - 0.365\ CS_{it} - 0.508\ CS_{it} * FC_{it} - 0.452\ PS_{it} - 0.371\ PS_{it} * FC_{it} - 0.703\ ER_{it} - 0.435\ ER_{it} * FC_{it} + 0.879\ CCC_{it} + 0.715\ CCC_{it} * FC_{it} + 0.693\ TF_{it} + 0.509\ TF_{it} * FC_{it} + 0.428\ RF_{it} + 0.646\ RF_{it} * FC_{it} + 0.372\ FD_{it} + 0.303\ FD_{it} * FC_{it} + 0.540\ CGR_{it} + 0.673\ CGR_{it} * FC_{it} + 0.321\ SRR_{it} + 0.764\ SRR_{it} * FC_{it} - 0.563\ FS_{it} - 0.335\ AT_{it} + 0.627\ TAT_{it} + 0.590$$

### 4.3.4 Financing Alternatives, Financial Constraints, and Sustainable Performance

Following the proposed models 6.1 and 6.2 that determine the moderation effect of financial constraints between financing alternatives and sustainable performance for the selected SCO states, under the controlled effect of firm size, asset tangibility, and total asset turnover, by employing the mixed panel regression statistics, reported in table 4.3.17 and 4.3.18. Sustainable performance is measured by GRI sustainability and sustainable growth rate. The estimations give preference for fixed effect model based upon decided criteria for panel regression models. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Considering the conditions for the moderation effect, the fixed effect panel estimations show that all the models have obtained insignificant influence of financial constraints on GRI sustainability and SGR, with p-values greater than 0.05, the first condition for the moderation effect has been fulfilled. Secondly, the fixed effect has obtained significant influence of interaction terms, indicating satisfaction with the second condition. For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for GRI sustainability and SGR in the financial constraints as a moderator variable. The estimations show that financial constraints have a complete moderation effect on both the internal financing ratio and retained earnings, when regressed for GRI sustainability and SGR with insignificant p-value i-e greater than 0.05, only Pakistan shows partial moderation with SGR with significant p-values under P-OLS and fixed effect estimations. Hence satisfies hypotheses H6.1a and H6.1b, the financial constraints moderate the relationship between internal financing and GRI sustainability, and SGR of nonfinancial companies in the SCO member states. The study findings contributed to pecking order theory and market timing theory, and is aligned with the existing literature, Rokhmawati (2017), proved that financially constrained firms were more relied on internally generated funding sources (cashflows) to facilitate profitable future investments, and financially distressed firms with low beta values tend to underinvest due to

limited capability of generating funds from operational activities. Kasseeah (2008), proved that the availability of sufficient internal funds leads to a reduction of debt borrowing.

Under fixed effect estimations, financial constraints appeared as complete moderators for both short-term, long-term, and total debt with insignificant p-values i-e greater than 0.05 level, except only Pakistan shows partial moderation with a significant 0.05 p-value. Hence supported the hypotheses H6.2a and H6.2b, the financial constraints moderate the relationship between debt financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. Zhang and Liu (2017), proved that financial constraints, institutional environment, and leverage cost are the important factors significantly moderates the relationship between firm leverage and total factor productivity. They argued that the interrelation tends to be extremely stronger for the companies with higher financial constraints, institutional environment, and increased leverage cost. Financially constrained companies have limited access to efficient financing alternatives, leverage is the most preferable alternative that can satisfy their capital requirements to achieve targeted TFP. The study findings aligned with pecking order theory, market timing effect, trade off theory and traditional theory approach by giving preference to short-term debts first and then long-term debts for maintaining performance effects (Zhang & Liu, 2017). Internal and external financial constraints with increased borrowing cost significantly influences the firm value (Rashid and Jabeen, 2018).

Shadow banking assets and shadow banking ratio also present complete moderating influence of financial constraints for predictors of GRI sustainability and SGR for all SCO states, with p-value above 5% significance level, except only Pakistan shows partial moderation with p-values less than 5% significance level i-e 0.000, 0.024, 0.004 and 0.025 when regressed for both GRI sustainability and SGR. Hence the stated hypotheses $H6.3a$ and H6.3b: The financial constraints moderate the relationship between shadow bank financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states, are accepted. Pecking order theory and market timing theory are supported, in line with Tian et al. (2024), documented shadow banking as the cheapest and prominent financing alternative to borrowers when experienced severe information asymmetry, takeover exposures and financial constraints.

Financial constraints show a complete moderation effect with common stocks, preferred stocks, and equity ratio when regressed for GRI sustainability, with p-values above 0.05 significance for selected SCO states, except China shows partial moderation with preferred

stocks and GRI sustainability. Hence, H6.4$a$: The financial constraints moderate the relationship between equity financing and GRI sustainability of nonfinancial companies in the SCO member states, is accepted. With SGR, financial constraints show significant partial moderation with common stocks for China and Iran, preferred shares for Pakistan and equity ratio for India and China, fixed effect statistics have obtained p-values below 0.05 significance level. Hence H6.4b: The financial constraints moderate the relationship between equity financing and SGR of nonfinancial companies in the SCO member states, is accepted. As per author's research limited literature is available for supporting the interactive effect of financial constraints, financing decisions and performance effects. Auret et al. (2013), documented less dividend payout ratio during financial constraints. The current study incorporated developing SCO states with weak financial systems and corporate financing policies (Rashid & Jabeen, 2018), and for maintaining sustainability these nations show deviations from higher cost of capital and low equity valuations. The current study proved preference of equity finances by Chinese firms, while Pakistan, India and Iran considered it a last financing resort because of high security market undervaluation.

Among the sources of supply chain financing, CCC, trade financing, and factoring financing, shows a complete moderation effect of financial constraints, for SGR. Only China, Iran, and India show partial moderation with significant p-values below 0.05, for SGR. Supply chain financing sources and the predictors of GRI are also significantly influenced by the financial constraints, hence, the estimations support hypotheses H6.5a and H6.5b i-e financial constraints moderate the relationship between supply chain financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. According to Baker et al. (2022), large-scale, financially distressed companies are more interested in maintaining a higher level of optimal trade credit finances than un-constrained firms, for increasing their firm profitability. The financially constrained firm considered the financing alternative based on the trade-off between the cost and benefits, a very few studies highlighted this trade-off perspective, such as (Wetzel & Hofmann 2019; Altaf & Shah 2017; Caballero et al. 2014). The existing studies highlighted financial constraints from the investment perspective, and to the best of the researcher's knowledge, no study has determined the interaction effect of financial constraints from the financing perspective, specifically focusing on GRI sustainability and SGR.

Based on the statistical and theoretical acceptance of stated hypotheses for the interrelation between financial constraints, comprehensive financing alternatives, and

sustainable performance measures, the study significantly proved the moderating influence of financial constraints on the relation between financing alternatives and sustainable performance. Hence H6 is accepted. All three controlled variables have a significant controlled effect on sustainable performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. For GRI sustainability and SGR, the Hausman model specification test shows the p-value<0.05, which supports the validity of fixed effect for selected SCO nations. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show acceptable variance explanation powers with r-square values below 0.60 for GRI sustainability and SGR, for all four SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.17: Model 6.1,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and GRI Sustainability*

| Financing Alternatives, Financial Constraints, and GRI Sustainability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: GRI Moderator: Financial Constraints (FC) Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.441 | 0.255 | -0.568 | 0.313 | -0.355 | 0.094 | -0.335 | 0.163 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.460 | 0.839 | -0.451 | 0.720 | -0.239 | 0.160 | -0.466 | 0.530 |
| Internal financing ratio *Financial constraints | 0.349 | 0.001 | 0.557 | 0.000 | 0.521 | 0.002 | 0.289 | 0.000 |
| Retained Earnings | -0.444 | 0.118 | -0.403 | 0.087 | -0.457 | 0.341 | -0.501 | 0.129 |
| Retained Earnings*Financial constraints | 0.440 | 0.000 | 0.211 | 0.000 | 0.381 | 0.000 | 0.509 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.572 | 0.187 | 0.642 | 0.150 | 0.892 | 0.460 | 0.190 | 0.137 |
| Short-term debt*Financial constraints | 0.797 | 0.000 | 0.317 | 0.000 | 0.872 | 0.000 | 0.529 | 0.000 |
| Long-term debt | -0.408 | 0.831 | -0.392 | 0.262 | -0.165 | 0.103 | -0.270 | 0.748 |
| Long-term debt*Financial constraints | -0.279 | 0.000 | -0.297 | 0.000 | -0.510 | 0.000 | -0.466 | 0.000 |
| Total debt | -0.444 | 0.012 | -0.148 | 0.148 | -0.241 | 0.457 | -0.361 | 0.201 |
| Total debt*Financial constraints | -0.519 | 0.001 | -0.426 | 0.000 | -0.453 | 0.001 | -0.523 | 0.021 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.499 | 0.024 | 0.332 | 0.443 | 0.484 | 0.294 | 0.518 | 0.282 |
| Shadow banking assets*Financial constraints | 0.191 | 0.012 | 0.575 | 0.022 | 0.378 | 0.027 | 0.464 | 0.042 |
| Shadow banking ratio | 0.465 | 0.025 | 0.582 | 0.197 | 0.834 | 0.121 | 0.525 | 0.099 |
| Shadow banking ratio*Financial constraints | 0.484 | 0.000 | 0.350 | 0.000 | 0.415 | 0.000 | 0.892 | 0.009 |
| Equity financing | | | | | | | | |
| Common stocks | -0.559 | 0.281 | -0.328 | 0.130 | 0.189 | 0.251 | -0.312 | 0.128 |
| Common stocks*Financial constraints | -0.388 | 0.000 | -0.415 | 0.000 | 0.470 | 0.000 | -0.510 | 0.006 |
| Preferred stocks | -0.424 | 0.656 | -0.332 | 0.430 | 0.761 | 0.000 | -0.305 | 0.534 |
| Preferred stocks*Financial constraints | -0.400 | 0.006 | -0.235 | 0.004 | 0.263 | 0.018 | -0.291 | 0.036 |
| Equity ratio | -0.414 | 0.303 | -0.460 | 0.798 | 0.481 | 0.357 | -0.547 | 0.092 |
| Equity ratio*Financial constraints | -0.442 | 0.000 | -0.154 | 0.000 | 0.882 | 0.001 | -0.334 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.892 | 0.175 | 0.492 | 0.416 | 0.340 | 0.009 | 0.547 | 0.122 |
| Cash Conversion Cycle*Financial constraints | 0.737 | 0.000 | 0.861 | 0.000 | 0.818 | 0.000 | 0.377 | 0.001 |
| Trade financing | 0.753 | 0.834 | 0.641 | 0.102 | 0.223 | 0.090 | 0.338 | 0.482 |
| Trade financing*Financial constraints | 0.614 | 0.000 | 0.429 | 0.000 | 0.366 | 0.007 | 0.917 | 0.000 |
| Reverse factoring | 0.954 | 0.486 | 0.796 | 0.000 | 0.307 | 0.054 | 0.667 | 0.052 |
| Reverse factoring*Financial constraints | 0.479 | 0.000 | 0.854 | 0.007 | 0.574 | 0.000 | 0.610 | 0.000 |
| Factoring | 0.325 | 0.529 | 0.535 | 0.345 | 0.656 | 0.012 | 0.864 | 0.229 |
| Factoring*Financial constraints | 0.468 | 0.000 | 0.290 | 0.002 | 0.806 | 0.002 | 0.886 | 0.000 |
| Credit guarantees ratio | 0.873 | 0.045 | 0.426 | 0.018 | 0.797 | 0.043 | 0.436 | 0.303 |
| Credit guarantees ratio*Financial constraints | 0.686 | 0.005 | 0.698 | 0.011 | 0.643 | 0.000 | 0.461 | 0.001 |
| Solvency rating ratio | 0.406 | 0.657 | 0.703 | 0.279 | 0.339 | 0.264 | 0.828 | 0.105 |
| Solvency rating ratio *Financial constraints | 0.269 | 0.015 | 0.424 | 0.016 | 0.436 | 0.027 | 0.760 | 0.029 |
| Control variables | | | | | | | | |
| Firm Size | -0.529 | 0.023 | -0.330 | 0.004 | -0.321 | 0.037 | -0.356 | 0.019 |
| Asset Tangibility | -0.537 | 0.041 | -0.169 | 0.034 | -0.286 | 0.019 | -0.372 | 0.000 |
| Total Asset turnover | 0.578 | 0.000 | 0.627 | 0.030 | 0.494 | 0.015 | 0.770 | 0.047 |
| Constant | 0.385 | 0.199 | 0.613 | 0.000 | 0.639 | 0.085 | 0.827 | 0.336 |

| | | | | |
|---|---|---|---|---|
| R-square | 0.479 | 0.483 | 0.528 | 0.482 |
| F-Statistic | 4.140 | 3.150 | 3.070 | 3.190 |
| (Prob>F) | 0.000 | 0.000 | 0.000 | 0.000 |
| Wald test | 0.000 | 0.000 | 0.000 | 0.000 |
| Hausman test | 0.000 | 0.000 | 0.000 | 0.000 |
| Lagrange Multiplier test | 0.000 | 0.000 | 0.000 | 0.000 |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 6.1 includes the GRI Sustainability Performance as a regressand variable, financial constraints as moderators, and interaction term: Financing alternatives* Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$GRI_{it} = -0.441FC_{it} - 0.460\ IFR_{it} + 0.349\ IFR_{it} * FC_{it} - 0.444\ RE_{it} + 0.440\ RE_{it} * FC_{it} + 0.572\ STD_{it} + 0.797\ STD_{it} * FC_{it} - 0.408\ LTD_{it} - 0.279\ LTD_{it} * FC_{it} - 0.444\ TD_{it} - 0.519\ TD_{it} * FC_{it} + 0.499\ SBA_{it} + 0.191\ SBA_{it} * FC_{it} + 0.465\ SBR_{it} + 0.484\ SBR_{it} * FC_{it} - 0.559\ CS_{it} - 0.388\ CS_{it} * FC_{it} - 0.424\ PS_{it} - 0.400\ PS_{it} * FC_{it} - 0.414\ ER_{it} + 0.442\ ER_{it} * FC_{it} + 0.892\ CCC_{it} + 0.737\ CCC_{it} * FC_{it} + 0.753\ TF_{it} + 0.614\ TF_{it} * FC_{it} + 954\ RF_{it} + 0.479\ RF_{it} * FC_{it} + 0.325\ FD_{it} + 0.468\ FD_{it} * FC_{it} + 0.873\ CGR_{it} + 0.686\ CGR_{it} * FC_{it} + 0.406\ SRR_{it} + 0.269\ SRR_{it} * FC_{it} - 0.529\ FS_{it} - 0.537\ AT_{it} + 0.578\ TAT_{it} + 0.385$$

Beta coefficient equation for India

$$GRI_{it} = -0.568\ FC_{it} - 0.451\ IFR_{it} + 0.557\ IFR_{it} * FC_{it} - 0.403\ RE_{it} + 0.211\ RE_{it} * FC_{it} + 0.642\ STD_{it} + 0.317\ STD_{it} * FC_{it} - 0.392\ LTD_{it} - 0.297\ LTD_{it} * FC_{it} - 0.148\ TD_{it} - 0.426\ TD_{it} * FC_{it} + 0.332\ SBA_{it} + 0.575\ SBA_{it} * FC_{it} + 0.582\ SBR_{it} + 0.350\ SBR_{it} * FC_{it} - 0.328\ CS_{it} - 0.415\ CS_{it} * FC_{it} - 0.332\ PS_{it} - 0.235\ PS_{it} * FC_{it} - 0.460\ ER_{it} + 0.154\ ER_{it} * FC_{it} + 0.492\ CCC_{it} + 0.861\ CCC_{it} * FC_{it} + 0.641\ TF_{it} + 0.429\ TF_{it} * FC_{it} + 0.796\ RF_{it} + 0.854\ RF_{it} * FC_{it} + 0.535\ FD_{it} + 0.290\ FD_{it} * FC_{it} + 0.426\ CGR_{it} + 0.698\ CGR_{it} * FC_{it} + 0.703\ SRR_{it} + 0.424\ SRR_{it} * FC_{it} - 0.330\ FS_{it} - 0.169\ AT_{it} + 0.627\ TAT_{it} + 0.613$$

Beta coefficient equation for China

$$GRI_{it} = -0.355\ FC_{it} - 0.239\ IFR_{it} + 0.521\ IFR_{it} * FC_{it} - 0.457\ RE_{it} + 0.381\ RE_{it} * FC_{it} + 0.892\ STD_{it} + 0.872\ STD_{it} * FC_{it} - 0.165\ LTD_{it} - 0.510\ LTD_{it} * FC_{it} - 0.241\ TD_{it} - 0.453\ TD_{it} * FC_{it} + 0.484\ SBA_{it} + 0.378\ SBA_{it} * FC_{it} + 0.834\ SBR_{it} + 0.415\ SBR_{it} * FC_{it} + 0.189\ CS_{it} + 0.470\ CS_{it} * FC_{it} + 0.761\ PS_{it} + 0.263\ PS_{it} * FC_{it} + 0.481\ ER_{it} + 0.882\ ER_{it} * FC_{it} + 0.340\ CCC_{it} + 0.818\ CCC_{it} * FC_{it} + 0.223\ TF_{it} + 0.366\ TF_{it} * FC_{it} + 0.307\ RF_{it} + 0.574\ RF_{it} * FC_{it} + 0.656\ FD_{it} + 0.806\ FD_{it} * FC_{it} + 0.797\ CGR_{it} + 0.643\ CGR_{it} * FC_{it} + 0.339\ SRR_{it} + 0.436\ SRR_{it} * FC_{it} - 0.321\ FS_{it} - 0.286\ AT_{it} + 0.494\ TAT_{it} + 0.639$$

Beta coefficient equation for Iran

$$GRI_{it} = -0.335\ FC_{it} - 0.466\ IFR_{it} + 0.289\ IFR_{it} * FC_{it} - 0.501\ RE_{it} + 0.509\ RE_{it} * FC_{it} + 0.190\ STD_{it} + 0.529\ STD_{it} * FC_{it} - 0.270\ LTD_{it} - 0.466\ LTD_{it} * FC_{it} - 0.361\ TD_{it} - 0.523\ TD_{it} * FC_{it} + 0.518\ SBA_{it} + 0.464\ SBA_{it} * FC_{it} + 0.525\ SBR_{it} + 0.892\ SBR_{it} * FC_{it} - 0.312\ CS_{it} - 0.510\ CS_{it} * FC_{it} - 0.305\ PS_{it} - 0.291\ PS_{it} * FC_{it} - 0.547\ ER_{it} + 0.334\ ER_{it} * FC_{it} +$$

$0.547\ CCC_{it}$+$0.377\ CCC_{it} * FC_{it}$+$0.338\ TF_{it}$+$0.917\ TF_{it} * FC_{it}$+$0.667\ RF_{it}$ +$0.610\ RF_{it} * FC_{it}$+$0.864\ FD_{it}$+$0.886\ FD_{it} * FC_{it}$+$0.436\ CGR_{it}$+$0.461\ CGR_{it} * FC_{it}$+$0.828\ SRR_{it}$+ $0.760\ SRR_{it} * FC_{it}$-$0.356\ FS_{it}$-$0.372\ AT_{it}$+$0.770\ TAT_{it}$+$0.827$

**Table 4.3.18: Model 6.2,** *Panel Regression Analysis for Financing Alternatives, Financial Constraints, and Sustainable Growth Rate*

| Financing Alternatives, Financial Constraints, and Sustainable Growth Rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: SGR | | | | Moderator: Financial Constraints (FC) | | | | |
| Interaction term: Financing alternatives* Financial Constraints | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| Financial constraints | -0.295 | 0.955 | -0.371 | 0.075 | -0.421 | 0.135 | -0.355 | 0.237 |
| Internal financing | | | | | | | | |
| Internal financing ratio | -0.362 | 0.074 | -0.501 | 0.667 | -0.357 | 0.197 | -0.523 | 0.070 |
| Internal financing ratio *Financial constraints | 0.518 | 0.000 | 0.376 | 0.000 | 0.404 | 0.003 | 0.661 | 0.001 |
| Retained Earnings | -0.493 | 0.000 | -0.636 | 0.566 | -0.302 | 0.605 | -0.430 | 0.497 |
| Retained Earnings*Financial constraints | 0.332 | 0.007 | 0.426 | 0.000 | 0.345 | 0.000 | 0.495 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.701 | 0.075 | 0.224 | 0.305 | 0.976 | 0.192 | 0.245 | 0.698 |
| Short-term debt*Financial constraints | 0.772 | 0.022 | 0.389 | 0.000 | 0.887 | 0.003 | 0.608 | 0.038 |
| Long-term debt | -0.185 | 0.320 | -0.625 | 0.189 | -0.298 | 0.491 | -0.263 | 0.085 |
| Long-term debt*Financial constraints | -0.611 | 0.001 | -0.541 | 0.000 | -0.164 | 0.000 | -0.193 | 0.000 |
| Total debt | -0.275 | 0.883 | -0.418 | 0.758 | -0.258 | 0.059 | -0.303 | 0.078 |
| Total debt*Financial constraints | -0.529 | 0.004 | -0.388 | 0.000 | -0.382 | 0.007 | -0.169 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.517 | 0.271 | 0.711 | 0.116 | 0.684 | 0.111 | 0.505 | 0.613 |
| Shadow banking assets*Financial constraints | 0.403 | 0.000 | 0.495 | 0.000 | 0.496 | 0.000 | 0.349 | 0.002 |
| Shadow banking ratio | 0.306 | 0.133 | 0.311 | 0.141 | 0.787 | 0.418 | 0.628 | 0.370 |
| Shadow banking ratio*Financial constraints | 0.464 | 0.000 | 0.379 | 0.000 | 0.417 | 0.000 | 0.208 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.550 | 0.117 | -0.429 | 0.122 | 0.328 | 0.037 | -0.488 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Common stocks*Financial constraints | -0.174 | 0.027 | -0.450 | 0.000 | 0.389 | 0.047 | -0.311 | 0.007 |
| Preferred stocks | -0.578 | 0.004 | -0.392 | 0.189 | 0.758 | 0.089 | -0.404 | 0.214 |
| Preferred stocks*Financial constraints | -0.217 | 0.020 | -0.267 | 0.000 | 0.771 | 0.047 | -0.358 | 0.000 |
| Equity ratio | -0.384 | 0.523 | -0.361 | 0.015 | 0.319 | 0.000 | -0.575 | 0.219 |
| Equity ratio*Financial constraints | -0.574 | 0.000 | -0.338 | 0.009 | 0.278 | 0.000 | -0.310 | 0.001 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.255 | 0.200 | 0.439 | 0.102 | 0.735 | 0.333 | 0.623 | 0.192 |
| Cash Conversion Cycle*Financial constraints | 0.364 | 0.000 | 0.895 | 0.000 | 0.611 | 0.005 | 0.351 | 0.036 |
| Trade financing | 0.429 | 0.539 | 0.860 | 0.989 | 0.612 | 0.070 | 0.865 | 0.348 |
| Trade financing*Financial constraints | 0.391 | 0.000 | 0.648 | 0.000 | 0.299 | 0.000 | 0.731 | 0.000 |
| Reverse factoring | 0.341 | 0.251 | 0.696 | 0.507 | 0.444 | 0.039 | 0.698 | 0.462 |
| Reverse factoring*Financial constraints | 0.222 | 0.000 | 0.647 | 0.009 | 0.612 | 0.000 | 0.516 | 0.001 |
| Factoring | 0.332 | 0.469 | 0.220 | 0.483 | 0.656 | 0.225 | 0.480 | 0.187 |
| Factoring*Financial constraints | 0.531 | 0.030 | 0.681 | 0.038 | 0.578 | 0.001 | 0.770 | 0.045 |
| Credit guarantees ratio | 0.339 | 0.737 | 0.299 | 0.120 | 0.628 | 0.000 | 0.698 | 0.005 |
| Credit guarantees ratio*Financial constraints | 0.970 | 0.000 | 0.284 | 0.004 | 0.875 | 0.050 | 0.477 | 0.000 |
| Solvency rating ratio | 0.909 | 0.144 | 0.453 | 0.000 | 0.308 | 0.124 | 0.348 | 0.405 |
| Solvency rating ratio *Financial constraints | 0.416 | 0.000 | 0.491 | 0.000 | 0.746 | 0.000 | 0.473 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | -0.533 | 0.021 | -0.488 | 0.010 | -0.331 | 0.043 | -0.334 | 0.012 |
| Asset Tangibility | -0.343 | 0.029 | -0.396 | 0.009 | -0.390 | 0.000 | -0.430 | 0.031 |
| Total Asset turnover | 0.783 | 0.009 | 0.509 | 0.000 | 0.620 | 0.004 | 0.750 | 0.000 |
| Constant | 0.583 | 0.000 | 0.303 | 0.008 | 0.665 | 0.004 | 0.699 | 0.031 |
| R-square | 0.437 | | 0.499 | | 0.594 | | 0.586 | |
| F-Statistic | 1.560 | | 1.380 | | 1.530 | | 1.980 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 6.2 includes the Sustainable growth rate as a regressand variable, Stagflation Cycles as moderators, and interaction term: Financing alternatives*Financial Constraints. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$SGR_{it}$= -0.295 $FC_{it}$-0.362 $IFR_{it}$+0.518 $IFR_{it} * FC_{it}$ -0.493 $RE_{it}$+0.332 $RE_{it} * FC_{it}$+ 0.701 $STD_{it}$+0.772 $STD_{it} * FC_{it}$-0.185 $LTD_{it}$-0.611 $LTD_{it} * FC_{it}$- 0.275 $TD_{it}$-0.529 $TD_{it} *$ $FC_{it}$+0.517 $SBA_{it}$+0.403 $SBA_{it} * FC_{it}$+0.306 $SBR_{it}$+0.464 $SBR_{it} * FC_{it}$-0.550 $CS_{it}$- 0.174 $CS_{it} * FC_{it}$-0.578 $PS_{it}$-0.217 $PS_{it} * FC_{it}$-0.384 $ER_{it}$+0.574 $ER_{it} * FC_{it}$+ 0.255 $CCC_{it}$+0.364 $CCC_{it} * FC_{it}$+0.429 $TF_{it}$+0.391 $TF_{it} * FC_{it}$+0.341 $RF_{it}$ +0.222 $RF_{it} *$ $FC_{it}$+0.332 $FD_{it}$+0.531 $FD_{it} * FC_{it}$+0.339 $CGR_{it}$+0.970 $CGR_{it} * FC_{it}$+0.909 $SRR_{it}$+ 0.416 $SRR_{it} * FC_{it}$-0.533 $FS_{it}$-0.343 $AT_{it}$+0.783 $TAT_{it}$+0.583

Beta coefficient equation for India

$SGR_{it}$= -0.371 $FC_{it}$-0.501 $IFR_{it}$+0.376 $IFR_{it} * FC_{it}$ -0.636 $RE_{it}$+0.426 $RE_{it} * FC_{it}$+ 0.224 $STD_{it}$+0.389 $STD_{it} * FC_{it}$-0.625 $LTD_{it}$-0.541 $LTD_{it} * FC_{it}$- 0.418 $TD_{it}$-0.388 $TD_{it} *$ $FC_{it}$+0.711 $SBA_{it}$+0.495 $SBA_{it} * FC_{it}$+0.311 $SBR_{it}$+0.379 $SBR_{it} * FC_{it}$-0.429 $CS_{it}$- 0.450 $CS_{it} * FC_{it}$-0.392 $PS_{it}$-0.267 $PS_{it} * FC_{it}$-0.361 $ER_{it}$-0.338 $ER_{it} * FC_{it}$+ 0.439 $CCC_{it}$+0.895 $CCC_{it} * FC_{it}$+0.860 $TF_{it}$+0.648 $TF_{it} * FC_{it}$+0.696 $RF_{it}$ +0.647 $RF_{it} *$ $FC_{it}$+0.220 $FD_{it}$+0.681 $FD_{it} * FC_{it}$+0.299 $CGR_{it}$+0.284 $CGR_{it} * FC_{it}$+0.453 $SRR_{it}$+ 0.491 $SRR_{it} * FC_{it}$-0.488 $FS_{it}$-0.396$AT_{it}$+0.509 $TAT_{it}$+0.303

Beta coefficient equation for China

$SGR_{it}$= -0.421 $FC_{it}$-0.357 $IFR_{it}$+0.404 $IFR_{it} * FC_{it}$ -0.302 $RE_{it}$+0.345 $RE_{it} * FC_{it}$+ 0.976 $STD_{it}$+0.887 $STD_{it} * FC_{it}$-0.298 $LTD_{it}$-0.164 $LTD_{it} * FC_{it}$- 0.258 $TD_{it}$-0.382 $TD_{it} *$ $FC_{it}$+0.684 $SBA_{it}$+0.496 $SBA_{it} * FC_{it}$+0.787 $SBR_{it}$+0.417 $SBR_{it} * FC_{it}$+0.328 $CS_{it}$+ 0.389 $CS_{it} * FC_{it}$+0.758 $PS_{it}$+0.771 $PS_{it} * FC_{it}$+0.319 $ER_{it}$+0.278 $ER_{it} * FC_{it}$+ 0.735 $CCC_{it}$+0.611 $CCC_{it} * FC_{it}$+0.612 $TF_{it}$+0.299 $TF_{it} * FC_{it}$+0.444 $RF_{it}$ +0.612 $RF_{it} *$ $FC_{it}$+0.656 $FD_{it}$+0.578 $FD_{it} * FC_{it}$+0.628 $CGR_{it}$+0.875 $CGR_{it} * FC_{it}$+0.308 $SRR_{it}$+ 0.746 $SRR_{it} * FC_{it}$-0.331 $FS_{it}$-0.390 $AT_{it}$+0.620 $TAT_{it}$+0.665

Beta coefficient equation for Iran

$SGR_{it}$= -0.355 $FC_{it}$-0.523 $IFR_{it}$+0.661 $IFR_{it} * FC_{it}$ -0.430 $RE_{it}$+0.495 $RE_{it} * FC_{it}$+ 0.245 $STD_{it}$+0.608 $STD_{it} * FC_{it}$-0.263 $LTD_{it}$-0.193 $LTD_{it} * FC_{it}$- 0.303 $TD_{it}$-0.169 $TD_{it} *$ $FC_{it}$+0.505 $SBA_{it}$+0.349 $SBA_{it} * FC_{it}$+0.628 $SBR_{it}$+0.208 $SBR_{it} * FC_{it}$-0.488 $CS_{it}$- 0.311 $CS_{it} * FC_{it}$-0.404 $PS_{it}$-0.358 $PS_{it} * FC_{it}$-0.575 $ER_{it}$-0.310 $ER_{it} * FC_{it}$+ 0.623 $CCC_{it}$+0.351$CCC_{it} * FC_{it}$+0.865$TF_{it}$+0.31 $TF_{it} * FC_{it}$+0.698 $RF_{it}$ +0.516 $RF_{it} *$ $FC_{it}$+0.480 $FD_{it}$+0.770 $FD_{it} * FC_{it}$+0.698 $CGR_{it}$+0.477 $CGR_{it} * FC_{it}$+0.348 $SRR_{it}$+ 0.473 $SRR_{it} * FC_{it}$-0.334 $FS_{it}$-0.430 $AT_{it}$+0.750 $TAT_{it}$+0.699

### 4.3.5 Financing Alternatives, Corporate Governance Mechanism, and Financial Performance

The proposed model 7.1 to 7.7 determines the panel regression effects of financing alternatives on financial performance, with the moderation effect of CGMI, and under the controlled effect

of firm size, asset tangibility, and total asset turnover. The financial performance is measured by both comprehensive financial performance measures: ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS.

Table 4.3.19 to 4.3.25 shows the fixed effect panel regression statistics for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS, for selected SCO member states. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

The interaction term for moderating influence is financing alternatives*CGMI, considered as independent variables. The estimated results incorporated financing alternatives: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing, as independent variables. Following the three conditions for effective moderation analysis: 1) the effect of CGMI on dependent variables should be insignificant, 2) the effect of financing alternatives*CGMI on dependent variables should be significant, and 3) the two possibilities for partial and complete moderation based upon the significance of the interrelation between independent variables and response variable in the presence of a moderator: CGMI.

Based upon the estimations, fixed effect statistics have obtained insignificant influence of CGMI on ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS, with p-values greater than 0.05, the first condition for moderation effect have been fulfilled. Secondly, fixed effect statistics have obtained significant influence of interaction terms such as internal financing ratio*CGMI, retained earnings*CGMI, long-term debt*CGMI, short-term debt*CGMI, total debt*CGMI, shadow banking assets*CGMI, shadow banking ratio*CGMI, common stocks*CGMI, preferred stocks*CGMI, equity ratio*CGMI, cash conversion cycle*CGMI, trade financing*CGMI, reverse factoring*CGMI, factoring*CGMI, credit guarantees

ratio*CGMI, solvency rating ratio*CGMI, with p-value less than 0.05 significance level. The second condition for the moderation effect has been fulfilled.

For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS in the presence of a moderator variable i-e CGMI. Under P-OLS, random and fixed effect, considering predictors of ROA, ROE, NPM, ROCE, ROIC, and EPS the measures of internal financing: internal financing ratio and retained earnings show complete moderating influence of CGMI for all SCO states, with p-values above 0.05 significance level. Hence satisfies the stated hypotheses from H7.1a to H7.1g: The CGMI moderates the relationship between internal financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's, and EPS of nonfinancial companies in the SCO member states. Ronoowah and Seetanah (2023b), argued that the firm's preference for internal financing sources supports the management in avoiding outside influences in their decision-making. The results are in line with the existing studies, such as (Ronoowah & Seetanah 2023a; Seetanah et al. 2014), which indicated that good corporate governance always prefers internal finances rather than external borrowing, aligned with pecking order theory. Ngatno et al. (2021), documented that preferring internal finances will reduce the company's reliance on external parties, increase internal information privacy and financial autonomy, and hence, positively influences the firm performance.

CGMI also shows a complete moderation effect for all the measures of debt finances, when regressed for the predictors of financial performance, for selected SCO member states, India shows partial moderation for short-run debts-NPM relation and long-term debts-EPS relation for China and Iran with p-values<0.05 i-e 0.000, 0.012, 0.000, 0.015, and 0.038. Hence both partial and complete moderation satisfies the hypotheses from H7.2a to H7.2g: The CGMI moderates the relationship between debt finances and ROA, ROE, NPM, ROCE, ROIC, Tobin's, and EPS of nonfinancial companies in the SCO member states with p-values less than 0.05. In line with agency theory, better governance mechanisms result in optimal debt structure with minimization of the agency cost and enhancement of firm value (Amin et al., 2022). Harris and Raviv (1991), argued that corporate debt policy is recognized as a significant CG mechanism for minimizing agency conflicts among managers and shareholders. An extensive number of studies proved the significant interaction influence of governance mechanisms on leverage capital structure and corporate performance, focusing on ROA, ROE, and Tobin's q, such as Ronoowah & Seetanah (2023a); Ronoowah & Seetanah (2023b); Amin et al. (2022); Ngatno et al. (2021). Ronoowah and Seetanah (2023b), argued that managerial entrenchment

significantly influences the firm debt structure and helps the firm to achieve the targeted leverage level that significantly influences the corporate performance. The current study proved that right governance mechanisms prefer short-run debts over long-term credits for maintaining financial performance by minimizing agency conflicts between management and debtholders.

Both shadow banking assets and shadow banking ratios employed the mixed panel regression statistics for evaluating the moderating influence of CGMI on financial performance, estimations present the complete moderating influence of CGMI on the relation between shadow bank finances and ROA, ROE, NPM, ROCE, ROIC, Tobin's and EPS, except Pakistan shows partial moderation for ROA, ROE and Tobin's q and Iran for ROIC and China for ROCE, Hence, the estimation results proved the hypotheses from 7.3a to 7.3g, The CGMI moderates the relationship between shadow bank financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's and EPS of nonfinancial companies in the SCO member states. According to Schwarcz (2015), the governance structure of shadow finances should be based upon the principles of limited liability and better alignment between the investor, shareholder, and societal interest, and limited liability creates strong incentives for investors and managers to take risks that ultimately lead to oversized personal profits. The present study contributed to agency theory by proving shadow banking a dominant financing option with low agency conflicts, in line with Wu and Shen (2019), proved that good governance tends to dramatically diminish the impact of shadow banking on risk-taking, proxied by volatility in the ROA, volatility in stock price and inverse of z-score.

CGMI shows complete moderating influence for most of the equity finances-short-run performance relations, with p-values above 0.05, except Pakistan, China, and Iran show partial moderation for common stocks and preferred stocks for ROA, India for NPM, Pakistan and Iran for ROCE and ROIC, Pakistan, China, and Iran with EPS with significant p-values i-e less than 0.05. Hence the resulting moderating influences proved the hypotheses from 7.4a to 7.4g, The CGMI moderates the relationship between equity financing and ROA, ROE, NPM, ROCE, ROIC, Tobin's, and EPS of nonfinancial companies in the SCO member states. Drobetz et al. (2004) and Gompers et al. (2003), highlighted an important supposition of agency theory, i-e the developed CG and affirmed shareholder rights play a contributing role in minimizing agency cost and increasing the investor confidence in the organization's cashflow, ultimately reduces the underlying cost of equity capital and directing the interest towards equity financing with the reduction in corporate dependence on debt finances. Ronoowah and Seetanah (2023b),

argued that better corporate governance increases the status of investor overconfidence in the non-finance firms, this resulted in the improved market value of equity finances, and hence, Tobin's q increases. The evidenced study by Ali et al. (2019), proved that effective CG reduces the firm cost of equity. Gompers et al. (2003), proved the significant influence of CG on equity prices and identified that firms with effective stockholder's rights had excessive profits, maximized firm value, improved sales growth, and minimum capital expenditures with limited corporate acquisitions. He documented that a larger board size reduces the manager's decision-making power and goes for including more equity proportion in the capital structure than debt, therefore the resulted in low leverage might reduce the firm future default risk (Meah, 2019). The management monitoring safeguards the interest of the shareholders and will improve the firm's value.

For scrutinizing the moderation effect of CGMI between supply chain financing and financial performance, most supply chain finances proved complete moderation for CGMI, when predicted with ROA, presenting insignificant p-values above 0.05, except factoring finance shows partial moderation for all SCO states with p-values below 0.05. Bilgin and Dinc (2019), highlighted factoring finances as a high-cost financing alternative, there are finite sources of factoring financing and less independence of factoring markets for loans. For ROE and ROCE, CGMI partially moderates supply chain finances for Pakistan, India, and China, with p-values less than 0.05. For NPM, CCC and TF present complete moderation while the remaining have obtained partial moderating influence for the selected SCO states. CGMI partially moderates the relation between supply chain finances and ROIC for Pakistan, India, and China, except Iran shows a complete moderation relation, for Tobin's q Pakistan and India have obtained partial moderating influence of CGMI. EPS has obtained the complete moderation effect of CGMI for all the supply chain finances, except only India and China partial moderation between CCC-EPS, and SR-EPS. Hence, the obtained statistics support the hypotheses from 7.5a to 7.5g have been supported i-e The CGMI moderates the relationship between supply chain finances and ROA, ROE, NPM, ROCE, ROIC, Tobin's q, and EPS of nonfinancial companies in the SCO member states. Naz et al. (2022), applied agency theory and identified that CGI significantly moderates the interrelation between WCM and corporate performance, through predictors of ROA and ROE. They highlighted that good governance structures can provide the effective monitoring and management of the firm's resources, therefore increasing the working capital, reducing agency issues, and maximizing the wealth of corporate owners. Enomoto (2021), proved the significant interactive interrelation between

shareholdings, trade credit, and accounting quality. They argued that better CG reduces the information asymmetry between stable and cross-shareholdings, resulting in increased trade credit for the firms. Existing studies specifically focused on WCM for determining the CG interactive effects with supply chain finances, limited literature is observed for factoring finances, trade credits, and credit guarantees. Supply chain financing and shadow finances are in the early stage of adoption, specifically among developing nations, the significant illustration from the study opens new research platforms.

Based on the overall statistical and theoretical acceptance of stated hypotheses for the relation between CGMI, comprehensive financing alternatives, and financial performance measures, the study proved the significant moderating influence of CGMI on the relation between financing alternatives and financial performance. Hence H7 is accepted. All three controlled variables have a significant controlled effect on financial performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. For all predictors of financial performance, the Hausman model specification test shows the p-value<0.05, supports the validity of fixed effect for selected SCO nations. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show acceptable variance explanation powers with r-square values of below 0.70 for financial performance measures, for selected SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.19: Model 7.1,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Return on Assets*

| Financing Alternatives, Corporate Governance Mechanism, and Return on Assets | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROA Moderator: Corporate governance Mechanism Index (CGMI) Interaction term: Financing alternatives* CGMI | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.562 | 0.890 | 0.689 | 0.768 | 0.809 | 0.893 | 0.700 | 0.368 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.754 | 0.088 | 0.675 | 0.539 | 0.261 | 0.171 | 0.218 | 0.139 |
| Internal financing ratio *CGMI | 0.321 | 0.000 | 0.396 | 0.000 | 0.750 | 0.000 | 0.295 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Retained Earnings | 0.539 | 0.247 | 0.208 | 0.108 | 0.264 | 0.066 | 0.818 | 0.421 |
| Retained Earnings*CGMI | 0.296 | 0.000 | 0.526 | 0.000 | 0.272 | 0.000 | 0.491 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.471 | 0.227 | 0.514 | 0.173 | 0.522 | 0.874 | 0.324 | 0.317 |
| Short-term debt*CGMI | 0.493 | 0.000 | 0.348 | 0.000 | 0.754 | 0.000 | 0.272 | 0.000 |
| Long-term debt | -0.248 | 0.060 | -0.333 | 0.082 | -0.383 | 0.187 | -0.695 | 0.474 |
| Long-term debt*CGMI | -0.333 | 0.000 | -0.618 | 0.000 | -0.297 | 0.000 | -0.690 | 0.008 |
| Total debt | -0.369 | 0.132 | -0.356 | 0.052 | -0.481 | 0.143 | -0.736 | 0.395 |
| Total debt*CGMI | -0.377 | 0.000 | -0.458 | 0.000 | -0.787 | 0.000 | -0.742 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.503 | 0.006 | 0.556 | 0.687 | 0.371 | 0.428 | 0.433 | 0.080 |
| Shadow banking assets*CGMI | 0.670 | 0.000 | 0.682 | 0.000 | 0.323 | 0.000 | 0.678 | 0.000 |
| Shadow banking ratio | 0.405 | 0.205 | 0.383 | 0.319 | 0.482 | 0.321 | 0.572 | 0.070 |
| Shadow banking ratio*CGMI | 0.706 | 0.000 | 0.327 | 0.010 | 0.298 | 0.000 | 0.602 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.746 | 0.000 | -0.563 | 0.129 | -0.523 | 0.006 | -0.739 | 0.333 |
| Common stocks*CGMI | 0.563 | 0.018 | 0.245 | 0.000 | 0.706 | 0.000 | 0.728 | 0.000 |
| Preferred stocks | -0.312 | 0.108 | -0.393 | 0.109 | -0.509 | 0.009 | -0.910 | 0.008 |
| Preferred stocks*CGMI | 0.679 | 0.000 | 0.676 | 0.003 | 0.333 | 0.000 | -0.434 | 0.002 |
| Equity ratio | -0.310 | 0.985 | -0.516 | 0.052 | -0.211 | 0.982 | -0.526 | 0.986 |
| Equity ratio*CGMI | 0.727 | 0.043 | 0.576 | 0.004 | 0.475 | 0.025 | 0.819 | 0.003 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.347 | 0.122 | 0.495 | 0.396 | 0.496 | 0.086 | 0.671 | 0.523 |
| Cash Conversion Cycle*CGMI | 0.323 | 0.007 | 0.354 | 0.009 | 0.645 | 0.003 | 0.514 | 0.009 |
| Trade financing | 0.431 | 0.061 | 0.586 | 0.163 | 0.444 | 0.347 | 0.531 | 0.776 |
| Trade financing*CGMI | 0.591 | 0.000 | 0.216 | 0.009 | 0.313 | 0.000 | 0.627 | 0.000 |
| Reverse factoring | -0.314 | 0.048 | -0.502 | 0.001 | -0.571 | 0.192 | -0.602 | 0.609 |
| Reverse factoring*CGMI | 0.182 | 0.000 | 0.215 | 0.005 | 0.638 | 0.000 | 0.478 | 0.019 |
| Factoring | -0.475 | 0.036 | -0.485 | 0.008 | -0.665 | 0.000 | -0.474 | 0.002 |
| Factoring*CGMI | 0.448 | 0.019 | 0.426 | 0.005 | 0.331 | 0.001 | 0.591 | 0.002 |
| Credit guarantees ratio | 0.618 | 0.055 | 0.627 | 0.193 | 0.708 | 0.016 | 0.278 | 0.000 |
| Credit guarantees ratio*CGMI | 0.530 | 0.000 | 0.317 | 0.005 | 0.369 | 0.000 | 0.820 | 0.000 |
| Solvency rating ratio | 0.367 | 0.109 | 0.359 | 0.758 | 0.464 | 0.134 | 0.440 | 0.084 |
| Solvency rating ratio *CGMI | 0.326 | 0.000 | 0.640 | 0.029 | 0.404 | 0.022 | 0.763 | 0.014 |
| Control variables | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Firm Size | 0.530 | 0.000 | 0.398 | 0.013 | 0.131 | 0.036 | 0.535 | 0.011 |
| Asset Tangibility | 0.541 | 0.000 | 0.513 | 0.000 | 0.353 | 0.000 | 0.290 | 0.012 |
| Total Asset turnover | 0.614 | 0.000 | 0.299 | 0.022 | 0.381 | 0.016 | 0.340 | 0.005 |
| Constant | 0.451 | 0.000 | 0.502 | 0.000 | 0.198 | 0.000 | 0.168 | 0.000 |
| R-square | 0.449 | | 0.548 | | 0.582 | | 0.611 | |
| F-Statistic | 2.260 | | 2.090 | | 10.960 | | 4.290 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.1 includes the Return on assets as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROA_{it}= 0.562\ CGMI_{it}+0.754\ IFR_{it}+0.321\ IFR_{it}*CGMI_{it}+0.539\ RE_{it}+0.296\ RE_{it}*CGMI_{it}+0.471\ STD_{it}+0.493\ STD_{it}*CGMI_{it}-0.248\ LTD_{it}+0.333\ LTD_{it}*CGMI_{it}-0.369\ TD_{it}-0.377\ TD_{it}*CGMI_{it}+0.503\ SBA_{it}+0.670\ SBA_{it}*CGMI_{it}+0.405\ SBR_{it}+0.706\ SBR_{it}*CGMI_{it}-0.746\ CS_{it}+0.563\ CS_{it}*CGMI_{it}-0.312\ PS_{it}+0.679\ PS_{it}*CGMI_{it}-0.310\ ER_{it}+0.727\ ER_{it}*CGMI_{it}+0.347\ CCC_{it}+0.323\ CCC_{it}*CGMI_{it}+0.431\ TF_{it}+0.591\ TF_{it}*CGMI_{it}-0.314\ RF_{it}+0.182\ RF_{it}*CGMI_{it}-0.475\ FD_{it}+0.448\ FD_{it}*CGMI_{it}+0.618\ CGR_{it}+0.530\ CGR_{it}*CGMI_{it}+0.367\ SRR_{it}+0.326\ SRR_{it}*CGMI_{it}+0.530\ FS_{it}+0.541\ AT_{it}+0.614\ TAT_{it}+0.451$$

Beta coefficient equation for India

$$ROA_{it}= 0.689\ CGMI_{it}+0.675\ IFR_{it}+0.396\ IFR_{it}*CGMI_{it}+0.208\ RE_{it}+0.526\ RE_{it}*CGMI_{it}+0.514\ STD_{it}+0.348\ STD_{it}*CGMI_{it}-0.333\ LTD_{it}-0.618\ LTD_{it}*CGMI_{it}-0.356\ TD_{it}-0.458\ TD_{it}*CGMI_{it}+0.556\ SBA_{it}+0.682\ SBA_{it}*CGMI_{it}+0.383\ SBR_{it}+0.327\ SBR_{it}*CGMI_{it}-0.563\ CS_{it}+0.245\ CS_{it}*CGMI_{it}-0.393\ PS_{it}+0.676\ PS_{it}*CGMI_{it}-0.516\ ER_{it}+0.576\ ER_{it}*CGMI_{it}+0.495\ CCC_{it}+0.354\ CCC_{it}*CGMI_{it}+0.586\ TF_{it}+0.216\ TF_{it}*CGMI_{it}-0.502\ RF_{it}+0.215\ RF_{it}*CGMI_{it}-0.485\ FD_{it}+0.426\ FD_{it}*CGMI_{it}+0.627\ CGR_{it}+0.317\ CGR_{it}*CGMI_{it}+0.359\ SRR_{it}+0.640\ SRR_{it}*CGMI_{it}+0.398\ FS_{it}+0.513\ AT_{it}+0.299\ TAT_{it}+0.502$$

Beta coefficient equation for China

$$ROA_{it}= 0.809\ CGMI_{it}+0.261\ IFR_{it}+0.750\ IFR_{it}*CGMI_{it}+0.264\ RE_{it}+0.272\ RE_{it}*CGMI_{it}+0.522\ STD_{it}+0.754\ STD_{it}*CGMI_{it}-0.383\ LTD_{it}-0.297\ LTD_{it}*CGMI_{it}-0.481\ TD_{it}-0.787\ TD_{it}*CGMI_{it}+0.371\ SBA_{it}+0.323\ SBA_{it}*CGMI_{it}+0.482\ SBR_{it}+0.298\ SBR_{it}*CGMI_{it}-0.523\ CS_{it}+0.706\ CS_{it}*CGMI_{it}-0.509\ PS_{it}+0.333\ PS_{it}*CGMI_{it}-0.211\ ER_{it}+0.475\ ER_{it}*CGMI_{it}+0.496\ CCC_{it}+0.645\ CCC_{it}*CGMI_{it}+0.444\ TF_{it}+0.313\ TF_{it}*CGMI_{it}-0.571\ RF_{it}+0.638\ RF_{it}*CGMI_{it}-0.665\ FD_{it}+0.331\ FD_{it}*CGMI_{it}$$

$+0.708\ CGR_{it} + 0.369\ CGR_{it} * CGMI_{it} + 0.464\ SRR_{it} + 0.404\ SRR_{it} * CGMI_{it} + 0.131\ FS_{it} + 0.353\ AT_{it} + 0.381\ TAT_{it} + 0.198$

Beta coefficient equation for Iran

$ROA_{it} = 0.700\ CGMI_{it} + 0.218\ IFR_{it} + 0.295\ IFR_{it} * CGMI_{it} + 0.818\ RE_{it} + 0.491\ RE_{it} * CGMI_{it} + 0.324\ STD_{it} + 0.272\ STD_{it} * CGMI_{it} - 0.695\ LTD_{it} - 0.690\ LTD_{it} * CGMI_{it} - 0.736\ TD_{it} - 0.742\ TD_{it} * CGMI_{it} + 0.433\ SBA_{it} + 0.678\ SBA_{it} * CGMI_{it} + 0.572\ SBR_{it} + 0.602\ SBR_{it} * CGMI_{it} - 0.739\ CS_{it} + 0.728\ CS_{it} * CGMI_{it} - 0.910\ PS_{it} + 0.434\ PS_{it} * CGMI_{it} - 0.526\ ER_{it} + 0.819\ ER_{it} * CGMI_{it} + 0.671\ CCC_{it} + 0.514\ CCC_{it} * CGMI_{it} + 0.531\ TF_{it} + 0.627\ TF_{it} * CGMI_{it} - 0.602\ RF_{it} + 0.478\ RF_{it} * CGMI_{it} - 0.474\ FD_{it} + 0.591\ FD_{it} * CGMI_{it} + 0.278\ CGR_{it} + 0.820\ CGR_{it} * CGMI_{it} + 0.440\ SRR_{it} + 0.763\ SRR_{it} * CGMI_{it} + 0.535\ FS_{it} + 0.290\ AT_{it} + 0.340\ TAT_{it} + 0.168$

**Table 4.3.20: Model 7.2,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Return on Equity*

| Financing Alternatives, Corporate Governance Mechanism, and Return on Equity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROE<br>Interaction term: Financing alternatives* CGMI | | | | | | | Moderator: CGMI | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.95 | 0.085 | 0.77 | 0.555 | 0.69 | 0.808 | 0.58 | 0.958 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.486 | 0.105 | 0.449 | 0.065 | 0.828 | 0.919 | 0.699 | 0.449 |
| Internal financing ratio *CGMI | 0.693 | 0.000 | 0.614 | 0.000 | 0.251 | 0.000 | 0.678 | 0.000 |
| Retained Earnings | 0.461 | 0.742 | 0.628 | 0.167 | 0.844 | 0.175 | 0.645 | 0.327 |
| Retained Earnings*CGMI | 0.305 | 0.000 | 0.450 | 0.000 | 0.504 | 0.000 | 0.326 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.478 | 0.164 | 0.679 | 0.221 | 0.784 | 0.958 | 0.446 | 0.899 |
| Short-term debt*CGMI | 0.453 | 0.000 | 0.593 | 0.000 | 0.810 | 0.000 | 0.827 | 0.000 |
| Long-term debt | -0.286 | 0.449 | -0.487 | 0.095 | -0.811 | 0.407 | -0.828 | 0.244 |
| Long-term debt*CGMI | -0.717 | 0.000 | -0.765 | 0.000 | -0.551 | 0.000 | -0.389 | 0.000 |
| Total debt | -0.395 | 0.209 | -0.479 | 0.105 | -0.290 | 0.099 | -0.413 | 0.332 |
| Total debt*CGMI | -0.631 | 0.000 | -0.862 | 0.000 | -0.539 | 0.000 | -0.452 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.574 | 0.189 | 0.834 | 0.768 | 0.250 | 0.168 | 0.475 | 0.643 |
| Shadow banking assets*CGMI | 0.621 | 0.000 | 0.268 | 0.000 | 0.768 | 0.000 | 0.764 | 0.000 |
| Shadow banking ratio | 0.307 | 0.013 | 0.507 | 0.108 | 0.733 | 0.380 | 0.498 | 0.628 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking ratio*CGMI | 0.554 | 0.018 | 0.474 | 0.000 | 0.605 | 0.000 | 0.366 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.727 | 0.134 | -0.499 | 0.269 | -0.787 | 0.911 | -0.494 | 0.652 |
| Common stocks*CGMI | 0.669 | 0.044 | 0.806 | 0.000 | 0.816 | 0.000 | 0.595 | 0.000 |
| Preferred stocks | -0.500 | 0.702 | -0.558 | 0.126 | -0.601 | 0.423 | -0.822 | 0.993 |
| Preferred stocks*CGMI | 0.413 | 0.001 | 0.716 | 0.000 | 0.409 | 0.000 | 0.582 | 0.000 |
| Equity ratio | -0.414 | 0.363 | -0.665 | 0.227 | -0.232 | 0.754 | -0.373 | 0.783 |
| Equity ratio*CGMI | 0.643 | 0.000 | 0.588 | 0.003 | 0.679 | 0.000 | 0.668 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.379 | 0.167 | 0.610 | 0.311 | 0.432 | 0.969 | 0.384 | 0.099 |
| Cash Conversion Cycle*CGMI | 0.455 | 0.028 | 0.396 | 0.000 | 0.341 | 0.000 | 0.480 | 0.000 |
| Trade financing | 0.567 | 0.034 | 0.418 | 0.553 | 0.562 | 0.021 | 0.502 | 0.852 |
| Trade financing*CGMI | 0.799 | 0.000 | 0.526 | 0.035 | 0.390 | 0.000 | 0.523 | 0.021 |
| Reverse factoring | -0.268 | 0.335 | -0.312 | 0.011 | -0.245 | 0.013 | -0.584 | 0.144 |
| Reverse factoring*CGMI | 0.121 | 0.001 | 0.331 | 0.000 | 0.227 | 0.000 | 0.482 | 0.000 |
| Factoring | -0.175 | 0.001 | -0.324 | 0.027 | -0.296 | 0.126 | -0.339 | 0.288 |
| Factoring*CGMI | 0.314 | 0.049 | 0.328 | 0.002 | 0.567 | 0.000 | 0.179 | 0.006 |
| Credit guarantees ratio | -0.379 | 0.000 | -0.628 | 0.045 | -0.243 | 0.975 | 0.657 | 0.409 |
| Credit guarantees ratio*CGMI | 0.107 | 0.000 | 0.478 | 0.004 | 0.433 | 0.000 | 0.352 | 0.007 |
| Solvency rating ratio | 0.430 | 0.630 | 0.229 | 0.091 | 0.398 | 0.029 | 0.335 | 0.183 |
| Solvency rating ratio *CGMI | 0.474 | 0.000 | 0.130 | 0.000 | 0.394 | 0.001 | 0.307 | 0.016 |
| Control variables | | | | | | | | |
| Firm Size | 0.403 | 0.001 | 0.515 | 0.000 | 0.375 | 0.000 | 0.552 | 0.000 |
| Asset Tangibility | 0.276 | 0.005 | 0.147 | 0.001 | 0.583 | 0.001 | 0.291 | 0.037 |
| Total Asset turnover | -0.265 | 0.004 | -0.289 | 0.011 | -0.287 | 0.002 | 0.396 | 0.012 |
| Constant | 0.267 | 0.000 | 0.318 | 0.000 | 0.473 | 0.000 | 0.261 | 0.000 |
| R-square | 0.440 | | 0.522 | | 0.425 | | 0.532 | |
| F-Statistic | 20.310 | | 12.180 | | 19.420 | | 19.000 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: “P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.2 includes the Return on equity as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem.”

Beta coefficient equation for Pakistan

$ROE_{it}$= 0.95 $CGMI_{it}$+0.486 $IFR_{it}$+0.693 $IFR_{it} * CGMI_{it}$ +0.461 $RE_{it}$+0.305 $RE_{it} * CGMI_{it}$+ 0.478 $STD_{it}$+0.453 $STD_{it} * CGMI_{it}$-0.286 $LTD_{it}$-0.717 $LTD_{it} * CGMI_{it}$- 0.395 $TD_{it}$- 0.631 $TD_{it} * CGMI_{it}$+0.574 $SBA_{it}$+0.621 $SBA_{it} * CGMI_{it}$+0.307 $SBR_{it}$+ 0.554 $SBR_{it} * CGMI_{it}$- 0.727 $CS_{it}$+0.669 $CS_{it} * CGMI_{it}$-0.500 $PS_{it}$+0.413 $PS_{it} * CGMI_{it}$- 0.414 $ER_{it}$+ 0.643 $ER_{it} * CGMI_{it}$+ 0.379 $CCC_{it}$+0.455 $CCC_{it} * CGMI_{it}$+0.567 $TF_{it}$+ 0.799 $TF_{it} * CGMI_{it}$ -0.268 $RF_{it}$ +0.121 $RF_{it} * CGMI_{it}$-0.175 $FD_{it}$+0.314 $FD_{it} * CGMI_{it}$ - 0.379 $CGR_{it}$+ 0.107 $CGR_{it} * CGMI_{it}$+0.430 $SRR_{it}$+0.474 $SRR_{it} * CGMI_{it}$+0.403 $FS_{it}$+ 0.276 $AT_{it}$- 0.265 $TAT_{it}$+0.267

Beta coefficient equation for India

$ROE_{it}$= 0.77 $CGMI_{it}$+0.449 $IFR_{it}$+0.614 $IFR_{it} * CGMI_{it}$ +0.628 $RE_{it}$+0.450 $RE_{it} * CGMI_{it}$+ 0.679 $STD_{it}$+0.593 $STD_{it} * CGMI_{it}$-0.487 $LTD_{it}$-0.765 $LTD_{it} * CGMI_{it}$- 0.479 $TD_{it}$- 0.862 $TD_{it} * CGMI_{it}$+0.834 $SBA_{it}$+0.268 $SBA_{it} * CGMI_{it}$+0.507 $SBR_{it}$+ 0.474 $SBR_{it} * CGMI_{it}$- 0.499 $CS_{it}$+0.806 $CS_{it} * CGMI_{it}$-0.558 $PS_{it}$+0.716 $PS_{it} * CGMI_{it}$- 0.665 $ER_{it}$+ 0.588 $ER_{it} * CGMI_{it}$+ 0.610 $CCC_{it}$+0.396 $CCC_{it} * CGMI_{it}$+0.418 $TF_{it}$+ 0.526 $TF_{it} * CGMI_{it}$ -0.312 $RF_{it}$ +0.331 $RF_{it} * CGMI_{it}$-0.324 $FD_{it}$+0.328 $FD_{it} * CGMI_{it}$ - 0.628 $CGR_{it}$+ 0.478 $CGR_{it} * CGMI_{it}$+0.229 $SRR_{it}$+0.130 $SRR_{it} * CGMI_{it}$+0.515 $FS_{it}$+ 0.147 $AT_{it}$- 0.289 $TAT_{it}$+0.318

Beta coefficient equation for China

$ROE_{it}$= 0.69 $CGMI_{it}$+0.828 $IFR_{it}$+0.251 $IFR_{it} * CGMI_{it}$ +0.844 $RE_{it}$+0.504 $RE_{it} * CGMI_{it}$+ 0.784 $STD_{it}$+0.810 $STD_{it} * CGMI_{it}$-0.811 $LTD_{it}$-0.551 $LTD_{it} * CGMI_{it}$- 0.290 $TD_{it}$- 0.539 $TD_{it} * CGMI_{it}$+0.250 $SBA_{it}$+0.768 $SBA_{it} * CGMI_{it}$+0.733 $SBR_{it}$+ 0.605 $SBR_{it} * CGMI_{it}$- 0.787 $CS_{it}$+0.816 $CS_{it} * CGMI_{it}$-0.601 $PS_{it}$+0.409 $PS_{it} * CGMI_{it}$- 0.232 $ER_{it}$+ 0.679 $ER_{it} * CGMI_{it}$+ 0.432 $CCC_{it}$+0.341 $CCC_{it} * CGMI_{it}$+0.562 $TF_{it}$+ 0.390 $TF_{it} * CGMI_{it}$ -0.245 $RF_{it}$ +0.227 $RF_{it} * CGMI_{it}$-0.296 $FD_{it}$+0.567 $FD_{it} * CGMI_{it}$ - 0.243 $CGR_{it}$+ 0.433 $CGR_{it} * CGMI_{it}$+0.398 $SRR_{it}$+0.394 $SRR_{it} * CGMI_{it}$+0.375 $FS_{it}$+ 0.583 $AT_{it}$- 0.287 $TAT_{it}$+0.473

Beta coefficient equation for Iran

$ROE_{it}$= 0.58 $CGMI_{it}$+0.699 $IFR_{it}$+0.678 $IFR_{it} * CGMI_{it}$ +0.645 $RE_{it}$+0.326 $RE_{it} * CGMI_{it}$+ 0.446 $STD_{it}$+0.827 $STD_{it} * CGMI_{it}$-0.828 $LTD_{it}$-0.389 $LTD_{it} * CGMI_{it}$- 0.413 $TD_{it}$- 0.452 $TD_{it} * CGMI_{it}$+0.475 $SBA_{it}$+0.764 $SBA_{it} * CGMI_{it}$+0.498 $SBR_{it}$+ 0.366 $SBR_{it} * CGMI_{it}$- 0.494 $CS_{it}$+0.595 $CS_{it} * CGMI_{it}$-0.822 $PS_{it}$+0.582 $PS_{it} * CGMI_{it}$- 0.373 $ER_{it}$+ 0.668 $ER_{it} * CGMI_{it}$+ 0.384 $CCC_{it}$+0.480 $CCC_{it} * CGMI_{it}$+0.502 $TF_{it}$- 0.523 $TF_{it} * CGMI_{it}$ -0.584 $RF_{it}$ +0.482 $RF_{it} * CGMI_{it}$-0.339 $FD_{it}$+0.179 $FD_{it} * CGMI_{it}$ +0.657 $CGR_{it}$- 0.352 $CGR_{it} * CGMI_{it}$+0.335 $SRR_{it}$-0.307 $SRR_{it} * CGMI_{it}$+0.552 $FS_{it}$+ 0.291 $AT_{it}$+ 0.396 $TAT_{it}$+0.261

**Table 4.3.21: Model 7.3,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Net Profit Margin*

| Financing Alternatives, Corporate Governance Mechanism, and Net Profit Margin | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: NPM<br>Interaction term: Financing alternatives* CGMI | | | | | | Moderator: CGMI | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.806 | 0.163 | 0.602 | 0.449 | 0.476 | 0.141 | 0.220 | 0.489 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.369 | 0.192 | 0.288 | 0.291 | 0.200 | 0.436 | 0.423 | 0.233 |
| Internal financing ratio *CGMI | 0.333 | 0.001 | 0.327 | 0.000 | 0.326 | 0.000 | 0.580 | 0.005 |
| Retained Earnings | 0.282 | 0.065 | 0.435 | 0.409 | 0.341 | 0.718 | 0.309 | 0.211 |
| Retained Earnings*CGMI | 0.434 | 0.000 | 0.469 | 0.000 | 0.317 | 0.000 | 0.179 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.809 | 0.930 | 0.476 | 0.012 | 0.485 | 0.587 | 0.561 | 0.135 |
| Short-term debt*CGMI | 0.469 | 0.000 | 0.407 | 0.000 | 0.297 | 0.000 | 0.488 | 0.002 |
| Long-term debt | -0.272 | 0.783 | -0.455 | 0.856 | -0.341 | 0.123 | -0.377 | 0.607 |
| Long-term debt*CGMI | -0.665 | 0.000 | -0.828 | 0.000 | -0.705 | 0.000 | -0.847 | 0.000 |
| Total debt | -0.443 | 0.086 | -0.324 | 0.206 | -0.370 | 0.148 | -0.508 | 0.694 |
| Total debt*CGMI | -0.276 | 0.020 | -0.758 | 0.000 | -0.419 | 0.038 | -0.268 | 0.015 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.615 | 0.707 | 0.237 | 0.773 | 0.301 | 0.246 | 0.386 | 0.445 |
| Shadow banking assets*CGMI | 0.337 | 0.000 | 0.600 | 0.000 | 0.310 | 0.001 | 0.327 | 0.000 |
| Shadow banking ratio | 0.770 | 0.635 | 0.298 | 0.715 | 0.248 | 0.918 | 0.504 | 0.175 |
| Shadow banking ratio*CGMI | 0.452 | 0.000 | 0.855 | 0.000 | 0.484 | 0.000 | 0.334 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.466 | 0.566 | -0.833 | 0.257 | -0.766 | 0.807 | -0.476 | 0.561 |
| Common stocks*CGMI | 0.301 | 0.000 | 0.379 | 0.000 | 0.350 | 0.016 | 0.250 | 0.000 |
| Preferred stocks | -0.394 | 0.342 | -0.529 | 0.919 | -0.269 | 0.240 | -0.185 | 0.268 |
| Preferred stocks*CGMI | 0.300 | 0.000 | 0.384 | 0.000 | 0.897 | 0.001 | 0.464 | 0.013 |
| Equity ratio | -0.566 | 0.098 | -0.570 | 0.000 | -0.653 | 0.377 | -0.578 | 0.139 |
| Equity ratio*CGMI | 0.724 | 0.000 | 0.377 | 0.000 | 0.604 | 0.002 | 0.785 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.354 | 0.249 | 0.277 | 0.093 | 0.826 | 0.208 | 0.487 | 0.348 |
| Cash Conversion Cycle*CGMI | 0.531 | 0.000 | 0.376 | 0.000 | 0.454 | 0.001 | 0.887 | 0.000 |
| Trade financing | 0.768 | 0.065 | 0.384 | 0.316 | 0.843 | 0.923 | 0.298 | 0.115 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Trade financing*CGMI | 0.330 | 0.000 | 0.363 | 0.000 | 0.809 | 0.000 | 0.404 | 0.000 |
| Reverse factoring | -0.380 | 0.335 | -0.643 | 0.001 | -0.624 | 0.128 | -0.606 | 0.024 |
| Reverse factoring*CGMI | 0.562 | 0.000 | 0.595 | 0.000 | 0.588 | 0.004 | 0.590 | 0.031 |
| Factoring | -0.493 | 0.000 | -0.361 | 0.078 | -0.376 | 0.000 | -0.530 | 0.047 |
| Factoring*CGMI | 0.261 | 0.004 | 0.354 | 0.048 | 0.372 | 0.047 | 0.582 | 0.000 |
| Credit guarantees ratio | 0.259 | 0.000 | 0.305 | 0.739 | 0.366 | 0.199 | 0.546 | 0.001 |
| Credit guarantees ratio*CGMI | 0.107 | 0.039 | 0.489 | 0.004 | 0.542 | 0.000 | 0.213 | 0.000 |
| Solvency rating ratio | 0.202 | 0.267 | 0.515 | 0.010 | 0.334 | 0.843 | 0.565 | 0.024 |
| Solvency rating ratio *CGMI | 0.635 | 0.000 | 0.488 | 0.000 | 0.196 | 0.000 | 0.256 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.587 | 0.050 | 0.466 | 0.000 | 0.552 | 0.000 | 0.489 | 0.034 |
| Asset Tangibility | 0.549 | 0.048 | 0.363 | 0.000 | 0.318 | 0.003 | 0.335 | 0.000 |
| Total Asset turnover | -0.478 | 0.044 | -0.273 | 0.000 | 0.274 | 0.000 | -0.464 | 0.000 |
| Constant | 0.272 | 0.000 | 0.196 | 0.000 | 0.134 | 0.000 | 0.215 | 0.000 |
| R-square | 0.438 | | 0.418 | | 0.488 | | 0.468 | |
| F-Statistic | 33.380 | | 46.170 | | 9.980 | | 9.640 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.004 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.3 includes the Net profit margin as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$NPM_{it}= 0.806\ CGMI_{it}+0.369\ IFR_{it}+0.333\ IFR_{it} * CGMI_{it}\ +0.282\ RE_{it}+0.434\ RE_{it} * CGMI_{it}+\ 0.809\ STD_{it}+0.469\ STD_{it} * CGMI_{it}-0.272\ LTD_{it}-0.665\ LTD_{it} * CGMI_{it}-0.443\ TD_{it}-\ 0.276\ TD_{it} * CGMI_{it}+0.615\ SBA_{it}+0.337\ SBA_{it} * CGMI_{it}+0.770\ SBR_{it}+0.452\ SBR_{it} * CGMI_{it}-\ 0.466\ CS_{it}+0.301\ CS_{it} * CGMI_{it}-0.394\ PS_{it}+0.300\ PS_{it} * CGMI_{it}-0.566\ ER_{it}+\ 0.724\ ER_{it} * CGMI_{it}+\ 0.354\ CCC_{it}+0.531\ CCC_{it} * CGMI_{it}+0.768\ TF_{it}+0.330\ TF_{it} * CGMI_{it}\ -0.380\ RF_{it}\ +0.562\ RF_{it} * CGMI_{it}-0.493\ FD_{it}+0.261\ FD_{it} * CGMI_{it}\ +0.259\ CGR_{it}+\ 0.507\ CGR_{it} * CGMI_{it}+0.202\ SRR_{it}+0.635\ SRR_{it} * CGMI_{it}+0.587\ FS_{it}+0.549\ AT_{it}-\ 0.478\ TAT_{it}+0.272$$

Beta coefficient equation for India

$$NPM_{it}= 0.602\ CGMI_{it}+0.288\ IFR_{it}+0.327\ IFR_{it} * CGMI_{it}\ +0.435\ RE_{it}+0.469\ RE_{it} * CGMI_{it}+\ 0.476\ STD_{it}+0.407\ STD_{it} * CGMI_{it}-0.455\ LTD_{it}-0.828\ LTD_{it} * CGMI_{it}-$$

$0.324\ TD_{it}$- $0.758\ TD_{it} * CGMI_{it}$+$0.237\ SBA_{it}$+$0.600\ SBA_{it} * CGMI_{it}$+$0.298\ SBR_{it}$+ $0.855\ SBR_{it} * CGMI_{it}$- $0.833\ CS_{it}$+$0.379\ CS_{it} * CGMI_{it}$-$0.529\ PS_{it}$+$0.384\ PS_{it} * CGMI_{it}$- $0.570\ ER_{it}$+ $0.377\ ER_{it} * CGMI_{it}$+ $0.277\ CCC_{it}$+$0.376\ CCC_{it} * CGMI_{it}$+$0.384\ TF_{it}$+ $0.363\ TF_{it} * CGMI_{it}$ -$0.643\ RF_{it}$ +$0.595\ RF_{it} * CGMI_{it}$-$0.361\ FD_{it}$+$0.354\ FD_{it} * CGMI_{it}$ +$0.305\ CGR_{it}$+ $0.489\ CGR_{it} * CGMI_{it}$+$0.515\ SRR_{it}$+$0.488\ SRR_{it} * CGMI_{it}$+$0.466\ FS_{it}$+ $0.363\ AT_{it}$- $0.273\ TAT_{it}$+$0.196$

Beta coefficient equation for China

$NPM_{it}$= $0.476\ CGMI_{it}$+$0.200\ IFR_{it}$+$0.326\ IFR_{it} * CGMI_{it}$ +$0.341\ RE_{it}$+$0.317\ RE_{it} * CGMI_{it}$+ $0.485\ STD_{it}$+$0.297\ STD_{it} * CGMI_{it}$-$0.341\ LTD_{it}$-$0.705\ LTD_{it} * CGMI_{it}$- $0.370\ TD_{it}$ -$0.419\ TD_{it} * CGMI_{it}$+$0.301\ SBA_{it}$+$0.310\ SBA_{it} * CGMI_{it}$+$0.248\ SBR_{it}$+ $0.484\ SBR_{it} * CGMI_{it}$- $0.766\ CS_{it}$+$0.350\ CS_{it} * CGMI_{it}$-$0.269\ PS_{it}$+$0.897\ PS_{it} * CGMI_{it}$- $0.653\ ER_{it}$+ $0.604\ ER_{it} * CGMI_{it}$+ $0.826\ CCC_{it}$+$0.454\ CCC_{it} * CGMI_{it}$+$0.843\ TF_{it}$+ $0.809\ TF_{it} * CGMI_{it}$ -$0.624\ RF_{it}$ +$0.588\ RF_{it} * CGMI_{it}$+$0.376\ FD_{it}$+$0.372\ FD_{it} * CGMI_{it}$ +$0.366\ CGR_{it}$+ $0.542\ CGR_{it} * CGMI_{it}$+$0.334\ SRR_{it}$+$0.196\ SRR_{it} * CGMI_{it}$+$0.552\ FS_{it}$+ $0.318\ AT_{it}$+ $0.274\ TAT_{it}$+$0.134$

Beta coefficient equation for Iran

$NPM_{it}$= $0.220\ CGMI_{it}$+$0.423\ IFR_{it}$+$0.580\ IFR_{it} * CGMI_{it}$ +$0.309\ RE_{it}$+$0.179\ RE_{it} * CGMI_{it}$+ $0.561\ STD_{it}$+$0.488\ STD_{it} * CGMI_{it}$-$0.377\ LTD_{it}$-$0.847\ LTD_{it} * CGMI_{it}$- $0.508\ TD_{it}$- $0.268\ TD_{it} * CGMI_{it}$+$0.386\ SBA_{it}$+$0.327\ SBA_{it} * CGMI_{it}$+$0.504\ SBR_{it}$+ $0.334\ SBR_{it} * CGMI_{it}$- $0.476\ CS_{it}$+$0.250\ CS_{it} * CGMI_{it}$-$0.185\ PS_{it}$+$0.464\ PS_{it} * CGMI_{it}$- $0.578\ ER_{it}$+ $0.785\ ER_{it} * CGMI_{it}$+ $0.487\ CCC_{it}$+$0.887\ CCC_{it} * CGMI_{it}$+$0.298\ TF_{it}$+ $0.404\ TF_{it} * CGMI_{it}$ -$0.606\ RF_{it}$ +$0.590\ RF_{it} * CGMI_{it}$-$0.530\ FD_{it}$+$0.582\ FD_{it} * CGMI_{it}$ +$0.546\ CGR_{it}$+ $0.213\ CGR_{it} * CGMI_{it}$+$0.565\ SRR_{it}$+$0.256\ SRR_{it} * CGMI_{it}$+$0.489\ FS_{it}$+ $0.335\ AT_{it}$- $0.464\ TAT_{it}$+$0.215$

**Table 4.3.22: Model 7.4,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Return on Capital Employed*

| Financing Alternatives, Corporate Governance Mechanism, and Return on Capital Employed | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROCE<br>Interaction term: Financing alternatives* CGMI | | | | | | Moderator: CGMI | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.848 | 0.135 | 0.463 | 0.917 | 0.483 | 0.315 | 0.486 | 0.065 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.466 | 0.110 | 0.360 | 0.264 | 0.575 | 0.658 | 0.476 | 0.325 |
| Internal financing ratio *CGMI | 0.439 | 0.000 | 0.320 | 0.006 | 0.212 | 0.006 | 0.418 | 0.000 |
| Retained Earnings | 0.607 | 0.188 | 0.486 | 0.237 | 0.493 | 0.174 | 0.616 | 0.313 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Retained Earnings*CGMI | 0.520 | 0.003 | 0.348 | 0.000 | 0.211 | 0.000 | 0.311 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.271 | 0.637 | 0.643 | 0.701 | 0.287 | 0.218 | 0.429 | 0.382 |
| Short-term debt*CGMI | 0.642 | 0.000 | 0.471 | 0.009 | 0.626 | 0.000 | 0.678 | 0.002 |
| Long-term debt | -0.333 | 0.319 | -0.605 | 0.893 | -0.200 | 0.562 | -0.150 | 0.636 |
| Long-term debt*CGMI | -0.582 | 0.004 | -0.496 | 0.000 | -0.626 | 0.001 | -0.409 | 0.000 |
| Total debt | -0.211 | 0.066 | -0.289 | 0.892 | -0.358 | 0.107 | -0.621 | 0.948 |
| Total debt*CGMI | -0.705 | 0.000 | -0.642 | 0.006 | -0.485 | 0.000 | -0.450 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.380 | 0.061 | 0.378 | 0.074 | 0.674 | 0.539 | 0.572 | 0.647 |
| Shadow banking assets*CGMI | 0.505 | 0.000 | 0.396 | 0.002 | 0.358 | 0.000 | 0.245 | 0.000 |
| Shadow banking ratio | 0.544 | 0.133 | 0.369 | 0.317 | 0.208 | 0.039 | 0.553 | 0.373 |
| Shadow banking ratio*CGMI | 0.232 | 0.000 | 0.492 | 0.005 | 0.541 | 0.000 | 0.486 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.779 | 0.333 | -0.494 | 0.169 | -0.275 | 0.463 | -0.413 | 0.214 |
| Common stocks*CGMI | 0.714 | 0.000 | 0.483 | 0.008 | 0.254 | 0.000 | 0.461 | 0.000 |
| Preferred stocks | -0.423 | 0.576 | -0.357 | 0.404 | -0.202 | 0.824 | -0.329 | 0.528 |
| Preferred stocks*CGMI | 0.657 | 0.000 | 0.967 | 0.001 | 0.779 | 0.000 | 0.871 | 0.008 |
| Equity ratio | -0.755 | 0.025 | -0.807 | 0.218 | -0.821 | 0.475 | -0.587 | 0.050 |
| Equity ratio*CGMI | 0.411 | 0.000 | 0.781 | 0.000 | 0.794 | 0.000 | 0.619 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.711 | 0.819 | 0.494 | 0.550 | 0.561 | 0.331 | 0.863 | 0.596 |
| Cash Conversion Cycle*CGMI | 0.478 | 0.001 | 0.303 | 0.000 | 0.397 | 0.004 | 0.281 | 0.000 |
| Trade financing | 0.485 | 0.060 | 0.481 | 0.176 | 0.550 | 0.560 | 0.427 | 0.625 |
| Trade financing*CGMI | 0.415 | 0.006 | 0.497 | 0.000 | 0.460 | 0.000 | 0.273 | 0.000 |
| Reverse factoring | -0.468 | 0.021 | -0.433 | 0.038 | -0.511 | 0.218 | 0.298 | 0.483 |
| Reverse factoring*CGMI | 0.151 | 0.000 | 0.440 | 0.000 | 0.639 | 0.001 | 0.573 | 0.017 |
| Factoring | -0.516 | 0.192 | -0.118 | 0.044 | 0.175 | 0.267 | 0.558 | 0.200 |
| Factoring*CGMI | 0.455 | 0.000 | 0.368 | 0.000 | 0.469 | 0.014 | 0.514 | 0.045 |
| Credit guarantees ratio | -0.473 | 0.353 | 0.182 | 0.463 | 0.182 | 0.807 | -0.518 | 0.110 |
| Credit guarantees ratio*CGMI | 0.493 | 0.000 | 0.544 | 0.003 | 0.352 | 0.032 | 0.551 | 0.018 |
| Solvency rating ratio | 0.578 | 0.126 | 0.516 | 0.070 | 0.434 | 0.033 | 0.266 | 0.657 |
| Solvency rating ratio *CGMI | 0.490 | 0.018 | 0.476 | 0.000 | 0.425 | 0.000 | 0.517 | 0.012 |
| Control variables | | | | | | | | |
| Firm Size | 0.303 | 0.000 | 0.464 | 0.000 | 0.519 | 0.000 | 0.478 | 0.045 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Asset Tangibility | 0.255 | 0.000 | 0.495 | 0.000 | 0.278 | 0.000 | 0.280 | 0.002 |
| Total Asset turnover | -0.486 | 0.020 | -0.444 | 0.000 | 0.265 | 0.010 | -0.396 | 0.016 |
| Constant | 0.309 | 0.000 | 0.452 | 0.000 | 0.242 | 0.000 | 0.275 | 0.000 |
| R-square | 0.537 | | 0.545 | | 0.580 | | 0.645 | |
| F-Statistic | 6.140 | | 4.440 | | 7.080 | | 6.130 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.4 includes the Return on Capital Employed as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$ROCE_{it}= 0.848\ CGMI_{it}+0.466\ IFR_{it}+0.439\ IFR_{it} * CGMI_{it}\ +0.607\ RE_{it}+0.520\ RE_{it} * CGMI_{it}+\ 0.271\ STD_{it}+0.642\ STD_{it} * CGMI_{it}-0.333\ LTD_{it}-0.582\ LTD_{it} * CGMI_{it}-0.211\ TD_{it}-\ 0.705\ TD_{it} * CGMI_{it}+0.380\ SBA_{it}+0.505\ SBA_{it} * CGMI_{it}+0.544\ SBR_{it}+0.232\ SBR_{it} * CGMI_{it}-\ 0.779\ CS_{it}+0.714\ CS_{it} * CGMI_{it}-0.423\ PS_{it}+0.657\ PS_{it} * CGMI_{it}-0.755\ ER_{it}+\ 0.411\ ER_{it} * CGMI_{it}+\ 0.711\ CCC_{it}+0.478\ CCC_{it} * CGMI_{it}+0.485\ TF_{it}+0.415\ TF_{it} * CGMI_{it}\ -0.468\ RF_{it}\ +0.151\ RF_{it} * CGMI_{it}-0.516\ FD_{it}+0.455\ FD_{it} * CGMI_{it}\ -0.473\ CGR_{it}+\ 0.493\ CGR_{it} * CGMI_{it}+0.578\ SRR_{it}+0.490\ SRR_{it} * CGMI_{it}+0.303\ FS_{it}+0.255\ AT_{it}-\ 0.486\ TAT_{it}+0.309$$

Beta coefficient equation for India

$$ROCE_{it}= 0.463\ CGMI_{it}+0.360\ IFR_{it}+0.320\ IFR_{it} * CGMI_{it}\ +0.486\ RE_{it}+0.348\ RE_{it} * CGMI_{it}+\ 0.643\ STD_{it}+0.471\ STD_{it} * CGMI_{it}-0.605\ LTD_{it}-0.496\ LTD_{it} * CGMI_{it}-0.289\ TD_{it}-\ 0.642\ TD_{it} * CGMI_{it}+0.378\ SBA_{it}+0.396\ SBA_{it} * CGMI_{it}+0.369\ SBR_{it}+0.492\ SBR_{it} * CGMI_{it}-\ 0.494\ CS_{it}+0.483\ CS_{it} * CGMI_{it}-0.357\ PS_{it}+0.967\ PS_{it} * CGMI_{it}-0.807\ ER_{it}+\ 0.781\ ER_{it} * CGMI_{it}+\ 0.494\ CCC_{it}+0.303\ CCC_{it} * CGMI_{it}+0.481\ TF_{it}+0.497\ TF_{it} * CGMI_{it}\ -0.433\ RF_{it}\ +0.440\ RF_{it} * CGMI_{it}-0.118\ FD_{it}+0.368\ FD_{it} * CGMI_{it}\ +0.182\ CGR_{it}+\ 0.544\ CGR_{it} * CGMI_{it}+0.516\ SRR_{it}+0.476\ SRR_{it} * CGMI_{it}+0.464\ FS_{it}+0.495\ AT_{it}-\ 0.444\ TAT_{it}+0.452$$

Beta coefficient equation for China

$$ROCE_{it}= 0.483\ CGMI_{it}+0.575\ IFR_{it}+0.212\ IFR_{it} * CGMI_{it}\ +0.493\ RE_{it}+0.211\ RE_{it} * CGMI_{it}+\ 0.287\ STD_{it}+0.626\ STD_{it} * CGMI_{it}-0.200\ LTD_{it}-0.626\ LTD_{it} * CGMI_{it}-0.358\ TD_{it}-\ 0.485\ TD_{it} * CGMI_{it}+0.674\ SBA_{it}+0.358\ SBA_{it} * CGMI_{it}+0.208\ SBR_{it}+0.541\ SBR_{it} * CGMI_{it}-\ 0.275\ CS_{it}+0.254\ CS_{it} * CGMI_{it}-0.202\ PS_{it}+0.779\ PS_{it} * CGMI_{it}-0.821\ ER_{it}+\ 0.794\ ER_{it} * CGMI_{it}+\ 0.561\ CCC_{it}+0.397\ CCC_{it} * CGMI_{it}+0.550\ TF_{it}+0.460\ TF_{it} * CGMI_{it}\ -0.511\ RF_{it}\ +0.639\ RF_{it} * CGMI_{it}+0.175\ FD_{it}+0.469\ FD_{it} * CGMI_{it}$$

+0.182 $CGR_{it}$+ 0.352 $CGR_{it} * CGMI_{it}$+0.434 $SRR_{it}$+0.425 $SRR_{it} * CGMI_{it}$+0.519 $FS_{it}$+ 0.278 $AT_{it}$+ 0.265 $TAT_{it}$+0.242

Beta coefficient equation for Iran

$ROCE_{it}$= 0.486 $CGMI_{it}$+0.476 $IFR_{it}$+0.418 $IFR_{it} * CGMI_{it}$ +0.616 $RE_{it}$+0.311 $RE_{it} * CGMI_{it}$+ 0.429 $STD_{it}$+0.678 $STD_{it} * CGMI_{it}$-0.150 $LTD_{it}$-0.509 $LTD_{it} * CGMI_{it}$- 0.621 $TD_{it}$- 0.450 $TD_{it} * CGMI_{it}$+0.572 $SBA_{it}$+0.245 $SBA_{it} * CGMI_{it}$+0.553 $SBR_{it}$+ 0.486 $SBR_{it} * CGMI_{it}$- 0.413 $CS_{it}$+0.461 $CS_{it} * CGMI_{it}$-0.329 $PS_{it}$+0.871 $PS_{it} * CGMI_{it}$- 0.587 $ER_{it}$+ 0.619 $ER_{it} * CGMI_{it}$+ 0.863 $CCC_{it}$+0.281 $CCC_{it} * CGMI_{it}$+0.427 $TF_{it}$+ 0.273 $TF_{it} * CGMI_{it}$ +0.298 $RF_{it}$ +0.573 $RF_{it} * CGMI_{it}$+0.558 $FD_{it}$+0.514 $FD_{it} * CGMI_{it}$ - 0.518 $CGR_{it}$+ 0.551 $CGR_{it} * CGMI_{it}$+0.266 $SRR_{it}$+0.517 $SRR_{it} * CGMI_{it}$+0.478 $FS_{it}$+ 0.280 $AT_{it}$- 0.396 $TAT_{it}$+0.275

**Table 4.3.23: Model 7.5,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Return on Invested Capital*

| Financing Alternatives, Corporate Governance Mechanism, and Return on Invested Capital | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: ROIC | | | | | | Moderator: CGMI | | |
| Interaction term: Financing alternatives* CGMI | | | | | | | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.441 | 0.949 | 0.496 | 0.092 | 0.626 | 0.092 | 0.435 | 0.175 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.352 | 0.833 | 0.527 | 0.260 | 0.487 | 0.776 | 0.658 | 0.924 |
| Internal financing ratio *CGMI | 0.628 | 0.000 | 0.800 | 0.000 | 0.633 | 0.004 | 0.505 | 0.000 |
| Retained Earnings | 0.458 | 0.173 | 0.363 | 0.063 | 0.436 | 0.225 | 0.521 | 0.182 |
| Retained Earnings*CGMI | 0.756 | 0.007 | 0.833 | 0.000 | 0.307 | 0.000 | 0.616 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.636 | 0.606 | 0.211 | 0.699 | 0.626 | 0.134 | 0.426 | 0.909 |
| Short-term debt*CGMI | 0.485 | 0.000 | 0.608 | 0.006 | 0.584 | 0.000 | 0.576 | 0.000 |
| Long-term debt | -0.276 | 0.278 | -0.380 | 0.134 | -0.290 | 0.699 | -0.483 | 0.351 |
| Long-term debt*CGMI | -0.694 | 0.000 | -0.702 | 0.000 | -0.512 | 0.001 | -0.356 | 0.004 |
| Total debt | -0.356 | 0.123 | -0.411 | 0.225 | -0.508 | 0.502 | -0.477 | 0.994 |
| Total debt*CGMI | -0.616 | 0.000 | -0.352 | 0.008 | -0.501 | 0.007 | -0.554 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.715 | 0.086 | 0.532 | 0.318 | 0.835 | 0.201 | 0.486 | 0.028 |
| Shadow banking assets*CGMI | 0.362 | 0.000 | 0.878 | 0.000 | 0.793 | 0.002 | 0.718 | 0.013 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Shadow banking ratio | 0.409 | 0.705 | 0.613 | 0.776 | 0.502 | 0.268 | 0.818 | 0.200 |
| Shadow banking ratio*CGMI | 0.729 | 0.000 | 0.930 | 0.001 | 0.870 | 0.007 | 0.773 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.505 | 0.506 | -0.327 | 0.084 | -0.464 | 0.838 | -0.677 | 0.128 |
| Common stocks*CGMI | 0.533 | 0.001 | 0.344 | 0.000 | 0.324 | 0.004 | 0.503 | 0.000 |
| Preferred stocks | -0.315 | 0.237 | -0.393 | 0.056 | -0.283 | 0.838 | -0.235 | 0.419 |
| Preferred stocks*CGMI | 0.486 | 0.000 | 0.397 | 0.000 | 0.768 | 0.008 | 0.771 | 0.000 |
| Equity ratio | -0.661 | 0.031 | -0.670 | 0.056 | -0.833 | 0.609 | -0.654 | 0.043 |
| Equity ratio*CGMI | 0.293 | 0.000 | 0.455 | 0.000 | 0.710 | 0.000 | 0.698 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.276 | 0.026 | 0.593 | 0.609 | 0.816 | 0.063 | 0.817 | 0.591 |
| Cash Conversion Cycle*CGMI | 0.655 | 0.008 | 0.505 | 0.004 | 0.813 | 0.001 | 0.816 | 0.000 |
| Trade financing | 0.479 | 0.075 | 0.438 | 0.044 | 0.718 | 0.021 | 0.718 | 0.036 |
| Trade financing*CGMI | 0.292 | 0.003 | 0.416 | 0.000 | 0.755 | 0.001 | 0.123 | 0.001 |
| Reverse factoring | -0.325 | 0.034 | -0.605 | 0.038 | 0.483 | 0.011 | -0.505 | 0.216 |
| Reverse factoring*CGMI | 0.265 | 0.000 | 0.594 | 0.000 | 0.583 | 0.000 | 0.217 | 0.044 |
| Factoring | -0.461 | 0.018 | -0.140 | 0.004 | 0.420 | 0.038 | -0.608 | 0.443 |
| Factoring*CGMI | 0.509 | 0.000 | 0.236 | 0.000 | 0.316 | 0.000 | 0.352 | 0.000 |
| Credit guarantees ratio | 0.237 | 0.049 | 0.393 | 0.007 | 0.213 | 0.004 | 0.200 | 0.067 |
| Credit guarantees ratio*CGMI | 0.173 | 0.007 | 0.413 | 0.002 | 0.479 | 0.000 | 0.377 | 0.001 |
| Solvency rating ratio | 0.414 | 0.056 | 0.186 | 0.201 | 0.509 | 0.260 | 0.349 | 0.448 |
| Solvency rating ratio *CGMI | 0.573 | 0.002 | 0.269 | 0.000 | 0.499 | 0.000 | 0.455 | 0.015 |
| Control variables | | | | | | | | |
| Firm Size | 0.435 | 0.001 | 0.250 | 0.000 | 0.413 | 0.000 | 0.458 | 0.000 |
| Asset Tangibility | -0.373 | 0.001 | -0.112 | 0.007 | -0.469 | 0.000 | 0.185 | 0.023 |
| Total Asset turnover | 0.425 | 0.003 | -0.209 | 0.001 | 0.227 | 0.006 | 0.240 | 0.000 |
| Constant | 0.374 | 0.000 | 0.298 | 0.000 | 0.114 | 0.000 | 0.173 | 0.000 |
| R-square | 0.341 | | 0.516 | | 0.543 | | 0.551 | |
| F-Statistic | 2.050 | | 1.930 | | 2.000 | | 1.630 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.004 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.036 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.5 includes the Return on Invested Capital as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$ROIC_{it}$= 0.441 $CGMI_{it}$+0.352 $IFR_{it}$+0.628 $IFR_{it} * CGMI_{it}$ +0.458 $RE_{it}$+0.756 $RE_{it} * CGMI_{it}$+ 0.636 $STD_{it}$+0.485 $STD_{it} * CGMI_{it}$-0.276 $LTD_{it}$-0.694 $LTD_{it} * CGMI_{it}$- 0.356 $TD_{it}$- 0.616 $TD_{it} * CGMI_{it}$+0.715 $SBA_{it}$+0.362 $SBA_{it} * CGMI_{it}$+0.409 $SBR_{it}$+ 0.729 $SBR_{it} * CGMI_{it}$- 0.505 $CS_{it}$+0.533 $CS_{it} * CGMI_{it}$-0.315 $PS_{it}$+0.486 $PS_{it} * CGMI_{it}$- 0.661 $ER_{it}$+ 0.293 $ER_{it} * CGMI_{it}$+ 0.276 $CCC_{it}$+0.655 $CCC_{it} * CGMI_{it}$+0.479 $TF_{it}$+ 0.292 $TF_{it} * CGMI_{it}$ +0.325 $RF_{it}$ +0.265 $RF_{it} * CGMI_{it}$-0.461 $FD_{it}$+0.509 $FD_{it} * CGMI_{it}$ +0.237 $CGR_{it}$+ 0.173 $CGR_{it} * CGMI_{it}$+0.414 $SRR_{it}$+0.573 $SRR_{it} * CGMI_{it}$+0.435 $FS_{it}$- 0.373 $AT_{it}$+ 0.425 $TAT_{it}$+0.374

Beta coefficient equation for India

$ROIC_{it}$= 0.496 $CGMI_{it}$+0.527 $IFR_{it}$+0.800 $IFR_{it} * CGMI_{it}$ +0.363 $RE_{it}$+0.833 $RE_{it} * CGMI_{it}$+ 0.211 $STD_{it}$+0.608 $STD_{it} * CGMI_{it}$-0.380 $LTD_{it}$-0.702 $LTD_{it} * CGMI_{it}$- 0.411 $TD_{it}$- 0.352 $TD_{it} * CGMI_{it}$+0.532 $SBA_{it}$+0.878 $SBA_{it} * CGMI_{it}$+0.613 $SBR_{it}$+ 0.930 $SBR_{it} * CGMI_{it}$- 0.327 $CS_{it}$+0.344 $CS_{it} * CGMI_{it}$-0.393 $PS_{it}$+0.397 $PS_{it} * CGMI_{it}$- 0.670 $ER_{it}$+ 0.455 $ER_{it} * CGMI_{it}$+ 0.593 $CCC_{it}$+0.505 $CCC_{it} * CGMI_{it}$+0.438 $TF_{it}$+ 0.416 $TF_{it} * CGMI_{it}$ -0.605 $RF_{it}$ +0.594 $RF_{it} * CGMI_{it}$-0.140 $FD_{it}$+0.236 $FD_{it} * CGMI_{it}$ +0.393 $CGR_{it}$+ 0.413 $CGR_{it} * CGMI_{it}$+0.186 $SRR_{it}$+0.269 $SRR_{it} * CGMI_{it}$+0.250 $FS_{it}$- 0.112 $AT_{it}$- 0.209 $TAT_{it}$+0.298

Beta coefficient equation for China

$ROIC_{it}$= 0.626 $CGMI_{it}$+0.487 $IFR_{it}$+0.633 $IFR_{it} * CGMI_{it}$ +0.436 $RE_{it}$+0.307 $RE_{it} * CGMI_{it}$+ 0.626 $STD_{it}$+0.584 $STD_{it} * CGMI_{it}$-0.290 $LTD_{it}$-0.512 $LTD_{it} * CGMI_{it}$- 0.508 $TD_{it}$- 0.501 $TD_{it} * CGMI_{it}$+0.835 $SBA_{it}$+0.793 $SBA_{it} * CGMI_{it}$+0.502 $SBR_{it}$+ 0.870 $SBR_{it} * CGMI_{it}$- 0.464 $CS_{it}$+0.324 $CS_{it} * CGMI_{it}$-0.283 $PS_{it}$+0.768 $PS_{it} * CGMI_{it}$- 0.833 $ER_{it}$+ 0.710 $ER_{it} * CGMI_{it}$+ 0.816 $CCC_{it}$+0.813 $CCC_{it} * CGMI_{it}$+0.718 $TF_{it}$+ 0.755 $TF_{it} * CGMI_{it}$ +0.483 $RF_{it}$ +0.583 $RF_{it} * CGMI_{it}$+0.420 $FD_{it}$+0.316 $FD_{it} * CGMI_{it}$ +0.213 $CGR_{it}$+ 0.479 $CGR_{it} * CGMI_{it}$+0.509 $SRR_{it}$+0.499 $SRR_{it} * CGMI_{it}$+0.413 $FS_{it}$- 0.469 $AT_{it}$+ 0.227 $TAT_{it}$+0.114

Beta coefficient equation for Iran

$ROIC_{it}$= 0.435 $CGMI_{it}$+0.658 $IFR_{it}$+0.505 $IFR_{it} * CGMI_{it}$ +0.521 $RE_{it}$+0.616 $RE_{it} * CGMI_{it}$+ 0.426 $STD_{it}$+0.576 $STD_{it} * CGMI_{it}$-0.483 $LTD_{it}$-0.356 $LTD_{it} * CGMI_{it}$- 0.477 $TD_{it}$- 0.554 $TD_{it} * CGMI_{it}$+0.486 $SBA_{it}$+0.718 $SBA_{it} * CGMI_{it}$+0.818 $SBR_{it}$+ 0.773 $SBR_{it} * CGMI_{it}$- 0.677 $CS_{it}$+0.503 $CS_{it} * CGMI_{it}$-0.235 $PS_{it}$+0.771 $PS_{it} * CGMI_{it}$- 0.654 $ER_{it}$+ 0.698 $ER_{it} * CGMI_{it}$+ 0.817 $CCC_{it}$+0.816 $CCC_{it} * CGMI_{it}$+0.718 $TF_{it}$+ 0.123 $TF_{it} * CGMI_{it}$ -0.505 $RF_{it}$ +0.217 $RF_{it} * CGMI_{it}$-0.608 $FD_{it}$+0.352 $FD_{it} * CGMI_{it}$

$+0.200\ CGR_{it} + 0.377\ CGR_{it} * CGMI_{it} + 0.349\ SRR_{it} + 0.455\ SRR_{it} * CGMI_{it} + 0.458\ FS_{it} + 0.185\ AT_{it} + 0.240\ TAT_{it} + 0.173$

**Table 4.3.24: Model 7.6**, *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Tobin's q*

| Financing Alternatives, Corporate Governance Mechanism, and Tobin's q | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: Tobin's q<br>Interaction term: Financing alternatives* CGMI | | | | | | | Moderator: CGMI | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.43 | 0.128 | 0.69 | 0.340 | 0.81 | 0.069 | 0.31 | 0.389 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.626 | 0.108 | 0.362 | 0.615 | 0.273 | 0.081 | 0.432 | 0.648 |
| Internal financing ratio *CGMI | 0.469 | 0.000 | 0.456 | 0.000 | 0.805 | 0.000 | 0.749 | 0.003 |
| Retained Earnings | 0.325 | 0.152 | 0.396 | 0.750 | 0.847 | 0.859 | 0.419 | 0.056 |
| Retained Earnings*CGMI | 0.695 | 0.000 | 0.580 | 0.000 | 0.683 | 0.001 | 0.618 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.584 | 0.096 | 0.676 | 0.697 | 0.399 | 0.447 | 0.562 | 0.378 |
| Short-term debt*CGMI | 0.506 | 0.003 | 0.565 | 0.000 | 0.498 | 0.000 | 0.520 | 0.000 |
| Long-term debt | -0.357 | 0.963 | -0.387 | 0.305 | -0.506 | 0.072 | -0.249 | 0.154 |
| Long-term debt*CGMI | -0.575 | 0.006 | -0.258 | 0.000 | -0.488 | 0.001 | -0.837 | 0.000 |
| Total debt | -0.391 | 0.117 | -0.277 | 0.210 | -0.251 | 0.455 | -0.217 | 0.175 |
| Total debt*CGMI | -0.330 | 0.000 | -0.491 | 0.000 | -0.325 | 0.004 | -0.852 | 0.045 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.691 | 0.020 | 0.723 | 0.156 | 0.906 | 0.424 | 0.433 | 0.845 |
| Shadow banking assets*CGMI | 0.660 | 0.000 | 0.958 | 0.003 | 0.445 | 0.000 | 0.596 | 0.000 |
| Shadow banking ratio | 0.589 | 0.388 | 0.342 | 0.397 | 0.844 | 0.261 | 0.846 | 0.475 |
| Shadow banking ratio*CGMI | 0.601 | 0.005 | 0.619 | 0.000 | 0.879 | 0.000 | 0.518 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.321 | 0.795 | -0.296 | 0.318 | -0.396 | 0.603 | -0.526 | 0.133 |
| Common stocks*CGMI | 0.539 | 0.000 | 0.675 | 0.000 | 0.208 | 0.000 | 0.261 | 0.025 |
| Preferred stocks | -0.456 | 0.176 | -0.376 | 0.744 | -0.730 | 0.119 | -0.309 | 0.258 |
| Preferred stocks*CGMI | 0.403 | 0.000 | 0.747 | 0.000 | 0.257 | 0.000 | 0.642 | 0.027 |
| Equity ratio | -0.631 | 0.201 | -0.641 | 0.939 | -0.231 | 0.277 | -0.389 | 0.099 |
| Equity ratio*CGMI | 0.972 | 0.021 | 0.475 | 0.007 | 0.317 | 0.005 | 0.686 | 0.010 |
| Supply chain financing | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cash Conversion Cycle | 0.416 | 0.014 | 0.704 | 0.014 | 0.694 | 0.827 | 0.761 | 0.224 |
| Cash Conversion Cycle*CGMI | 0.905 | 0.001 | 0.698 | 0.003 | 0.151 | 0.000 | 0.708 | 0.000 |
| Trade financing | 0.839 | 0.024 | 0.850 | 0.042 | 0.695 | 0.019 | 0.859 | 0.050 |
| Trade financing*CGMI | 0.818 | 0.000 | 0.839 | 0.000 | 0.914 | 0.000 | 0.886 | 0.037 |
| Reverse factoring | -0.410 | 0.017 | -0.149 | 0.005 | -0.541 | 0.123 | -0.331 | 0.255 |
| Reverse factoring*CGMI | 0.282 | 0.004 | 0.299 | 0.000 | 0.516 | 0.003 | 0.544 | 0.004 |
| Factoring | -0.366 | 0.019 | -0.521 | 0.033 | 0.722 | 0.033 | -0.468 | 0.020 |
| Factoring*CGMI | 0.612 | 0.000 | 0.276 | 0.030 | 0.587 | 0.000 | 0.338 | 0.022 |
| Credit guarantees ratio | 0.606 | 0.030 | 0.236 | 0.034 | 0.584 | 0.244 | 0.433 | 0.066 |
| Credit guarantees ratio*CGMI | 0.370 | 0.041 | 0.129 | 0.015 | 0.410 | 0.000 | 0.132 | 0.000 |
| Solvency rating ratio | 0.120 | 0.049 | 0.439 | 0.000 | 0.612 | 0.000 | 0.256 | 0.513 |
| Solvency rating ratio *CGMI | 0.150 | 0.001 | 0.262 | 0.000 | 0.402 | 0.015 | 0.227 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.352 | 0.002 | 0.505 | 0.006 | 0.496 | 0.000 | 0.448 | 0.001 |
| Asset Tangibility | 0.274 | 0.000 | 0.383 | 0.002 | 0.377 | 0.037 | 0.192 | 0.000 |
| Total Asset turnover | -0.284 | 0.024 | -0.212 | 0.036 | -0.181 | 0.032 | -0.342 | 0.000 |
| Constant | 0.190 | 0.000 | 0.195 | 0.000 | 0.194 | 0.000 | 0.314 | 0.000 |
| R-square | 0.482 | | 0.565 | | 0.460 | | 0.520 | |
| F-Statistic | 2.060 | | 2.080 | | 2.230 | | 2.320 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.014 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.6 includes Tobin's q as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$Tobin's\ q_{it} = 0.43\ CGMI_{it} + 0.626\ IFR_{it} + 0.469\ IFR_{it} * CGMI_{it} + 0.325\ RE_{it} + 0.695\ RE_{it} * CGMI_{it} + 0.584\ STD_{it} + 0.506\ STD_{it} * CGMI_{it} - 0.357\ LTD_{it} - 0.575\ LTD_{it} * CGMI_{it} - 0.391\ TD_{it} - 0.330\ TD_{it} * CGMI_{it} + 0.691\ SBA_{it} + 0.660\ SBA_{it} * CGMI_{it} + 0.589\ SBR_{it} + 0.601\ SBR_{it} * CGMI_{it} - 0.321\ CS_{it} + 0.539\ CS_{it} * CGMI_{it} - 0.456\ PS_{it} + 0.403\ PS_{it} * CGMI_{it} - 0.631\ ER_{it} + 0.972\ ER_{it} * CGMI_{it} + 0.416\ CCC_{it} + 0.905\ CCC_{it} * CGMI_{it} + 0.839\ TF_{it} + 0.818\ TF_{it} * CGMI_{it} - 0.410\ RF_{it} + 0.282\ RF_{it} * CGMI_{it} - 0.366\ FD_{it} + 0.612\ FD_{it} * CGMI_{it} + 0.606\ CGR_{it} + 0.370\ CGR_{it} * CGMI_{it} + 0.120\ SRR_{it} + 0.150\ SRR_{it} * CGMI_{it} + 0.352\ FS_{it} + 0.274\ AT_{it} - 0.284\ TAT_{it} + 0.190$$

Beta coefficient equation for India

$Tobin's\ q_{it}$= 0.69 $CGMI_{it}$+0.362 $IFR_{it}$+0.456 $IFR_{it} * CGMI_{it}$ +0.396 $RE_{it}$+0.580 $RE_{it} * CGMI_{it}$+ 0.676 $STD_{it}$+0.565 $STD_{it} * CGMI_{it}$-0.387 $LTD_{it}$-0.258 $LTD_{it} * CGMI_{it}$- 0.277 $TD_{it}$- 0.491 $TD_{it} * CGMI_{it}$+0.723 $SBA_{it}$+0.958 $SBA_{it} * CGMI_{it}$+0.342 $SBR_{it}$+ 0.619 $SBR_{it} * CGMI_{it}$- 0.296 $CS_{it}$+0.675 $CS_{it} * CGMI_{it}$-0.376 $PS_{it}$+0.747 $PS_{it} * CGMI_{it}$- 0.641 $ER_{it}$+ 0.475 $ER_{it} * CGMI_{it}$+ 0.704 $CCC_{it}$+0.698 $CCC_{it} * CGMI_{it}$+0.850 $TF_{it}$+ 0.839 $TF_{it} * CGMI_{it}$ -0.149 $RF_{it}$ +0.299 $RF_{it} * CGMI_{it}$-0.521 $FD_{it}$+0.276 $FD_{it} * CGMI_{it}$ +0.236 $CGR_{it}$+ 0.129 $CGR_{it} * CGMI_{it}$+0.439 $SRR_{it}$+0.262 $SRR_{it} * CGMI_{it}$+0.505 $FS_{it}$+ 0.383 $AT_{it}$- 0.212 $TAT_{it}$+0.195

Beta coefficient equation for China

$Tobin's\ q_{it}$= 0.81 $CGMI_{it}$+0.273 $IFR_{it}$+0.805 $IFR_{it} * CGMI_{it}$ +0.847 $RE_{it}$+0.683 $RE_{it} * CGMI_{it}$+ 0.399 $STD_{it}$+0.498 $STD_{it} * CGMI_{it}$-0.506 $LTD_{it}$-0.488 $LTD_{it} * CGMI_{it}$- 0.251 $TD_{it}$- 0.325 $TD_{it} * CGMI_{it}$+0.906 $SBA_{it}$+0.445 $SBA_{it} * CGMI_{it}$+0.844 $SBR_{it}$+ 0.879 $SBR_{it} * CGMI_{it}$- 0.396 $CS_{it}$+0.208 $CS_{it} * CGMI_{it}$-0.730 $PS_{it}$+0.257 $PS_{it} * CGMI_{it}$- 0.231 $ER_{it}$+ 0.317 $ER_{it} * CGMI_{it}$+ 0.694 $CCC_{it}$+0.151 $CCC_{it} * CGMI_{it}$+0.695 $TF_{it}$+ 0.914 $TF_{it} * CGMI_{it}$ -0.541 $RF_{it}$ +0.516 $RF_{it} * CGMI_{it}$+0.722 $FD_{it}$+0.587 $FD_{it} * CGMI_{it}$ +0.584 $CGR_{it}$+ 0.410 $CGR_{it} * CGMI_{it}$+0.612 $SRR_{it}$+0.402 $SRR_{it} * CGMI_{it}$+0.496 $FS_{it}$+ 0.377 $AT_{it}$- 0.181 $TAT_{it}$+0.194

Beta coefficient equation for Iran

$Tobin's\ q_{it}$= 0.31 $CGMI_{it}$+0.432 $IFR_{it}$+0.749 $IFR_{it} * CGMI_{it}$ +0.419 $RE_{it}$+0.618 $RE_{it} * CGMI_{it}$+ 0.562 $STD_{it}$+0.520 $STD_{it} * CGMI_{it}$-0.249 $LTD_{it}$-0.837 $LTD_{it} * CGMI_{it}$- 0.217 $TD_{it}$- 0.852 $TD_{it} * CGMI_{it}$+0.433 $SBA_{it}$+0.596 $SBA_{it} * CGMI_{it}$+0.846 $SBR_{it}$+ 0.518 $SBR_{it} * CGMI_{it}$- 0.526 $CS_{it}$+0.261 $CS_{it} * CGMI_{it}$-0.309 $PS_{it}$+0.642 $PS_{it} * CGMI_{it}$- 0.389 $ER_{it}$+ 0.686 $ER_{it} * CGMI_{it}$+ 0.761 $CCC_{it}$+0.708 $CCC_{it} * CGMI_{it}$+0.859 $TF_{it}$+ 0.886 $TF_{it} * CGMI_{it}$ -0.331 $RF_{it}$ +0.544 $RF_{it} * CGMI_{it}$-0.468 $FD_{it}$+0.338 $FD_{it} * CGMI_{it}$ +0.433 $CGR_{it}$+ 0.132 $CGR_{it} * CGMI_{it}$+0.256 $SRR_{it}$+0.227 $SRR_{it} * CGMI_{it}$+0.448 $FS_{it}$+ 0.192 $AT_{it}$- 0.342 $TAT_{it}$+0.314

**Table 4.3.25: Model 7.7,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Earnings Per Share*

| Financing Alternatives, Corporate Governance Mechanism, and Earnings Per Share | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: EPS<br>Interaction term: Financing alternatives* CGMI | | | | | | | Moderator: CGMI | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.38 | 0.668 | 0.64 | 0.905 | 0.69 | 0.116 | 0.46 | 0.212 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.704 | 0.181 | 0.507 | 0.051 | 0.294 | 0.051 | 0.848 | 0.085 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Internal financing ratio *CGMI | 0.665 | 0.015 | 0.518 | 0.000 | 0.533 | 0.000 | 0.757 | 0.002 |
| Retained Earnings | 0.595 | 0.086 | 0.622 | 0.509 | 0.780 | 0.800 | 0.372 | 0.733 |
| Retained Earnings*CGMI | 0.568 | 0.002 | 0.825 | 0.000 | 0.383 | 0.025 | 0.513 | 0.014 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.694 | 0.219 | 0.813 | 0.403 | 0.398 | 0.165 | 0.451 | 0.931 |
| Short-term debt*CGMI | 0.571 | 0.006 | 0.467 | 0.000 | 0.722 | 0.001 | 0.691 | 0.015 |
| Long-term debt | -0.434 | 0.769 | -0.371 | 0.304 | -0.319 | 0.000 | -0.463 | 0.038 |
| Long-term debt*CGMI | -0.547 | 0.000 | -0.684 | 0.001 | -0.607 | 0.000 | -0.545 | 0.000 |
| Total debt | -0.328 | 0.286 | -0.343 | 0.378 | -0.322 | 0.268 | -0.493 | 0.219 |
| Total debt*CGMI | -0.500 | 0.000 | -0.755 | 0.000 | -0.610 | 0.031 | -0.604 | 0.014 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.646 | 0.194 | 0.695 | 0.522 | 0.492 | 0.124 | 0.376 | 0.166 |
| Shadow banking assets*CGMI | 0.911 | 0.028 | 0.451 | 0.028 | 0.389 | 0.000 | 0.316 | 0.013 |
| Shadow banking ratio | 0.597 | 0.449 | 0.477 | 0.314 | 0.902 | 0.075 | 0.428 | 0.150 |
| Shadow banking ratio*CGMI | 0.712 | 0.001 | 0.600 | 0.006 | 0.625 | 0.011 | 0.438 | 0.017 |
| Equity financing | | | | | | | | |
| Common stocks | -0.750 | 0.000 | -0.272 | 0.106 | -0.295 | 0.026 | -0.495 | 0.080 |
| Common stocks*CGMI | 0.264 | 0.000 | 0.218 | 0.000 | 0.818 | 0.002 | 0.706 | 0.001 |
| Preferred stocks | -0.516 | 0.074 | -0.391 | 0.107 | -0.508 | 0.149 | -0.288 | 0.253 |
| Preferred stocks*CGMI | 0.238 | 0.000 | 0.486 | 0.000 | 0.518 | 0.000 | 0.387 | 0.000 |
| Equity ratio | -0.496 | 0.021 | -0.522 | 0.121 | -0.442 | 0.031 | -0.513 | 0.003 |
| Equity ratio*CGMI | 0.523 | 0.044 | 0.501 | 0.000 | 0.392 | 0.000 | 0.704 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.614 | 0.074 | 0.296 | 0.046 | 0.352 | 0.073 | 0.282 | 0.149 |
| Cash Conversion Cycle*CGMI | 0.206 | 0.000 | 0.308 | 0.000 | 0.537 | 0.000 | 0.286 | 0.000 |
| Trade financing | 0.585 | 0.071 | 0.321 | 0.366 | 0.318 | 0.701 | 0.563 | 0.053 |
| Trade financing*CGMI | 0.335 | 0.000 | 0.376 | 0.000 | 0.126 | 0.000 | 0.183 | 0.000 |
| Reverse factoring | -0.343 | 0.346 | -0.510 | 0.473 | -0.368 | 0.118 | -0.519 | 0.165 |
| Reverse factoring*CGMI | 0.231 | 0.000 | 0.446 | 0.000 | 0.371 | 0.000 | 0.201 | 0.000 |
| Factoring | -0.295 | 0.327 | -0.418 | 0.751 | -0.178 | 0.314 | 0.330 | 0.058 |
| Factoring*CGMI | 0.212 | 0.000 | 0.199 | 0.000 | 0.559 | 0.041 | 0.171 | 0.000 |
| Credit guarantees ratio | -0.156 | 0.936 | -0.117 | 0.775 | -0.573 | 0.386 | 0.220 | 0.602 |
| Credit guarantees ratio*CGMI | 0.579 | 0.000 | 0.204 | 0.000 | 0.576 | 0.018 | 0.658 | 0.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solvency rating ratio | 0.573 | 0.117 | 0.592 | 0.770 | 0.503 | 0.000 | 0.180 | 0.094 |
| Solvency rating ratio *CGMI | 0.498 | 0.038 | 0.222 | 0.017 | 0.298 | 0.000 | 0.466 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.506 | 0.001 | 0.450 | 0.002 | 0.573 | 0.001 | 0.609 | 0.003 |
| Asset Tangibility | 0.266 | 0.023 | 0.243 | 0.044 | 0.333 | 0.000 | 0.166 | 0.000 |
| Total Asset turnover | 0.367 | 0.000 | 0.361 | 0.000 | 0.284 | 0.035 | 0.147 | 0.046 |
| Constant | 0.294 | 0.000 | 0.294 | 0.001 | 0.139 | 0.000 | 0.400 | 0.000 |
| R-square | 0.499 | | 0.480 | | 0.506 | | 0.555 | |
| F-Statistic | 3.580 | | 4.510 | | 6.850 | | 6.270 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.006 | |
| Lagrange Multiplier test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 7.7 includes the Earnings per share as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$EPS_{it}= 0.38\ CGMI_{it}+0.704\ IFR_{it}+0.665\ IFR_{it}*CGMI_{it}+0.595\ RE_{it}+0.568\ RE_{it}*CGMI_{it}+0.694\ STD_{it}+0.571\ STD_{it}*CGMI_{it}-0.434\ LTD_{it}-0.547\ LTD_{it}*CGMI_{it}-0.328\ TD_{it}-0.500\ TD_{it}*CGMI_{it}+0.646\ SBA_{it}+0.911\ SBA_{it}*CGMI_{it}+0.597\ SBR_{it}+0.712\ SBR_{it}*CGMI_{it}-0.750\ CS_{it}+0.264\ CS_{it}*CGMI_{it}-0.516\ PS_{it}+0.238\ PS_{it}*CGMI_{it}-0.496\ ER_{it}+0.523\ ER_{it}*CGMI_{it}+0.614\ CCC_{it}+0.206\ CCC_{it}*CGMI_{it}+0.585\ TF_{it}+0.335\ TF_{it}*CGMI_{it}-0.343\ RF_{it}+0.231\ RF_{it}*CGMI_{it}-0.295\ FD_{it}+0.212\ FD_{it}*CGMI_{it}-0.156\ CGR_{it}+0.579\ CGR_{it}*CGMI_{it}+0.573\ SRR_{it}+0.498\ SRR_{it}*CGMI_{it}+0.506\ FS_{it}+0.266\ AT_{it}+0.367\ TAT_{it}+0.294$$

Beta coefficient equation for India

$$EPS_{it}= 0.64\ CGMI_{it}+0.507\ IFR_{it}+0.518\ IFR_{it}*CGMI_{it}+0.622\ RE_{it}+0.825\ RE_{it}*CGMI_{it}+0.813\ STD_{it}+0.467\ STD_{it}*CGMI_{it}-0.371\ LTD_{it}-0.684\ LTD_{it}*CGMI_{it}-0.343\ TD_{it}-0.755\ TD_{it}*CGMI_{it}+0.695\ SBA_{it}+0.451\ SBA_{it}*CGMI_{it}+0.477\ SBR_{it}+0.600\ SBR_{it}*CGMI_{it}-0.272\ CS_{it}+0.218\ CS_{it}*CGMI_{it}-0.391\ PS_{it}+0.486\ PS_{it}*CGMI_{it}-0.522\ ER_{it}+0.501\ ER_{it}*CGMI_{it}+0.296\ CCC_{it}+0.308\ CCC_{it}*CGMI_{it}+0.321\ TF_{it}+0.376\ TF_{it}*CGMI_{it}-0.510\ RF_{it}+0.446\ RF_{it}*CGMI_{it}-0.418\ FD_{it}+0.199\ FD_{it}*CGMI_{it}-0.117\ CGR_{it}+0.204\ CGR_{it}*CGMI_{it}+0.592\ SRR_{it}+0.222\ SRR_{it}*CGMI_{it}+0.450\ FS_{it}+0.243\ AT_{it}+0.361\ TAT_{it}+0.294$$

Beta coefficient equation for China

$$EPS_{it}= 0.69\ CGMI_{it}+0.294\ IFR_{it}+0.533\ IFR_{it}*CGMI_{it}+0.780\ RE_{it}+0.383\ RE_{it}*CGMI_{it}+0.398\ STD_{it}+0.722\ STD_{it}*CGMI_{it}-0.319\ LTD_{it}-0.607\ LTD_{it}*CGMI_{it}-$$

$0.322\ TD_{it}$- $0.610\ TD_{it} * CGMI_{it}$+$0.492\ SBA_{it}$+$0.389\ SBA_{it} * CGMI_{it}$+$0.902\ SBR_{it}$+ $0.625\ SBR_{it} * CGMI_{it}$- $0.295\ CS_{it}$+$0.818\ CS_{it} * CGMI_{it}$-$0.508\ PS_{it}$+$0.518\ PS_{it} * CGMI_{it}$- $0.442\ ER_{it}$+ $0.392\ ER_{it} * CGMI_{it}$+ $0.352\ CCC_{it}$+$0.537\ CCC_{it} * CGMI_{it}$+$0.318\ TF_{it}$+ $0.126\ TF_{it} * CGMI_{it}$ -$0.368\ RF_{it}$ +$0.371\ RF_{it} * CGMI_{it}$-$0.178\ FD_{it}$+$0.559\ FD_{it} * CGMI_{it}$ - $0.573\ CGR_{it}$+ $0.576\ CGR_{it} * CGMI_{it}$+$0.503\ SRR_{it}$+$0.298\ SRR_{it} * CGMI_{it}$+$0.573\ FS_{it}$+ $0.333\ AT_{it}$+ $0.284\ TAT_{it}$+$0.139$

Beta coefficient equation for Iran

$EPS_{it}$= $0.46\ CGMI_{it}$+$0.848\ IFR_{it}$+$0.757\ IFR_{it} * CGMI_{it}$ +$0.372\ RE_{it}$+$0.513\ RE_{it} * CGMI_{it}$+ $0.451\ STD_{it}$+$0.691\ STD_{it} * CGMI_{it}$-$0.463\ LTD_{it}$-$0.545\ LTD_{it} * CGMI_{it}$- $0.493\ TD_{it}$- $0.604\ TD_{it} * CGMI_{it}$+$0.376\ SBA_{it}$+$0.316\ SBA_{it} * CGMI_{it}$+$0.428\ SBR_{it}$+ $0.438\ SBR_{it} * CGMI_{it}$- $0.495\ CS_{it}$+$0.706\ CS_{it} * CGMI_{it}$-$0.288\ PS_{it}$+$0.387\ PS_{it} * CGMI_{it}$- $0.513\ ER_{it}$+ $0.704\ ER_{it} * CGMI_{it}$+ $0.282\ CCC_{it}$+$0.286\ CCC_{it} * CGMI_{it}$+$0.563\ TF_{it}$+ $0.183\ TF_{it} * CGMI_{it}$ -$0.519\ RF_{it}$ +$0.201\ RF_{it} * CGMI_{it}$+$0.330\ FD_{it}$+$0.171\ FD_{it} * CGMI_{it}$ +$0.220\ CGR_{it}$+ $0.658\ CGR_{it} * CGMI_{it}$+$0.180\ SRR_{it}$+$0.466\ SRR_{it} * CGMI_{it}$+$0.609\ FS_{it}$+ $0.166\ AT_{it}$+ $0.147\ TAT_{it}$+$0.400$

### 4.3.6 Financing Alternatives, Corporate Governance Mechanism, and Sustainable Performance

The proposed model 8.1 and 8.2 determines the panel regression effects of financing alternatives on GRI sustainability and SGR, with the moderation effect of the Corporate Governance Mechanism Index, and under the controlled effect of firm size, asset tangibility, and total asset turnover, estimated by P-OLS, fixed effect, and random effect models for selected SCO member states, reported in table 4.3.26 and 4.3.27.

The estimations give preference for fixed effect model based upon decided criteria for panel regression models. The fixed effect statistics are decided based on appropriate decision criteria for panel regression estimate, Lagrange multiplier test has p-value below 0.05, indicating acceptance of random effect as an appropriate panel regression method than OLS model. For evaluation of the most appropriate method, the Hausman test indicates acceptance of null hypothesis: select fixed effect when p-value less than 0.05, for selected SCO states. From the results of the Lagrange multiplier test and the Hausman test, the best estimation model is fixed effect, so Chow method statistics can't be applied. For testing the hypothesis, based upon the analysis of fixed effect estimates, the study considered p-values with significance level 0.05 or less, and beta coefficient that measures the differential effect of explanatory variable for each additional increase or decrease in predictor variable.

Considering the significance criteria for estimations, fixed effect statistics have obtained insignificant influence of CGMI on GRI sustainability and SGR, with p-values greater than

0.05, the first condition for moderation effect has been fulfilled. Secondly, fixed effect statistics have obtained significant influence of interaction terms, indicating satisfaction with the second condition. For categorization as partial moderation or complete moderation, all the financing alternatives are regressed for GRI sustainability and SGR with the CGMI as a moderator variable.

The estimations show that CGMI has a complete moderation effect on both the internal financing ratio and retained earnings for selected SCO members when regressed for GRI sustainability and SGR with insignificant p-value i-e greater than 0.05, under P-OLS and fixed effect estimations. Hence satisfying hypotheses H8.1a and H8.1b, The CGMI moderates the relationship between internal financing and GRI sustainability, and SGR of nonfinancial companies in the SCO member states. The existing studies proved the significant interaction effect of CGM-internal financing on financial performance, such as (Seetanah et al. 2014; Ngatno et al. 2021; Ronoowah & Seetanah 2023a; Ronoowah and Seetanah 2023b). to the best of author's research, no study has elaborated interaction effect for GRI sustainability. The present study supported agency theory for management of the internal funds for long-term performance.

The CGMI also shows complete moderating influence on the relation between diverse debt finances and sustainable performance measures, with p-values above 0.050 significance level for all SCO member states. The results satisfy hypotheses H8.2a and H8.2b, The CGMI moderates the relationship between debt financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. The study findings contributed to agency theory by reducing the agency conflicts between management and debtholders, and in line with Chang et al. (2024) and Abid et al. (2024), proved the positive interaction effect of firm governance system on debt finances and equity finances association with environmental sustainability.

Shadow banking assets and shadow banking ratio also present a complete moderating influence of CGMI for predictors of GRI sustainability and SGR for all SCO states, with a p-value above 5% significance level, except only China and Iran show partial moderation with p-values of 0.000. Hence fixed effect estimations, satisfies the hypotheses *H*8.3a and *H*8.3b, i-e The CGMI moderates the relationship between shadow bank financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. CGMI shows a complete moderation effect with common stocks, preferred stocks, and equity ratio, when regressed for GRI sustainability, with p-values above 0.05 significance for selected SCO states,

except Pakistan and China shows partial moderation with equity ratio-GRI sustainability with significant p-values of 0.029, 0,000, 0.011 and 0.042. CGMI moderation between common stocks, equity ratio, and SGR, presents partial moderation for Pakistan, China, and India with p-values below 0.05, while only preferred stocks show complete moderation for all SCO states with insignificant p-values, hence supporting the hypotheses *H*8.4a and *H*8.4b, i-e The CGMI moderates the relationship between equity financing and GRI sustainability, SGR of nonfinancial companies in the SCO member states. Among supply chain finances, CCC and credit guarantees show complete moderating influence for all SCO states with GRI, and CCC, trade financing, factoring finances, and credit guarantees obtain complete moderation with SGR with p-values above the significance level of 0.05, while the remaining shows partial moderation effects with significant p-values. The results support the hypotheses *H*8.5a and *H*8.5b: There is a significant impact of supply chain finances on the GRI sustainability and SGR of nonfinancial companies in the SCO member states, in line with Rahman et al. (2019). According to Javeed & Azeem (2014), the Long-run survival of a firm is highly dependent on an advanced CG system. The evidenced studies proved the significant influence of CGM on corporate sustainable growth Mukherjee & Sen (2019), and corporate sustainable development (Achim et al., 2022). Ngatno et al. (2021); Javeed et al. (2017), argued that good governance can effectively manage corporate capital structure, which plays an important role in improving the firm profitability and firm value over the long run. An extensive number of studies have evaluated and proved the significant interaction influence of CG on capital structure and financial performance. But there is a need to explore the interaction effect in the context of sustainable performance. To the best of the author's research, no study has empirically evaluated the interaction effect for the predictors of GRI sustainability and SGR.

Based on the statistical and theoretical acceptance of stated hypotheses for the relation between CGMI, comprehensive financing alternatives, and sustainable performance measures, the study significantly proved the moderating influence of CGMI on the relation between financing alternatives and sustainable performance. Hence H8 accepted. All three controlled variables have a significant controlled effect on sustainable performance for the selected SCO states with p-values less than 0.05, under the decided fixed effect estimation model. For GRI sustainability and SGR, the Hausman model specification test shows the p-value<0.05, which supports the validity of fixed effect for selected SCO nations. Wald test indicates the heteroskedasticity problem, with p-values below 0.05, robust is applied on fixed effect statistics for minimizing the heteroskedasticity problem. Estimations show variance explanation powers

with r-square values of below 0.60 for sustainable performance measures, for selected SCO states. The statistically significant F-statistics i-e 0.000 for all the models assuring the model fitness.

**Table 4.3.26: Model 8.1,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and GRI Sustainability*

| Financing Alternatives, Corporate Governance Mechanism, and GRI Sustainability | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Regressand: GRI<br>Interaction term: Financing alternatives* CGMI | | | | | | Moderator: CGMI | | |
| | Pakistan | | India | | China | | Iran | |
| Regressors | Fixed effect | | Fixed effect | | Fixed effect | | Fixed effect | |
| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
| CGMI | 0.684 | 0.134 | 0.469 | 0.092 | 0.782 | 0.066 | 0.535 | 0.069 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.728 | 0.590 | 0.514 | 0.063 | 0.410 | 0.418 | 0.777 | 0.395 |
| Internal financing ratio *CGMI | 0.446 | 0.005 | 0.613 | 0.015 | 0.516 | 0.028 | 0.863 | 0.047 |
| Retained Earnings | 0.557 | 0.098 | 0.599 | 0.067 | 0.424 | 0.138 | 0.552 | 0.131 |
| Retained Earnings*CGMI | 0.784 | 0.012 | 0.388 | 0.027 | 0.335 | 0.024 | 0.377 | 0.000 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.389 | 0.654 | 0.616 | 0.134 | 0.802 | 0.390 | 0.656 | 0.601 |
| Short-term debt*CGMI | 0.765 | 0.011 | 0.487 | 0.000 | 0.622 | 0.000 | 0.488 | 0.001 |
| Long-term debt | -0.415 | 0.616 | -0.430 | 0.593 | -0.416 | 0.404 | -0.559 | 0.423 |
| Long-term debt*CGMI | -0.626 | 0.000 | -0.681 | 0.000 | -0.503 | 0.048 | -0.524 | 0.038 |
| Total debt | -0.386 | 0.590 | -0.534 | 0.151 | -0.443 | 0.272 | -0.611 | 0.401 |
| Total debt*CGMI | -0.436 | 0.000 | -0.755 | 0.000 | -0.236 | 0.009 | -0.423 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.801 | 0.078 | 0.689 | 0.361 | 0.961 | 0.431 | 0.681 | 0.651 |
| Shadow banking assets*CGMI | 0.556 | 0.008 | 0.910 | 0.004 | 0.905 | 0.000 | 0.719 | 0.000 |
| Shadow banking ratio | 0.527 | 0.055 | 0.941 | 0.096 | 0.954 | 0.322 | 0.565 | 0.214 |
| Shadow banking ratio*CGMI | 0.789 | 0.000 | 0.518 | 0.000 | 0.922 | 0.000 | 0.767 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.470 | 0.161 | -0.626 | 0.283 | -0.844 | 0.459 | -0.514 | 0.333 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Common stocks*CGMI | 0.311 | 0.000 | 0.640 | 0.000 | 0.256 | 0.000 | 0.712 | 0.000 |
| Preferred stocks | -0.457 | 0.066 | -0.459 | 0.198 | -0.859 | 0.256 | -0.691 | 0.302 |
| Preferred stocks*CGMI | 0.302 | 0.000 | 0.311 | 0.000 | 0.457 | 0.000 | 0.528 | 0.000 |
| Equity ratio | -0.540 | 0.000 | -0.940 | 0.138 | -0.387 | 0.042 | -0.656 | 0.617 |
| Equity ratio*CGMI | 0.558 | 0.000 | 0.496 | 0.000 | 0.541 | 0.000 | 0.689 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.541 | 0.272 | 0.332 | 0.149 | 0.276 | 0.074 | 0.372 | 0.571 |
| Cash Conversion Cycle*CGMI | 0.354 | 0.001 | 0.416 | 0.000 | 0.569 | 0.000 | 0.362 | 0.000 |
| Trade financing | 0.336 | 0.000 | 0.601 | 0.840 | 0.307 | 0.082 | 0.334 | 0.806 |
| Trade financing*CGMI | 0.309 | 0.000 | 0.305 | 0.000 | 0.457 | 0.000 | 0.472 | 0.001 |
| Reverse factoring | -0.479 | 0.323 | -0.366 | 0.000 | -0.202 | 0.037 | -0.488 | 0.120 |
| Reverse factoring*CGMI | 0.498 | 0.002 | 0.122 | 0.000 | 0.301 | 0.000 | 0.518 | 0.003 |
| Factoring | -0.532 | 0.002 | -0.235 | 0.536 | -0.182 | 0.249 | -0.146 | 0.451 |
| Factoring*CGMI | 0.301 | 0.009 | 0.219 | 0.010 | 0.586 | 0.000 | 0.116 | 0.001 |
| Credit guarantees ratio | -0.637 | 0.234 | 0.209 | 0.248 | -0.305 | 0.224 | -0.175 | 0.264 |
| Credit guarantees ratio*CGMI | 0.164 | 0.001 | 0.204 | 0.000 | 0.648 | 0.000 | 0.202 | 0.002 |
| Solvency rating ratio | -0.549 | 0.256 | 0.184 | 0.092 | -0.595 | 0.063 | -0.108 | 0.088 |
| Solvency rating ratio *CGMI | 0.480 | 0.000 | 0.242 | 0.000 | 0.118 | 0.000 | 0.264 | 0.007 |
| Control variables | | | | | | | | |
| Firm Size | 0.573 | 0.013 | 0.593 | 0.000 | 0.514 | 0.000 | 0.683 | 0.019 |
| Asset Tangibility | 0.302 | 0.000 | 0.390 | 0.008 | 0.468 | 0.000 | 0.369 | 0.033 |
| Total Asset turnover | 0.411 | 0.018 | 0.605 | 0.000 | 0.552 | 0.000 | 0.382 | 0.026 |
| Constant | 0.271 | 0.001 | 0.298 | 0.003 | 0.269 | 0.001 | 0.241 | 0.023 |
| R-square | 0.539 | | 0.427 | | 0.594 | | 0.601 | |
| F-Statistic | 2.890 | | 3.790 | | 4.640 | | 3.840 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.001 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 8.1 includes the GRI Sustainability Performance as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$GRI_{it} = 0.684\ CGMI_{it} + 0.728\ IFR_{it} + 0.446\ IFR_{it} * CGMI_{it} + 0.557\ RE_{it} + 0.784\ RE_{it} * CGMI_{it} + 0.389\ STD_{it} + 0.765\ STD_{it} * CGMI_{it} - 0.415\ LTD_{it} - 0.626\ LTD_{it} * CGMI_{it} - 0.386\ TD_{it} - 0.436\ TD_{it} * CGMI_{it} + 0.801\ SBA_{it} + 0.556\ SBA_{it} * CGMI_{it} + 0.527\ SBR_{it} +$$

$0.789\ SBR_{it} * CGMI_{it}$- $0.470\ CS_{it}$+$0.311\ CS_{it} * CGMI_{it}$-$0.457\ PS_{it}$+$0.302\ PS_{it} * CGMI_{it}$-$0.540\ ER_{it}$+ $0.558\ ER_{it} * CGMI_{it}$+ $0.541\ CCC_{it}$+$0.354\ CCC_{it} * CGMI_{it}$+$0.336\ TF_{it}$+ $0.309\ TF_{it} * CGMI_{it}$ -$0.479\ RF_{it}$ +$0.498\ RF_{it} * CGMI_{it}$-$0.532\ FD_{it}$+$0.301\ FD_{it} * CGMI_{it}$ -$0.637\ CGR_{it}$+ $0.164\ CGR_{it} * CGMI_{it}$-$0.549\ SRR_{it}$+$0.480\ SRR_{it} * CGMI_{it}$+$0.573\ FS_{it}$+ $0.302\ AT_{it}$+ $0.411\ TAT_{it}$+$0.271$

Beta coefficient equation for India

$GRI_{it}$= $0.469\ CGMI_{it}$+$0.514\ IFR_{it}$+$0.613\ IFR_{it} * CGMI_{it}$ +$0.599\ RE_{it}$+$0.388\ RE_{it} * CGMI_{it}$+ $0.616\ STD_{it}$+$0.487\ STD_{it} * CGMI_{it}$-$0.430\ LTD_{it}$-$0.681\ LTD_{it} * CGMI_{it}$-$0.534\ TD_{it}$- $0.755\ TD_{it} * CGMI_{it}$+$0.689\ SBA_{it}$+$0.910\ SBA_{it} * CGMI_{it}$+$0.941\ SBR_{it}$+ $0.518\ SBR_{it} * CGMI_{it}$- $0.626\ CS_{it}$+$0.640\ CS_{it} * CGMI_{it}$-$0.459\ PS_{it}$+$0.311\ PS_{it} * CGMI_{it}$-$0.940\ ER_{it}$+ $0.496\ ER_{it} * CGMI_{it}$+ $0.332\ CCC_{it}$+$0.416\ CCC_{it} * CGMI_{it}$+$0.601\ TF_{it}$+ $0.305\ TF_{it} * CGMI_{it}$ -$0.366\ RF_{it}$ +$0.122\ RF_{it} * CGMI_{it}$-$0.235\ FD_{it}$+$0.219\ FD_{it} * CGMI_{it}$ +$0.209\ CGR_{it}$+ $0.204\ CGR_{it} * CGMI_{it}$+$0.184\ SRR_{it}$+$0.242\ SRR_{it} * CGMI_{it}$+$0.593\ FS_{it}$+ $0.390\ AT_{it}$+ $0.605\ TAT_{it}$+$0.298$

Beta coefficient equation for China

$GRI_{it}$= $0.782\ CGMI_{it}$+$0.410\ IFR_{it}$+$0.516\ IFR_{it} * CGMI_{it}$ +$0.424\ RE_{it}$+$0.335\ RE_{it} * CGMI_{it}$+ $0.802\ STD_{it}$+$0.622\ STD_{it} * CGMI_{it}$-$0.416\ LTD_{it}$-$0.503\ LTD_{it} * CGMI_{it}$-$0.443\ TD_{it}$- $0.236\ TD_{it} * CGMI_{it}$+$0.961\ SBA_{it}$+$0.905\ SBA_{it} * CGMI_{it}$+$0.954\ SBR_{it}$+ $0.922\ SBR_{it} * CGMI_{it}$- $0.844\ CS_{it}$+$0.256\ CS_{it} * CGMI_{it}$-$0.859\ PS_{it}$+$0.457\ PS_{it} * CGMI_{it}$-$0.387\ ER_{it}$+ $0.541\ ER_{it} * CGMI_{it}$+ $0.276\ CCC_{it}$+$0.569\ CCC_{it} * CGMI_{it}$+$0.307\ TF_{it}$+ $0.457\ TF_{it} * CGMI_{it}$ -$0.202\ RF_{it}$ +$0.301\ RF_{it} * CGMI_{it}$-$0.182\ FD_{it}$+$0.586\ FD_{it} * CGMI_{it}$ -$0.305\ CGR_{it}$+ $0.648\ CGR_{it} * CGMI_{it}$-$0.595\ SRR_{it}$+$0.118\ SRR_{it} * CGMI_{it}$+$0.514\ FS_{it}$+ $0.468\ AT_{it}$+ $0.552\ TAT_{it}$+$0.269$

Beta coefficient equation for Iran

$GRI_{it}$= $0.535\ CGMI_{it}$+$0.777\ IFR_{it}$+$0.863\ IFR_{it} * CGMI_{it}$ +$0.552\ RE_{it}$+$0.377\ RE_{it} * CGMI_{it}$+ $0.656\ STD_{it}$+$0.488\ STD_{it} * CGMI_{it}$-$0.559\ LTD_{it}$-$0.524\ LTD_{it} * CGMI_{it}$-$0.611\ TD_{it}$- $0.423\ TD_{it} * CGMI_{it}$+$0.681\ SBA_{it}$+$0.719\ SBA_{it} * CGMI_{it}$+$0.565\ SBR_{it}$+ $0.767\ SBR_{it} * CGMI_{it}$- $0.514\ CS_{it}$+$0.712\ CS_{it} * CGMI_{it}$-$0.691\ PS_{it}$+$0.528\ PS_{it} * CGMI_{it}$-$0.656\ ER_{it}$+ $0.689\ ER_{it} * CGMI_{it}$+ $0.372\ CCC_{it}$+$0.362\ CCC_{it} * CGMI_{it}$+$0.334\ TF_{it}$+ $0.472\ TF_{it} * CGMI_{it}$ -$0.488\ RF_{it}$ +$0.518\ RF_{it} * CGMI_{it}$-$0.146\ FD_{it}$+$0.116\ FD_{it} * CGMI_{it}$ -$0.175\ CGR_{it}$+ $0.202\ CGR_{it} * CGMI_{it}$-$0.108\ SRR_{it}$+$0.264\ SRR_{it} * CGMI_{it}$+$0.683\ FS_{it}$+ $0.369\ AT_{it}$+ $0.382\ TAT_{it}$+$0.241$

**Table 4.3.27: Model 8.2,** *Panel Regression Analysis for Financing Alternatives, Corporate Governance Mechanism, and Sustainable Growth Rate*

| Financing Alternatives, Corporate Governance Mechanism, and Sustainable Growth Rate | | | | |
|---|---|---|---|---|
| Regressand: SGR<br>Interaction term: Financing alternatives* CGMI | | | | Moderator: CGMI |
| | Pakistan | India | China | Iran |
| Regressors | Fixed effect | Fixed effect | Fixed effect | Fixed effect |

| | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value | Beta Coefficient | p-value |
|---|---|---|---|---|---|---|---|---|
| CGMI | 0.853 | 0.307 | 0.786 | 0.204 | 0.306 | 0.886 | 0.686 | 0.076 |
| Internal financing | | | | | | | | |
| Internal financing ratio | 0.661 | 0.460 | 0.683 | 0.072 | 0.605 | 0.132 | 0.606 | 0.062 |
| Internal financing ratio *CGMI | 0.418 | 0.000 | 0.500 | 0.001 | 0.656 | 0.000 | 0.647 | 0.006 |
| Retained Earnings | 0.677 | 0.069 | 0.780 | 0.853 | 0.797 | 0.932 | 0.435 | 0.266 |
| Retained Earnings*CGMI | 0.316 | 0.000 | 0.830 | 0.011 | 0.890 | 0.023 | 0.571 | 0.034 |
| Debt financing | | | | | | | | |
| Short-term debt | 0.379 | 0.071 | 0.724 | 0.984 | 0.630 | 0.493 | 0.634 | 0.147 |
| Short-term debt*CGMI | 0.552 | 0.004 | 0.522 | 0.000 | 0.520 | 0.001 | 0.801 | 0.000 |
| Long-term debt | -0.382 | 0.302 | -0.489 | 0.123 | -0.344 | 0.272 | -0.374 | 0.507 |
| Long-term debt*CGMI | -0.317 | 0.000 | -0.711 | 0.000 | -0.371 | 0.000 | -0.581 | 0.000 |
| Total debt | -0.235 | 0.125 | -0.440 | 0.518 | -0.523 | 0.133 | -0.359 | 0.144 |
| Total debt*CGMI | -0.679 | 0.000 | -0.439 | 0.049 | -0.677 | 0.000 | -0.647 | 0.000 |
| Shadow bank financing | | | | | | | | |
| Shadow banking assets | 0.340 | 0.263 | 0.892 | 0.344 | 0.759 | 0.000 | 0.939 | 0.000 |
| Shadow banking assets*CGMI | 0.461 | 0.000 | 0.968 | 0.026 | 0.810 | 0.026 | 0.545 | 0.000 |
| Shadow banking ratio | 0.779 | 0.656 | 0.824 | 0.215 | 0.549 | 0.863 | 0.553 | 0.624 |
| Shadow banking ratio*CGMI | 0.528 | 0.002 | 0.896 | 0.000 | 0.822 | 0.000 | 0.473 | 0.000 |
| Equity financing | | | | | | | | |
| Common stocks | -0.657 | 0.022 | -0.339 | 0.032 | -0.293 | 0.012 | -0.477 | 0.411 |
| Common stocks*CGMI | 0.332 | 0.022 | 0.287 | 0.048 | 0.333 | 0.000 | 0.204 | 0.000 |
| Preferred stocks | -0.376 | 0.674 | -0.442 | 0.201 | -0.443 | 0.194 | -0.332 | 0.583 |
| Preferred stocks*CGMI | 0.420 | 0.000 | 0.320 | 0.022 | 0.763 | 0.016 | 0.252 | 0.000 |
| Equity ratio | -0.683 | 0.000 | -0.686 | 0.001 | -0.724 | 0.000 | -0.711 | 0.386 |
| Equity ratio*CGMI | 0.308 | 0.006 | 0.234 | 0.000 | 0.391 | 0.000 | 0.504 | 0.000 |
| Supply chain financing | | | | | | | | |
| Cash Conversion Cycle | 0.490 | 0.483 | 0.173 | 0.537 | 0.337 | 0.871 | 0.386 | 0.803 |
| Cash Conversion Cycle*CGMI | 0.659 | 0.000 | 0.300 | 0.000 | 0.465 | 0.000 | 0.496 | 0.007 |
| Trade financing | 0.336 | 0.154 | 0.331 | 0.472 | 0.372 | 0.098 | 0.640 | 0.899 |
| Trade financing*CGMI | 0.119 | 0.000 | 0.641 | 0.000 | 0.393 | 0.000 | 0.484 | 0.001 |
| Reverse factoring | -0.339 | 0.066 | -0.173 | 0.186 | 0.269 | 0.989 | -0.208 | 0.384 |
| Reverse factoring*CGMI | 0.621 | 0.000 | 0.384 | 0.000 | 0.220 | 0.007 | 0.515 | 0.000 |
| Factoring | -0.424 | 0.746 | -0.523 | 0.707 | -0.495 | 0.837 | -0.365 | 0.892 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Factoring*CGMI | 0.571 | 0.000 | 0.227 | 0.004 | 0.465 | 0.001 | 0.540 | 0.000 |
| Credit guarantees ratio | -0.148 | 0.000 | 0.211 | 0.061 | 0.120 | 0.302 | -0.338 | 0.552 |
| Credit guarantees ratio*CGMI | 0.274 | 0.000 | 0.444 | 0.024 | 0.295 | 0.000 | 0.356 | 0.000 |
| Solvency rating ratio | -0.467 | 0.223 | -0.489 | 0.162 | -0.180 | 0.723 | -0.150 | 0.000 |
| Solvency rating ratio *CGMI | 0.415 | 0.002 | 0.527 | 0.000 | 0.411 | 0.000 | 0.231 | 0.000 |
| Control variables | | | | | | | | |
| Firm Size | 0.472 | 0.001 | 0.566 | 0.000 | 0.426 | 0.001 | 0.561 | 0.000 |
| Asset Tangibility | 0.219 | 0.035 | 0.233 | 0.028 | 0.397 | 0.019 | 0.602 | 0.026 |
| Total Asset turnover | 0.361 | 0.000 | 0.556 | 0.000 | 0.193 | 0.027 | 0.243 | 0.000 |
| Constant | 0.254 | 0.003 | 0.242 | 0.000 | 0.307 | 0.000 | 0.227 | 0.000 |
| R-square | 0.486 | | 0.438 | | 0.481 | | 0.448 | |
| F-Statistic | 2.100 | | 2.250 | | 3.240 | | 2.640 | |
| (Prob>F) | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Wald test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Hausman test | 0.000 | | 0.000 | | 0.000 | | 0.000 | |
| Lagrange Multiplier test | 0.000 | | 0.001 | | 0.000 | | 0.000 | |

Note: "P-values designate the significance level at 1%, 5%, and 10% accordingly. Beta coefficient shows the expected difference in the explanatory variable for each additional increase in predictor variable, Model 8.2 includes the Sustainable growth rate as a regressand variable, Corporate Governance Mechanism Index (CGMI) as a moderator, and interaction term: Financing Alternatives*CGMI. R-square shows variance proportion, F-statistics shows model fitness, Lagrange Multiplier test and Hausman test specify selection of adequate estimation model, Wald test shows heteroskedasticity problem."

Beta coefficient equation for Pakistan

$$SGR_{it}= 0.853\ CGMI_{it}+0.661\ IFR_{it}+0.418\ IFR_{it}*CGMI_{it}+0.677\ RE_{it}+0.316\ RE_{it}*CGMI_{it}+0.379\ STD_{it}+0.552\ STD_{it}*CGMI_{it}-0.382\ LTD_{it}-0.317\ LTD_{it}*CGMI_{it}-0.235\ TD_{it}-0.679\ TD_{it}*CGMI_{it}+0.340\ SBA_{it}+0.461\ SBA_{it}*CGMI_{it}+0.779\ SBR_{it}+0.528\ SBR_{it}*CGMI_{it}-0.657\ CS_{it}+0.332\ CS_{it}*CGMI_{it}-0.376\ PS_{it}+0.420\ PS_{it}*CGMI_{it}-0.686\ ER_{it}+0.308\ ER_{it}*CGMI_{it}+0.490\ CCC_{it}+0.659\ CCC_{it}*CGMI_{it}+0.336\ TF_{it}+0.119\ TF_{it}*CGMI_{it}-0.339\ RF_{it}+0.621\ RF_{it}*CGMI_{it}-0.424\ FD_{it}+0.571\ FD_{it}*CGMI_{it}-0.148\ CGR_{it}+0.274\ CGR_{it}*CGMI_{it}-0.467\ SRR_{it}+0.415\ SRR_{it}*CGMI_{it}+0.472\ FS_{it}+0.219\ AT_{it}+0.361\ TAT_{it}+0.254$$

Beta coefficient equation for India

$$SGR_{it}= 0.786\ CGMI_{it}+0.683\ IFR_{it}+0.500\ IFR_{it}*CGMI_{it}+0.780\ RE_{it}+0.830\ RE_{it}*CGMI_{it}+0.724\ STD_{it}+0.522\ STD_{it}*CGMI_{it}-0.489\ LTD_{it}-0.711\ LTD_{it}*CGMI_{it}-0.440\ TD_{it}-0.439\ TD_{it}*CGMI_{it}+0.892\ SBA_{it}+0.968\ SBA_{it}*CGMI_{it}+0.824\ SBR_{it}+0.896\ SBR_{it}*CGMI_{it}-0.339\ CS_{it}+0.287\ CS_{it}*CGMI_{it}-0.442\ PS_{it}+0.320\ PS_{it}*CGMI_{it}-0.686\ ER_{it}+0.234\ ER_{it}*CGMI_{it}+0.173\ CCC_{it}+0.300\ CCC_{it}*CGMI_{it}+0.331\ TF_{it}+0.641\ TF_{it}*CGMI_{it}-0.173\ RF_{it}+0.384\ RF_{it}*CGMI_{it}-0.523\ FD_{it}+0.227\ FD_{it}*CGMI_{it}+0.211\ CGR_{it}+0.444\ CGR_{it}*CGMI_{it}+0.489\ SRR_{it}+0.527\ SRR_{it}*CGMI_{it}+0.566\ FS_{it}+0.233\ AT_{it}+0.556\ TAT_{it}+0.242$$

Beta coefficient equation for China

$SGR_{it}$= 0.306 $CGMI_{it}$+0.605 $IFR_{it}$+0.656 $IFR_{it} * CGMI_{it}$ +0.797 $RE_{it}$+0.890 $RE_{it} * CGMI_{it}$+ 0.630 $STD_{it}$+0.520 $STD_{it} * CGMI_{it}$-0.344 $LTD_{it}$-0.371 $LTD_{it} * CGMI_{it}$- 0.523 $TD_{it}$- 0.677 $TD_{it} * CGMI_{it}$+0.759 $SBA_{it}$+0.810 $SBA_{it} * CGMI_{it}$+0.549 $SBR_{it}$+ 0.822 $SBR_{it} * CGMI_{it}$- 0.293 $CS_{it}$+0.333 $CS_{it} * CGMI_{it}$-0.443 $PS_{it}$+0.763 $PS_{it} * CGMI_{it}$- 0.724 $ER_{it}$+ 0.391 $ER_{it} * CGMI_{it}$+ 0.337 $CCC_{it}$+0.465 $CCC_{it} * CGMI_{it}$+0.372 $TF_{it}$+ 0.393 $TF_{it} * CGMI_{it}$ +0.269 $RF_{it}$ +0.220 $RF_{it} * CGMI_{it}$-0.495 $FD_{it}$+0.465 $FD_{it} * CGMI_{it}$ +0.120 $CGR_{it}$+ 0.295 $CGR_{it} * CGMI_{it}$-0.180 $SRR_{it}$+0.411 $SRR_{it} * CGMI_{it}$+0.426 $FS_{it}$+ 0.397 $AT_{it}$+ 0.193 $TAT_{it}$+0.307

Beta coefficient equation for Iran

$SGR_{it}$= 0.686 $CGMI_{it}$+0.606 $IFR_{it}$+0.647 $IFR_{it} * CGMI_{it}$ +0.435 $RE_{it}$+0.571 $RE_{it} * CGMI_{it}$+ 0.634 $STD_{it}$+0.801 $STD_{it} * CGMI_{it}$-0.374 $LTD_{it}$-0.581 $LTD_{it} * CGMI_{it}$- 0.359 $TD_{it}$- 0.647 $TD_{it} * CGMI_{it}$+0.939 $SBA_{it}$+0.545 $SBA_{it} * CGMI_{it}$+0.553 $SBR_{it}$+ 0.473 $SBR_{it} * CGMI_{it}$- 0.477 $CS_{it}$+0.204 $CS_{it} * CGMI_{it}$-0.332 $PS_{it}$+0.252 $PS_{it} * CGMI_{it}$+ 0.711 $ER_{it}$- 0.504 $ER_{it} * CGMI_{it}$+ 0.386 $CCC_{it}$+0.496 $CCC_{it} * CGMI_{it}$+0.640 $TF_{it}$+ 0.484 $TF_{it} * CGMI_{it}$ -0.208 $RF_{it}$ +0.515 $RF_{it} * CGMI_{it}$-0.365 $FD_{it}$+0.540 $FD_{it} * CGMI_{it}$ - 0.338 $CGR_{it}$+ 0.356 $CGR_{it} * CGMI_{it}$-0.150 $SRR_{it}$+0.231 $SRR_{it} * CGMI_{it}$+0.561 $FS_{it}$+ 0.602 $AT_{it}$+ 0.243 $TAT_{it}$+0.227

# CHAPTER 5

# CONCLUSIONS, POLICY IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH DIRECTIONS

## 5.1 Conclusions

The current study identifies the macroeconomic and microeconomic dimensions of sustainable development of a corporate sector. Furthermore, the study contributes to corporate finance theories by scrutinizing the effect of financing alternatives on both financial performance and GRI sustainability performance of nonfinancial firms of selected SCO Asian member states: Pakistan, China, India, and Iran. The study utilized five financing alternatives namely: internal financing, debt financing, shadow banking, equity financing, and supply chain financing. Financial performance is measured comprehensively through financial performance and market-based performance, while long-run performance is measured through GRI 201-1, sustainable performance economic approach, and sustainable growth rate is incorporated for robustness purposes. Financial data of a total of 1166 nonfinancial firms of selected SCO member nations were collected from 2007 to 2020. Mixed panel regression statistics are applied for testing the proposed hypothesis. The study applied Lagrange Multiplier test and the Hausman test for selecting the appropriate regression model based upon decided criteria of p-values. All the preliminary statistics: normality, autocorrelation, heteroskedasticity, and multicollinearity statistically proved the robustness of the data set.

For moderation analysis, an interaction term is created for each of the three moderators: financing alternatives*stagflation cycles, financing alternatives*financial constraints, and financing alternatives*governance mechanism Index. Stagflation is measured through inflation thresholds, financial constraints are measured by dividend payout ratio, external borrowing cost, and interest coverage ratio, and the corporate governance mechanism index is created for comprehensive governance mechanisms. The study theoretically supports the existing relationships by applying capital structure theories: trade-off theory, pecking-order theory, traditional theory approach, agency theory, and market timing theory.

The empirical estimations proved the significant effect of all the financing alternatives: internal financing, debt financing, shadow bank financing, equity financing, and supply chain financing on comprehensive financial performance measures: ROA, ROE, NPM, ROCE, ROIC, and market-based performance measures: Tobin's q and EPS, for selected SCO states with p-values of 0.05 significance level. The significant association of internal financing with

financial performance and GRI sustainability performance, shows preference for internal financing, supporting M&M theorem and pecking order theory (Rashid & Bilal 2020; Zhang & Chen 2017). The significant impact of debt financing on financial performance and sustainability performance show trade-off between tax shield benefits, interest cost, low WACC, borrowing cost, and agency costs, supporting trade off theory, traditional theory approach and agency theory (Nguyen & Nguyen 2020; Li 2020). The significant impact of equity financing on firm financial and sustainable performance, shows preference of equity options over debt capital with higher stock returns and reduced agency conflict between management and shareholders, supported by pecking order theory, agency theory and market timing theory (Chechet & Olayiwola 2014; Gathara et al. 2019a). The hierarchy considered for optimal capital structure also supported by significant impact of shadow bank financing and supply chain financing on financial performance and sustainable performance with low guarantee rate and lending rate, supporting pecking order theory and traditional theory approach, in line with (Tan 2017; Zhou & Tewari 2019) and (Huang et al. 2019; Allen et al. 2019). The Chinese financial system challenges the pecking order theory by giving preference to equity financing than debt capital with market overvaluations and minimum agency conflict (Ahmed, 2018).

For optimal capital structure, the study proved significant moderation effect of stagflation cycles and financial constraints on the association between financing alternatives and firm economic performance supported by market timing effect (Supriyanto et al., 2023) and (Baker et al., 2022). The significance moderation effect of CGMI on the financing alternatives-performance relationship supported agency theory (Ngatno et al. 2021; Abid et al. 2024). The incorporation of a longer study period (2007-2020), and extensive industrial firms of different countries express the generalized overview of the empirical interrelations compared to the existing research within the field.

For Pakistan, the statistics proved the significant influence of all the financing alternatives on financial performance and sustainable performance of non-finance firms, followed by the preference of financing hierarchy from internal finances to debt finances, to shadow bank finances, to equity finances and supply chain finances based upon the balance between associated transaction costs and benefits. Firms with low profits prefer short-term debts and long-term debts for arranging funds, equity financing is greatly affected by capital market fluctuations and considered as a final lending resort, shadow bank financing and supply chain financing are the emerging financing sources that are comparatively easily accessible and

with low transaction cost and ultimately results in positive profits for corporate sector. Listed firms in Pakistan consider both common stocks and preferred shares but the proportion is relatively less due to stock undervaluation. The economy of Pakistan is surrounded by stagflation cycles (Amjad et al., 2011), and the economic instability makes the corporate sector internally and externally financially constrained with limited access to funding sources (Ahmad & Hashmi, 2014). The calculated CGMI for Pakistan is 54.81, indicating that 55% of the listed nonfinancial firms in Pakistan consider corporate governance practices for managing their companies. The implication of right governance practices significantly moderates the interaction between financing choices and firm economic performance (Iqbal & Javed, 2017). The statistics proved the significant moderation effect of stagflations, financial constraints, and governance mechanisms on the relationship between financing alternatives and financial performance, and sustainable performance of organizations, aligned with continuous market timing effects and agency conflicts.

For India, China, and Iran, all the financing alternatives proved to have a significant influence on the comprehensive measures of the financial performance and sustainable performance of non-finance corporations with significant p-values. India and Iran comply with a similar hierarchical structure as Pakistan for meeting their funding requirements. Profitable firms prefer retained earnings for supporting their growth prospects, and during external financial constraints, debt finances are preferred over equity finances, with the increased interest rates and associated transaction costs. For China, the proportion of shadow bank finances is larger than in Pakistan, India, and Iran, while among supply chain finances, working capital financing is the considerable finance management option with shorter cash conversion cycles. Early payment discounts on supplier invoices are the high cost and least preferred financing substitute because firms are favoring the larger average payment periods. China follows a different financing hierarchy with a preference for equity finances over debt finances due to the dominated government monopolies, and stable financial systems (Ahmed, 2018).

Considering the moderating influence, the present study proved the significant moderating influence of stagflation cycles on the interrelation between financing alternatives and financial performance i- e ROA, ROE, NPM, ROCE, ROIC, Tobin's q and EPS, and GRI sustainability and SGR. The partial or complete moderation effect arises for comprehensive predictors of performance due to variations in the financial systems of selected SCO states. China has a comparatively stable financial system than Pakistan, India, and Iran. The industrial firms in China are less affected by stagflation cycles, and China shows the partial moderation

effect of stagflation cycles on the contribution of financing alternatives toward corporate financial and sustainable performance. While Pakistan, India, and Iran have obtained a significant complete moderation effect of stagflation cycles on the relation between financing alternatives and organization performance. The hypothesis of the moderating influence of financial constraints with financing alternatives for the predictors of ROA, ROE, NPM, ROCE, ROIC, Tobin's q, EPS, GRI sustainability, and SGR also obtain to be significant.

During financial constraints, internal financing is a preferable funding source for all SCO states, indicating the complete moderation effect of financial constraints on internal financing and corporate performance. In China, the financing structure follows a new hierarchy with less preference for debt financing than equity financing for investment purposes, indicating a partial moderation effect for ROIC. The existing studies indicated a positive moderating influence of financial constraints on short-run debts and firm performance (Flynn, 2017), and a negative influence on long-run debts (Phan, 2018). Shadow bank financing is a substitute for restricted external finances and significantly contributes towards relaxing the external debt financing constraints, completely moderating the relation between shadow bank finances and firm performance. The financial constraints show a partial moderation effect on equity finances and firm performance because of less reliance on equity finances during stock undervaluation. Supply chain finances increase the working capital of the financially constrained firm, hence indicating a significant moderating influence on corporate performance.

The estimations proved the significant moderating influence of CGMI on the interrelation between financing alternatives and corporate performance, predicted by ROA, ROE, NPM, ROCE, ROIC, Tobin's q, EPS, GRI sustainability, and SGR. Good governance mechanisms are more supportive of internal finances for the selected SCO states, indicating complete moderation effect between internal finances and corporate performance, aligned with the pecking-order theory. Long-term debts show partial moderation for EPS in China, which may be due to the dominated government monopolies, which restrict the efficiency and growth of financial markets. Ronoowah and Seetanah (2023b), argued that managerial entrenchment significantly influences the firm debt structure and helps the firm to achieve the 291 targeted leverage level that significantly influences the corporate performance. Hence, the results supported the existing evidence. The selected SCO states show complete moderation effect of CGMI on shadow bank finances and corporate performance, except Pakistan shows partial

moderation, which may be due to the early adoption of shadow finances and less vulnerable financial systems.

Shadow banking financing makes the financial markets more prosperous, but with the increase in vulnerability of the financial system (Fan & Pan, 2020). Effective corporate governance reduces the firm's overall cost of equity with minimized agency problems, ultimately leading to better corporate performance, proving the significant moderating influence of CGMI on the relation between equity finances and corporate performance. Better governance structures can provide the effective monitoring and management of the firm's resources, therefore increasing the working capital, and positively influencing the firm's value. CGMI shows partial moderation effect with most of the supply chain finances for corporate performance, only CCC and trade credit payables show complete moderation effects for ROA, ROE, NPM and ROCE, EPS, GRI sustainability, and SGR. Factoring is considered a costly financing alternative and preferred only for severe indebtedness, and increasing volume may negatively influence corporate value (Bilgin & Dinc, 2019).

To conclude, the present study proved the significant influence of both macroeconomic and microeconomic dimensions of sustainable performance. The present study findings align with the previous studies, supported the impact of capital structure on firm financial performance and sustainable performance of the nonfinancial corporate sector, also significantly support the moderating influence of stagflation cycles, financial constraints, and corporate governance mechanism on the relation between financing alternatives and financial and sustainable performance of nonfinancial corporate sector for the selected SCO states. The control variables: firm size, asset tangibility, and total asset turnover proved a significant influence on both financial and sustainable performance, supporting Mohiuddin (2020); Li (2020). Table 5.1 presents the summary of the findings from the present study and their alignment with the existing studies. Based on empirical findings, the present research highlights judicious implications for the stakeholders and financial policymakers.

**Table 5.1:** *Summary of Findings of the Study*

| Hypothesis | Decision | Existing studies |
|---|---|---|
| $H_1$: There is a significant impact of financing alternatives on the financial performance of nonfinancial companies in the SCO member states. | **Supported** | (Detthamrong & Chansanam, 2023), (Mahmud et al., 2022), (Saleem & Hashmi, |

| | | |
|---|---|---|
| | | 2022), (Owolabi et al., 2021), (Shikumo, 2021), (Li, 2020), (Ramli et al., 2019), (Han et al., 2019), (Zhou & Tewari, 2019), |
| $H_2$: There is a significant impact of financing alternatives on the sustainable performance of nonfinancial companies in the SCO member states. | **Supported** | Kong et al. (2023), (Yang & Shen, 2022), (Yu et al., 2022). (Ardillah, 2020), (Zhang & Chen, 2017), |
| $H_3$: The stagflation cycles moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states. | **Supported** | (Supriyanto et al., 2023), (Magkonis et al., 2022), (Ater, 2017), (Khodavandloo et al., 2017), (Shahzad et al., 2015), (Olaniyi et al., 2015) |
| $H_4$: The stagflation cycles moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states. | **Supported** | (Magkonis et al., 2022), (Aboudi & Khanchaoui, 2021), (Soukhakian & Khodakarami, 2019), (Ater, 2017), (Khodavandloo et al., 2017), |
| $H_5$: The financial constraints moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states. | **Supported** | (Poeschl, 2023), (Khan, 2022), (Wetzel & Hofmann, 2019), (Chang et al., 2019), (Rashid & Jabeen, 2018), (Flynn, 2017), (Quader, 2013), |
| $H_6$: The financial constraints moderate the relationship between financing alternatives and the sustainable performance of | **Supported** | (Poeschl, 2023), (Baker et al., 2022), (Chang et al., 2019), (Rokhmawati, |

| | | |
|---|---|---|
| nonfinancial companies in the SCO member states. | | 2017), (Zhang & Liu, 2017) |
| $H_7$: The corporate governance mechanism moderates the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states. | **Supported** | (Ronoowah & Seetanah, 2023b), (Naz et al., 2022), (Ngatno et al., 2021), (Ali et al., 2019), (Schwarcz, 2015), |
| $H_8$: The corporate governance mechanism moderates the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states. | **Supported** | (Ronoowah & Seetanah, 2023a), (Ronoowah & Seetanah, 2023b), (Naz et al., 2022), (Ngatno et al., 2021), (Ali et al., 2019), (Schwarcz, 2015) |

### 5.2 Policy Implications

The current research offers judicious policy implications for financial policymakers, financial managers, financial advisors, and stakeholders of both borrowing and lending organizations regarding the optimal combination of a financing structure that positively influences both financial performance and the sustainable performance of companies. The study also provides insights to financial managers and financial auditors of both lending and borrowing organizations regarding a new measure i-e GRI sustainability economic perspective, for evaluating the sustainable performance of companies at the global level. According to Chughtai et al. (2015), macroeconomic fundamentals vary from country to country and have a varying effect on different industrial sectors (Abebaw, 2019). The policymakers and regulators must be aware of stagflation macroeconomic volatility and market timing effects and rationally evaluate the available financing alternatives considering their impact on firm financial and sustainable performance effects. This study offers insights to the policymakers regarding the interaction of macroeconomic factors with financing structure and provides guidance in creating effective financing policies that sustain the economic performance of companies.

Market timing effects make the firms internally and externally financially constrained, the study helps policymakers to understand the financial dynamics and develop an optimized mix of financing alternatives that positively contributes towards financial performance and sustainable performance. The study offers insightful policy implications for corporate

management regarding the implementation of right governance mechanisms which ensure the safety of equity holders and improves the confidence of debt holders. According to Boateng et al. (2017), the managements' decisions regarding the firm's choice of financing alternatives are among the considerable policy decisions. Regarding financing alternatives and governance mechanisms, policymakers can focus on several macroeconomic measures, such as fiscal policies (tax shields) and monetary policies (interest payments), to enhance the ease of accessibility of finances from financial institutions with the implementation of right governance practices that ultimately improves corporate economic performance. The study offers insights to policymakers and stakeholders regarding the contribution of governance mechanisms in the effective management of a corporate capital structure for enhancing both financial and sustainable performance effects.

### 5.3 Limitations of the Study

The study only considered the developing Asian, SCO member states and are the members of the Global Reporting Initiative. The study is a firm level analysis and limited to nonfinancial firms listed on the National Stock Exchanges of the corresponding SCO member countries. The study excluded the companies working in the financial industry such as banks, insurance companies, mudarabah companies, mutual funds, etc. As financial sector companies have unique capital structures, which may be supportive of more theoretical underpinnings. The study is limited to the application of the GRI Sustainability Standards' economic perspective to measure sustainable performance. Social and environmental perspectives can also be implied. The study applied only stagflation, as a macroeconomic metric for determining firm financing choices and their sustainability. The study is less focused on the accuracy of the principal findings. The study utilized the widely implied mixed panel regression models.

### 5.4 Future Research Directions

Different countries are members of Global Reporting Initiative. To encourage the adoption of GRI sustainability standards in other non-Asian countries, future studies may apply GRI sustainability performance effects to other countries e.g., Australia, Canada, Belgium, Denmark, Germany, etc. SCO states are significantly playing their role in economic progress as well sustainable development of their member states, future studies can consider other states for determining the capital structure-sustainable performance relationship effects. Secondly, the industry-wise analysis of sustainable performance impacts of different industrial sectors from SCO states can be recommended area of study. Thirdly, the results obtained from the

study are generalizable for determining the sustainable performance dimensions of nonfinancial firms only. For making the findings more generalizable, future studies may focus on studying the sustainable performance effects of the financial industry of selected countries. Fourthly, other measures than GRI sustainability including GRI sustainability social and environmental perspectives and Environmental, Social, and Governance (ESG) rating can be considered for more influential results. Lindkvist and Saric (2020), highlighted that the ESG rating metric is the most consistent, widely accepted, and concrete measure with a focus on broader dimensions of corporate sustainable performance. Fifthly, this is the era of Pandemics (Khan, 2022) and political instability (OuA et al., 2020), both making the firms financially constrained and negatively affecting the firm performance. Both variables can be applied for determining the moderation effects. Lastly, more Generalized Least Square (GLS) Models: FGLS model, GMM model, and ARDL approach can be applied to improve the accuracy of principal findings based on the endogeneity of the data.

## References


Abaidoo, R., & Kwenin, D. O. (2013). Corporate profit growth, macroeconomic expectations, and fiscal policy volatility. *International Journal of Economics and Finance*, *5*(8), 25–38.

Abbasi, W. A., Wang, Z., & Alsakarneh, A. (2018). Overcoming SMEs financing and supply chain obstacles by introducing supply chain finance. *HOLISTICA–Journal of Business and Public Administration*, *9*(1), 7–22.

Abdallah, Z. S., Du, L., & Webb, G. I. (2017). *Data Preparation.* (C Sammut a). Encyclopedia of Machine Learning and Data Mining, Springer. https://www.researchgate.net/publication/316113863_Data_Preparation

Abdi, D. (2010). *Financial Performance Evaluation: A case study of Awash International Bank SC*. Mekelle University.

Abdisa, L. T., & Hawitibo, A. L. (2021). Firm performance under financial constraints: evidence from sub-Saharan African countries. *Journal of Innovation and Entrepreneurship*, *10*(1), 1–17.

Abdullah, F., Shah, A., Gohar, R., & Iqbal, A. M. (2011). The effect of group and family ownership on firm performance: Empirical evidence from Pakistan. *International Review of Business Research Papers*, *7*(4), 191–208.

Abdullah, H., & Tursoy, T. (2021). Capital structure and firm performance: evidence of Germany under IFRS adoption. *Review of Managerial Science*, *15*(2), 379–398.

Abdullah, S., & Siddiqui, D. A. (2019). Working capital financing and corporate profitability of Pakistan manufacturing firms: Evidence from FMCG, cement & chemical sector. *Asian Journal of Economic Modelling*, *7*(2), 82–94.

Abebaw, A. (2019). The effect of macroeconomic variables on industry sector output growth of Ethiopia. *International Journal of Business and Economics Research*, *8*(6), 325–338.

Abebe Zelalem, B., Ali Abebe, A., & Wodajo Bezabih, S. (2022). Corporate governance and financial performance in the emerging economy: The case of Ethiopian insurance companies. *Cogent Economics & Finance*, *10*(1), 2117117.

Abid, K., Zhang, D., Xiongyuan, W., & Aneela, I. I. (2024). Impact of Leverage on Firm Financial Performance: Evidence from Pakistan. *International Journal of Economics, Business and Management Research*, *8*(5), 63–80. https://www.researchgate.net/publication/381243236_Impact_of_Leverage_on_Firm_Financial_Performance_Evidence_from_Pakistan

Aboagye, A. Q., & Otieku, J. (2010). Are Ghanaian MFIs' performance associated with corporate governance? *Corporate Governance: The International Journal of Business in Society*, *10*(3), 307–320.

Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance*, *6*(5), 438–447.

Abor, J. (2007). Corporate governance and financing decisions of Ghanaian listed firms. *Corporate Governance: The International Journal of Business in Society*, *7*(1), 83–92.

Abughniem, M. S., Al Aishat, M. A. H., Hamdan, A., & Weshah, S. R. (2020). Capital structure, firm growth, and firm performance: evidence from jordan. *International Journal of Innovation, Creativity and Change*, *10*(12), 655–667.

Achieng, B. O., Muturi, W., & Wanjare, J. (2018). Effect of equity financing options on financial performance of nonfinancial firms listed at the Nairobi Securities Exchange, Kenya. *Applied Economics and Finance*, *5*(4), 160–173.

Achim, M. V., Văidean, V. L., Sabau, A. I., & Safta, I. L. (2022). The impact of the quality of corporate governance on sustainable development: An analysis based on development level. *Economic Research-Ekonomska Istraživanja*, *36*(1), 1–30.

Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance*, *62*(1), 217–250.

ADB. (2023). *Asian Development Outlook April 2023*. https://www.adb.org/sites/default/files/publication/863591/asian-development-outlook-april-2023.pdf

Admassu, N. A. (2016). The impact of capital structure choice on firms' financial performance: Evidence from manufacturing PLCs in Tigrai Region, Ethiopia. *Research Journal of Finance and Accounting*, *7*(15), 31–38.

Adomako, S., Danso, A., & Ofori Damoah, J. (2016). The moderating influence of financial literacy on the relationship between access to finance and firm growth in Ghana. *Venture Capital*, *18*(1), 43–61.

Adrian, T., & Ashcraft, A. B. (2016). Shadow banking: a review of the literature. *Banking Crises*, 282–315.

Affes, W., & Jarboui, A. (2023). The impact of corporate governance on financial performance: a cross-sector study. *International Journal of Disclosure and Governance*, 1–21.

Afzal, A. (2020). New economic ideas. DAWN News. Retrieved from https://www.dawn.com/news/1587255/new-economic-ideas

Agembe, A. J. (2024). Granger Causality Model of Retained Earnings and Financial Performance of Nonfinancial Firms Listed at the Nairobi Securities Exchange (NSE), Kenya. *European Scientific Journal*, *20*(16), 91–106.

Aggarwal, P. (2013). Impact of sustainability performance of company on its financial performance: A study of listed Indian companies. *Global Journal of Management and Business Research (C: Finance) Volume*, *13*.

Agiomirgianakis, G. M., Asteriou, D., & Voulgaris, F. (2002). Capital structure, asset utilization, profitability, and growth in the Greek manufacturing sector. *Applied Economics*, *34*, 1379–1388.

Ağırman, E., Serçemeli, M., & Özcan, M. (2013). Shadow banking: an overview. *9th Iberian International Business Conference, Braga-Portugal*.

Aguilera, R. v, & Jackson, G. (2003). The cross-national diversity of corporate governance: Dimensions and determinants. *Academy of Management Review*, *28*(3), 447–465.

Agyemang-Mintah, P. (2016). Remuneration committee governance and firm performance in UK financial firms. *Investment Management and Financial Innovations*, *13*(1–1), 176–190.

Ahamed, F. T., Houqe, M. N., & van Zijl, T. (2022). Meta-analysis of the impact of financial constraints on firm performance. *Accounting & Finance*. https://doi.org/10.1111/acfi.12923

Ahmad, K., Mohamed Zabri, S., & Atan, S. A. (2023). Multidimensional performance measures and factors and their linkage with performance. *International Journal of Emerging Markets*, *18*(11), 5338–5358.

Ahmad, S., & Hashmi, S. M. (2014). Financial Constraints, Firms' Investments and Performance of Manufacturing Sector of Pakistan: A Cross Industry Analysis. *Papers and Proceedings*, 259–273.

Ahmad, T. (2014). Impact of capital structure on profitability: an empirical analysis of cement sector of Pakistan. *Research Journal of Finance and Accounting*, *5*(17), 49–54.

Ahmad, Z., Abdullah, N. M. H., & Roslan, S. (2012). Capital structure effect on firms' performance: Focusing on consumers and industrials sectors on Malaysian firms. *International Review of Business Research Papers*, *8*(5), 137–155.

Ahmadimousaabad, A., Bajuri, N., Jahanzeb, A., Karami, M., & Rehman, S. (2013). Trade-off theory, pecking order theory and market timing theory: a comprehensive review of capital structure theories. *International Journal of Management and Commerce Innovations*, *1*(1), 11–18.

Ahmadimousaabad, A., & Mohammadi Nodeh, F. (2017). The choice between equity and debt: empirical evidence from the Iranian companies. International Journal of Applied Operational Research, *7*(4), 45–55.

Ahmed, A. D., Wibawaningsih, E. J., & Kabir, M. A. (2024). Moderating Effect of Inflation Rate on the Relationship Between Earnings Retention Ratio and Share Price of Banks. *KnE Social Sciences*, 360–378.

Ahmed, F., Talreja, S., & Kashif, M. (2018). Effects of corporate governance and capital structure on firms' performance: Evidence from major sectors of Pakistan. *The Indonesian Capital Market Review*, *10*(2), 3.

Ahmed, S. N. (2018). *Capital structure and firm performance: Moderating role of business strategy and competitive intensity*. COMSATS Institute of Information Technology, Islamabad.

Ahmed Sheikh, N., & Wang, Z. (2013). The impact of capital structure on performance: An empirical study of nonfinancial listed firms in Pakistan. *International Journal of Commerce and Management*, *23*(4), 354–368.

Aimagh, A. (2018). *An assessment of determining factors of Capital structure and its effect on firm performance in the Norwegian market*. Copenhagen Business School. https://research-api.cbs.dk/ws/portalfiles/portal/59788727/473056_Master_thesis_2018_Capital_structure_and_firm_performance.pdf

Akash, R. S. I., & Abbas, Z. (2015). Mediating and moderating role of financial signaling, information asymmetries of corporate governance in debt vs. equity and market value behavior. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, *9*(2), 461–484.

Akeem, L. B., Terer, E. K., Kiyanjui, M. W., & Kayode, A. M. (2014). Effects of capital structure on firm's performance: Empirical study of manufacturing companies in Nigeria. *Journal of Finance and Investment Analysis*, *3*(4), 39–57.

Akindejoye, J. (2017). Theory of Equity and Debt: A Literature Review. *African Journal of Stability and Development*, *11*(1). https://www.researchgate.net/publication/343797698_THEORY_OF_EQUITY_AND_DEBT_A_LITERATURE_REVIEW

Akintoye, I. R. (2009). Sensitivity of Performance to Capital Structure. *Banking & Finance Letters*, *1*(2).

Aksoy, M., Yilmaz, M. K., Tatoglu, E., & Basar, M. (2020). Antecedents of corporate sustainability performance in Turkey: The effects of ownership structure and board attributes on nonfinancial companies. *Journal of Cleaner Production*, *276*, 124284.

al Abbadi, A. (2019). Determinants of Capital Structure in Industrial Companies: Conservative Policy–Applied Study on Jordanian Industrial for the Period (2014–2016). *International Journal of Business and Management*, *14*(2), 125–140.

Alam, W., Habib, M. N., & Zahid, M. (2019). The Impact of Capital Structure on Firm Performance: Evidence From Pakistan. The Discourse, 5(1), 23–35.

Aldubhani, M. A. Q., Wang, J., Gong, T., & Maudhah, R. A. (2022). Impact of working capital management on profitability: evidence from listed companies in Qatar. *Journal of Money and Business*, *2*(1), 70–81.

Ali, S., & Khan, M. R. A. (2011). Searching for internal and external factors that determine working capital management for manufacturing firms in Pakistan. *African Journal of Business Management*, *5*(7), 2942–2949.

Ali, S. T., Yang, Z., Sarwar, Z., & Ali, F. (2019). The impact of corporate governance on the cost of equity: Evidence from cement sector of Pakistan. *Asian Journal of Accounting Research*, *4*(2), 293–314.

Ali, Z., Gongbing, B., & Mehreen, A. (2019a). Does supply chain finance improve SMEs performance? The moderating role of trade digitization. *Business Process Management Journal*, *26*(1), 150–167.

Ali, Z., Gongbing, B., & Mehreen, A. (2019b). Predicting supply chain effectiveness through supply chain finance: Evidence from small and medium enterprises. *The International Journal of Logistics Management*, *30*(2), 488–505.

Ali, Z., Gongbing, B., Mehreen, A., & Ghani, U. (2020). Predicting firm performance through supply chain finance: a moderated and mediated model link. *International Journal of Logistics Research and Applications*, *23*(2), 121–138.

Alimov, R. (2017). The role of the Shanghai Cooperation Organization in counteracting threats to peace and security. *UN Chronicle*, *54*(3), 34–37.

Alimov, R. (2018). The Shanghai Cooperation Organisation: Its role and place in the development of Eurasia. *Journal of Eurasian Studies*, *9*(2), 114–124.

Al-Jalahma, A. (2022). Impact of audit committee characteristics on firm performance: Evidence from Bahrain. *Problems and Perspectives in Management*, *20*(1), 247–261.

Allen, F., Carletti, E., & Marquez, R. (2007). Stakeholder capitalism, corporate governance, and firm value. *Corporate Governance and Firm Value (September 16, 2009). EFA*, 9–28.

Allen, F., Carletti, E., & Valenzuela, P. (2013). Financial intermediation, markets, and alternative financial sectors. *Handbook of the Economics of Finance*, *2*, 759–798.

Allen, F., Qian, M., & Xie, J. (2019). Understanding informal financing. *Journal of Financial Intermediation*, *39*(C), 19–33.

Allen, S. (2018). Debt financing: pros and cons. *The Balance*.

Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *The Review of Financial Studies*, *20*(5), 1429–1460.

Almeida, H., Campello, M., & Weisbach, M. S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, *59*(4), 1777–1804.

Almulhim, T., Almubarak, N., & Aljabr, N. (2024). How to Comprehensively Evaluate Firm Performance from Operational, Financial, and Sustainability Perspectives? A Two-Stage Data Envelopment Analysis Approach. *Emerging Markets Finance and Trade*, *60*(7), 1447–1467.

Al-Taani, K. (2013). The relationship between capital structure and firm performance: evidence from Jordan. *Journal of Finance and Accounting*, *1*(3), 41–45.

Altaf, N., & Ahmad, F. (2019). Working capital financing, firm performance, and financial constraints: Empirical evidence from India. *International Journal of Managerial Finance*, *15*(4), 464–477.

Altaf, N., & Shah, F. (2017). Working capital management, firm performance, and financial constraints: Empirical evidence from India. *Asia-Pacific Journal of Business Administration*, *9*(3), 206–219.

Alzubi, K., & Bani-Hani, A. (2021). Determinants of debt-to-equity and its impact on the performance of industrial companies listed on amman stock exchange. *Journal of Governance and Regulation/Volume*, *10*(4).

Ameer, R., & Othman, R. (2012). Sustainability practices and corporate financial performance: A study based on the top global corporations. *Journal of Business Ethics*, *108*(1), 61–79.

Amin, A., ur Rehman, R., Ali, R., & Mohd Said, R. (2022). Corporate Governance and Capital Structure: Moderating Effect of Gender Diversity. *SAGE Open*, *12*(1), 1–17.

Amina, H. (2015). Dividend policy and corporate governance in Saudi stock market: Outcome model or substitute model? *Corporate Ownership and Control*, *12*(2), 74-91.

Amjad, R. (2010). *Economic and social impact of global financial crisis: Implications for macroeconomic and development policies in South Asia*.

Amjad, R. (2012). *Stagflation, the labor market impact, and the poverty puzzle in Pakistan: A preliminary analysis*.

Amjad, R., Din, M., & Qayyum, A. (2011). *Pakistan: Breaking out of stagflation into sustained growth*.

Andres, J., & Hernando, I. (1999). Does inflation harm economic growth? Evidence from the OECD. In *The costs and benefits of price stability* (pp. 315–348). University of Chicago Press.

Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency costs and ownership structure. *The Journal of Finance*, *55*(1), 81–106.

Anozie, O. R., Muritala, T. A., Ininm, V. E., & Yisau, N. S. (2023). Impact of capital structure on financial performance of oil and gas firms in Nigeria. *Future Business Journal*, *9*(1), 1–9.

Antolín-López, R., Delgado-Ceballos, J., & Montiel, I. (2016). Deconstructing corporate sustainability: a comparison of different stakeholder metrics. *Journal of Cleaner Production*, *136*, 5–17.

Anton, S. G., & Afloarei Nucu, A. E. (2020). The impact of working capital management on firm profitability: Empirical evidence from the Polish listed firms. *Journal of Risk and Financial Management*, *14*(1), 9.

Antoniou, A., Guney, Y., & Paudyal, K. (2008). The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative Analysis*, *43*(1), 59–92.

Appiah-Nimo, C., & Chovancová, M. (2020). Improving firm sustainable performance: The role of market orientation. *Proceedings of the International Conference on Business Excellence*, *14*(1), 780–787.

Aras, G., & Crowther, D. (2016). *A Handbook of Corporate Governance and Social Responsibility*.

Aras, G., & Yildirim, F. M. (2018). The impact of corporate finance decisions on market value in emerging markets. *International Journal of Productivity and Performance Management*.

Arby, M. F., & Ali, A. (2017). Threshold Inflation in Pakistan, State Bank of Pakistan. *SBP Research Bulletin*, *13*(1), 1–19. https://www.sbp.org.pk/research/bulletin/2017/Vol-13.1/Paper-01-2017.pdf

Ardillah, K. (2020). The Impact of Environmental Performance and Financing Decisions to Sustainable Financial Development. *3rd Asia Pacific Management Research Conference (APMRC 2019)*, 134–140.

Arikekpa, O. A. (2020). Capital structure and firm performance: An empirical study of manufacturing company in Nigeria. *Wa'd Journal of Finance and Investment Research*, *5*(1), 14–21.

Arkkelin, D. (2014). Using SPSS to understand research and data analysis. *Psychology Curricular Materials. Book 1*.

Arora, A., & Bodhanwala, S. (2018). Relationship between corporate governance index and firm performance: Indian evidence. *Global Business Review*, *19*(3), 675–689.

Arora, P., & Dharwadkar, R. (2011). Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and organization slack. *Corporate Governance: An International Review*, *19*(2), 136–152.

Ashfaq, S., Mujtaba Kayani, G., & Saeed, M. A. (2017). The Impact of Corporate Governance Index and Earnings Management on Firms' Performance: A Comparative Study on the Islamic Versus Conventional Financial Institutions in Pakistan. *Journal of Islamic Business And*, *7*(1), 126–139.

Ashraf, M., Ameen, A., & Shahzadi, K. (2017). The impact of capital structure on firm's profitability: A case of cement industry of Pakistan. *International Journal of Business and Social Science*, *8*(4), 140–147.

Aslam, E., Kalim, R., & Fizza, S. (2019). Do cash hold and corporate governance structure matter for the performance of firms? Evidence from KMI 30-and KSE 100-indexed firms in Pakistan. *Global Business Review*, *20*(2), 313–330.

Atanasova, C. (2007). Access to institutional finance and the use of trade credit. *Financial Management*, *36*(1), 49–67.

Ater, D. K. (2017). The Moderating effect of Macroeconomic Factors on the Relationship between Capital Structure and Value of nonfinancial firms listed at the Nairobi Securities Exchange. *International J. Soc. Sci. & Education*, *7*(3), 88–95.

Auret, C., Chipeta, C., & Krishna, S. (2013). Financial constraints and capital structure dynamics across the business cycle: some evidence from the JSE. *Studies in Economics and Econometrics*, *37*(1), 75–104.

Azami, M., Sharifi, H., & Alvandpur, S. (2020). Evaluating the relationship between information literacy and evidence-based nursing and their impact on knowledge and attitude of nurses working in hospitals affiliated to Kerman University of Medical Sciences on medication errors. *Journal of Family Medicine and Primary Care*, *9*(8), 4097.

Aziz, S., & Abbas, U. (2019). Effect of debt financing on firm performance: A study on nonfinancial sector of Pakistan. *Open Journal of Economics and Commerce*, *2*(1), 8–15.

Azofra, V., Rodríguez-Sanz, J. A., & Velasco, P. (2020). The role of macroeconomic factors in the capital structure of European firms: How influential is bank debt? *International Review of Economics & Finance*, *69*, 494–514.

Bade, R., & Parkin, M. (1986). *Study Guide to Modern Macroeconomics* (Second). Prentice-Hall Canada.

Bae, S. M., Masud, M. A. K., & Kim, J. D. (2018). A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability*, *10*(8), 2611.

Baeck, P., Collins, L., & Zhang, B. (2014). Understanding alternative finance. *The UK Alternative Finance Industry Report*, *2014*. https://www.nesta.org.uk/sites/default/files/understandingalternative-finance-2014.pdf

Baerentsen, D. X., & Thorstenson, A. (2012). *The Impact of Supply Chain Finance on Corporate Performance: Improving Supply Chain Efficiency and Increasing Profitability*. Aarhus University.

Bai, J., Gong, X., & Zhao, X. (2020). Credit mismatch and nonfinancial firms' shadow banking activities—evidence based on entrusted loan activities. *China Journal of Accounting Studies*, *8*(2), 249–271.

Baker, H. K., Pattnaik, D., & Kumar, S. (2022). Trade credit and firm profitability: Empirical evidence from India. *International Journal of Finance & Economics*, *27*(4), 3934–3953.

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance*, *57*(1), 1–32.

Balabanis, G., Phillips, H. C., & Lyall, J. (1998). Corporate social responsibility and economic performance in the top British companies: are they linked? *European Business Review*, *98*(1), 25–44.

Balasubramanian, N., Black, B. S., & Khanna, V. (2010). The relation between firm-level corporate governance and market value: A case study of India. *Emerging Markets Review*, *11*(4), 319–340.

Baltagi, B. H., & Hashem Pesaran, M. (2007). Heterogeneity and cross section dependence in panel data models: theory and applications introduction. In *Journal of Applied Econometrics* (Vol. 22, Issue 2, pp. 229–232). Wiley Online Library.

Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, *67*(3), 332–338.

Barbu, T. C., Boitan, I. A., & Cioaca, S. I. (2016). Macroeconomic determinants of shadow banking–Evidence from EU countries. *Review of Economic and Business Studies*, *9*(2), 111–129.

Barbuta-Misu, N. (2013). Factoring–alternative of short-term financing for companies. *Risk in Contemporary Economy, Dunarea de Jos*, 166–171.

Barnett, W., & Jawadi, F. (2013). *Recent developments in alternative finance: empirical assessments and economic implications. Monograph series: International Symposia in Economic Theory and Econometrics, vol 22, Ed*. Emerald Group Publishing Limited, Bingley.

Barraza, S., Lee, W. Y., & Yeager, T. J. (2015). Financial crisis and the supply of corporate credit. *Available at SSRN 2422678*.

Barry, C. B., & Mihov, V. T. (2015). Debt financing, venture capital, and the performance of initial public offerings. *Journal of Banking & Finance*, *58*, 144–165.

Barsky, R. B., & Kilian, L. (2000). *A Monetary Explanation of the Great Stagflation of the 1970s*. National Bureau of Economic Research Cambridge, Mass., USA.

Baser, E. (2011). *Endogeneity*. Bilkent Universitesi (Turkey).

Bashir, T., Riaz, A., Butt, S., & Parveen, A. (2013). Firm performance: a comparative analysis of ownership structure. *European Scientific Journal*, *9*(31), 413–430.

Bashir, Z. (2021). Corporate governance and capital structure as driving force for financial performance: Evidence from nonfinancial listed companies in Pakistan. *IBA Business Review*, *15*(1), 108–133.

Basit, A., & Hassan, Z. (2017). Impact of capital structure on firms' performance: a study on Karachi Stock Exchange (KSE) listed firms in Pakistan. *Basit, A., & Hassan, 2017*, 118–135.

Basit, A., & Irwan, N. F. (2017). The impact of capital structure on firms' performance: evidence from Malaysian industrial sector-A case-based approach. *International Journal of Accounting & Business Management*, *5*(2), 131–148.

Bassey, B. E., Edom, G. O., & Aganyi, A. A. (2016). Assessing the impact of retained profit on corporate performance: Empirical evidence from Niger Mills Company, Calabar-Nigeria. *European Journal of Business and Innovation Research*, *4*(1), 36–47.

Basu, P. (2004). Corporate Governance in listed Companies- Clause 49 of the listing Agreement. Security and Exchange Board of India (SEBI). Retrieved from https://www.sebi.gov.in/legal/circulars/oct-2004/corporate-governance-in-listed-companies-clause-49-of-the-listing-agreement_13153.html

Bates, J., & Henderson, S. J. (1967). The Determinants of Corporate Saving in Small Private Companies in Britain, 1954-56. *Journal of the Royal Statistical Society: Series A (General)*, *130*(2), 207–224.

Baum, C. F., Caglayan, M., & Rashid, A. (2017). Capital structure adjustments: do macroeconomic and business risks matter? *Empirical Economics*, *53*, 1463–1502.

Baumgartner, R. J. (2008). Corporate sustainability performance: Methods and illustrative examples. *International Journal of Sustainable Development and Planning*, *3*(2), 117–131.

Baumgartner, R. J., & Rauter, R. (2017). Strategic perspectives of corporate sustainability management to develop a sustainable organization. *Journal of Cleaner Production*, *140*, 81–92.

Baumol, W. J., & Blinder, A. S. (2015). *Microeconomics: Principles and policy*. Cengage Learning.

Baumol, W. J., Blinder, A. S., & Scarth, W. M. (1986). *Economics. Principles and Policies–Macroeconomics*. Canadian edn. Toronto: Academic Press Canada.

Bebchuk, L. A., & Cohen, A. (2005). The costs of entrenched boards. *Journal of Financial Economics*, *78*(2), 409–433.

Bebchuk, L., Cohen, A., & Ferrell, A. (2009). What matters in corporate governance? *The Review of Financial Studies*, *22*(2), 783–827.

Behera, J., & Mishra, A. K. (2017). The recent inflation crisis and long-run economic growth in India: An empirical survey of threshold level of inflation. *South Asian Journal of Macroeconomics and Public Finance*, *6*(1), 105–132.

Beisland, L. A. (2011). The effects of earnings variables on stock returns among public companies in Norway: A multiple regression analysis. *International Journal of Management*, *28*(3), 773.

Belal, A., & Owen, D. L. (2015). The rise and fall of stand-alone social reporting in a multinational subsidiary in Bangladesh: A case study. *Accounting, Auditing & Accountability Journal*, *28*(7), 1160–1192.

Benthem, F. v. (2016). The Determinants of alternative finance adoption for Dutch SME's and the implications for capital structure theory. *Faculty of Behavioural Management and Social Sciences: University of Twente*.

Berger, A. N., & di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance*, *30*(4), 1065–1102.

Berthold, N., & Gründler, K. (2012). *Stagflation in the world economy: a revival*. *Discussion* (Julius Maximilian University of Würzburg), Chair of Economic Order & Social Policy.

Beyer, H.-M., & Herzog, B. (2021). Supply chain finance: cost–benefit differentials under reverse factoring with extended payment terms. *International Journal of Financial Studies*, *9*(4), 59.

Bhatia, S., & Srivastava, A. (2016). Working capital management and firm performance in emerging economies: Evidence from India. *Management and Labour Studies*, *41*(2), 71–87.

Bilgin, R., & Dinc, Y. (2019). Factoring as a determinant of capital structure for large firms: Theoretical and empirical analysis. *Borsa Istanbul Review*, *19*(3), 273–281.

Black, B. S., de Carvalho, A. G., Khanna, V. S., Kim, W., & Yurtoglu, B. B. (2019). Which aspects of corporate governance do and do not matter in emerging markets. *Journal of Law, Finance, and Accounting*, *5*(1), 137–177.

Blair, M. M. (1996). Ownership and control: Rethinking corporate governance for the twenty-first century. *Long Range Planning*, *29*(3), 432.

Blatrix, C., & Bartoli, A. (2015). *Management dans les organisations publiques: défis et logiques d'action*. Dunod.

Blinder, A. S. (1979). *Government policy and the great stagflation*. Academic Press.

Boadi, E. K., Li, Y., & Lartey, V. C. (2015). Determinants of bank deposits in Ghana: does interest rate liberalization matters? *Modern Economy*, *6*(09), 990.

Boateng, A., Cai, H., Borgia, D., Gang Bi, X., & Ngwu, F. N. (2017). The influence of internal corporate governance mechanisms on capital structure decisions of Chinese listed firms. Review of Accounting and Finance, 16(4), 444–461.

Boatright, J. R. (2012). Corporate Governance. *Encyclopedia of Applied Ethics.*

Bokhari, H. W., & Khan, M. A. (2013). The impact of capital structure on firm's performance (A case of nonfinancial sector of Pakistan). *European Journal of Business and Management*, *5*(31), 111–137.

Bokpin, G. A., & Arko, A. C. (2009). Ownership structure, corporate governance, and capital structure decisions of firms: Empirical evidence from Ghana. *Studies in Economics and Finance*.

Boodhoo, R. (2009). Capital structure and ownership structure: a review of literature. *Journal of Online Education, January*, *12*(3), 1–8.

Boone, C. A., Craighead, C. W., & Hanna, J. B. (2007). Postponement: an evolving supply chain concept. *International Journal of Physical Distribution & Logistics Management*.

Boot, A. W. A., & Marinč, M. (2010). Financial innovation: Economic growth versus instability in bank-based versus financial market driven economies. *International Journal of Business and Commerce*, *2*(1), 1–32.

Boshnak, H. (2022). The impact of capital structure on firm performance: evidence from Saudi-listed firms. *International Journal of Disclosure and Governance*, *20*(2), 1–12.

Boshnak, H. A. (2021). Corporate governance mechanisms and firm performance in Saudi Arabia. *International Journal of Financial Research*, *12*(3), 446.

Bougheas, S., Mateut, S., & Mizen, P. (2009). Corporate trade credit and inventories: new evidence of a trade-off from accounts payable and receivable. *Journal of Banking & Finance*, *33*(2), 300–307.

Bouloiz, H. (2020). Sustainable performance management using resilience engineering. *International Journal of Engineering Business Management*, *12*, 1847979020976205.

Brabenec, T., Poborsky, F., & Saßmannshausen, S. P. (2020). The difference between Preferred & Common Stocks in Europe from the market perspective. *Journal of Competitiveness*, *12*(3), 64–81.

Bratton, W. W. (2016). Bond and loan covenants, theory, and practice. *Capital Markets Law Journal*, *11*(4), 461–485.

Brealey, R. A., & Myers, S. C. (1991). *Principles of Corporate Finance. 4th¬¬ edition. mvGraw Hill Inc*.

Brigham, E. F., & Houston, J. F. (2006). Basics of financial management. In *Translator: Ali Akbar Yulianto* (Tenth, Vol. 1). Salemba Empat.

Brundtland, G. H. (1987). *World commission on environment and development. Our common future oxford*. University Press. Oxford.

Bruton, G., Khavul, S., Siegel, D., & Wright, M. (2015). New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer–to–peer innovations. In *Entrepreneurship theory and practice* (Vol. 39, Issue 1, pp. 9–26). SAGE Publications Sage CA: Los Angeles, CA.

Bryzgalova, S., Lerner, S., Lettau, M., & Pelger, M. (2022). Missing financial data. *SSRN Products & Services*. http://dx.doi.org/10.2139/ssrn.4106794

Brzenk, P., & Soe, A. M. (2015). *Digging Deeper Into the U . S . Preferred Market*. https://www.spglobal.com/spdji/en/documents/research/research-digging-deeper-into-the-us-preferred-market.pdf

Bui, H., & Krajcsak. (2024). The impacts of corporate governance on firms' performance: from theories and approaches to empirical findings. *Journal of Financial Regulation and Compliance*, *32*(1), 18–46.

Bui, T. (2020). Supply chain finance, financial development, and profitability of real estate firms in Vietnam. *Uncertain Supply Chain Management*, *8*(1), 37–42.

Bulan, L. T., & Yan, Z. (2010). Firm maturity and the pecking order theory. *Available at SSRN 1760505*. https://www.researchgate.net/publication/228252899_Firm_Maturity_and_the_Pecking_Order_Theory

Bawuah, I. (2024). The moderator role of corporate governance on capital structure-performance nexus: Evidence from Sub-Saharan Africa. *Cogent Business & Management*, *11*(1), 2298030.

Cadbury, A. (1992). *Report of the committee on the financial aspects of corporate governance* (T. C. on the F. A. of C. G. (The C. C. And Ed.; Vol. 1). Gee and Co, Ltd,

Cai, R., Yun, K. H., & Kim, M. (2022). Financing Constraints and Corporate Value in China: The Moderating Role of Multinationality and Ownership Type. *Sustainability*, *14*(19), 12297.

Callahan, C. M., Shaw, W. H., & Terando, W. D. (2001). Tax and Regulatory Motivations for Issuing Non-voting, Non-convertible Preferred Stock. *Journal of Accounting Research*, *39*(3), 463–480.

Camerinelli, E. (2011). B2B finance: a new name for supply chain finance. *Aite Group Blog*.

Camerinelli, E., & Bryant, C. (2014). *Supply chain finance—EBA European market guide version 2.0*. www. abe-eba. eu/downloads/knowledge-and-research/1406_EBA_Supply_Chain_Finance_European_Market_Guide_Second_edition. pdf

Campello, M., & Chen, L. (2010). Are financial constraints priced? Evidence from firm fundamentals and stock returns. *Journal of Money, Credit and Banking*, *42*(6), 1185–1198.

Campello, M., Graham, J. R., & Harvey, C. R. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics*, *97*(3), 470–487.

Caniato, F., Gelsomino, L. M., Perego, A., & Ronchi, S. (2016). Does finance solve the supply chain financing problem? *Supply Chain Management: An International Journal*.

Cao, S., & Leung, D. (2016). *Financial constraint and productivity: Evidence from Canadian SMEs*. Bank of Canada Staff Working Paper.

Caprio, G., Arner, D. W., Beck, T., Calomiris, C. W., Neal, L., & Veron, N. (2012). *Handbook of key global financial markets, institutions, and infrastructure*. Academic Press.

Cardao-Pito, T. (2022). Hypothesis that Tobin's q captures organizations' debt levels instead of their growth opportunities and intangible assets. *Cogent Economics & Finance*, *10*(1), 2132636.

Carletti, E., Oliviero, T., Pagano, M., Pelizzon, L., & Subrahmanyam, M. G. (2020). The COVID-19 shock and equity shortfall: Firm-level evidence from Italy. *The Review of Corporate Finance Studies*, *9*(3), 534–568.

Carpenter, R. E., & Petersen, B. C. (2002). Is the growth of small firms constrained by internal finance? *Review of Economics and Statistics*, *84*(2), 298–309.

Caselli, S., & Negri, G. (2021). *Private equity and venture capital in Europe: markets, techniques, and deals* (Third Edit). Academic Press. https://www.sciencedirect.com/topics/economics-econometrics-and-finance/capital-structure-theory

Chadha, S., & Sharma, A. K. (2015). Capital structure and firm performance: Empirical evidence from India. *Vision*, *19*(4), 295–302.

Chakrabarti, A., & Chakrabarti, A. (2019). The capital structure puzzle–evidence from Indian energy sector. *International Journal of Energy Sector Management*, *13*(1), 2–23.

Chaldeos, A. (2016). The Greek community of Tunis (XVI-XVIII Cent.): aspects of its formation and commercial enterprise. *Proceedings Ekklesiastikos Pharos*, *2014*(1), 57–67.

Chan, H., Chang, X., Faff, R., & Wong, G. (2010). Financial constraints and stock returns—Evidence from Australia. *Pacific-Basin Finance Journal*, *18*(3), 306–318.

Chand, A., Akram, S., Akram, H., Murad, A., & Kareem, L. (2019). The impact of working capital management on firm profitability: a comparison between seasonal and non-seasonal businesses. *Research Journal of Finance and Accounting*, *10*(15), 8–12.

Chang, G., Agyemang, A. O., Saeed, U. F., & Adam, I. (2024). Assessing the impact of financing decisions and ownership structure on green accounting disclosure: Evidence from developing economies. *Heliyon*, *10*(5).

Chang, X., Chen, Y., & Dasgupta, S. (2019). Macroeconomic conditions, financial constraints, and firms' financing decisions. *Journal of Banking & Finance*, *101*(C), 242–255.

Chaudhary, M. A., & Ahmad, N. (1996). Sources and impacts of inflation in Pakistan. *Pakistan Economic and Social Review*, 21–39.

Chechet, I. L., & Olayiwola, A. B. (2014). Capital structure and profitability of Nigerian quoted firms: The agency cost theory perspective. *American International Journal of Social Science*, *3*(1), 139–158.

Chen, H.-Y., Gupta, M. C., Lee, A. C., & Lee, C.-F. (2013). Sustainable growth rate, optimal growth rate, and optimal payout ratio: A joint optimization approach. *Journal of Banking & Finance*, *37*(4), 1205–1222.

Chen, I. (2016). *Literature review for firm's financial constraints*.

Chen, J. J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research*, *57*(12), 1341–1351.

Chen, L., Liu, C., Dong, X., Wu, Q., & Wang, G. (2013). Corporate governance and firm performance: Empirical evidence from China. *International Conference on Education Technology and Management Science (ICETMS 2013)*, 1283–1287.

Chen, S.-S., & Wang, Y. (2012). Financial constraints and share repurchase. *Journal of Financial Economics*, *105*(2), 311–331.

Chen, Y. (2016). *Essays on supply chain finance*. University of Minnesota.

Cheney, H., Nheu, N., & Vecellio, L. (2004). Sustainability as social change: Values and power in sustainability discourse. *Sustainability and Social Science: Roundtable Proceedings*, 225–246. http://www.minerals.csiro.au/sd/pubs/

Cheng, A., Reichelt, K. J., & Liu, C. Z. (2011). Effect of Preferred Stock on Risk and Cost of Equity Capital-Evidence for Financially Distressed Firms. *SSRN Electronic Journal*. http://dx.doi.org/10.2139/ssrn.1739222

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal*, *35*(1), 1–23.

Cheng, M.-C., & Tzeng, Z.-C. (2011). The effect of leverage on firm value and how the firm financial quality influence on this effect. *World Journal of Management*, *3*(2), 30–53.

Cheong, F. (2015). Equity Financing and Debt Financing. *Journal of Management Accounting and Finance*, *PBE Paper*.

Cherchye, L., de Rock, B., Ferrando, A., Mulier, K., & Verschelde, M. (2018). Identifying financial constraints. *Available at SSRN 3278938*.

Choi, J.-H., Kim, J.-B., & Lee, J. J. (2011). Value relevance of discretionary accruals in the Asian financial crisis of 1997–1998. *Journal of Accounting and Public Policy*, *30*(2), 166–187.

Chow, Y. P., Muhammad, J., Bany-Ariffin, A. N., & Cheng, F. F. (2019). Macroeconomic Uncertainty and Corporate Capital Structure: Evidence from the Asia Pacific Region (Ketidaktentuan Makroekonomi and Struktur Modal Korporat: Bukti dari Rantau Asia Pasifik). *Jurnal Ekonomi Malaysia*, *53*(2), 99–122.

Chowdhury, A., & Chowdhury, S. P. (2010). Impact of capital structure on firm's value: Evidence from Bangladesh. *Business and Economic Horizons (BEH)*, *3*(1232-2016–101116), 111–122.

Chowdhury, J., Kumar, R., & Shome, D. (2016). Investment–cash flow sensitivity under changing information asymmetry. *Journal of Banking & Finance*, *62*, 28–40.

Christensen, H. K., & Montgomery, C. A. (1981). Corporate economic performance: Diversification strategy versus market structure. *Strategic Management Journal*, *2*(4), 327–343.

Chughtai, M. W., Malik, M. W., & Aftab, R. (2015). Impact of Major Economic Variables on Economic Growth of Pakistan. *Acta Universitatis Danubius: Oeconomica*, *11*(2), 94–106.

Claessens, M. S., Ratnovski, M. L., & Singh, M. M. (2012). *Shadow banking: Economics and policy*. International Monetary Fund. https://www.imf.org/external/pubs/ft/sdn/2012/sdn1212.pdf

Cole, R. A., & Mehran, H. (1998). The effect of changes in ownership structure on performance: Evidence from the thrift industry. *Journal of Financial Economics*, *50*(3), 291–317.

Coleman, M., Wu, M., & Baidoo, M. (2020). Corporate governance and working capital policy: an unobserved influence. *Emerging Economy Studies*, *6*(1), 106–122.

Conyon, M., Gregg, P., & Machin, S. (1995). Taking care of business: Executive compensation in the United Kingdom. *The Economic Journal*, *105*(430), 704–714.

Cooper, B., Eva, N., Fazlelahi, F. Z., Newman, A., Lee, A., & Obschonka, M. (2020). Addressing common method variance and endogeneity in vocational behavior research: A review of the literature and suggestions for future research. *Journal of Vocational Behavior*, *121*, 103472.

Copeland, T. E., Weston, J. F., Shastri, K., Clinton, D., & Battista, D. (2005). Capital structure and the cost of capital: Theory and evidence. *Clinton D and Battista D Financial Theory and Corporate Policy. 4th Ed. Boston, MA: Addison-Wesley*, 557–643.

Cornett, M. M., McNutt, J. J., Strahan, P. E., & Tehranian, H. (2011). Liquidity risk management and credit supply in the financial crisis. *Journal of Financial Economics*, *101*(2), 297–312.

Correa, C., & Larrinaga, C. (2015). Engagement research in social and environmental accounting. *Sustainability Accounting, Management and Policy Journal*, *6*(1), 5–28.

C.Paramasivan, T. S. (2015). *Financial Management new age*. https://www.goodreads.com/author/show/16854898.C_Paramasivan

Cull, R., & Xu, L. C. (2005). Institutions, ownership, and finance: the determinants of profit reinvestment among Chinese firms. *Journal of Financial Economics*, *77*(1), 117–146.

Cunat, V., & Garcia-Appendini, E. (2012). *Trade credit and its role in entrepreneurial finance* (D. Cumming, Ed.). Oxford Handbook of Entrepreneurial Finance, Oxford University Press.

Custódio, C., Ferreira, M. A., & Laureano, L. (2013). Why are US firms using more short-term debt? *Journal of Financial Economics*, *108*(1), 182–212.

Dada, A. O., & Ghazali, Z. (2016). The impact of capital structure on firm performance: Empirical evidence from Nigeria. *IOSR Journal of Economics and Finance*, *7*(04), 23–30.

Dakhlallh, M. M., Rashid, N., Amalina, W. A. N., Abdullah, W. A. N., & DAKHLALLH, A. M. (2021). Ownership Structure and Firm performance: evidence from Jordan. *Journal of Contemporary Issues in Business and Government| Vol*, *27*(2), 80.

Dalbor, M. C., & Upneja, A. (2004). The investment opportunity set and the long-term debt decision of US lodging firms. *Journal of Hospitality & Tourism Research*, *28*(3), 346–355.

Dalci, I. (2018). Impact of financial leverage on the profitability of listed manufacturing firms in China. *Pacific Accounting Review*, *30*(4), 410–432.

Damodaran, A. (2007). Return on capital (ROC), return on invested capital (ROIC), and return on equity (ROE): Measurement and implications. *SSRN Electronic Journal*. https://pages.stern.nyu.edu/~adamodar/pdfiles/papers/returnmeasures.pdf

Dang A, R., Houanti, L., Le, N. T., & Vu, M.-C. (2018). Does corporate governance influence firm performance? Quantile regression evidence from a transactional economy. *Applied Economics Letters*, *25*(14), 984–988.

Das, C. P., Agarwall, H., & Swain, R. K. (2020). Is the Concept of Corporate Governance a Strategic Plan for Firms' Optimum Capital Structure? Evidence from Manufacturing Companies. *Journal of Operations and Strategic Planning*, *3*(2), 113–131.

Daud, W. M. N. W., Norwani, N. M., Mansor, A. A., & Endut, W. A. (2016). Does Financing Decision Influence Corporate Performance in Malaysia? *International Journal of Economics and Financial Issues*, *6*(3), 1165–1171.

Davis, G.F. and Powell, W.W. (2012), Organization-environment relations, in Dunnette, M.D. and Hough, L.M. (Eds), Handbook of Industrial Organizational Psychology, 2nd ed., Consulting Psychologists Press, Palo Alto, CA.

de Beelde, I., & Tuybens, S. (2015). Enhancing the credibility of reporting on corporate social responsibility in Europe. *Business Strategy and the Environment*, *24*(3), 190–216.

de Marco, A., & Mangano, G. (2017). Risk factors influencing the debt leverage of project financing initiatives in the energy industry. *International Journal of Energy Sector Management*.

De Veaux, R. D., Velleman, P. F., Bock, D. E., Vukov, A. M., Wong, A. C. M., & Burkett, C. (2016). *Stats: data and models* (Fourth). Pearson/Addison Wesley Boston.

Deloitte, T. (1992). Business strategy for sustainable development: Leadership and accountability for the'90s. *International Institute for Sustainable Development Winnipeg Canada: IISD, jointly with Deloitte and Touche*.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting*, *30*(3-4), 573–588.

Deloof, M., & van Overfelt, W. (2011). Trade credit policies and bank relationships in Belgium before World War I. *Applied Economics*, *43*(13), 1647–1655.

Demonier, G. B., Almeida, J. E. F. de, & Bortolon, P. M. (2015). The impact of financial constraints on accounting conservatism. *Revista Brasileira de Gestão de Negócios*, *17*, 1264–1278.

Dessí, R., & Robertson, D. (2003). Debt, incentives, and performance: Evidence from UK panel data. *The Economic Journal*, *113*(490), 903–919.

Detthamrong, U., & Chansanam, W. (2023). Do the trade credit influence firm performance in agro-industry? Evidence from Thailand. *Heliyon*, *9*(3), e14561.

Dienes, D., Sassen, R., & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, *7*(2), 154–189.

Dieppe, A., Gilhooly, R., Han, J., Korhonen, I., & Lodge, D. (2018). The transition of China to sustainable growth–implications for the global economy and the Euro area. *ECB Occasional Paper*, *206*.

Diez, N. C. (2021). *The Effect of Capital Structure and the Use of Leverage on Sustainability Performance*.

Dinardo, J., Johnston, J., & Johnston, J. (1997). *Econometric methods* (Fourth Edi). McGraw-Hill Companies, Inc.

Ding, H., & Sha, R. (2011). Empirical analysis of the impact of capital structure on performance in Jilin Forest Industry Co. Ltd. *Issues of Forestry Economics*, *31*(2), 141–144.

DNV, G. L. (2015). *Impact: Transforming business, changing the world. The United Nations Global Compact.* https://d306pr3pise04h.cloudfront.net/docs/publications%2FImpactUNGlobalCompact2015.pdf

Do, L. H., Luong, K. T., Mai, A. N. H., Dam, L. A., & Pham, H. T. L. (2022). The Impact of Capital Structure on Firm Performance: Case of Listed Firms in Processing and Manufacturing Industry in Vietnam. *International Journal of Economics, Business and Management Research*, *6*(3), 96–113. https://www.ijebmr.com/uploads/pdf/archivepdf/2022/IJEBMR_924.pdf

Doan, T. (2020). The effect of cash holdings on firm performance: Evidence from Vietnam listed firms. *Accounting*, *6*(5), 721–726.

Dobrovolsky, S. P. (1951). Corporate income retention, 1915-43. In *NBER Books*. National Bureau of Economic Research, Inc.

Docekalova, M. P., Kocmanova, A., & Kolenak, J. (2015). Development of corporate governance performance indicators for Czech manufacturing companies. *DANUBE: Law and Economics Review, European Association Comenius - EACO*, *6*(1), 57–72.

Donaldson, L. (1990). The ethereal hand: Organizational economics and management theory. *Academy of Management Review*, *15*(3), 369–381.

Drobetz, W., Schillhofer, A., & Zimmermann, H. (2004). Corporate governance and expected stock returns: Evidence from Germany. *European Financial Management*, *10*(2), 267–293.

Du, J., Bian, C., & Gan, C. (2017). Bank competition, government intervention and SME debt financing. *China Finance Review International*.

Duarte, F. A. P., Rodrigues, L. F., & Madeira, M. J. (2018). Credit Guarantee and the Impact in Financial Structure of the Portuguese SMEs. *Chinese Business Review*, *17*(4), 179–190.

Ebaid, I. E. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance*.

Ebrati, M. R., Emadi, F., Balasang, R. S., & Safari, G. (2013). The impact of capital structure on firm performance: Evidence from Tehran Stock Exchange. *Australian Journal of Basic and Applied Sciences*, *7*(4), 1–8.

Economist, T. (2014). The lure of shadow banking. *Online Edition*. https://www.economist.com/leaders/2014/05/08/the-lure-ofshadow-banking

Efendi, A., Putri, L. P., & Dungga, S. (2019). The effect of debt-to-equity ratio and total asset turnover on return on equity in automotive companies and components in Indonesia. *3rd International Conference on Accounting, Management and Economics 2018 (ICAME 2018)*, 182–188.

Egbunike, C. F., & Okerekeoti, C. U. (2018). Macroeconomic factors, firm characteristics, and financial performance: A study of selected quoted manufacturing firms in Nigeria. *Asian Journal of Accounting Research*.

Ehsan, S. (2019). *Corporate Social Responsibility; Measurement, and its Nexus with Earning's Management and Corporate Governance*. COMSATS Institute of Information Technology, Islamabad.

El Aboudi, S., & Khanchaoui, I. (2021). Exploring the impact of inflation and external debt on economic growth in Morocco: An empirical investigation with an ARDL approach. *Asian Economic and Financial Review*, *11*(11), 894–907.

Elad, F. L., Wong, M. N., & Bongbee, N. S. (2018). The Role of Board Characteristics in Effective Corporate Governance: The Case of Airbus Group. *International Journal of Social Sciences Perspectives*, *2*(1), 87–95.

Elkington, J. (1998). Accounting for the triple bottom line. *Measuring Business Excellence*.

El-Sayed Ebaid, I. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance*, *10*(5), 477–487.

Elston, D. M. (2021). Survivorship bias. *Journal of the American Academy of Dermatology*. https://doi.org/doi: 10.1016/j.jaad.2021.06.845

Engel, E., Hayes, R. M., & Wang, X. (2010). Audit committee compensation and the demand for monitoring of the financial reporting process. *Journal of Accounting and Economics*, *49*(1–2), 136–154.

Enomoto, M. (2021). The effect of corporate governance on the relationship between accounting quality and trade credit: Evidence from Japan. *Available at SSRN 3171338*.

Epstein, G. A. (2005). *Financialization and the world economy*. Edward Elgar Publishing.

Ergün, B., & Doruk, Ö. T. (2020). Effect of financial constraints on the growth of family and nonfamily firms in Turkey. *Financial Innovation*, *6*(1), 1–24.

Ertugrul, M., & Hegde, S. (2009). Corporate governance ratings and firm performance. *Financial Management*, *38*(1), 139–160.

Evbayiro-Osagie, E. I., & Enadeghe, I. B. (2022). Capital structure and performance of nonfinancial firms in Sub-Sahara Africa. *International Journal of Finance Research*, *3*(1), 49–62.

Eze, G. P., & Ekokeme, T. T. (2020). Effect of Financial Structure and Macroeconomic Fundamentals on Firm Profitability. *International Journal of Research and Scientific Innovation*, *7*(2), 114–122.

Faizan Khan, M., & Ahmad, A. (2021). Factors Affecting the Corporate Governance Disclosure: An Analysis of Manufacturing Companies in Pakistan. *Journal of Contemporary Issues in Business and Government*, *27*(1), 3735–3748.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, *47*(2), 427–465.

Fama, E. F., & Jensen, M. C. (1983). Agency problems and residual claims. *The Journal of Law and Economics*, *26*(2), 327–349.

Fan, H., & Pan, H. (2020). The Effect of Shadow Banking on the Systemic Risk in a Dynamic Complex Interbank Network System. *Complexity*, *2020*, 1–10.

Farooq, M., Noor, A., & Ali, S. (2022). Corporate governance and firm performance: empirical evidence from Pakistan. *Corporate Governance: The International Journal of Business in Society*, *22*(1), 42–66.

Farooq, U., Ahmed, J., Ashfaq, K., & Tabash, M. I. (2021). Trade credit as a determinant of firm's financial performance: Moderating role of bank financing. *Global Business Review*. https://doi.org/10.1177/09721509211036860%0A%0A

Fatima, K., & Mohiuddin, M. (2020). Impact of Capital Structure on Profitability and Corporate Value of Ceramic Industry: A Study on Some Selected Listed Companies in Dhaka Stock Exchange. *Journal of Business Administration*, *41*(2), 47–78.

Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. *The Journal of Finance*, *61*(4), 1957–1990.

Fazzari, S. M., Hubbard, R. G., & Petersen, B. C. (1988). Financing Constraints and Corporate Investment. *Brookings Papers on Economic Activity*, *19*(1), 141–206.

Fidell, B. G. T. L. S. (2007). *Using multivariate statistics 5th ed* (5th ed.). Boston, MA: Allyn and Bacon. http://www.ru.ac.bd/wp-content/uploads/sites/25/2019/03/401_04_Fidell_Using-multivariate-statisticsFF.pdf

Fikasari, R., & Bernawati, Y. (2021). Internal or external financing: new evidence on investor reaction in Indonesian manufacturing firms. *Journal of Accounting and Investment*, *22*(2), 242–253.

Fiksel, J., McDaniel, J., & Mendenhall, C. (1999). Measuring progress towards sustainability principles, process, and best practices. *Ohio: Battelle Memorial Institute*.

Floegel, J. (1990). Equity Financing for Public Corporations: Reasons and Methods to Encourage It. *University of Pennsylvania Law Review*, *138*(5), 1411–1449.

Flynn, S. J. (2017). *Debt structure and future financing and investment*. Arizona State University.

Fosberg, R. H. (2013). Short-term debt financing during the financial crisis. *International Journal of Business and Social Science*, *4*(8).

Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa. *The Quarterly Review of Economics and Finance*, *53*(2), 140–151.

Fraser, S., Bhaumik, S. K., & Wright, M. (2015). What do we know about entrepreneurial finance and its relationship with growth? *International Small Business Journal*, *33*(1), 70–88.

Friedman, M. (1992). *Money Mischief: Episodes in Monetary History. New York: Hartcourt Brace & Company*. ISBN 978-0-15-661930-1.

Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: an international study of supply chain strategies. *Journal of Operations Management*, *19*(2), 185–200.

FSB. (2011a). "Shadow Banking: Scoping the Issues." Background Note, Basel, Switzerland, April 12, http://www.financialstabilityboard.org/publications/ r_110412a.pdf

FSB. (2011b). FSB recommendations to strengthen oversight and regulation of shadow banking. recommendations of the financial stability board. *Policy Document*. http://www.fsb.org/wpcontent/uploads/r_111027a.pdf?page_moved=1

FSB (2014). Global Shadow Banking Monitoring Report 2014, Available at: http://www.fsb.org/wpcontent/uploads/global-shadow-banking-monitoring-report-2014.pdf

FSB (2015). Global Shadow Banking Monitoring Report 2015, Available at: http://www.fsb.org/wpcontent/uploads/global-shadow-banking-monitoring-report-2015.pdf.

Fujimoto, S., Mizuno, T., & Ishikawa, A. (2022). Interpolation of non-random missing values in financial statements' big data using CatBoost. *Journal of Computational Social Science*, *5*(2), 1281–1301.

Gabrijelcic, M., Herman, U., & Lenarcic, A. (2016). *Firm performance and (foreign) debt financing before and during the crisis: evidence from firm-level data*. http://dx.doi.org/10.2139/ssrn.2338637

Gajurel, D. (2006). Macroeconomic influences on corporate capital structure. *Social Science Research Network*, 1–6.

Garson, G. D. (2012). *Testing statistical assumptions*. Statistical associates publishing Asheboro, NC.

Gathara, Z. M., Kilika, J. M., & Maingi, J. N. (2019a). Effect of equity on financial performance of selected companies listed in the Nairobi Securities Exchange, Kenya. *International Journal of Business & Law Research*, *7*(1), 1–24.

Gathara, Z. M., Kilika, J. M., & Maingi, J. N. (2019b). Effect of Leverage on Financial Performance of Selected Companies Listed in the Nairobi Securities Exchange, Kenya. *Int. J. Innovative Finance and Economics Res*, *7*(1), 10–33.

Gelsomino, L. M., Mangiaracina, R., Perego, A., & Tumino, A. (2016). Supply chain finance: a literature review. *International Journal of Physical Distribution & Logistics Management*.

Ghosh, S. (2015). Trade credit, bank credit and crisis: Some empirical evidence for India? *Margin: The Journal of Applied Economic Research*, *9*(4), 333–361.

Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management*, *28*(4), 3.

Githire, C., & Muturi, W. (2015). Effects of capital structure on financial performance of firms in Kenya: Evidence from firms listed at the Nairobi securities exchange. *International Journal of Economics, Commerce and Management*, *3*(4), 1–10.

Global SCF forum. (2015). DRAFT Standard Definitions for Techniques of Supply Chain Finance. *Report*, *June* 1–83. https://iccwbo.org/content/uploads/sites/3/2016/11/SCF-Techniques-Draft-version-03112015.pdf

Goh, B. W., Lee, J., Lim, C. Y., & Shevlin, T. (2016). The effect of corporate tax avoidance on the cost of equity. *The Accounting Review*, *91*(6), 1647–1670.

Gomm, M. L. (2010). Supply chain finance: applying finance theory to supply chain management to enhance finance in supply chains. *International Journal of Logistics: Research and Applications*, *13*(2), 133–142.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *The Quarterly Journal of Economics*, *118*(1), 107–156.

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*(2–3), 187–243.

Greene, W. (2005). Fixed and random effects in stochastic frontier models. *Journal of Productivity Analysis*, *23*(1), 7–32.

Gregg, P., Machin, S., & Szymanski, S. (1993). The disappearing relationship between directors' pay and corporate performance. *British Journal of Industrial Relations*, *31*(1), 1–9.

GRI. (2016). GRI 201: Economic Performance 2016. Global Reporting Initiatiive. Retrieved from https://www.globalreporting.org/standards/media/1039/gri-201-economic-performance-2016.pdf

GRI. (2021). GRI Member Directory. GRI. Retrieved August 25, 2021, from https://www.globalreporting.org/reporting-support/gri-community/community-members/

GRI. (2020). The GRI standards A guide for policy makers. Retrieved from https://www.globalreporting.org/media/nmmnwfsm/gri-policymakers-guide.pdf

GSCFF. (2021). In Brief Standard Definition. Global Supply Chain Forum. Available online: http://supplychainfinanceforum.org/ (accessed on 6 May 2022).

Guariglia, A. (2008). Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms. *Journal of Banking & Finance*, *32*(9), 1795–1809.

Guariglia, A., Liu, X., & Song, L. (2008). Is the growth of Chinese firms constrained by internal finance? *Mimeograph, University of Nottingham*. https://ceauk.org.uk/2008-conference-papers/Guariglia-Liu-Song-full-papers.pdf

Guariglia, A., & Yang, J. (2016). A balancing act: managing financial constraints and agency costs to minimize investment inefficiency in the Chinese market. *Journal of Corporate Finance*, *36*, 111–130.

Gujarati, D. N. (2003). *Basic Econometrics. Boston: McGrawHill Firms*. Inc.

Gupta, S., Jain, P. K., & Yadav, S. S. (2011). Impact of MoU on financial performance of public sector enterprises in India. *Journal of Advances in Management Research*, *8*(2), 263–284.

Gupta, V. (2022). Basic Characteristics of Common Stocks. *International Journal of Innovative Research in Engineering and Management (IJIREM)*, *9*(2), 66–72. https://ijirem.org/DOC/11-basic-characteristics-of-common-stocks.pdf

Habib, H., Khan, F., & Wazir, M. (2016). Impact of debt on profitability of firms: Evidence from nonfinancial sector of Pakistan. *City University Research Journal*, *6*(01).

Habib, M. A., & Ljungqvist, A. (2005). Firm value and managerial incentives: a stochastic frontier approach. *The Journal of Business*, *78*(6), 2053–2094.

Habimana, O. (2014). Capital structure and financial performance: Evidence from firms operating in emerging markets. *International Journal of Academic Research in Economics and Management Sciences*, *3*(6), 159.

Hadi, A. R. A., Yusoff, H., & Yap, E. T. H. (2015). Capital Structure of Property Companies–Evidence from Bursa Malaysia. *International Journal of Economics and Finance*, *7*(8), 12–19.

Hahn, T., & Figge, F. (2011). Beyond the bounded instrumentality in current corporate sustainability research: Toward an inclusive notion of profitability. *Journal of Business Ethics*, *104*(3), 325–345.

Han, X., Hus, S., & Li, J. (2019). The impact of enterprises' shadow banking activities on business performance: a test based on mediator effect of investment scale and investment efficiency. *Emerging Markets Finance and Trade*, *55*(14), 3258–3274.

Hanousek, J., & Shamshur, A. (2011). A stubborn persistence: Is the stability of leverage ratios determined by the stability of the economy? *Journal of Corporate Finance*, *17*(5), 1360–1376.

Harelimana, J. B. (2017). Effect of debt financing on business performance: A comparative study between I&M Bank and Bank of Kigali, Rwanda. *Global Journal of Management and Business Research*.

Harkavy, O. (1953). The relation between retained earnings and common stock prices for large, listed corporations. *The Journal of Finance*, *8*(3), 283–297.

Harris, J. R., Schiantarelli, F., & Siregar, M. G. (1994). The effect of financial liberalization on the capital structure and investment decisions of Indonesian manufacturing establishments. *The World Bank Economic Review*, *8*(1), 17–47.

Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, *46*(1), 297–355.

Harrison, B., & Widjaja, T. W. (2014). The determinants of capital structure: Comparison between before and after financial crisis. *Economic Issues*, *19*(2), 55–82.

Harvey, C. (2012). Internal finance. Retrieved from https://financialdictionary.thefreedictionary.com/Internal+finance

Hasan, M. B., Ahsan, A. F. M. M., Rahaman, M. A., & Alam, M. N. (2014). Influence of capital structure on firm performance: Evidence from Bangladesh. *International Journal of Business and Management*, *9*(5), 184.

Hashmi, M. A., & Iqbal, M. S. (2022). Impact of working capital management on firm profitability and liquidity: the moderating role of family ownership. *Accounting Research Journal*, *35*(5), 676–697.

Hassouna, D., Ouda, H., & Hussainey, K. (2017). Transparency and disclosure as an internal corporate governance mechanism and corporate performance: Egypt's case. *Corporate Ownership and Control*, *14*(4), 182–195.

Hatcher, T. G., & Rocco, T. S. (2011). *The handbook of scholarly writing and publishing*.

Haule, B. G. (2017). Comparative Analysis of Financial Performance of Domestic and Foreign Banks in Tanzania. *Research Journal of Finance and Accounting*, *8*(24), 77–84.

He, Y., Chen, C., & Hu, Y. (2019). Managerial overconfidence, internal financing, and investment efficiency: Evidence from China. *Research in International Business and Finance*, *47*, 501–510.

Hedberg, C., & von Malmborg, F. (2003). The global reporting initiative and corporate sustainability reporting in Swedish companies. *Corporate Social Responsibility and Environmental Management*, *10*(3), 153–164.

Hellqvist, O., & Sandvall, A. (2016). *Preference Shares–A lead lag analysis of the Swedish real estate sector*. http://www.diva-portal.se/smash/get/diva2:1058533/FULLTEXT01.pdf

Hennessy, C. A., & Whited, T. M. (2007). How costly is external financing? Evidence from a structural estimation. *The Journal of Finance*, *62*(4), 1705–1745.

Heo, Y. J. (2024). The effect of trade credit on firm performance: Evidence from Korean firms during the Global Financial Crisis. *Journal of International Money and Finance*, *140*, 102987.

Heybati, R. (2021). Measuring Macroeconomic Uncertainty: An Application for Iran. *Iranian Economic Review*, *25*(3), 477–498.

Heyman, D., Deloof, M., & Ooghe, H. (2008). The financial structure of private held Belgian firms. *Small Business Economics*, *30*, 301–313.

Hekmati, A. (2020). Stagflation: America's Next Potential Economic Hurdle How stagflation could become a threat to the U.S. economy, and what this would mean for your portfolio. Kiplinger. Retrieved from https://www.kiplinger.com/investing/601706/stagflation-americas-next-potential-economic-hurdle

Hoang, H. C., Xiao, Q., & Akbar, S. (2019). Trade credit, firm profitability, and financial constraints: Evidence from listed SMEs in East Asia and the Pacific. *International Journal of Managerial Finance*, *15*(5), 744–770.

Hofmann, E., & Belin, O. (2011). *Supply chain finance solutions*. Springer.

Hofmann, E., Töyli, J., & Solakivi, T. (2022). Working Capital Behavior of Firms during an Economic Downturn: An Analysis of the Financial Crisis Era. *International Journal of Financial Studies*, *10*(3), 55.

Holz, C. A. (2002). The impact of the liability–asset ratio on profitability in China's industrial state-owned enterprises. *China Economic Review*, *13*(1), 1–26.

Hong, H., Kubik, J. D., & Scheinkman, J. A. (2012). *Financial constraints on corporate goodness*. National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w18476/w18476.pdf

Hosseini, S. M., Ahmad, Z., & Lai, Y. W. (2011). *The role of macroeconomic variables on stock market index in China and India*.

Hovakimian, G. (2009). Determinants of investment cash flow sensitivity. *Financial Management*, *38*(1), 161–183.

Hsiao, C. (2007). Panel data analysis—advantages and challenges. *Test*, *16*(1), 1–22.

Hu, J., Hu, L., Hu, M., & Dnes, A. (2023). Entrepreneurial human capital, equity concentration and firm performance: Evidence from companies listed on China's Growth Enterprise Market. *Managerial and Decision Economics*, *44*(1), 187–196.

Huang, L., Ying, Q., Yang, S., & Hassan, H. (2019). Trade credit financing and sustainable growth of firms: Empirical evidence from China. *Sustainability*, *11*(4), 1032.

Huang, R., & Ritter, J. R. (2009). Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis*, *44*(2), 237–271.

Huang, Y., Peng, K., & Shen, M. (2009). Macroeconomic performance amid global crisis 7. *China's New Place in a World in Crisis*, 121.

Hussain, M. (2005). Inflation and growth: Estimation of threshold point for Pakistan. *Pakistan Business Review*, *17*(3), 1–15.

Hussain, S., Nguyen, V. C., Nguyen, Q. M., Nguyen, H. T., & Nguyen, T. T. (2021). Macroeconomic factors, working capital management, and firm performance—A static and dynamic panel analysis. *Humanities and Social Sciences Communications*, *8*(1), 1–14.

Hwang, J., & Wu, M. (2011). Inflation and economic growth in China: An empirical analysis. *China & World Economy*, *19*(5), 67–84.

Ibrahim, I., & Shuaibu, H. (2016). Ownership structure and dividend policy of listed deposit money banks in Nigeria: A Tobit regression analysis. *International Journal of Accounting and Financial Reporting*, *6*(1), 1–19.

Ibrahim, K. Y., Usaini, M., & Elijah, S. (2021). Working Capital Management and Business Performance. *Nigerian Journal of Marketing (NJM) Vol*, *7*(1).

InunJariya, M. A. (2015). Effect of capital structure on profitability of food and beverage sectors in Sir Lanka. *International Journal of Economic and Business Review*, *3*(11), 57–63.

Iqbal, A. M. (2017). The role of financial constraints on precautionary cash holdings: evidence from Pakistan. *Economic Research-Ekonomska Istraživanja*, *30*(1), 596–610.

Iqbal, M., & Javed, F. (2017). The moderating role of corporate governance on the relationship between capital structure and financial performance: Evidence from manufacturing sector of Pakistan. *International Journal of Research in Business and Social Science (2147-4478)*, *6*(1), 89–105.

IQBAL, M. M. (2022). The relationship between capital structure and firm performance: new evidence from Pakistan. *The Journal of Asian Finance, Economics and Business*, *9*(2), 81–92.

Iqbal-Hussain, H., Shamsudin, M., Ali, A., Salem, M., Sajilan, S., Rahman, N., & Ani, N. (2015). Agency problems and its impact and relevance on firms' borrowings. *Review of Integrative Business and Economics Research4*, *3*(2015), 272–282.

Iskander, M., & Chamlou, N. (2000). *Corporate governance: A framework for implementation*. The World Bank. http://documents.worldbank.org/curated/en/810311468739547854/Corporate-governance-a-framework-for-implementation

Issah, M., & Antwi, S. (2017). Role of macroeconomic variables on firms' performance: Evidence from the UK. *Cogent Economics & Finance*, *5*(1), 1405581.

Jabbary, H., Hajiha, Z., & Labeshka, R. H. (2013). Investigation of the effect of agency costs on firm performance of listed firms in Tehran Stock Exchange. *European Online Journal of Natural and Social Sciences: Proceedings*, *2*(3 (s)), pp-771.

Jadiyappa, N., Hickman, L. E., Jyothi, P., Vunyale, N., & Sireesha, B. (2020). Does debt diversification impact firm value? Evidence from India. *International Review of Economics & Finance*, *67*, 362–377.

Jafri, J. (2023). Financial citizenship and shadow banking in Pakistan: a study of two deposit-taking microfinance banks. *Eurasian Geography and Economics*, *64*(2), 173–198.

Janning, F., Khlif, W., Ingley, C., Janning, F., Khlif, W., & Ingley, C. (2020). *Transparency is (full) disclosure in corporate governance*. Springer.

Javaid, F., & Saboor, A. (2015). Impact of Corporate Governance index on Firm Performance: evidence from Pakistani manufacturing sector. *Journal of Public Administration and Governance*, *5*(2), 1–21.

Javed, T., Younas, W., & Imran, M. (2014). Impact of capital structure on firm performance: Evidence from Pakistani firms. *International Journal of Academic Research in Economics and Management Sciences*, *3*(5), 28.

Javeed, A., & Azeem, M. (2014). Interrelationship among capital structure, corporate governance measures and firm value: panel study from Pakistan. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, *8*(3), 572–589.

Javeed, A., Yaqub, R. M. S., & Aslam, M. A. (2017). Revisiting capital structure and firm value: moderating role of corporate governance: Evidence from Pakistan. *European Journal of Business and Management*, *9*(16), 39–48.

Javid, A. Y., & Iqbal, R. (2010). *Corporate governance in Pakistan: Corporate valuation, ownership, and financing*.

Jaworski, J., & Czerwonka, L. (2022). Which Determinants Matter for Working Capital Management in Energy Industry? The Case of European Union Economy. *Energies*, *15*(9), 3030.

Jayiddin, N. F., Jamil, A., & Roni, S. M. (2017). Capital structure influence on construction firm performance. *SHS Web of Conferences*, *36*, 25.

Jena, S. K., Padhi, S. S., & Cheng, T. C. E. (2023). Optimal selection of supply chain financing programmes for a financially distressed manufacturer. *European Journal of Operational Research*, *306*(1), 457–477.

Jenkinson, T., Ljungqvist, A., & Ljungqvist, A. P. (2001). *Going public: The theory and evidence on how companies raise equity finance* (second). Oxford University Press on Demand.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *3*(4), 305–360.

Jia, F., Blome, C., Sun, H., Yang, Y., & Zhi, B. (2020). Towards an integrated conceptual framework of supply chain finance: An information processing perspective. *International Journal of Production Economics*, *219*, 18–30.

Jiang, G., Lee, C. M. C., & Yue, H. (2010). Tunneling through intercorporate loans: The China experience. *Journal of Financial Economics*, *98*(1), 1–20.

Jiang, X., Sun, W., Su, P., & Wang, T. (2019). The Synergy of financial volatility between China and the United States and the risk conduction paths. *Sustainability*, *11*(15), 4151.

Joeveer, K. (2013). Firm, country, and macroeconomic determinants of capital structure: Evidence from transition economies. *Journal of Comparative Economics*, *41*(1), 294–308.

Johnson, D. J. (1981). The behavior of financial structure and sustainable growth in an inflationary environment. *Financial Management*, *10*(4), 30–35.

Johnson, M., & Templar, S. (2011). The relationships between supply chain and firm performance: The development and testing of a unified proxy. *International Journal of Physical Distribution & Logistics Management*, *41*, 88–103.

Johnson, R., & Soenen, L. (2003). Indicators of successful companies. *European Management Journal*, *21*(3), 364–369.

Jokivuolle, E. (2018). *Shadow banking: financial intermediation beyond banks*. https://www.suerf.org/events/shadow-banking-financial-intermediation-beyond-banks/

Jones, A. S., & Edwin, O. A. (2019). Effect of debt financing on the corporate performance: A study of listed consumer goods firms in Nigeria. *International Journal of Academic Accounting, Finance & Management Research*, *3*(5), 26–34.

Jordão, R. V. D. (2017). Performance measurement, intellectual capital, and financial sustainability. *Journal of Intellectual Capital*.

Joseph, M. (2009). Global Crisis: India's Response. *Review of Market Integration*, *1*(2), 199–221.

Juhász, P., & Felföldi-Szűcs, N. (2022). Financing Cooperative Supply Chain Members—The Bank's Perspective. *Risks*, *10*(7), 139.

Kahl, M., Shivdasani, A., & Wang, Y. (2015). Short-term debt as bridge financing: Evidence from the commercial paper market. *The Journal of Finance*, *70*(1), 211–255.

Kajirwa, H. I. (2015). Effects of debt on firm performance: A survey of commercial banks listed on Nairobi Securities Exchange. *Global Journal of Advanced Research*, *2*(6), 1025–1029.

Kaminsky, G. L., Reinhart, C. M., & Vegh, C. A. (2002). The unholy trinity of financial contagion. *Journal of Economic Perspectives*, *17*(4), 51–74.

Kandukuri, R. L., Memdani, L., & Babu, P. R. (2015). Effect of corporate governance on firm performance–a study of selected Indian listed companies. In *Overlaps of private sector with public sector around the globe* (Vol. 31, pp. 47–64). Emerald Group Publishing Limited.

Kanwal, M., Shahzad, S. J. H., ur Rehman, M., & Zakaria, M. (2017). Impact of capital structure on performance of nonfinancial listed companies in Pakistan. *Pakistan Business Review*, *19*(2), 339–353.

Kapil, S., & Mishra, R. (2019). Corporate governance and firm performance in emerging markets: Evidence from India. *Theoretical Economics Letters*, *9*(6), 2033–2069.

Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints? *The Quarterly Journal of Economics*, *112*(1), 169–215.

Karakuş, R., & Zor, İ. (2017). EFFECT OF SUPPLY CHAIN FINANCE ON VALUE OF FIRMS IN THE SUPPLY CHAIN. *International Review of Economics and Management*, *5*(1), 34–57.

Kashani, S. M., & Mousavi Shiri, M. (2022). The Role of Corporate Governance in Investment Efficiency and Financial Information Disclosure Risk in Companies Listed on the Tehran Stock Exchange. *Journal of Risk and Financial Management*, *15*(12), 577.

Kasseeah, H. (2008). *Financing decisions and financial constraints: evidence from the UK and China*. University of Nottingham.

Kaushik, N., & Chauhan, S. (2019). The role of financial constraints in the relationship between working capital management and firm performance. *IUP Journal of Applied Finance*, *25*(1), 60–82.

Kayhan, A., & Titman, S. (2007). Firms' histories and their capital structures. *Journal of Financial Economics*, *83*(1), 1–32.

Keasey, K., Thompson, S., & Wright, M. (1997). *Corporate governance: Economic and financial issues* (14th ed.). OUP Oxford.

Keynes, J. M. (1937). The general theory of employment. *The Quarterly Journal of Economics*, *51*(2), 209–223.

Khalid, I., & Khan, F. A. (2020). Iran Pakistan Relations: Convergences and Divergences in Present Political and Economic Developments. *Journal of the Punjab University Historical Society*, *33*(02).

Khalil, A. B. (2021). Afghanistan and the Shanghai Cooperation Organization. *The Diplomat [14/07/2021]. Disponível Em:< Https://Thediplomat. Com>. Acesso Em*, *21*(08).

Khan, A. B., Zulfiqar, A. S., & Shah, S. Z. A. (2012). The impact of retained and distributed earnings on future profitability and stock returns in Pakistan. *International Research Journal of Finance and Economics*, *84*, 141–148.

Khan, A. G. (2012). The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting*, *2*(1), 245–262.

Khan, A., & Jamali, A. B. (2021). *The Shanghai Cooperation Organization in Promoting Regional*. *6*(2), 1–11.

Khan, M. A., Rehan, R., Chhapra, I. U., & Sohail, A. B. (2021). Capital Structure Theories: A Comprehensive Review. *REVISTA GEINTEC-GESTAO INOVACAO E TECNOLOGIAS*, *11*(3), 1562–1574.

Khan, M. S., & Ssnhadji, A. S. (2001). Threshold effects in the relationship between inflation and growth. *IMF Staff Papers*, *48*(1), 1–21.

Khan, S. U. (2022). Financing constraints and firm-level responses to the COVID-19 pandemic: International evidence. *Research in International Business and Finance*, *59*, 101545.

Khan, S., & Shoaib, A. (2024). Firm value adjustment speed through financial friction in the presence of earnings management and productivity growth: evidence from emerging economies. *Humanities and Social Sciences Communications*, *11*(1), 1–17.

Khan, S., & Qasem, A. (2024). Are the firms' capital structure and performance related? Evidence from GCC economies. *Cogent Business & Management*, *11*(1), 2344749.

Khan, W., Ellahi, A. R., & Mehmood, B. (2016). Impact of Financial Supply Chain Management (FSCM) on financial performance of textile sector in Pakistan: Empirical evidence from Generalized Method of Moments. *Science International*, *28*(2), 1563–1568.

Khanam, F., Nasreen, S., & Pirzada, S. S. (2014). Impact of capital structure on firm's financial performance: Evidence from food sector of Pakistan. *Research Journal of Finance and Accounting*, *5*(11), 93–105.

Khetran, M. S. (2019). SCO membership and Pakistan. *Strategic Studies*, *39*(2), 83–95.

Khodavandloo, M., Zakaria, Z., & Nassir, A. M. (2017). Capital structure and firm performance during global financial crisis. *International Journal of Economics and Financial Issues*, *7*(4), 498–506.

Khudyakova, T. A., & Shmidt, A. v. (2019). *Impact of the global recession on financial and economic sustainability of industrial companies*.

Kipesha, E. F., & James, J. M. (2014). Capital structure and firm performance: evidence from commercial banks in Tanzania. *Research Journal of Finance and Accounting*, *5*(14), 168–178.

Kirimi, P. N., Simiyu, J. M., & Murithi, D. (2017). *Effect of debt finance on financial performance of savings and credit cooperative societies in Maara Sub- County, Tharaka Nithi County, Kenya*.

Kirton, J., & Larionova, M. (2022). Contagious convergent cumulative cooperation: the dynamic development of the G20, BRICS and SCO. *International Politics*, 1–29. https://doi.org/10.1057/s41311-022-00407-7

Kirui, B. K., & Gor, S. O. (2018). Financial Constraints and Firm Capital Structure in Kenya. *International Journal of Economics and Finance*, *10*(1), 177–190.

Klapper, L. (2005). The role of the role of factoring for financing small and medium enterprises. *World Bank Policy Research Working Paper No. 3593, Published in Journal of Finance*, *64*, 151–160.

Ključnikov, A., & Belás, J. (2016). Approaches of Czech entrepreneurs to debt financing and management of credit risk. *Equilibrium-Quarterly Journal of Economics and Economic Policy*.

Kodres, L. (2013). Back to basics: what is shadow banking? *Finance & Development*, *50*(2), 42–43. https://www.imf.org/external/pubs/ft/fandd/2013/06/basics.htm

Köhler, G. (1982). A General Theory of Stagflation. *Alternatives*, *8*(1), 49–77.

Kong, Y., Donkor, M., Musah, M., Nkyi, J. A., & Ampong, G. O. A. (2023). Capital structure and corporates financial sustainability: evidence from listed nonfinancial entities in Ghana. *Sustainability*, *15*(5), 4211.

Korteweg, P. (1979). The economics of stagflation: Theory and Dutch evidence. *Zeitschrift Für Die Gesamte Staatswissenschaft/Journal of Institutional and Theoretical Economics*, 553–583.

Kouvelis, P., & Zhao, W. (2012). Financing the newsvendor: Supplier vs. bank, and the structure of optimal trade credit contracts. *Operations Research*, *60*(3), 566–580.

Kozarevic, E., & Hodzic, M. (2016). Influence of financing by factoring on company's liquidity in Bosnia and Herzegovina. *Economic Review: Journal of Economics and Business*, *14*(2), 18–32.

KPMG, G. R. I. (2017). *UNEP and Centre for Corporate Governance in Africa. (2016). "Carrots & Sticks: Global trends in sustainability reporting regulation and policy."* Retrieved 06/02/2017, from https://assets. kpmg. com/content/dam/kpmg/pdf ….

Kraemer-Eis, H., & Lang, F. (2017). Access to funds: how could CMU support SME financing? *Vierteljahrshefte Zur Wirtschaftsforschung*, *86*(1), 95–110.

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance*, *28*(4), 911–922.

Kristanto, H. (2022). The Impact of Macroeconomic on Working Capital Management. Empirical Study in Indonesian firms Before Pandemic 19. *Journal of Indonesian Applied Economics*, *10*(2), 131–152.

Kumar, S., & Ranjani, K. S. (2018). Financial constraints and investment decisions of listed Indian manufacturing firms. *Financial Innovation*, *4*(1), 1–17.

Kurth, J. (2011). A tale of four crises: the politics of great depressions and recessions. *Orbis*, *55*(3), 500–523.

Kuzey, C., & Uyar, A. (2017). Determinants of sustainability reporting and its impact on firm value: Evidence from the emerging market of Turkey. *Journal of Cleaner Production*, *143*, 27–39.

Kyereboah-Coleman, A. (2007). The impact of capital structure on the performance of microfinance institutions. *The Journal of Risk Finance*, *8*(1), 56–71.

la Cava, G. (2005). Modelling Strategy and Results| RDP 2005-12: Financial Constraints, the User Cost of Capital and Corporate Investment in Australia. *Reserve Bank of Australia Research Discussion Papers*, *December*.

Lal, D., & Wolf, M. (1986). *Stagflation, savings, and the state: perspectives on the global economy*. The World Bank. https://documents1.worldbank.org/curated/en/424421468328208989/pdf/337990PUB0savi101Official0Use0Only1.pdf

Lamoureux, J.-F., & Evans, T. A. (2011). Supply chain finance: a new means to support the competitiveness and resilience of global value chains. *Available at SSRN 2179944*.

Laskar, N., Chakraborty, T. K., & Maji, S. G. (2017). Corporate sustainability performance and financial performance: Empirical evidence from Japan and India. *Management and Labour Studies*, *42*(2), 88–106.

Lazar, S. (2016). Determinants of firm performance: evidence from Romanian listed companies. *Review of Economic and Business Studies*, *9*(1), 53–69.

Le, T., Kim, N. N. T., & Dieu, T. H. (2024). The impact of shadow banking on nonfinancial firms listed on the Ho Chi Minh Stock Exchange (HOSE)–Evidence from Vietnam. *Journal of Eastern European and Central Asian Research (JEECAR)*, *11*(1), 97–113.

Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance*, *42*, 710–726.

le Thi Kim, N., Duvernay, D., & le Thanh, H. (2021). Determinants of financial performance of listed firms manufacturing food products in Vietnam: regression analysis and Blinder–Oaxaca decomposition analysis. *Journal of Economics and Development*, *23*(3), 267–283.

Leah, M. (2008). Interest rate forecasts, financial markets group. *London School of Economics and Political Science*, *42*(3), 201–231.

Lebas, M. J., & Euske, K. (2006). *A Conceptual and Operational Delineation of Performance, [in:] Business Performance Measurement. Theory and Practice, ed. A. Neely*. Cambridge University Press, Cambridge.

Lei, J., Qiu, J., & Wan, C. (2018). Asset tangibility, cash holdings, and financial development. *Journal of Corporate Finance*, *50*, 223–242.

Lekkakos, S. D., & Serrano, A. (2016). Supply chain finance for small and medium sized enterprises: the case of reverse factoring. *International Journal of Physical Distribution & Logistics Management*.

Leledakis, I. D. and G. (1998). *The relationship between Stock returns and Tobin's q: Tobin's q effect*. Financial Options Research Centre (FORC) 98/96.
https://warwick.ac.uk/fac/soc/wbs/subjects/finance/research/wpaperseries/1998/98-96.pdf

LEXPEEPS. (2020). History of Corporate Governance in India. Retrieved September 25, 2022, from https://lexpeeps.in/history-of-corporate-governance-in-india/

Li, D. (2011). Financial constraints, R&D investment, and stock returns. *The Review of Financial Studies*, *24*(9), 2974–3007.

Li, D., Lu, Y., Ng, T., & Yang, J. (2016). Does trade credit boost firm performance? *Economic Development and Cultural Change*, *64*(3), 573–602.

Li, Y. (2020). *The effects of external debt financing and internal financing on firm performance: empirical evidence from automobile listed firms*. University of Twente.

Liberti, J. M., & Sturgess, J. (2018). The anatomy of a credit supply shock: evidence from an internal credit market. *Journal of Financial and Quantitative Analysis*, *53*(2), 547–579.

Lindkvist, L., & Saric, O. (2020). *Sustainability Performance and Capital Structure: An analysis of the relationship between ESG rating and debt ratio*. UMEA School of Business, Economics and Statistics. http://www.diva-portal.org/smash/get/diva2:1447928/FULLTEXT01.pdf

Liu, F., Fang, M., Park, K., & Chen, X. (2021). Supply chain finance, performance, and risk: How SMEs adjust their buyer-supplier relationship for competitiveness? *Journal of Competitiveness*, *13*(4), 78–95.

Liu, T., Liu, W., Elahi, E., & Liu, X. (2022). Supply chain finance and the sustainable growth of Chinese firms: The moderating effect of digital finance. *Frontiers in Environmental Science*, *10*, 922182.

Liu, H., Li, D., & Xu, S. (2018). The Impact of Internal Financing on Productivity—An Empirical Study on Chinese Listed Manufacturing Firms. *Economics*, *6*(5), 350–363.

Liu, J., Sheng, H., & Ma, Y. (2014). The mechanism of corporate enterprises participating in shadow banking businesses and its model analysis of social-welfare net loss. *J Financ Res*, *5*, 96–109.

Liu, S. (2005). Corporate governance and development: the case of China. *Managerial and Decision Economics*, *26*(7), 445–449.

Liu, X., Zhou, L., & Wu, Y.-C. J. (2015). Supply chain finance in China: business innovation and theory development. *Sustainability*, *7*(11), 14689–14709.

Livdan, D., Sapriza, H., & Zhang, L. (2009). Financially constrained stock returns. *The Journal of Finance*, *64*(4), 1827–1862.

Llobet-Dalmases, J., Plana-Erta, D., & Uribe, J. M. (2023). Cyclical capital structure decisions. *The North American Journal of Economics and Finance*, *66*, 101917.

Lorenc, S., & Sorokina, O. (2015). Sustainable development of mining enterprises as a strategic direction of growth of value for stakeholders. *Mining Science*, *22*(Special Issue 2), 67–78.

Louis C. Krauthoff, G. D. K. (1979). *Stagflation hearings before the special study on economic change of the joint Economic Committee Congress of the United States ninety-sixth Congress*. Congress of the United States. https://www.jec.senate.gov/reports/96th Congress/Stagflation (952).pdf

Lourenço, I. C., & Branco, M. C. (2013). Determinants of corporate sustainability performance in emerging markets: the Brazilian case. *Journal of Cleaner Production*, *57*, 134–141.

Lu, Q., Gu, J., & Huang, J. (2019). Supply chain finance with partial credit guarantee provided by a third-party or a supplier. *Computers & Industrial Engineering*, *135*(1), 440–455.

Lu, Y., Guo, H., Kao, E. H., & Fung, H.-G. (2015). Shadow banking and firm financing in China. *International Review of Economics & Finance*, *36*, 40–53.

Lucey, B. M., & Zhang, Q. (2011). Financial integration and emerging markets capital structure. *Journal of Banking & Finance*, *35*(5), 1228–1238.

Lyu, B., & Chen, H. (2022). Effect of founder control on equity financing and corporate performance-based on moderation of radical strategy. *Sage Open*, *12*(2), 1–16.

M Zein, A., & Ångström, P. (2016). *Can macroeconomic factors explain the choice of capital structure? -A study of listed nonfinancial firms in Sweden*. https://www.diva-portal.org/smash/get/diva2:968839/FULLTEXT01.pdf

MacKay, P., & Phillips, G. M. (2005). How does industry affect firm financial structure? *The Review of Financial Studies*, *18*(4), 1433–1466.

Magkonis, G., Oh, E. Y., & Zhang, S. (2022). *On the Macroeconomic Effects of Shadow Banking Development*. University of Portsmouth, Portsmouth Business School, Economics and Finance ….

Mahdavi, A. H. (2020). The covid-19 crisis could strengthen Iran's 'invisible government'. The Washington Post. Retrieved from https://www.washingtonpost.com/politics/2020/05/07/covid-19-crisis-could-strengthen-irans-invisible-government/

Mahmood, Z., Kouser, R., Ali, W., Ahmad, Z., & Salman, T. (2018). Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability*, *10*(1), 207.

Mahmud, A. Al, Miah, M. S., & Bhuiyan, M. R. U. (2022). Does Trade Credit Financing Affect Firm Performance? Evidence from an Emerging Market. *International Journal of Financial Studies*, *10*(4), 85.

Main, B. G. M., & Johnston, J. (1993). Remuneration committees and corporate governance. *Accounting and Business Research*, *23*(sup1), 351–362.

Malik, M. S., & Naz, L. (2016). Impact of capital structure on firm performance: Moderating role of corporate governance. *European Academic Research*, *4*(1), 270–294.

Mallick, S., & Yang, Y. (2011). Sources of financing, profitability, and productivity: First evidence from matched firms. *Financial Markets, Institutions & Instruments*, *20*(5), 221–252.

Mamaro, L. P., & Legotlo, T. G. (2020). The Impact of Debt Financing on Financial Performance: Evidence from Retail Firms Listed on Jse. *The Journal of Accounting and Management*, *10*(3).

Mangla, I. U., & Din, M. (2015). The impact of the macroeconomic environment on Pakistan's manufacturing sector. *The Lahore Journal of Economics*, *20*, 241–260.

Marak, Z. R., & Pillai, D. (2019). Factors, outcome, and the solutions of supply chain finance: Review and the future directions. *Journal of Risk and Financial Management*, *12*(1), 1–23.

Margaritis, D., & Psillaki, M. (2007). Capital Structure and Firm Efficiency. *Journal of Business Finance & Accounting*, *34*(9-10), 1447–1469.

Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance*, *34*(3), 621–632.

Marietta, M. S. (2012). *The influence of capital structure on firms' performance: A case of selected firm's listed in Nairobi securities exchange, Kenya*. University of Nairobi.

Marková, V., & Lesníková, P. (2015). Utilization of corporate sustainability concept at selected enterprises in slovakia. *Procedia Economics and Finance*, *34*, 630–637.

Marsh, P. (1982). The choice between equity and debt: An empirical study. *The Journal of Finance*, *37*(1), 121–144.

Martis, R. N. (2013). *Capital Structure and Firm's Financial Performance, An Empirical Analysis of the S&P500*. University Van Tilburg.

Marx, C., & Struweg, J. (2015). Stagflation and the South African equity market. *Procedia Economics and Finance*, *30*, 531–542.

Mashayekhi, B., & Bazaz, M. S. (2008). Corporate governance and firm performance in Iran. *Journal of Contemporary Accounting & Economics*, *4*(2), 156–172.

Masud, M. A. K., Hossain, M. S., & Kim, J. D. (2018). Is green regulation effective or a failure: comparative analysis between Bangladesh Bank (BB) green guidelines and global reporting initiative guidelines. *Sustainability*, *10*(4), 1267.

Mateut, S., Bougheas, S., & Mizen, P. (2006). Trade credit, bank lending and monetary policy transmission. *European Economic Review*, *50*(3), 603–629.

Matheson, J. (2002). *Encyclopedia Corporate Governance*. www.encycogov.com/WhatIsGorpGov.asp

Mathur, N., Tiwari, S. C., Ramaiah, T. S., & Mathur, H. (2021). Capital structure, competitive intensity, and firm performance: an analysis of Indian pharmaceutical companies. *Managerial Finance*.

Matthias, C., & Eberl, A. (2020). Let's talk about fixed effects: Let's talk about all the good things and the bad things. *Kölner Zeitschrift Für Soziologie Und Sozialpsychologie*, *72*(2), 289–299.

Mayo-Wilson, E., Li, T., Fusco, N., Dickersin, K., & investigators, M. (2018). Practical guidance for using multiple data sources in systematic reviews and meta-analyses (with examples from the MUDS study). *Research Synthesis Methods*, *9*(1), 2–12.

McCulley, P. (2007). Teton reflections. *PIMCO Global Central Bank Focus*, *2*. http://www.pimco.com/EN/Insights/Pages/GCBF August September 2007.aspxf

Meah, M. R. (2019). The efficiency of corporate governance on capital structure: An empirical study from listed manufacturing firms in Bangladesh. *Asian Journal of Accounting and Governance*, *11*(1), 13–23.

Mehmood, S., Amin, M. S., & Raza, K. (2020). EFFECT OF CORPORATE GOVERNANCE ON FIRM PERFORMANCE: MODERATING ROLE OF FIRM SIZE IN PAKISTAN. *International Journal of Management (IJM)*, *11*(7).

Mehmood, S., & Fraz, A. (2022). The Poor State of Financial Markets in Pakistan: THE ROLE AND STRUCTURE OF FINANCIAL MARKETS. *The Pakistan Development Review*, *61*(2), 319–327.

Mehrabani, F., & Dadgar, Y. (2013). The Impact of Corporate Governance on Firm Performance: Evidence from Iran. *International Journal of Trends in Economics Management and Technology*, *2*(3), 9–13.

Mehrara, M. (2008). Does Inflation Harm Economic Growth in Iran? *Iranian Economic Review*, *13*(20), 44–56.

Meigs, R. F. (1978). *Intermediate Accounting* (WBAO). McGraw – Hill, New York.

Melis, A., Carta, S., & Gaia, S. (2012). Executive remuneration in block holder-dominated firms. How do Italian firms use stock options? *Journal of Management & Governance*, *16*, 511–541.

Mensah, M., & Adams, M. (2014). The nexus between corporate governance and records management in private and public hospitals in Ghana. *Records Management Journal*, *24*(1), 32–55.

Merz, M., & Yashiv, E. (2007). Labor and the Market Value of the Firm. *American Economic Review*, *97*(4), 1419–1431.

Mian, S. L., & Smith Jr, C. W. (1992). Accounts receivable management policy: theory and evidence. *The Journal of Finance*, *47*(1), 169–200.

Miko, N. U., & Para, I. (2019). Capital structure and profitability of listed manufacturing firms in Nigeria. *Journal of Accounting and Management*, *2*(2), 134–140.

Miles, D. A. (2017). A taxonomy of research gaps: Identifying and defining the seven research gaps. *Doctoral Student Workshop: Finding Research Gaps-Research Methods and Strategies, Dallas, Texas*, 1–15.

Minhas, U. (2019). *Impacts of Trade Credit on Firms Performance: Evidence from Pakistan Listed Firms*. CAPITAL UNIVERSITY.

Mirjalili, S. H., Esfandiary, M., & Zarei, M. (2021). The Impact of Shadow Banking on the Financial Stability: Evidence from G20 Countries. *Journal of Money and Economy*, *16*(2), 237–252.

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, *48*(3), 261–297.

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, *53*(3), 433–443.

Mohammad, H. S., Bujang, I., & Abd Hakim, T. (2019). Capital structure and financial performance of Malaysian construction firms. *Asian Economic and Financial Review*, *9*(12), 1306–1319.

Mohd, A. S., & Siddiqui, D. A. (2020). Effect of Macroeconomic Factors on Firms' ROA: A Comparative Sectorial Analysis from Pakistan. *International Journal of Publication and Social Studies*, *5*(1), 1–17.

Mokhova, N., & Zinecker, M. (2014). Macroeconomic factors and corporate capital structure. *Procedia-Social and Behavioral Sciences*, *110*, 530–540.

Molnar, M., Wang, B., & Chen, W. (2017). Corporate governance and firm performance in China. *OECD Economics Department Working Papers No. 1421*. https://www.researchgate.net/publication/343447959_Corporate_governance_and_firm_performance_in_China

Monga, R., & Kahndelwal, V. (2018). Impact of Capital structure on Profitability with Special reference to Telecom Sector. *Aunsandhan the Research Repository of GIBS, 1 (1)*, 51–56.

Monks, R., & Minow, N. (1995). Corporate Governance Blackwell. In *Cambridge, MA*. Blackwell Publishers.

Moradi, N. S., Aldin, M. M., Heyrani, F., & Iranmahd, M. (2012). The effect of corporate governance, corporate financing decision and ownership structure on firm performance: A panel data approach from Tehran stock exchange. *International Journal of Economics and Finance*, *4*(6), 86–93.

More, D., & Basu, P. (2013). Challenges of supply chain finance: A detailed study and a hierarchical model based on the experiences of an Indian firm. *Business Process Management Journal*, *19*(4), 624–647.

Moridu, I. (2024). The Effect of Financial Leverage on Profitability in the Food and Beverage Industry (2017-2021). *Accounting Studies and Tax Journal (COUNT)*, *1*(1), 117–130.

Mousavi, Z., & Jari, A. (2012). The relationship between working capital management and firm performance: Evidence from Iran. *International Journal of Humanities and Social Science*, *2*(2), 141–146.

Moyen, N. (2004). Investment–cash flow sensitivities: Constrained versus unconstrained firms. *The Journal of Finance*, *59*(5), 2061–2092.

Moyer, R. C., McGuigan, J. R., & Rao, R. P. (2017). *Contemporary Financial Management* (14th ed.). Cengage Learning.

Mubarik, Y. A., & Riazuddin, R. (2005). *Inflation and growth: An estimate of the threshold level of inflation in Pakistan*. State Bank of Pakistan Karachi.

Muchtar, D., Ngurah, A. I. G., Nor, F. M., Ibrahim, I., & Jafarian, M. (2019). The Financial Crisis Impact on Firm Performance, Financial Decision and Corporate Governance of Indonesia Listed Firms. *Proceedings of the 1st Workshop on Multidisciplinary and Its Applications*.

Muchugia, L. M. (2013). *The Effect of Debt Financing on Firm Profitability of Commercial Banks in Kenya*. University of Nairobi.

Muhamad Amar, M. F. (2017). *Irving Fisher Committee on Central Bank Statistics IFC Bulletin Statistical implications of the new financial landscape* (Bulletin n, Issue 43). Irving Fisher Committee. https://www.bis.org/ifc/publ/ifcb36g.pdf

Muhammad, H., & Shah, B. (2014). The impact of capital structure on firm performance: Evidence from Pakistan. *The Journal of Industrial Distribution & Business*, *5*(2), 13–20.

Muhammad, S., Habshah, M., & Babangida, I. B. (2019). Robust White's test for heteroscedasticity detection in Linear Regression. *FUDMA Journal of Sciences*, *3*(2), 173–178.

Muigai, R. G. (2016). *Effect of capital structure on financial distress of nonfinancial companies listed in Nairobi Securities Exchange*. COHRED, Finance, JKUAT.

Mujwahuzi, G. V., & Mbogo, C. J. (2020). Effects of Capital Structure on Business Profitability of Processing Enterprises Listed on the Dar es Salaam Stock Exchange, Tanzania. *Journal of Finance and Accounting*, *8*(4), 165.

Mukherjee, T., & Sen, S. S. (2019). Impact of corporate governance on corporate sustainable growth. *International Research Journal of Business Studies*, *12*(2), 167–184.

Müller, A.-L., & Pfleger, R. (2014). Business transformation towards sustainability. *Business Research*, *7*(2), 313–350.

Müller-Bloch, C., & Kranz, J. (2015). *A framework for rigorously identifying research gaps in qualitative literature reviews*.

Mulure, L. A. (2013). *Effect of Supply Chain Finance on Small and Medium Manufacturing Enterprises Performance: A Case of Nairobi County*. University of Nairobi.

Mumtaz, R., Rauf, S. A., Ahmed, B., & Noreen, U. (2013). Capital structure and financial performance: Evidence from Pakistan (Kse 100 Index). *Journal of Basic and Applied Scientific Research*, *3*(4), 113–119.

Munir, A., Khan, F. U., Usman, M., & Khuram, S. (2019). Relationship between Corporate Governance, Corporate Sustainability and Financial Performance. *Pakistan Journal of Commerce & Social Sciences*, *13*(4).

Munisi, G., & Randoy, T. (2013). Corporate governance and company performance across Sub-Saharan African countries. *Journal of Economics and Business*, *70*, 92–110.

Muriithi, S. N. (2014). *The effect of financing sources on the financial performance of top 100 mid-sized companies in Kenya*.

Muritala, T. A. (2012). An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics*, *1*(5), 116–124.

Murtadlo, A. A., Imam, Y., & Wahono, B. (2014). Effect of capital structure, wealth structure and asset turnover on financial performance (case study in real estate companies listed on the IDX). *JEMA*, *12*(1), 1–10.

Musso, P., & Schiavo, S. (2008). The impact of financial constraints on firm survival and growth. *Journal of Evolutionary Economics*, *18*, 135–149.

Mustafa, G., Naeem, M., & Sattar, S. (2021). Pakistan and Shanghai Cooperation Organization (SCO): An Analysis. *Journal of the Research Society of Pakistan*, *58*(2), 106.

Muthama, C., Mbaluka, P., & Kalunda, E. (2013). An empirical analysis of macro-economic influences on corporate capital structure of listed companies in Kenya. *Journal of Finance and Investment Analysis*, *2*(2), 41–62.

Muya, T. W., & Gathogo, G. (2016). Effect of working capital management on the profitability of manufacturing firms in NAKURU town, KENYA. *International Journal of Economics, Commerce and Management*, *4*(4), 1082–1105.

Mwangi, L. W., Makau, M. S., & Kosimbei, G. (2014). Relationship between capital structure and performance of nonfinancial companies listed in the Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, *1*(2), 72–90.

Myers, S. C. (1984). *Capital structure puzzle*. National Bureau of Economic Research Cambridge, Mass., USA.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221.

Myers, S. C. (2001). Capital structure. *Journal of Economic Perspectives*, 15(2), 81-102

Nadeem, M., Waris, M., Asadullah, M., & Kamran, M. (2020). Impact of Working Capital Policies on Firm's Performance, Evidence from Pakistan. *Journal of International Business and Management*, *3*(1), 1–20.

Naimah, Z. (2017). The role of corporate governance in firm performance. *SHS Web of Conferences*, *34*, 1–6.

Nandi, S., & Ghosh, S. (2013). Corporate governance attributes, firm characteristics, and the level of corporate disclosure: Evidence from the Indian listed firms. *Decision Science Letters*, *2*(1), 45–58.

Narsaiah, N. (2020). Does capital structure impact on financial performance: Evidence from India. *Academy of Accounting and Financial Studies Journal*, *24*, 1–20.

Nasimi, A. N. (2016). Effect of capital structure on firm profitability (empirical evidence from London, UK). *Global Journal of Management and Business Research*, *16*(4), 19–29.

Nawaz, A., Ali, R., & Naseem, M. A. (2011). Relationship between capital structure and firms' performance: A case of textile sector in Pakistan. *Global Business and Management Research*, *3*(3/4), 270.

Naz, M. A., Ali, R., Rehman, R. U., & Ntim, C. G. (2022). Corporate governance, working capital management, and firm performance: Some new insights from agency theory. *Managerial and Decision Economics*, *43*(5), 1448–1461.

Nazir, A., Azam, M., & Khalid, M. U. (2021). Debt financing and firm performance: empirical evidence from the Pakistan Stock Exchange. *Asian Journal of Accounting Research*.

Nell, K. S. (2000). *Is low inflation and precondition for faster growth? The case of South Africa*. Department of Economics Discussion Paper.

Neville, C., & Lucey, B. M. (2017). Capital structure and Irish tech SMEs. *SSRN Electronic Journal*. doi:10.2139/ssrn.2910979

Ngatno, Arpitania, E. P., & Youlianto, A. (2021). Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance. *Cogent Business & Management*, *8*(1), 1866822.

Nguema, J.-N. B. B., Bi, G., Akenroye, T. O., & El Baz, J. (2022). The effects of supply chain finance on organizational performance: a moderated and mediated model. *Supply Chain Management: An International Journal*, *27*(1), 113–127.

Nguyen, Q. T. K., & Rugman, A. M. (2015). Internal equity financing and the performance of multinational subsidiaries in emerging economies. *Journal of International Business Studies*, *46*(4), 468–490.

Nguyen, T., Bui, H., Tran, N., & Luong, T. (2024). Impact of supply chain finance on firm performance in Vietnamese enterprises. *Accounting*, *10*(3), 129–138.

Nguyen, T., & Nguyen, H. (2020). Capital structure and firm performance of nonfinancial listed companies: Cross-sector empirical evidence from Vietnam. *Accounting*, *6*(2), 137–150.

Nguyen, T. T., Nguyen, T. D., Dinh, T. T., & Vu, K. L. (2021). THE IMPACT OF CAPITAL STRUCTURE ON BANK PERFORMANCE: GMM ESTIMATION FOR THE CASE OF VIETNAM. *PressAcademia Procedia*, *13*(1), 73–83.

Nirajini, A., & Priya, K. B. (2013). Impact of capital structure on financial performance of the listed trading companies in Sri Lanka. *International Journal of Scientific and Research Publications*, *3*(5), 1–9.

Nitzan, J. (2004). Mergers, stagflation, and the logic of globalization. In *Rethinking Global Political Economy* (Tetreault, pp. 119–156). Routledge.

Nodeh, F. M., Anuar, M. A., Ramakrishnan, S., & Raftnia, A. A. (2016). The effect of board structure on banks financial performance by moderating firm size. *Mediterranean Journal of Social Sciences*, *7*(1), 258.

Noeth, B. J., & Sengupta, R. (2011). Is shadow banking really banking. *Regional Economist*, *19*(4), 8–13.

Norvaisiene, R. (2012). The impact of capital structure on the performance efficiency of Baltic listed companies. *Engineering Economics*, *23*(5), 505–516.

Nurlaela, S., Mursito, B., Kustiyah, E., Istiqomah, I., & Hartono, S. (2019). Asset turnover, capital structure and financial performance consumption industry company in Indonesia stock exchange. *International Journal of Economics and Financial Issues*, *9*(3), 297–301.

OECD. (1999). OECD Principles of Corporate Governance Organisation for Economic Co-Operation and Development Organisation for Economic Co-Operation and Development. *Meeting of the OECD Council at Ministerial Level*, 1 of 46.

OECD Publishing. (2011). Corporate Governance of Listed Companies in China: Self-Assessment by the China Securities Regulatory Commission. In *OECD-China Policy Dialogue on Corporate Governance*. http://dx.doi.org/10.1787/9789264119208-en

Oganda, A. J., Museve, E., & Mogwambo, V. A. (2022). Analysis of Retained Earnings Financing on Financial Performance of Listed Manufacturing and Allied Firms: A Dynamic Panel Approach. *International Journal of Economics, Commerce and Management, United Kingdom*, *X* (2), 37–62.

Okiro, K., Aduda, J., & Omoro, N. (2015). The effect of corporate governance and capital structure on performance of firms listed at the East African Community Securities exchange. *European Scientific Journal*, *11*(7), 504–533.

Okolo, M. N., Okwu, P. I., Ugwuoke, C. J., & Kornom-Gbaraba, M. E. (2019). Implications of Equity Capital Financing on Corporate Financial Performance of Deposit Money Banks in Nigeria. *Research Journal of Finance and Accounting*, *10*(12), 86–93.

Okpara, J. O. (2011). Corporate governance in a developing economy: barriers, issues, and implications for firms. *Corporate Governance: The International Journal of Business in Society*, *11*(2), 184–199.

Olabode, S. O., Olateju, O. I., & Bakare, A. A. (2019). An assessment of the reliability of secondary data in management science research. *International Journal of Business and Management Review*, *7*(3), 27–43.

Olaniyi, T. A., Elelu, M. O., & Abdulsalam, T. S. (2015). Impact of capital structure on corporate performance: A pre and post crisis evaluation of selected companies in US. *International Journal of Accounting Research*, *2*(8), 1–20.

Oliver, R. K., & Webber, M. D. (1982). *Supply Chain Management: Logistics catches up with strategy, Outlook, cit. Christopher, MC (1992), Logistics, The strategic issue*. London: Chapman and Hall.

Olokoyo, F. O., Ibhagui, O. W., & Babajide, A. (2020). Macroeconomic indicators and capital market performance: Are the links sustainable? *Cogent Business & Management*, *7*(1), 1792258.

Olsson, F. (2015). *Alternativa finansieringsmöjligheter av företagsfastigheter*. https://www.diva-portal.org/smash/get/diva2:839664/FULLTEXT01.pdf

Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P. (2022). The Impact of Capital Structure on Firm Performance-Evidence from Large Companies in Hong Kong Stock Exchange. *Open Journal of Business and Management*, *10*(3), 1332–1361.

Omaliko, E., & Okpala, N. (2020). Effect of financing mix on financial performance of health care firms in Nigeria. *International Journal of Banking and Finance Research*, *6*(3), 63–77.

Omondi, M. M., & Muturi, W. (2013). Factors affecting the financial performance of listed companies at the Nairobi Securities Exchange in Kenya. *Research Journal of Finance and Accounting*, *4*(15), 99–104.

Omoshagba, T. P., & Zubairu, U. M. (2018). A Systematic Review of the Field of Debt Financing. *Covenant Journal of Entrepreneurship*, *1*(3), 34–49.

Omukaga, K. O. (2017). Effect of capital structure on financial performance of firms in the commercial and service sector in the Nairobi securities exchange for the period 2012-2016. United States International University-Africa.

Onaolapo, A. A., & Kajola, S. O. (2010). Capital structure and firm performance: evidence from Nigeria. *European Journal of Economics, Finance and Administrative Sciences*, *25*(1), 70–82.

Oncioiu, I., Petrescu, A.-G., Bîlcan, F.-R., Petrescu, M., Popescu, D.-M., & Anghel, E. (2020). Corporate sustainability reporting and financial performance. *Sustainability*, *12*(10), 4297.

Önel, Y. C., & Gansuwan, P. (2012). The Influence of Capital Structure on Firm Performance: A quantitative study of Swedish listed firms.

Ongeri, G. M. (2014). *The effect of macroeconomic variables on the financial performance of non-bank financial institutions in Kenya*. University Of Nairobi.

Orji, A., EO, N., & Agubata, N. (2021). Effect of debt financing on firms' performance in Nigeria. *Journal of Accounting and Financial Management*, *7*(3), 60–72.

OuA, E., OuA, I., & Lompo, E. (2020). Political instability and firm performance: A microeconomic evidence from Ivory Coast. *American Journal of Economics and Business Administration*, *12*(1), 49–55.

Owolabi, B. A. (2017). Economic characteristics and financial performance of selected manufacturing companies in Nigeria. *Babcock University, Ilishan-Remo, Ogun State, Nigeria*, 1–112.

Owolabi, O. A., Kolawole, A. D., Ogungbade, O. I., & Adekoya, A. C. (2021). EQUITY FINANCING OPTIONS AND FINANCIAL PERFORMANCE OF LISTED MANUFACTURING FIRMS IN NIGERIA. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *18*(7), 1730–1741.

Oztekin, O. (2015). Capital structure decisions around the world: which factors are reliably important? *Journal of Financial and Quantitative Analysis*, *50*(3), 301–323.

P, Sreelakshmi, N. (2020). The Impact of Shadow Banks on the Commercial Bank Lending in India with Reference to the Housing Finance Sector. *International Journal of Recent Technology and Engineering (IJRTE)*, *8*(6), 51–58. https://doi.org/10.35940/ijrte.f7133.038620

Page, F. H., & Wooders, M. (2020). Networks and Stability. Complex Social and Behavioral Systems: Game Theory and Agent-Based Models, 609–638.

Pagell, M. (2004). Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics. *Journal of Operations Management*, *22*(5), 459–487.

Pallant, J. (2011). *SPSS Survival Manual 4th edition: A step by step guide to data analysis using SPSS version 18*. Maidenhead, Berkshire: Open University Press.

Pan, A., Xu, L., Li, B., & Ling, R. (2020). The impact of supply chain finance on firm cash holdings: Evidence from China. *Pacific-Basin Finance Journal*, *63*, 101402.

Pan, A., Xu, L., Li, B., Ling, R., & Zheng, L. (2022). The impact of supply chain finance on firm capital structure adjustment: Evidence from China. *Australian Journal of Management*, 03128962221092179.

Panda, A. K., & Nanda, S. (2018). Working capital financing and corporate profitability of Indian manufacturing firms. *Management Decision*, *56*(2), 441–457.

Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of theory and evidence on problems and perspectives. *Indian Journal of Corporate Governance*, *10*(1), 74–95.

Pandey, I. M. (2004). *Financial management 9th edition, Indian institute of management, ahmedabad* (9th ed.). Vikas Publishing. House P. VT. LTD.

Pandey, I. M. (2009). *Essentials Of Financial Management, 1E*. Vikas publishing house PVT ltd.

Pandey, K. D., & Sahu, T. N. (2019). Debt financing, agency cost and firm performance: Evidence from India. *Vision*, *23*(3), 267–274.

Park, H. M. (2011). Practical guides to panel data modeling: a step-by-step analysis using stata. *Public Management and Policy Analysis Program, Graduate School of International Relations, International University of Japan*, *12*, 1–52.

Park, J. M., Lee, H. Y., Park, S. H., & Han, I. (2020). Value relevance of accounts receivable factoring and its impact on financing strategy under the K-IFRS after COVID-19 from the perspective of accounting big data. *Sustainability*, *12*(24), 10287.

Parvin, S. S., Hossain, B., Mohiuddin, M., & Cao, Q. (2020). Capital structure, financial performance, and sustainability of micro-finance institutions (MFIs) in Bangladesh. Sustainability, 12 (15), 6222. *Sustainability*, *12*(15), 6222.

Paseda, O., & Obademi, O. (2020). Macroeconomic variables and their effects on the capital structure of quoted Nigerian firms. *Finance and Banking Review*, *14*(1), 31–51.

Patjoshi, P. K. (2020). Impact of Capital Structure on Corporate Performance of Software Companies in India. *Indian Journal of Natural Sciences*, *10*(60), 23496–23502.

Peavler, R. (2014). Profitability ratio analysis. *Retrieved June 6*, 2016. http://bizfinance.about.com/od/financialratios/a/Profitability_Ratios.htm

PeiZhi, W., & Ramzan, M. (2020). Do corporate governance structure and capital structure matter for the performance of the firms? An empirical testing with the contemplation of outliers. *PLoS One*, *15*(2), e0229157.

Pendery, D., (2009). Three top economists agree 2009 worst financial crisis since great depression; risks increase if right steps are not taken. Business Wire News. [Online] [Accessed on 2nd April 2022] http://www.businesswire.com/news/home/20090213005161/en/Top-EconomistsAgree-2009-Worst-Financial-Crisis

Pervan, M., & Visic, J. (2012). Influence of firm size on its business success. *Croatian Operational Research Review*, *3*(1), 213–223.

Peterson, W. C. (1980). Stagflation and the crisis of Capitalism. Review of Social Economy, 38(3), 277-287.

Peterson, W., Gijsbers, G., & Wilks, M. (2003). An organizational performance assessment system for agricultural research organizations: concepts, methods, and procedures.

Pfohl, H.-C., & Gomm, M. (2009). Supply chain finance: optimizing financial flows in supply chains. *Logistics Research*, *1*(3), 149–161.

PHAM, C. D. (2020). The effect of capital structure on financial performance of Vietnamese listing pharmaceutical enterprises. *The Journal of Asian Finance, Economics and Business*, *7*(9), 329–340.

Pham, C. D., Tran, Q. X., & Nguyen, L. T. N. (2018). Effects of internal factors on financial performance of listed construction-material companies: The Case of Vietnam. *Research Journal of Finance and Accounting*, *9*(10).

Pham, H. S. T., & Nguyen, D. T. (2020). Debt financing and firm performance: The moderating role of board independence. *Journal of General Management*, *45*(3), 141–151.

Phan, Q. T. (2018). Corporate debt and investment with financial constraints: Vietnamese listed firms. *Research in International Business and Finance*, *46*, 268–280.

Phan, T. T. H., Tran, H. X., Le, T. T., Nguyen, N., Pervan, S., & Tran, M. D. (2020). The relationship between sustainable development practices and financial performance: A case study of textile firms in Vietnam. *Sustainability*, *12*(15), 5930.

Pieloch-Babiarz, A., Misztal, A., & Kowalska, M. (2021). An impact of macroeconomic stabilization on the sustainable development of manufacturing enterprises: the case of Central and Eastern European Countries. *Environment, Development and Sustainability*, *23*(6), 8669–8698.

Pillai, R., & Al-Malkawi, H.-A. N. (2018). On the relationship between corporate governance and firm performance: Evidence from GCC countries. *Research in International Business and Finance*, *44*, 394–410.

Platform, M. (2018). *The contribution of companies to the SDGs*. https://media.business-humanrights.org/media/documents/files/Companies-contribution-to-the-SDGs.pdf

Poeschl, J. (2023). The macroeconomic effects of shadow banking panics. *The BE Journal of Macroeconomics*.

Poncet, S., Steingress, W., & Vandenbussche, H. (2010). Financial constraints in China: Firm-level evidence. *China Economic Review*, *21*(3), 411–422.

Pons-Sanz, V., Zuta, S., Ofer, A. R., Ravid, S. A., & Venezia, I. (2004). When are preferred shares preferred? Theory and empirical evidence. In *Working Paper No. 03-19*. Yale University. http://ssrn.com/abstract=286782

Porter, D. C., & Gujarati, D. N. (2009). *Basic econometrics* (Fifth, Ed.). The McGraw- Hill Companies, Inc.

Pouraghajan, A., & Emamgholipourarchi, M. (2012). Impact of working capital management on profitability and market evaluation: Evidence from Tehran Stock Exchange. *International Journal of Business and Social Science*, *3*(10), 311–318.

Pouraghajan, A., Malekian, E., Emamgholipour, M., Lotfollahpour, V., & Bagheri, M. M. (2012). The relationship between capital structure and firm performance evaluation measures: Evidence from the Tehran Stock Exchange. *International Journal of Business and Commerce*, *1*(9), 166–181.

Pouralireza, K., Baradaran, R., Badavar Nahandi, Y., & Zeynali, M. (2017). A Pattern for Financial Constraint in Iranian Firms. *Financial Research Journal*, *19*(3), 365–388.

Poursoleiman, E., Mansourfar, G., & Abidin, S. (2020). Financial leverage, debt maturity, future financing constraints and future investment. *International Journal of Islamic and Middle Eastern Finance and Management*, *13*(4), 613–634.

Pozsar, Zoltan, T. Adrian, A. Ashcraft, and H. Boesky. 2010. "Shadow Banking." Staff Report No. 458. Federal Reserve Bank of New York. Reterived from http://dx.doi.org/10.2139/ssrn.1645337

Preve, L., & Sarria-Allende, V. (2010). *Working Capital Management*. Oxford University Press.

Prudhvi, S., & Bhattacharya, M. (2020). SHADOW BANKING IN INDIA. *Corporate Governance and Sustainability Review*, *4*(2), 30–39.

Puni, A., & Anlesinya, A. (2020). Corporate governance mechanisms and firm performance in a developing country. *International Journal of Law and Management*, *62*(2), 147–169.

PWC. (2016). Debt versus equity. *Balance Sheet Structures*, 1–20. https://doi.org/10.1016/b978-1-85573-247-6.50007-x

Qian, X.S., Xie, X.F., & Du, L. (2017). Financial development, shadow banking regional mobility and back-feeding effect—evidence from entrusted loans in China. China Industrial Economics (Chinese), 6(6), 60-78. Retrieved from https://doi.org/10.19581/j.cnki.ciejournal.2017.06.018

Qian, X.S., Yuan, M.T., & Kong, D.M. (2013). Does equity link influence inter-enterprise credit price? Based on empirical analysis of entrusted loan data of listed companies in China. Journal of Financial Research (Chinese), 9(9), 165-179. Retrieved from https://xueshu.baidu.com/usercenter/paper/show?paperid=f9b1058e360d41a31e73bcc803ccdf1a&site=xueshu

Qu, W., Wongchoti, U., Wu, F., & Chen, Y. (2018). Does information asymmetry lead to higher debt financing? Evidence from China during the NTS Reform period. *Journal of Asian Business and Economic Studies*, *25*(1), 109–121.

Quader, S. M. (2013). *Corporate efficiency, financial constraints, and the role of internal finance: A study of capital market imperfection*. University of Sheffield, UK.

Rafique, M. (2011). Effect of profitability & financial leverage on capital structure: A case of Pakistan's automobile industry. *Journal of Economics Review*, *1*(4), 50–58.

Raghavan, N. R. S., & Mishra, V. K. (2011). Short-term financing in a cash-constrained supply chain. *International Journal of Production Economics*, *134*(2), 407–412.

Rahdari, A. H., & Rostamy, A. A. A. (2015). Designing a general set of sustainability indicators at the corporate level. *Journal of Cleaner Production*, *108*, 757–771.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, *50*(5), 1421–1460.

Rajon, M., Uddin, N., & Ibrahim, M. (2020). Does Capital Structure Affect the Profitability of Listed Family and Non-Family Firms? Evidence from Bangladesh. *International Journal of Business, Economics and Management*, *7*(3), 131–145.

Ramadan, I. Z. (2016). EVA and the impact of the macroeconomic variables: Evidence from the Jordanian manufacturing companies. *Asian Journal of Finance & Accounting*, *8*(1), 13–22.

Ramli, N. A., Latan, H., & Solovida, G. T. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review of Economics and Finance*, *71*, 148–160.

Rao, K. S., & Madhav, V. V. (2015). Capital Structure Strategies and Its Effect on Sustainable Corporate Growth-A Study on Dr. Reddy's Laboratories. *Asian Journal of Management*, *6*(2), 101–109.

Rashid, A., & Jabeen, N. (2018). Financial frictions and the cash flow–external financing sensitivity: evidence from a panel of Pakistani firms. *Financial Innovation*, *4*(1), 1–20.

Rashid, H. A., & Bilal, A. R. (2020). Role of Capital structure in financial performance of nonfinancial sector firms: Evidence from Pakistan Stock Exchange. *Global Economics Review*, *5*(2), 1–16.

Rauf, S. (2019). Shanghai Cooperation Organization (SCO): Opportunities for Pakistan. *NUST Journal of International Peace and Stability (NJIPS)*, *2*(1).

Raza, M. W. (2013). *Effect of financial leverage on firm performance. Empirical evidence from Karachi Stock Exchange.*

Rehman, M. A., Khurshid, M. K., & Campus, F. (2016). A review of impact of trade credit on firm's profitability: A study of nonfinancial firms in Pakistan. *Journal of Poverty, Investment and Development*, *25*, 33–36.

Rehman, Z. ur. (2016). Impact of macroeconomic variables on capital structure choice: a case of textile industry of Pakistan. *The Pakistan Development Review*, *55*(3), 227–239.

Ren, T., Liu, N., Yang, H., Xiao, Y., & Hu, Y. (2019). Working capital management and firm performance in China. *Asian Review of Accounting*, *27*(4), 546–562.

Rezaeinejad, I., Peyma, S. Z., & Zhen, D. (2023). International economic policy of Iran, Pakistan and Kazakhstan within China" Belt and Road" initiative. *E3S Web of Conferences*, *381*, 2029.

Riaz, F., Bhatti, K. K., & Din, S. (2014). Macroeconomic conditions and firm's choices of capital structure: Evidence from Pakistan's manufacturing sectors. *Middle East Journal of Scientific Research*, *19*(4), 521–531.

Roberts, M. R., & Leary, M. T. (2004). Do firms rebalance their capital structures? *Econometric Society 2004 North American Summer Meetings*, *52*.

Rokhmawati, A. (2017). Do Financial Constraints Moderate the Impact of Financing Decisions from Internal-financing Sources on Investment. *Jurnal Keuangan Dan Perbankan*, *21*(3), 331–343.

Ronoh, C., & Ntoiti, J. (2015). Effect of capital structure on financial performance of listed commercial banks in Kenya. A case study of Kenya commercial bank limited. *The Strategic Journal of Business and Change Management*, *2*(72), 750–781.

Ronoowah, R. K., & Seetanah, B. (2023a). Corporate governance, capital structure, and firm performance: a panel VAR approach. *SN Business & Economics*, *3*(1), 1–30.

Ronoowah, R. K., & Seetanah, B. (2023b). The moderating and mediating effects of corporate governance and capital structure on firm performance: empirical evidence from an emerging market. *Managerial Finance*.

Ross, S. A., Jaffe, J., & Kakani, R. K. (2013). *Corporate Finance, 10e*. McGraw-Hill Education.

Ross, S. A., Westerfield, R., & Jordan, B. D. (2014). *Fundamentals of corporate finance*. Irwin New York, NY, USA.

Rotemberg, J. J. (1996). Prices, output, and hours: An empirical analysis based on a sticky price model. *Journal of Monetary Economics*, *37*(3), 505–533.

Rowden, R. (2018). The rise and rise of the Shanghai Cooperation Organisation. *Sheffield Political Economy Research Institute, Brief*, *11*, 6.

Saad, R. M., Ghani, M., Ahmad, S., & Salim, S. (2014). Effects of equity and debt financing on SME performance in Malaysia. *International SME Conference*.

Sabin, D., & Miras, H. (2015). Debt level and firm performance: A study on low-cap firms listed on the Kuala Lumpur stock exchange. *International Journal of Accounting, Business and Management*, *1*(1), 1–17.

Sadeghian, N. S., Latifi, M. M., Soroush, S., & Aghabagher, Z. T. (2012). Debt policy and corporate performance: empirical evidence from Tehran Stock Exchange companies. *International Journal of Economics and Finance*, *4*(11), 217–224.

Saeedi, A., & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance and Economics*, *70*(1), 20–29.

Saleem, A., & Hashmi, A. M. (2022). Multiple Debt Finances and GRI Sustainability: Firm Level Evidence from the Diplomatic Developing Ties. *Journal of Finance & Economics Research*, *7*(2), 33–50.

Salehi, H. (2015). *The history of stagflation: A review of Iranian stagflation*.

Salehi, M., & Arianpoor, A. (2021). The relationship among financial and nonfinancial aspects of business sustainability performance: evidence from Iranian panel data. *The TQM Journal*.

Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences*, *65*, 156–166.

Salteh, H. M., Ghanavati, E., Khanqah, V. T., & Khosroshahi, M. A. (2012). Capital structure and firm performance; Evidence from Tehran Stock Exchange. *International Proceedings of Economics Development & Research*, *43*(1), 225–230.

Samiloglu, F., & Demirgunes, K. (2008). The effect of working capital management on firm profitability: Evidence from Turkey. *The International Journal of Applied Economics and Finance*, *2*(1), 44–50.

Samour, S., & Hassan, L. (2016). *Capital Structure and Firm Performance: Did the Financial Crisis Matter? A cross-industry study*.

Samuelson, Paul A. (1974). World wide stagflation. (pp. 801-7). Cambridge, MA: MIT Press.

Sapta, I. K. S., Sudja, I. N., Landra, I. N., & Rustiarini, N. W. (2021). Sustainability performance of organization: mediating role of knowledge management. *Economies*, *9*(3), 97.

Saputra, T., Achsani, N. A., & Anggraeni, L. (2015). The effect of capital structure on firm performance: Empirical evidence from the Indonesian financial industry. *International Journal of Business and Management Invention*, *4*(8), 57–66.

Sarvajayakesavalu, S. (2015). Addressing challenges of developing countries in implementing five priorities for sustainable development goals. *Ecosystem Health and Sustainability*, *1*(7), 1–4.

Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. *Organization & Environment*, *29*(1), 3–10.

Schaltegger, S., & Wagner, M. (2006). Integrative management of sustainability performance, measurement, and reporting. *International Journal of Accounting, Auditing and Performance Evaluation*, *3*(1), 1–19.

Schmidheiny, K. (2015). Short guides to microeconometrics. *Panel Data: Fixed and Random Effects*, *2*. https://www.schmidheiny.name/teaching/panel2up.pdf

Schwarcz, S. L. (2012). Regulating Shadow Banking: Inaugural Address for the Inaugural Symposium of the Review of Banking and Financial Law, Shadow Banking Symposium. *Journal of Review of Banking & Financial Law*, *31*(1), 30–40.

Schwarcz, S. L. (2015). The governance structure of shadow banking: rethinking assumptions about limited liability. *Journal of Financial Perspectives*, *3*(1).

Schworm, W. E. (1980). Financial constraints and capital accumulation. *International Economic Review*, *21*(3), 643–660.

Seckanovic, E. (2021). *The impact of capital structure on firm performance: evidence from British high-tech firms*. University of Twente.

SECP (2002). Code of Corporate Governance. Security and Exchange Commission of Pakistan. Available at: https://www.secp.gov.pk/document/code-of-corporate-governance-2002/

Seetanah, B., Seetah, K., Appadu, K., & Padachi, K. (2014). Capital structure and firm performance: evidence from an emerging economy. *The Business & Management Review*, *4*(4), 185.

Serrasqueiro, Z., Nunes, P. M., & da Rocha Armada, M. (2016). Capital structure decisions: old issues, new insights from high-tech small-and medium-sized enterprises. *The European Journal of Finance*, *22*(1), 59–79.

Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, *16*(15), 1699–1710.

Shahzad, S. J. H., Ali, P., Ahmad, T., & Ali, S. (2015). Financial leverage and corporate performance: Do financial crisis owe an explanation? *Pakistan Journal of Statistics and Operation Research*, *11*(1), 67–90.

Shaik, A. (2021). Significance of supply chain finance: insights from Saudi Arabia. *Uncertain Supply Chain Management*, *9*(3), 539–548.

Shamil, M. M. M., Shaikh, J. M., Ho, P.-L., & Krishnan, A. (2012). The Relationship between Corporate Sustainability and Corporate Financial Performance: A Conceptual Review. *Proceedings of USM-AUT International Conference 2012 Sustainable Economic Development: Policies and Strategies*, *167*, 401.

Shan, H., & Gong, G. (2017). The impact of ownership structure on firm performance: static and dynamic panel data evidence from China's listed companies. *2016 National Convention on Sports Science of China*, 1–5. https://doi.org/10.1051/ncssc/201701017%0D%0A

Shao, L. (2019). Dynamic study of corporate governance structure and firm performance in China: Evidence from 2001-2015. *Chinese Management Studies*, *13*(2), 299–317.

Sharpe, S. A. (2002). Reexamining stock valuation and inflation: The implications of analysts' earnings forecasts. *Review of Economics and Statistics*, *84*(4), 632–648.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, *56*(10), 2213–2230.

Shi, Y., Zhu, C., & Yang, T. (2016). Determinants of accounts receivable: Evidence from equipment manufacturing industry in China. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics*, *2*(1), 470–476.

Shikumo, D. H. (2021). Effect of Share Capital on Financial Growth of Nonfinancial Firms Listed at the Nairobi Securities Exchange. *African Development Finance Journal*, *5*(2), 25–44.

Shim, J. K., Qureshi, A. A., Siegel, J. G., & Siegel, R. M. (2013). *The international handbook of electronic commerce*. Routledge. https://books.google.com.pk/books?hl5en&lr5&id5 RiAuAgAAQBAJ&oi5fnd&pg5PP1&dq5Siegel, þM.þR., þ%26þShim, þJ. þ (2013). þTheþ InternationalþHandbookþofþElectronicþCommerce.þRoutledge. &ots5L962PE2uQ9&sig5_ kYP5djxDVC40GM_6v-TN8bLkng&redir_esc5y#v5onepage&q5Siegel

Shin, H.-H., & Soenen, H. L. (1998). Efficiency of working capital and corporate profitability. *Financial Practice and Education*, *8*(2), 37–45.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, *52*(2), 737–783.

Shou, Y., Shao, J., & Wang, W. (2021). How does reverse factoring affect operating performance? An event study of Chinese manufacturing firms. *International Journal of Operations & Production Management*, *41*(4), 289–312.

Shrivastava, P., & Addas, A. (2014). The impact of corporate governance on sustainability performance. *Journal of Sustainable Finance & Investment*, *4*(1), 21–37.

Shrotriya, V. (2019). Internal sources of finance for business organizations. *International Journal of Research and Analytical Reviews (IJRAR)*, *6*(2), 933–940.

Shubita, M. F., & Alsawalhah, J. M. (2012). The relationship between capital structure and profitability. *International Journal of Business and Social Science*, *3*(16), 104–112.

Si, D.-K., & Li, X.-L. (2022). Shadow banking business and firm risk-taking: Evidence from China. *Research in International Business and Finance*, *62*, 101729.

Simajuntak, E. T. (2022). The Effect of Dividend Policy And Macroeconomics On Stock Prices:(Empirical Study on Basic and Chemical Industry Sector Companies Listed on the Indonesia Stock Exchange 2016-2020 Period). *Journal of Management, Accounting, General Finance and International Economic Issues*, *1*(4), 79–90.

Siminica, M., Berceanu, D., & Circiumaru, D. (2008). The performances of industrial firms from Romania. Correlation dimension–indicators of results. *Financial Innovation and Competition in European Union*, *12*(517 Supplement), 71–78.

Simon–Oke, O. O., & Afolabi, B. (2011). Capital structure and industrial performance in Nigeria (1999-2007). *International Business and Management*, *2*(1), 100–106.

Singh, A., Lucas, A. F., Dalpatadu, R. J., & Murphy, D. J. (2013). Casino games and the central limit theorem. *UNLV Gaming Research & Review Journal*, *17*(2), 4.

Singh, N. P., & Bagga, M. (2019). The effect of capital structure on profitability: An empirical panel data study. *Jindal Journal of Business Research*, *8*(1), 65–77.

Sisman, F. A., Yozgat, U., Abunaz, E., & Ozarslan, T. (2015). Importance of transparency on sustainable success orientation. *Research Journal of Business and Management*, *2*(3), 366–379.

Sitanggang, J. P. (2013). Manajemen keuangan perusahaan lanjutan. *Jakarta: Mitra Wacana Media*. https://www.mitrawacanamedia.com/manajemen-keuangan-perusahaan-lanjutan

Sluga, G. (2017). “Who Hold the Balance of the World?” Bankers at the Congress of Vienna, and in International History. *The American Historical Review*, *122*(5), 1403–1430.

Smith, C. (1977). Substitute methods for raising additional capital: rights offerings versus underwritten issues. *Journal of Financial Economics*, *5*(3), 273–307.

Sobhani, F. A., Amran, A., & Zainuddin, Y. (2012). Sustainability disclosure in annual reports and websites: a study of the banking industry in Bangladesh. *Journal of Cleaner Production*, *23*(1), 75–85.

Sohn, L. B. (1973). The Stockholm Declaration on the Human Environment. *Harvard International Law Journal*, *14*(3), 423–515.

Soley-Bori, M. (2013). Dealing with missing data: Key assumptions and methods for applied analysis. *Boston University*, *4*(1), 1–19.

Solomon, E. (1963). *THE THEORY OF FINANCIAL MANAGEMENT*.

Song, H., Yu, K., & Lu, Q. (2018). Financial service providers and banks’ role in helping SMEs to access finance. *International Journal of Physical Distribution & Logistics Management*, *48*(1), 69–92.

Soukhakian, I., & Khodakarami, M. (2019). Working capital management, firm performance, and macroeconomic factors: Evidence from Iran. *Cogent Business & Management*, *6*(1), 1684227.

Spitsin, V., Vukovic, D., Anokhin, S., & Spitsina, L. (2021). Company performance and optimal capital structure: evidence of transition economy (Russia). *Journal of Economic Studies*, *48*(2), 313–332.

Spring, J. (2014). *China’s shadow banking sector growing rapidly, third largest in world*. Reuter. https://www.reuters.com/article/china-economy-shadowbanking-idUKL4N0SQ1F620141031

Srivastava, N. (2017). Measuring leverage of Indian companies: an empirical analysis (A study of cement industry in India). *International Journal of Research in Management*, *7*(10), 95–98.

Stanciu, A.-C., Constandache, M., & Condrea, E. (2014). Concerns about the sustainable performance of firm in the context of quality management systems implementation. *Procedia-Social and Behavioral Sciences*, *131*, 340–344.

Stemmler, L. (2002). Supply chain finance: Eine notwendige Erweiterung der Lieferkettensteuerung. *Wissenschaftssymposium Logistik Der BVL*, *1*(1), 113–124.

Stikkelman, C. (2010). *The effect of financial constraints on the firm’s value of nonfinancial publicly traded companies in France*. Amsterdam School of Economics.

Stock, J.H. and Watson, M. W. (2007). *Introduction To Econometrics*. Pearson Addison Wesley, Boston.

Stoiljkovic, A., Tomić, S., Leković, B., Uzelac, O., & Ćurčić, N. V. (2024). The Impact of Capital Structure on the Performance of Serbian Manufacturing Companies: Application of Agency Cost Theory. *Sustainability*, *16*(2), 869.

Studenmund, H. and Cassidy, H. J. (1997). *Using econometrics: A practical guide.* (Sixth). © Pearson Education Limited 2014.

Sudharika, W., De Silva, R. M., Madhusankha, G. T., Madhushanka, K. Y. V, & Siriwardhana, L. L. (2018). *The impact of capital structure on firms’ performance: Evidence from companies listed in the Hotels and Travels Sector of Colombo Stock Exchange*.

Sunderam, A. (2015). Money creation and the shadow banking system. *The Review of Financial Studies*, *28*(4), 939–977.

Supriyanto, S., Alexandri, M., Kostini, N., & Dai, R. (2023). The effect of macroeconomics and supply chain finance (SCF) on profitability: Evidence from manufacturing companies. *Uncertain Supply Chain Management*, *11*(1), 331–338.

Székely, F., & Knirsch, M. (2005). Responsible leadership and corporate social responsibility: Metrics for sustainable performance. *European Management Journal*, *23*(6), 628–647.

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *International Journal of Academic Research in Management (IJARM)*, *5*(2), 18–27. https://hal.science/hal-02546796

Talbot, D., & Boiral, O. (2018). GHG reporting and impression management: An assessment of sustainability reports from the energy sector. *Journal of Business Ethics*, *147*(2), 367–383.

Tan, K.-C., Kannan, V. R., & Handfield, R. B. (1998). Supply chain management: supplier performance and firm performance. *International Journal of Purchasing & Materials Management*, *34*(3).

Tan, Y. (2017). The impacts of competition and shadow banking on profitability: Evidence from the Chinese banking industry. *The North American Journal of Economics and Finance*, *42*, 89–106.

Tang, J., & Wang, Y. (2016). Effects of Shadow Banking on Return: An Empirical Study Based on Chinese Commercial Banks. *International Journal of Financial Research*, *7*(1), 207–218.

Tanko, U. M., Siyanbola, A. A., Bako, P. M., & Dotun, O. V. (2021). Capital structure and firm financial performance: Moderating effect of board financial literacy in Nigerian listed nonfinancial companies. *Journal of Accounting Research, Organization and Economics*, *4*(1), 48–66.

Tanrisever, F., Cetinay, H., Reindorp, M., & Fransoo, J. C. (2015). Value of reverse factoring in multi-stage supply chains. *Available at SSRN 2183991*. https://ssrn.com/abstract=2183991

Taouab, O., & Issor, Z. (2019). *Firm performance: definition and measurement models. European Scientific Journal, 15 (1), 93-106*. Doi.

Tarchouna, A., Jarraya, B., & Bouri, A. (2017). How to explain non-performing loans by many corporate governance variables simultaneously? A corporate governance index is built to US commercial banks. *Research in International Business and Finance*, *42*, 645–657.

Tarquinio, L., Raucci, D., & Benedetti, R. (2018). An investigation of global reporting initiative performance indicators in corporate sustainability reports: Greek, Italian and Spanish evidence. *Sustainability*, *10*(4), 897.

Tauringana, V. (2020). Sustainability reporting challenges in developing countries: towards management perceptions research evidence-based practices. *Journal of Accounting in Emerging Economies*.

Tawfik, O. I., Kamar, S. H., & Bilal, Z. O. (2021). The effect of sustainable dimensions on the financial performance of commercial banks: A comparative study in emerging markets. *The Journal of Asian Finance, Economics and Business*, *8*(3), 1121–1133.

Tehrani, R., & Najafzadeh Khoi, S. (2017). Investigating the impact of inflation uncertainty on the capital structure of firms listed in Tehran stock exchange. *Financial Economics*, *11*(38), 1–20.

Tehrani, R., & Rahnama, R. (2010). *Financial Analysis* (1st ed.). Negah-e Danesh Press.

Tesema, T. N. (2024). The effect of capital structure on performance: empirical evidence from manufacturing companies in Ethiopia. *Cogent Economics & Finance*, *12*(1), 2300926.

Thadewald, T., & Büning, H. (2007). Jarque–Bera test and its competitors for testing normality–a power comparison. *Journal of Applied Statistics*, *34*(1), 87–105.

Thirumalaisamy, R. (2013). Firm growth and retained earnings behavior–A Study on Indian firms. *European Journal of Business and Management*, *5*(27), 40–57.

Tian, X., Tu, G., & Wang, Y. (2024). The real effects of shadow banking: evidence from China. *Management Science*, *70*(3), 1–27.

Tifow, A. A., & Sayilir, O. (2015). Capital structure and firm performance: An analysis of manufacturing firms in Turkey. *Eurasian Journal of Business and Management*, *3*(4), 13–22.

Titman, S., Keown, A. J., & Martin, J. D. (2011). Financial management: Principles and applications. In *Boston: Prentice Hall* (11th ed.).

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, *43*(1), 1–19.

Tiwari, A. K., Mohnen, P., Palm, F. C., & van der Loeff, S. S. (2010). Financial constraints, capital structure and innovation: An empirical investigation. *Artículo Presentado En El Financial Constraints Seminar, Nueva Delhi. Recuperado de Http://Www. Isid. Ac. in/~ Pu/Seminar/09_04_2010_Paper. Pdf*. https://www.isid.ac.in/~pu/seminar/09_04_2010_Paper.pdf

Tomusange, R. L. (2015). *Factoring as a financing alternative for African small and medium-sized enterprises*. Walden University.

Torres-Reyna, O. (2007). Panel data analysis fixed and random effects using Stata (v. 4.2). *Data & Statistical Services, Priceton University*, *112*, 49. https://www.princeton.edu/~otorres/Panel101.pdf

Tretiakova, V. V, Shalneva, M. S., & Lvov, A. S. (2021). The relationship between capital structure and financial performance of the company. *SHS Web of Conferences*, *91*, 1002.

Tulcanaza-Prieto, A. B., Lee, Y., & Anzules-Falcones, W. (2024). The Moderating Role of Corporate Governance in the Relationship between Leverage and Firm Value: Evidence from the Korean Market. *Risks*, *12*(1), 11.

Tuovila, A. (2020). Depreciation definition. Retrieved from https://www.investopedia.com/terms/d/depreciation.asp

Turvey, P. (2017). A brief history of online debt financing. In Small business.co.uk. Retrieved from http://smallbusiness.co.uk/brief-history-online-debt-finance-2538280/

U Misra, N. I. (2020). India's GDP Contracts by 23.9% in April-June Quarter. The Indian Express . Retrieved December 9, 2020, from https://indianexpress.com/article/business/economy/india-gdp-data-1st-quarter-live-updates-coronavirus-lockdown-6577361/

Udeh, S. N., Nwude, E. C., ITIRI, I. O., & AGBADUA, B. O. (2016). The impact of debt structure on firm performance: Empirical evidence from Nigerian quoted firms. *Asian Economic and Financial Review*, *6*(11), 647–660.

Ugwueze, A., Lucy, U., & Nwachukwu, C. (2019). Relevance of Firms 'retained Earnings on Operational Performance of Healthcare Industry in Nigeria. *Journal of Accounting Information and Innovation*, *5*(3), 20–30.

Ullah, H., Abbas, A., & Iqbal, N. (2015). Impact of capital structure on profitability in the manufacturing and non-manufacturing industries of Pakistan. *International Letters of Social and Humanistic Sciences*, *59*, 28–39.

Ullah, M., Afgan, N., & Afridi, S. A. (2019). Effects of corporate governance on capital structure and financial performance: Empirical evidence from listed cement corporations in Pakistan. *Global Social Sciences Review*, *4*(3), 273–283.

Ullah, S., Siddiqui, A. F., & Tashfeen, R. (2017). Corporate leverage: structural equations framework in an emerging economy. *Managerial Finance*, *43*(11), 1224–1235.

Upneja, A., & Dalbor, M. C. (2001). An examination of capital structure in the restaurant industry. *International Journal of Contemporary Hospitality Management*.

Zia ur Rahman, S., Iqbal, K., & Nadeem, A. (2019). Effect of working capital management on firm performance: the role of ownership structure. *Global Social Sciences Review*, *4*(1), 108–119.

Uremadu, S. O., & Efobi, R. U. (2012). The impact of capital structure and liquidity on corporate returns in Nigeria: Evidence from manufacturing firms. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *2*(3), 1–16.

Uwalomwa, U., & Uadiale, O. M. (2012). An empirical examination of the relationship between capital structure and the financial performance of firms in Nigeria. *EuroEconomica*, *31*(1), 57–65.

Uwuigbe, U. (2014). Corporate governance and capital structure: evidence from listed firms in Nigeria Stock Exchange. *The Journal of Accounting and Management*, *4*(1).

van der Vliet, K. (2015). *Concepts and trade-offs in supply chain finance*.

van Horne, J. C., & Wachowicz, J. M. (2001). *Fundamentals of financial management* (11th ed.). Pearson Educación.

Vatavu, S. (2015). The impact of capital structure on financial performance in Romanian listed companies. *Procedia Economics and Finance*, *32*, 1314–1322.

Verboncu, I., & Zalman, M. (2005). *Management şi performanţe*. Editura Universitară.

Viet, T. Q., Ngoc, L. B., Anh, T. H., Thong, P. H., & Scott, W. (2020). Study on relationship between retained earnings and firm performance: Evidence from Vietnam. *Pan-Pacific Journal of Business Research*, *11*(1), 54–63.

Vijayakumaran, R. (2017). Capital structure decisions and corporate performance: Evidence from Chinese listed industrial firms. *International Journal of Accounting and Financial Reporting*.

Vijayakumaran, S., & Vijayakumaran, R. (2019). Corporate governance and capital structure decisions: Evidence from Chinese listed companies. *Journal of Asian Finance, Economics and Business*, *6*(3), 67–79.

Vithessonthi, C., & Tongurai, J. (2015). The effect of leverage on performance: Domestically oriented versus internationally oriented firms. *Research in International Business and Finance*, *34*, 265–280.

Vo, X. V., & Ellis, C. (2017). An empirical investigation of capital structure and firm value in Vietnam. *Finance Research Letters*, *22*, 90–94.

Vousinas, G. (2019). Supply chain finance: definition, modern aspects, and research challenges ahead. *W. Tate, L. Bals, & L. Ellramn, Supply Chain Finance Risk Management, Resilience and Supplier Management*, 63–95.

Vu, T., Nguyen, D., Luong, T., Nguyen, T., & Doan, T. (2022). The impact of supply chain financing on SMEs performance in Global supply chain. *Uncertain Supply Chain Management*, *10*(1), 255–270.

Wambua, M. F. (2019). *Effect Of Debt Financing on Financial Performance Among Firms Listed at Nairobi Securities Exchange*. University of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/108691/Wambua_Effect Of Debt Financing on Financial Performance Among Firms Listed at Nairobi Securities Exchange.pdf?sequence=1

Wang, C.-H., Chen, Y.-C., Sulistiawan, J., Bui, T.-D., & Tseng, M.-L. (2021). Hybrid approach to corporate sustainability performance in Indonesia's cement industry. *Sustainability*, *13*(24), 14039.

Wang, D., & Lv, B. (2010). An empirical study on the impact of financial supply chain management in short-term corporate performance. *Math Pract Theory*, *40*(2), 57–66.

Wang, F. T. (2021). China 'recession' risk sparks 'unease' in economic circles, with warnings of quarterly slowdowns. Yahoo News. Retrieved from https://sg.news.yahoo.com/china-recession-risk-sparks-unease-123726955.html

Wang, X., Qiao, S., Shen, C., Wu, M., & Wang, J. (2022). Effect of Shadow Banking Activities on Firm Risk and Performance: Entrusted Loan Evidence from Chinese Listed Firms. *Asia-Pacific Journal of Financial Studies*, *51*(2), 256–290.

Wardrop, R., Zhang, B., Rau, R., & Gray, M. (2015). Moving mainstream. *The European Alternative Finance Benchmarking Report*, *1*, 43. http://www.ey.com/Publication/vwLUAssets/EY-and-university-of-cambridge/$FILE/EY-cambridgealternative-finance-report.pdf

Waszkiewicz, A. E. (2016). *Finanse alternatywne–elektroniczne innowacje finansowe*.

Weill, L. (2008). Leverage and corporate performance: do institutional environment matter? *Small Business Economics*, *30*(3), 251–265.

Weitz, R. (2014). The Shanghai Cooperation Organization: A Fading Star. *The Asan Forum*.

Wetzel, P., & Hofmann, E. (2019). Supply chain finance, financial constraints, and corporate performance: An explorative network analysis and future research agenda. *International Journal of Production Economics*, *216*(C), 364–383.

Whited, T. M. (1992). Debt, liquidity constraints, and corporate investment: Evidence from panel data. *The Journal of Finance*, *47*(4), 1425–1460.

Whited, T. M., & Wu, G. (2006). Financial constraints risk. *The Review of Financial Studies*, *19*(2), 531–559.

Wieland, A., Handfield, R. B., & Durach, C. F. (2016). Mapping the landscape of future research themes in supply chain management. *Journal of Business Logistics*, *37*(3), 205–212.

Williamson, O. E. (1988). Corporate finance and corporate governance. *The Journal of Finance*, *43*(3), 567–591.

Wippern, R. F. (1966). Financial Structure and the Value of the Firm. *The Journal of Finance*, *21*(4), 615–633.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

Wooldridge, J. M. (2013). *Introductory Econometrics 5th ed*. Cengage Learning.

Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach*. Cengage learning.

WPR (2020). Developed Countries list. Retrieved August 22, 2021, from https://worldpopulationreview.com/country-rankings/developed-countries

Wu, J., Li, Y., & Zhu, M. (2010). Empirical analysis of rural influencing factors on listed agribusiness financial performance. *Agricultural Economics and Management*, *3*, 22–27.

Wu, M.-W., & Shen, C. H. (2019). Effects of shadow banking on bank risks from the view of capital adequacy. *International Review of Economics & Finance*, *63*, 176–197.

Wuttke, D. A., Blome, C., Foerstl, K., & Henke, M. (2013). Managing the innovation adoption of supply chain finance—Empirical evidence from six European case studies. *Journal of Business Logistics*, *34*(2), 148–166.

Wuttke, D. A., Blome, C., Heese, H. S., & Protopappa-Sieke, M. (2016). Supply chain finance: Optimal introduction and adoption decisions. *International Journal of Production Economics*, *178*, 72–81.

Xu, M., & Banchuenvijit, W. (2014). Factors affecting financial performance of firms listed on Shanghai Stock Exchange 50 (SSE 50). *International Journal of Business and Economic*, *6*(2), 45–61.

Xu, S., & Guo, L. (2021). Financialization and corporate performance in China: Promotion or inhibition? *Abacus*. https://onlinelibrary.wiley.com/doi/full/10.1111/abac.12213

Yahaya, O. A., & Lamidi, Y. (2015). Empirical examination of the financial performance of Islamic banking in Nigeria: A case study approach. *International Journal of Accounting Research*, *2*(7), 1–13.

Yang, C., & Shen, W. (2022). Nonfinancial Enterprises' Shadow Banking Business and Total Factor Productivity of Enterprises. *Sustainability*, *14*(13), 8150.

Yang, J. (2011). *Financing Constraints and Capital Structure*. https://faculty.georgetown.edu/jy44/fcjy.pdf

Yao, Y., Feng, J., & Yang, Q. (2022). Impact of Financing Constraints on Firm Performance: Moderating Effect Based on Firm Size. *Computational Intelligence and Neuroscience*. https://www.hindawi.com/journals/cin/2022/1954164/

Yapa Abeywardhana, D. (2015). Capital structure and profitability: An empirical analysis of SMEs in the UK. *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB)*, *4*(2), 1661–1675.

Yapa Abeywardhana, D. (2016). Impact of capital structure on firm performance: Evidence from manufacturing sector SMEs in UK. *European Business Research Conference*. http://repository.kln.ac.lk/handle/123456789/13708

Yapa Abeywardhana, D. (2017). Capital structure theory: An overview. *Accounting and Finance Research*, *6*(1).

Yasmin, A., & Hassan, A. (2021). Impact of Financial Leverage on Financial Performance. *IIIE Journal of Economics and Finance*, *2*(1), 22–40.

Yazdanfar, D., & Öhman, P. (2017). Substitute or complement? The use of trade credit as a financing source among SMEs. *Management Research Review*.

Yemi, A. E., & Seriki, A. I. (2018). Retained earnings and firms' market value: Nigeria experience. *The Business & Management Review*, *9*(3), 482–496.

Yıldırım, H., & Karabayır, M. E. (2024). Firm-Specific and Macroeconomic Factors Affecting Capital Structure. *Journal of Mehmet Akif Ersoy University Economics and Administrative Sciences Faculty*, *11*(1), 329–345.

Yngman, G., Bjugård Nyberg, H., Nyberg, J., Jonsson, E. N., & Karlsson, M. O. (2022). An introduction to the full random effects model. *CPT: Pharmacometrics & Systems Pharmacology*, *11*(2), 149–160.

Young, B. (2003). Corporate governance and firm performance: Are there a relationship. *Ivey Business Journal*, *68*(1), 1–5.

Younis, F., & Chaudhary, M. A. (2019). Sustainable Development: Economic, Social, and Environmental Sustainability in Asian Economies. *Sustainable Development*, *15*, 87–114.

Yu, J., Peng, F., Shi, X., & Yang, L. (2022). Impact of credit guarantee on firm performance: Evidence from China's SMEs. *Economic Analysis and Policy*, *75*(1), 624–636.

Maeenuddin, Yusrini, L., Hamid, S., & Khan, A. I. (2021). Working Capital Management and Firm's Financial Performance (ROCE). *Turkish Online Journal of Qualitative Inquiry*, *12*(9), 1848–1862.

Zahid, R. M., Saleem, A., & Maqsood, U. S. (2023). ESG performance, capital financing decisions, and audit quality: empirical evidence from Chinese state-owned enterprises. *Environmental Science and Pollution Research*, 1–14.

Zaidi, N. S. B., Jais, M. bin, & Karim, B. bin A. (2019). The Influence of Debt Financing on Firms' Performance: A Study of Consumer Product Industry in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *9*(9), 578–589.

Zaighum, I. (2014). Impact of macroeconomic factors on nonfinancial firm's stock returns: Evidence from sectorial study of KSE-100 index. *Journal of Management Sciences*, *1*(1), 35–48.

Zeitun, R. (2009). Ownership structure, corporate performance, and failure: Evidence from panel data of emerging market the case of Jordan. *Corporate Ownership and Control*, *6*(4), 96.

Zeitun, R., & Saleh, A. S. (2015). Dynamic performance, financial leverage, and financial crisis: evidence from GCC countries. *EuroMed Journal of Business*, *10*(2), 147–162.

Zeitun, R., & Tian, G. G. (2014). Capital structure and corporate performance: evidence from Jordan. *Australian Accounting Business and Finance Journal*, *1*(4), 40–61.

Zhang, C. S., & Zhang, B. T. (2016). The mystery of the decline of China's industrial investment rate: The perspective of economic financialization. *Economic Research Journal*, *12*, 32–46.

Zhang, D., & Liu, D. (2017). Determinants of the capital structure of Chinese non-listed enterprises: Is TFP efficient? *Economic Systems*, *41*(2), 179–202.

Zhang, K. Q., & Chen, H. H. (2017). Environmental performance and financing decisions impact on sustainable financial development of Chinese environmental protection enterprises. *Sustainability*, *9*(12), 2260.

Zhang, L., & Yu, S. (2016). Research on the capital structure decisions of China logistics industry: Using the unbalanced panel data analysis. *International Journal of Smart Home*, *10*(1), 169–180.

Zhang, X., Xiu, G., Shahzad, F., & Duan, C. (2021). The impact of equity financing on the performance of capital-constrained supply chain under consumers' low-carbon preference. *International Journal of Environmental Research and Public Health*, *18*(5), 2329.

Zhao, L., & Huchzermeier, A. (2018). *EURO Advanced Tutorials on Operational Research* (M. G. and O. Speranza, Ed.; pp. 105–119). Springer.

Zhao, L., Liu, Z., Vuong, T. H. G., Nguyen, H. M., Radu, F., Tăbîrcă, A. I., & Wu, Y.-C. (2022). Determinants of financial sustainability in Chinese firms: a quantile regression approach. *Sustainability*, *14*(3), 1555.

Zhao, W. (2016). Corporate governance, financial constraint, and value of cash holdings: research from the perspective of ultimate controllers. *Modern Economy*, *7*(10), 1096.

Zherdetska, L. (2018). Stagflation substantiation as an indication of systemic crisis in the financial sector of the economy. *Технологический Аудит и Резервы Производства*, *1*(5 (39)), 30–36.

Zhou, M., Li, K., & Chen, Z. (2021). Corporate governance quality and financial leverage: Evidence from China. *International Review of Financial Analysis*, *73*, 101652.

Zhou, S., & Tewari, D. D. (2019). Shadow financial services and firm performance in South Africa. *Cogent Economics & Finance*.

Zingales, L. (1997). *forthcoming in The New Palgrave Dictionary of Economics and the Law*. http://dx.doi.org/10.2139/ssrn.46906

Zulfikar, R., & STp, M. M. (2018). Estimation model and selection method of panel data regression: an overview of common effect, fixed effect, and random effect model. *INA-Rxiv. Doi: Https://Doi. Org/10.31227/Osf. Io/9qe2b*.

APPENDIX A

**Table 3.1:** *Sample Selection for Different SCO Member States*

| Sample Selection | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pakistan | | | India | | | China | | | Iran | | |
| Type of Industrial sector | IS | US | FS | IS | US | FS | IS | US | FS | IS | US | FS |
| Automotive industry | 20 | 2 | 18 | 28 | 7 | 21 | 60 | 4 | 56 | 32 | 13 | 19 |
| Cement industry | 18 | 3 | 15 | 15 | 3 | 12 | 11 | - | 11 | 25 | 3 | 22 |
| Chemical industry | 21 | 2 | 19 | 39 | 9 | 30 | 51 | 5 | 46 | 12 | 1 | 11 |
| Pharmaceutical and healthcare industry | 8 | - | 8 | 55 | 24 | 31 | 60 | 6 | 54 | 21 | 2 | 19 |
| Sugar and allied industry | 28 | 7 | 21 | 4 | - | 4 | 1 | - | 1 | 7 | - | 7 |
| Refinery industry | 4 | - | 4 | 5 | - | 5 | 8 | - | 8 | 8 | - | 8 |
| Transport and tourism industry | 3 | - | 3 | 10 | - | 10 | 47 | 3 | 44 | 11 | - | 11 |
| Food and personal care products industry | 19 | 5 | 14 | 27 | 6 | 21 | 54 | 4 | 50 | 19 | - | 19 |
| Cable and electrical goods industry | 6 | - | 6 | 33 | 6 | 27 | 76 | 15 | 61 | 31 | 11 | 20 |
| Metals, minerals, and fertilizers industry | 4 | - | 4 | 32 | 9 | 23 | 54 | 8 | 46 | 27 | 10 | 17 |
| Oil and gas industry | 10 | - | 10 | 13 | 1 | 12 | 20 | - | 20 | 64 | 23 | 41 |
| Power generation and distribution | 11 | - | 11 | 10 | - | 10 | 20 | - | 20 | 6 | - | 6 |
| Technology and communication | 8 | - | 8 | 39 | 8 | 31 | 56 | 9 | 47 | 13 | - | 13 |
| Textile industry | 124 | 49 | 75 | 12 | 1 | 11 | 21 | - | 21 | 3 | - | 3 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total firms | 285 | 68 | 217 | 322 | 74 | 248 | 539 | 54 | 485 | 279 | 63 | 216 |
| Total IS= 1425 | | | | | | | | Total US= 259 | | | | |
| Total FS= 1166 | | | | | | | | | | | | |

Note: IS =Initial sample of firms, US = Unselected firms, and FS = Final sample of firms

APPENDIX B *Panel Unit Root Test*

Three-panel unit root tests are applied for stationarity analysis among the variables: the Levin-Lin-Chu (LLC), Im-Pesaran-Shin (IPS), and Fischer Augmented Dickey Fuller (ADF) tests, to test $H_1$: Panels are stationary and $H_0$: Panels contain unit roots. A value below 0.05 significance level of, indicated rejection of $H_0$, hence stationarity is present. Table 1-4 mention the results of the LLC, IPS, and ADF tests for Pakistan, India, China and Iran, which consist of t-statistics above $\pm$ 1.69 and p-values below 0.05, indicating that the acceptance of $H_1$, i-e panels are stationary.

**Table 1:** *Results of LLC, IPS and ADF Test for Pakistan*

| Panel Unit Root Test for Pakistan | | | | | | |
|---|---|---|---|---|---|---|
| | LLC | | IPS | | ADF | |
| Variable | t-statistics | p-value | t-statistics | p-value | t-statistics | p-value |
| Internal financing ratio | -4.748 | 0.000 | -4.259 | 0.000 | 5.451 | 0.000 |
| Retained earnings ratio | -2.610 | 0.034 | -3.497 | 0.000 | 3.938 | 0.000 |
| Short term debt | -6.271 | 0.000 | -8.403 | 0.000 | 5.432 | 0.000 |
| Long term debt | -6.526 | 0.000 | -8.745 | 0.000 | 7.389 | 0.000 |
| Total debt | -4.893 | 0.000 | -6.557 | 0.000 | 3.911 | 0.000 |
| Shadow banking assets | -9.270 | 0.000 | -12.422 | 0.000 | 8.865 | 0.000 |
| Shadow banking ratio | -5.126 | 0.000 | -6.869 | 0.000 | 6.525 | 0.000 |
| Common stocks | -10.394 | 0.000 | -13.928 | 0.000 | 10.774 | 0.000 |
| Preferred stocks | -2.427 | 0.036 | -3.253 | 0.000 | 4.844 | 0.000 |
| Equity ratio | -5.832 | 0.000 | -7.815 | 0.000 | 6.681 | 0.000 |
| Cash conversion cycle | -6.069 | 0.000 | -8.133 | 0.000 | 9.088 | 0.000 |
| Trade financing | -4.550 | 0.000 | -6.098 | 0.000 | 4.811 | 0.000 |
| Reverse factoring | -8.621 | 0.000 | -11.552 | 0.000 | 10.904 | 0.000 |
| Factoring | -4.767 | 0.000 | -6.388 | 0.000 | 8.026 | 0.000 |
| Credit guarantees ratio | -9.666 | 0.000 | -12.953 | 0.000 | 13.252 | 0.000 |
| Solvency rating ratio | -2.257 | 0.038 | -3.025 | 0.000 | 5.958 | 0.000 |
| Return on Assets | -5.424 | 0.000 | -7.268 | 0.000 | 8.218 | 0.000 |
| Return on Equity | -5.644 | 0.000 | -7.563 | 0.000 | 11.179 | 0.000 |
| Net Profit Margin | -4.232 | 0.000 | -5.671 | 0.000 | 5.917 | 0.000 |
| Return on capital employed | -8.018 | 0.000 | -10.744 | 0.000 | 13.412 | 0.000 |
| Return on invested capital | -4.433 | 0.000 | -5.941 | 0.000 | 9.872 | 0.000 |
| Tobin's Q | -8.990 | 0.000 | -12.046 | 0.000 | 16.300 | 0.000 |
| Earnings per share | -2.099 | 0.000 | -2.813 | 0.032 | 7.328 | 0.000 |
| GRI Sustainability | -5.044 | 0.000 | -6.759 | 0.000 | 10.108 | 0.000 |
| Sustainable growth rate | -5.249 | 0.000 | -7.034 | 0.000 | 13.750 | 0.000 |
| Stagflation Cycles | -3.936 | 0.000 | -5.274 | 0.000 | 7.278 | 0.000 |
| Dividend Payout ratio | -7.456 | 0.000 | -9.992 | 0.000 | 16.497 | 0.000 |
| Cost of external borrowing | -4.123 | 0.000 | -5.525 | 0.000 | 12.142 | 0.000 |
| Interest Coverage Ratio | -8.360 | 0.000 | -11.203 | 0.000 | 20.049 | 0.000 |
| Corporate Governance Mechanism index | -1.952 | 0.045 | -2.616 | 0.035 | 9.014 | 0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Firm Size | -4.691 | 0.000 | -6.286 | 0.000 | 12.433 | 0.000 |
| Asset Tangibility | -4.882 | 0.000 | -6.542 | 0.000 | 16.912 | 0.000 |
| Total Asset turnover | -3.660 | 0.003 | -4.905 | 0.000 | 8.952 | 0.000 |

**Table 2:** *Results of LLC, IPS and ADF Test for India*

| Panel Unit Root Test for India | | | | | | |
|---|---|---|---|---|---|---|
| | LLC | | IPS | | ADF | |
| Variable | t-statistics | p-value | t-statistics | p-value | t-statistics | p-value |
| Internal financing ratio | -4.661 | 0.000 | -6.234 | 0.000 | 5.334 | 0.000 |
| Retained earnings ratio | -3.993 | 0.000 | -5.351 | 0.000 | 4.147 | 0.000 |
| Short term debt | -9.595 | 0.000 | -12.857 | 0.000 | 5.720 | 0.000 |
| Long term debt | -9.985 | 0.000 | -13.380 | 0.000 | 7.781 | 0.000 |
| Total debt | -7.486 | 0.000 | -10.032 | 0.000 | 4.118 | 0.000 |
| Shadow banking assets | -14.183 | 0.000 | -19.005 | 0.000 | 9.335 | 0.000 |
| Shadow banking ratio | -7.843 | 0.000 | -10.509 | 0.000 | 6.871 | 0.000 |
| Common stocks | -15.903 | 0.000 | -21.310 | 0.000 | 11.345 | 0.000 |
| Preferred stocks | -3.714 | 0.000 | -4.976 | 0.000 | 5.100 | 0.000 |
| Equity ratio | -8.923 | 0.000 | -11.957 | 0.000 | 7.035 | 0.000 |
| Cash conversion cycle | -9.286 | 0.000 | -12.443 | 0.000 | 9.570 | 0.000 |
| Trade financing | -6.962 | 0.000 | -9.329 | 0.000 | 5.065 | 0.000 |
| Reverse factoring | -13.190 | 0.000 | -17.675 | 0.000 | 11.482 | 0.000 |
| Factoring | -7.294 | 0.000 | -9.774 | 0.000 | 8.451 | 0.000 |
| Credit guarantees ratio | -14.790 | 0.000 | -19.818 | 0.000 | 13.954 | 0.000 |
| Solvency rating ratio | -3.454 | 0.000 | -4.628 | 0.000 | 6.274 | 0.000 |
| Return on Assets | -8.298 | 0.000 | -11.120 | 0.000 | 8.654 | 0.000 |
| Return on Equity | -8.636 | 0.000 | -11.572 | 0.000 | 11.771 | 0.000 |
| Net Profit Margin | -6.475 | 0.000 | -8.676 | 0.000 | 6.231 | 0.000 |
| Return on capital employed | -12.267 | 0.000 | -16.438 | 0.000 | 14.123 | 0.000 |
| Return on invested capital | -6.783 | 0.000 | -9.090 | 0.000 | 10.395 | 0.000 |
| Tobin's Q | -13.754 | 0.000 | -18.431 | 0.000 | 17.164 | 0.000 |
| Earnings per share | -3.212 | 0.002 | -4.304 | 0.000 | 7.716 | 0.000 |
| GRI Sustainability | -7.718 | 0.000 | -10.341 | 0.000 | 10.644 | 0.000 |
| Sustainable growth rate | -8.031 | 0.000 | -10.762 | 0.000 | 14.479 | 0.000 |
| Stagflation Cycles | -6.022 | 0.000 | -8.069 | 0.000 | 7.664 | 0.000 |
| Dividend Payout ratio | -11.408 | 0.000 | -15.287 | 0.000 | 17.371 | 0.000 |
| Cost of external borrowing | -6.308 | 0.000 | -8.453 | 0.000 | 12.786 | 0.000 |
| Interest Coverage Ratio | -12.792 | 0.000 | -17.141 | 0.000 | 21.112 | 0.000 |
| Corporate Governance Mechanism index | -2.987 | 0.031 | -4.003 | 0.000 | 9.491 | 0.000 |
| Firm Size | -7.177 | 0.000 | -9.618 | 0.000 | 13.092 | 0.000 |
| Asset Tangibility | -7.469 | 0.000 | -10.009 | 0.000 | 17.809 | 0.000 |
| Total Asset turnover | -5.600 | 0.000 | -7.504 | 0.000 | 9.426 | 0.000 |

**Table 3:** *Results of LLC, IPS and ADF Test for China*

| Panel Unit Root Test for China | | | | | | |
|---|---|---|---|---|---|---|
| | LLC | | IPS | | ADF | |
| Variable | t-statistics | p-value | t-statistics | p-value | t-statistics | p-value |
| Internal financing ratio | -5.213 | 0.000 | -6.325 | 0.000 | 4.552 | 0.000 |
| Retained earnings ratio | -5.918 | 0.000 | -7.930 | 0.000 | 4.306 | 0.000 |
| Short term debt | -8.155 | 0.000 | -10.928 | 0.000 | 4.862 | 0.000 |
| Long term debt | -8.487 | 0.000 | -11.373 | 0.000 | 6.614 | 0.000 |
| Total debt | -6.363 | 0.000 | -8.527 | 0.000 | 3.501 | 0.000 |
| Shadow banking assets | -12.056 | 0.000 | -16.155 | 0.000 | 7.935 | 0.000 |
| Shadow banking ratio | -6.666 | 0.000 | -8.933 | 0.000 | 5.840 | 0.000 |
| Common stocks | -13.517 | 0.000 | -18.113 | 0.000 | 9.643 | 0.000 |
| Preferred stocks | -3.157 | 0.000 | -4.230 | 0.000 | 4.335 | 0.000 |
| Equity ratio | -7.585 | 0.000 | -10.163 | 0.000 | 5.980 | 0.000 |
| Cash conversion cycle | -7.893 | 0.000 | -10.577 | 0.000 | 8.135 | 0.000 |
| Trade financing | -3.394 | 0.001 | -4.548 | 0.000 | 3.525 | 0.000 |
| Reverse factoring | -11.212 | 0.000 | -15.024 | 0.000 | 9.760 | 0.000 |
| Factoring | -6.200 | 0.000 | -8.308 | 0.000 | 7.183 | 0.000 |
| Credit guarantees ratio | -12.571 | 0.000 | -16.845 | 0.000 | 11.861 | 0.000 |
| Solvency rating ratio | -2.936 | 0.029 | -3.934 | 0.002 | 5.333 | 0.000 |
| Return on Assets | -7.054 | 0.000 | -9.452 | 0.000 | 7.356 | 0.000 |
| Return on Equity | -7.340 | 0.000 | -9.836 | 0.000 | 10.006 | 0.000 |
| Net Profit Margin | -5.504 | 0.000 | -7.375 | 0.000 | 5.296 | 0.000 |
| Return on capital employed | -10.427 | 0.000 | -13.972 | 0.000 | 12.004 | 0.000 |
| Return on invested capital | -5.766 | 0.000 | -7.726 | 0.000 | 8.836 | 0.000 |
| Tobin's Q | -11.691 | 0.000 | -15.666 | 0.000 | 14.589 | 0.000 |
| Earnings per share | -2.730 | 0.003 | -3.659 | 0.004 | 6.559 | 0.000 |
| GRI Sustainability | -6.560 | 0.000 | -8.790 | 0.000 | 9.047 | 0.000 |
| Sustainable growth rate | -6.827 | 0.000 | -9.148 | 0.000 | 12.307 | 0.000 |
| Stagflation Cycles | -5.118 | 0.000 | -6.859 | 0.000 | 6.514 | 0.000 |
| Dividend Payout ratio | -9.697 | 0.000 | -12.994 | 0.000 | 14.765 | 0.000 |
| Cost of external borrowing | -5.362 | 0.000 | -7.185 | 0.000 | 10.868 | 0.000 |
| Interest Coverage Ratio | -10.873 | 0.000 | -14.570 | 0.000 | 17.945 | 0.000 |
| Corporate Governance Mechanism index | -6.101 | 0.000 | -8.175 | 0.000 | 11.128 | 0.000 |
| Firm Size | -6.349 | 0.000 | -8.507 | 0.000 | 15.137 | 0.000 |
| Asset Tangibility | -4.760 | 0.000 | -6.379 | 0.000 | 8.012 | 0.000 |
| Total Asset turnover | -2.539 | 0.034 | -3.402 | 0.003 | 8.068 | 0.000 |

**Table 4:** *Results of LLC, IPS and ADF Test for Iran*

| Panel Unit Root Test for Iran | | | | | | |
|---|---|---|---|---|---|---|
| | LLC | | IPS | | ADF | |
| Variable | t-statistics | p-value | t-statistics | p-value | t-statistics | p-value |
| Internal financing ratio | -4.827 | 0.000 | -5.333 | 0.000 | 6.417 | 0.000 |
| Retained earnings ratio | -6.212 | 0.000 | -8.324 | 0.000 | 5.040 | 0.000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Short term debt | -14.924 | 0.000 | -19.999 | 0.000 | 6.953 | 0.000 |
| Long term debt | -15.531 | 0.000 | -20.812 | 0.000 | 9.457 | 0.000 |
| Total debt | -11.645 | 0.000 | -15.604 | 0.000 | 5.006 | 0.000 |
| Shadow banking assets | -22.062 | 0.000 | -29.563 | 0.000 | 11.347 | 0.000 |
| Shadow banking ratio | -12.199 | 0.000 | -16.347 | 0.000 | 8.351 | 0.000 |
| Common stocks | -24.737 | 0.000 | -33.147 | 0.000 | 13.790 | 0.000 |
| Preferred stocks | -5.777 | 0.000 | -7.741 | 0.000 | 6.200 | 0.000 |
| Equity ratio | -13.880 | 0.000 | -18.599 | 0.000 | 8.552 | 0.000 |
| Cash conversion cycle | -14.444 | 0.000 | -19.355 | 0.000 | 11.633 | 0.000 |
| Trade financing | -10.830 | 0.000 | -14.512 | 0.000 | 6.157 | 0.000 |
| Reverse factoring | -20.517 | 0.000 | -27.493 | 0.000 | 13.956 | 0.000 |
| Factoring | -11.345 | 0.000 | -15.203 | 0.000 | 10.272 | 0.000 |
| Credit guarantees ratio | -23.005 | 0.000 | -30.827 | 0.000 | 16.962 | 0.000 |
| Solvency rating ratio | -5.372 | 0.000 | -7.199 | 0.000 | 7.626 | 0.000 |
| Return on Assets | -12.908 | 0.000 | -17.297 | 0.000 | 10.518 | 0.000 |
| Return on Equity | -13.433 | 0.000 | -18.000 | 0.000 | 14.308 | 0.000 |
| Net Profit Margin | -10.072 | 0.000 | -13.496 | 0.000 | 7.573 | 0.000 |
| Return on capital employed | -19.081 | 0.000 | -25.569 | 0.000 | 17.166 | 0.000 |
| Return on invested capital | -10.551 | 0.000 | -14.139 | 0.000 | 12.635 | 0.000 |
| Tobin's Q | -21.395 | 0.000 | -28.669 | 0.000 | 20.863 | 0.000 |
| Earnings per share | -4.996 | 0.000 | -6.695 | 0.000 | 9.379 | 0.000 |
| GRI Sustainability | -12.005 | 0.000 | -16.086 | 0.000 | 12.938 | 0.000 |
| Sustainable growth rate | -12.493 | 0.000 | -16.740 | 0.000 | 17.599 | 0.000 |
| Stagflation Cycles | -9.367 | 0.000 | -12.551 | 0.000 | 9.315 | 0.000 |
| Dividend Payout ratio | -17.746 | 0.000 | -23.779 | 0.000 | 21.114 | 0.000 |
| Cost of external borrowing | -9.813 | 0.000 | -13.149 | 0.000 | 15.541 | 0.000 |
| Interest Coverage Ratio | -19.897 | 0.000 | -26.662 | 0.000 | 25.661 | 0.000 |
| Corporate Governance Mechanism index | -4.647 | 0.000 | -6.226 | 0.000 | 11.537 | 0.000 |
| Firm Size | -11.164 | 0.000 | -14.960 | 0.000 | 15.913 | 0.000 |
| Asset Tangibility | -11.618 | 0.000 | -15.568 | 0.000 | 21.647 | 0.000 |
| Total Asset turnover | -8.711 | 0.000 | -11.673 | 0.000 | 11.458 | 0.000 |

## APPENDIX C *GMM Estimation Model*

According to Wooldridge (2010), the presence of endogeneity will result in biased estimates for fixed and random effect regression estimates. The presented study applied VIF multicollinearity test, endogeneity test, heteroskedasticity test and D-W autocorrelation test, and proved that all these assumptions were satisfied for panel regression estimation. Considering the static panel data, the study applied Arellano-Bond Estimator difference GMM with lagged dependent variable, for robustness perspective. The main assumptions for GMM estimates include: number of instruments should be less than number of observations, and

number of instruments should be less than number of groups. Wald test should be above standard significance, i-e>0.05, value less than 0.05 shows heteroskedasticity.

The present study applied two step difference GMM approach due to less valid results from the one step difference GMM estimation, for analyzing the empirical relationships for the proposed models of ROA, ROE, NPM, ROCE, ROIC, Tobin's q, EPS, GRI and SGR for Pakistan, India, China and Iran. Additionally, Arellano-Bond test is applied for testing autocorrelation, Hensen's J-statistics are applied for instrument validity, and Sargan's test for overidentification restrictions. The lagged dependent variables should be highly significant, which shows that dependent variable is significantly determined by its own previous value.

The GMM estimation statistics for ROA shows insignificant relationship between ROA and lagged ROA. While few independent variables, namely short-term debt, shadow banking ratio, trade credit finance, cash conversion cycle, also indicated insignificant relationship with ROA. Arellano-Bond test second order serial correlation AR (2) shows insignificant p-value, i-e above 0.05, means GMM estimation is valid. Then secondly, Sargan's test and Hensen's J test with p-value above 0.05 shows the validity of instruments.

**Table 5:** *Results of Difference GMM for Predictors of ROA (Pakistan)*

Dynamic panel-data estimation, two-step difference GMM

| | | | | | | |
|---|---|---|---|---|---|---|
| Group variable: Id | | | | Number of obs | = | 3199 |
| Time variable : Year | | | | Number of groups | = | 291 |
| Number of instruments = 125 | | | | Obs per group: min | = | 9 |
| Wald chi2(49) = | 166.31 | | | avg | = | 10.99 |
| Prob > chi2 = | 0.000 | | | max | = | 11 |

| ROA | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| ROA | | | | | | |
| L1. | -.0192704 | .0140543 | -1.37 | 0.170 | -.0468162 | .0082755 |
| CA | | | | | | |
| --. | -3.67e-07 | 7.24e-07 | -0.51 | 0.612 | -1.79e-06 | 1.05e-06 |
| L1. | -6.40e-07 | 8.46e-07 | -0.76 | 0.450 | -2.30e-06 | 1.02e-06 |
| L2. | -4.45e-07 | 7.41e-07 | -0.60 | 0.548 | -1.90e-06 | 1.01e-06 |
| FA | | | | | | |
| --. | -6.01e-08 | 3.84e-08 | -1.57 | 0.118 | -1.35e-07 | 1.52e-08 |
| L1. | 5.70e-08 | 3.21e-08 | 1.78 | 0.076 | -5.94e-09 | 1.20e-07 |
| L2. | -3.69e-09 | 4.60e-08 | -0.08 | 0.936 | -9.39e-08 | 8.65e-08 |
| STD | | | | | | |
| --. | 3.00187 | 10.78575 | 0.28 | 0.781 | -18.13782 | 24.14156 |
| L1. | .1174585 | 10.35098 | 0.01 | 0.991 | -20.17008 | 20.405 |
| L2. | -19.42726 | 10.67435 | -1.82 | 0.069 | -40.3486 | 1.494078 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LTD | | | | | | |
| --. | 19.65389 | 9.257298 | 2.12 | 0.034 | 1.509916 | 37.79786 |
| L1. | 2.545244 | 8.841503 | 0.29 | 0.773 | -14.78378 | 19.87427 |
| L2. | 38.87077 | 8.100195 | 4.80 | 0.000 | 22.99468 | 54.74686 |
| TD | | | | | | |
| --. | -9.713238 | 8.823061 | -1.10 | 0.271 | -27.00612 | 7.579644 |
| L1. | -13.75712 | 8.50826 | -1.62 | 0.106 | -30.433 | 2.918768 |
| L2. | -5.88603 | 8.852776 | -0.66 | 0.506 | -23.23715 | 11.46509 |
| CS | | | | | | |
| --. | 1.27e-07 | 8.64e-08 | 1.47 | 0.141 | -4.21e-08 | 2.96e-07 |
| L1. | -1.51e-07 | 6.45e-08 | -2.34 | 0.020 | -2.77e-07 | -2.42e-08 |
| L2. | -6.28e-08 | 3.50e-08 | -1.79 | 0.073 | -1.31e-07 | 5.79e-09 |
| PS | | | | | | |
| --. | 1.79e-07 | 1.05e-07 | 1.71 | 0.087 | -2.62e-08 | 3.84e-07 |
| L1. | 1.21e-08 | 9.31e-08 | 0.13 | 0.897 | -1.70e-07 | 1.94e-07 |
| L2. | 3.30e-08 | 1.03e-07 | 0.32 | 0.749 | -1.69e-07 | 2.35e-07 |
| Er | | | | | | |
| --. | 4.92444 | 6.804375 | 0.72 | 0.469 | -8.41189 | 18.26077 |
| L1. | 24.33639 | 7.209006 | 3.38 | 0.001 | 10.207 | 38.46578 |
| L2. | .9293477 | 7.150005 | 0.13 | 0.897 | -13.0844 | 14.9431 |
| SBD | | | | | | |
| --. | -1.466964 | 1.855836 | -0.79 | 0.429 | -5.104336 | 2.170408 |
| L1. | 3.134631 | 2.388803 | 1.31 | 0.189 | -1.547336 | 7.816599 |
| L2. | .2983193 | 2.075011 | 0.14 | 0.886 | -3.768628 | 4.365267 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SBP | | | | | | |
| --. | 18.08828 | 11.06452 | 1.63 | 0.102 | -3.597777 | 39.77433 |
| L1. | 48.65512 | 10.84084 | 4.49 | 0.000 | 27.40746 | 69.90277 |
| L2. | 13.92919 | 11.88199 | 1.17 | 0.241 | -9.35908 | 37.21746 |
| CCC | | | | | | |
| --. | -.0279896 | .0243221 | -1.15 | 0.250 | -.07566 | .0196808 |
| L1. | .0021241 | .0216432 | 0.10 | 0.922 | -.0402958 | .0445439 |
| L2. | -.0285327 | .0216393 | -1.32 | 0.187 | -.0709449 | .0138795 |
| RF | | | | | | |
| --. | .4586269 | 2.311371 | 0.20 | 0.843 | -4.071578 | 4.988832 |
| L1. | -.0912888 | 2.685325 | -0.03 | 0.973 | -5.354428 | 5.171851 |
| L2. | -2.287736 | 2.108313 | -1.09 | 0.278 | -6.419953 | 1.84448 |
| FD | | | | | | |
| --. | 3.305784 | 2.360834 | 1.40 | 0.161 | -1.321365 | 7.932933 |
| L1. | 2.460366 | 2.899562 | 0.85 | 0.396 | -3.22267 | 8.143402 |
| L2. | -3.233996 | 2.564524 | -1.26 | 0.207 | -8.26037 | 1.792378 |
| TA | | | | | | |
| --. | 3.870676 | 7.061924 | 0.55 | 0.584 | -9.970441 | 17.71179 |
| L1. | -6.450127 | 7.582864 | -0.85 | 0.395 | -21.31227 | 8.412014 |
| L2. | .9015047 | 6.925112 | 0.13 | 0.896 | -12.67147 | 14.47448 |
| TO | | | | | | |
| --. | 14.26295 | 7.366967 | 1.94 | 0.053 | -.1760379 | 28.70194 |
| L1. | 26.07176 | 7.410098 | 3.52 | 0.000 | 11.54823 | 40.59528 |
| L2. | 1.335776 | 7.914859 | 0.17 | 0.866 | -14.17706 | 16.84861 |

| TF | | | | | | |
|---|---|---|---|---|---|---|
| --. | -19.78171 | 7.765397 | -2.55 | 0.011 | -35.00161 | -4.561811 |
| L1. | -17.04716 | 8.448229 | -2.02 | 0.044 | -33.60538 | -.4889324 |
| L2. | -22.74676 | 8.865906 | -2.57 | 0.010 | -40.12362 | -5.369903 |

Arellano-Bond test for AR(2) in first differences: z = -1.30 Pr > z = 0.195

Sargan test of overid. restrictions: chi2(76) = 78.65 Prob > chi2 = 0.395
(Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(76) = 19.22 Prob > chi2 = 1.000
(Robust, but weakened by many instruments.)

**Table 6:** *Results of Difference GMM for Financing Alternatives, Stagflations, and ROA (Pakistan)*

Dynamic panel-data estimation, two-step difference GMM

| | | | |
|---|---|---|---|
| Group variable: Id | | Number of obs | = 3201 |
| Time variable : Year | | Number of groups | = 291 |
| Number of instruments = 128 | | Obs per group: min | = 11 |
| Wald chi2(52) = 131.47 | | avg | = 11.00 |
| Prob > chi2 = 0.000 | | max | = 11 |

| ROA | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| ROA | | | | | | |
| L1. | -.0119868 | .0144276 | -0.83 | 0.406 | -.0402644 | .0162908 |
| lnCA_Sf | | | | | | |
| --. | -2.902256 | 1.546628 | -1.88 | 0.061 | -5.933592 | .1290791 |
| L1. | -2.406692 | 1.567086 | -1.54 | 0.125 | -5.478125 | .6647396 |
| L2. | -.8953305 | 1.689814 | -0.53 | 0.596 | -4.207304 | 2.416643 |
| lnFA_Sf | | | | | | |
| --. | -1.076892 | 1.009648 | -1.07 | 0.286 | -3.055765 | .9019813 |
| L1. | 1.714214 | 1.078883 | 1.59 | 0.112 | -.4003576 | 3.828786 |
| L2. | .0147152 | 1.135201 | 0.01 | 0.990 | -2.210238 | 2.239669 |
| RE_Sf | | | | | | |
| --. | 4.95817 | 4.870541 | 1.02 | 0.309 | -4.587914 | 14.50425 |
| L1. | 5.313016 | 6.511041 | 0.82 | 0.414 | -7.448391 | 18.07442 |
| L2. | -7.149356 | 7.701853 | -0.93 | 0.353 | -22.24471 | 7.945999 |
| LTD_Sf | | | | | | |
| --. | 28.22492 | 13.83694 | 2.04 | 0.041 | 1.105012 | 55.34483 |
| L1. | -10.12925 | 12.8464 | -0.79 | 0.430 | -35.30773 | 15.04923 |
| L2. | 11.74586 | 13.329 | 0.88 | 0.378 | -14.37849 | 37.87022 |
| STD_Sf | | | | | | |
| --. | -1.269949 | 16.85742 | -0.08 | 0.940 | -34.30989 | 31.76999 |
| L1. | -16.35168 | 15.79356 | -1.04 | 0.301 | -47.30649 | 14.60313 |
| L2. | -28.11594 | 15.26083 | -1.84 | 0.065 | -58.02662 | 1.794734 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TD_Sf | | | | | | |
| --. | -11.39212 | 11.41489 | -1.00 | 0.318 | -33.76489 | 10.98065 |
| L1. | -19.58852 | 10.08329 | -1.94 | 0.052 | -39.35139 | .1743603 |
| L2. | -2.091396 | 10.46176 | -0.20 | 0.842 | -22.59606 | 18.41327 |
| lnCS_Sf | | | | | | |
| --. | -.0318475 | 1.15985 | -0.03 | 0.978 | -2.305112 | 2.241417 |
| L1. | -.9162519 | 1.14272 | -0.80 | 0.423 | -3.155941 | 1.323437 |
| L2. | .2038798 | 1.148398 | 0.18 | 0.859 | -2.046939 | 2.454699 |
| lnPS_Sf | | | | | | |
| --. | 1.717955 | 1.231472 | 1.40 | 0.163 | -.6956857 | 4.131595 |
| L1. | -.8034371 | 1.192393 | -0.67 | 0.500 | -3.140484 | 1.53361 |
| L2. | .7724483 | 1.251918 | 0.62 | 0.537 | -1.681265 | 3.226162 |
| Er_Sf | | | | | | |
| --. | 9.023279 | 9.150951 | 0.99 | 0.324 | -8.912255 | 26.95881 |
| L1. | 12.93752 | 9.566058 | 1.35 | 0.176 | -5.811611 | 31.68665 |
| L2. | -7.81967 | 9.311655 | -0.84 | 0.401 | -26.07018 | 10.43084 |
| SBD_Sf | | | | | | |
| --. | -2.035848 | 2.890361 | -0.70 | 0.481 | -7.700852 | 3.629155 |
| L1. | 2.03637 | 3.112448 | 0.65 | 0.513 | -4.063917 | 8.136657 |
| L2. | -2.006543 | 2.726725 | -0.74 | 0.462 | -7.350826 | 3.33774 |
| SBP_Sf | | | | | | |
| --. | 25.37449 | 18.70158 | 1.36 | 0.175 | -11.27994 | 62.02892 |
| L1. | 35.62275 | 15.84516 | 2.25 | 0.025 | 4.566799 | 66.6787 |
| L2. | -17.06841 | 18.03217 | -0.95 | 0.344 | -52.41081 | 18.274 |

| | | | | | | |
|---|---|---|---|---|---|---|
| lnCCC_Sf | | | | | | |
| --. | 2.701889 | 2.786428 | 0.97 | 0.332 | -2.759409 | 8.163187 |
| L1. | 3.933245 | 2.357472 | 1.67 | 0.095 | -.6873152 | 8.553805 |
| L2. | 6.550058 | 2.342001 | 2.80 | 0.005 | 1.959822 | 11.1403 |
| RF_Sf | | | | | | |
| --. | 2.040553 | 3.373394 | 0.60 | 0.545 | -4.571178 | 8.652285 |
| L1. | 3.3051 | 3.502433 | 0.94 | 0.345 | -3.559542 | 10.16974 |
| L2. | 1.529016 | 2.755397 | 0.55 | 0.579 | -3.871462 | 6.929495 |
| FD_Sf | | | | | | |
| --. | 7.462649 | 3.081227 | 2.42 | 0.015 | 1.423555 | 13.50174 |
| L1. | 2.597966 | 3.342241 | 0.78 | 0.437 | -3.952705 | 9.148637 |
| L2. | -7.585123 | 3.017006 | -2.51 | 0.012 | -13.49835 | -1.671899 |
| TA_Sf | | | | | | |
| --. | 13.88222 | 11.4175 | 1.22 | 0.224 | -8.495677 | 36.26011 |
| L1. | -3.11184 | 9.46512 | -0.33 | 0.742 | -21.66313 | 15.43945 |
| L2. | 15.02518 | 10.0149 | 1.50 | 0.134 | -4.603662 | 34.65403 |
| TO_Sf | | | | | | |
| --. | 12.36283 | 10.80747 | 1.14 | 0.253 | -8.819426 | 33.54509 |
| L1. | 17.22416 | 9.982077 | 1.73 | 0.084 | -2.340354 | 36.78867 |
| L2. | -20.66761 | 10.14801 | -2.04 | 0.042 | -40.55735 | -.7778692 |
| TF_Sf | | | | | | |
| --. | -24.94638 | 11.74239 | -2.12 | 0.034 | -47.96104 | -1.931712 |
| L1. | -.8547066 | 11.76811 | -0.07 | 0.942 | -23.91979 | 22.21037 |
| L2. | -9.797422 | 12.75385 | -0.77 | 0.442 | -34.7945 | 15.19966 |

Arellano-Bond test for AR(2) in first differences: z = -1.11 Pr > z = 0.269

```
Sargan test of overid. restrictions: chi2(76)    =  79.87   Prob > chi2 =  0.358
  (Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(76)    =  21.97   Prob > chi2 =  1.000
  (Robust, but weakened by many instruments.)
```

**Table 7:** *Results of Difference GMM for Financing Alternatives, Financial Constraints, and ROA (Pakistan)*

```
Dynamic panel-data estimation, two-step difference GMM
------------------------------------------------------------------------------
Group variable: Id                              Number of obs      =      3201
Time variable : Year                            Number of groups   =       291
Number of instruments = 128                     Obs per group: min =        11
Wald chi2(52) =    149.48                                      avg =     11.00
Prob > chi2   =     0.000                                      max =        11
------------------------------------------------------------------------------
```

| ROA | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| ROA | | | | | | |
| L1. | -.0097656 | .0147883 | -0.66 | 0.509 | -.0387501 | .019219 |
| lnCA_FC | | | | | | |
| --. | -.4097093 | .7244329 | -0.57 | 0.572 | -1.829572 | 1.010153 |
| L1. | -.9630256 | .7409998 | -1.30 | 0.194 | -2.415359 | .4893073 |
| L2. | .5373861 | .8076461 | 0.67 | 0.506 | -1.045571 | 2.120343 |
| lnFA_FC | | | | | | |
| --. | .5831063 | .4612732 | 1.26 | 0.206 | -.3209726 | 1.487185 |
| L1. | .2428401 | .4806562 | 0.51 | 0.613 | -.6992288 | 1.184909 |
| L2. | -.6298974 | .597756 | -1.05 | 0.292 | -1.801478 | .5416829 |
| RE_FC | | | | | | |
| --. | 8.035063 | 2.483188 | 3.24 | 0.001 | 3.168103 | 12.90202 |
| L1. | 2.875914 | 2.703137 | 1.06 | 0.287 | -2.422136 | 8.173964 |
| L2. | -4.111885 | 3.653442 | -1.13 | 0.260 | -11.2725 | 3.048729 |
| LTD_FC | | | | | | |
| --. | 15.95651 | 6.259784 | 2.55 | 0.011 | 3.687558 | 28.22546 |
| L1. | 7.108508 | 6.145142 | 1.16 | 0.247 | -4.935749 | 19.15276 |
| L2. | 17.99351 | 5.939592 | 3.03 | 0.002 | 6.352129 | 29.6349 |
| STD_FC | | | | | | |
| --. | -.064971 | 7.431407 | -0.01 | 0.993 | -14.63026 | 14.50032 |
| L1. | 1.242913 | 7.275456 | 0.17 | 0.864 | -13.01672 | 15.50254 |
| L2. | -2.166047 | 7.440402 | -0.29 | 0.771 | -16.74897 | 12.41687 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TD_FC | | | | | | |
| --. | -6.101826 | 6.060912 | -1.01 | 0.314 | -17.981 | 5.777343 |
| L1. | -8.638938 | 6.252656 | -1.38 | 0.167 | -20.89392 | 3.616042 |
| L2. | -.9573614 | 5.841644 | -0.16 | 0.870 | -12.40677 | 10.49205 |
| lnCS_FC | | | | | | |
| --. | -1.421821 | .5280476 | -2.69 | 0.007 | -2.456775 | -.3868663 |
| L1. | .2007744 | .5750745 | 0.35 | 0.727 | -.926351 | 1.3279 |
| L2. | -.5537722 | .575571 | -0.96 | 0.336 | -1.681871 | .5743263 |
| lnPS_FC | | | | | | |
| --. | -.3519403 | .5575735 | -0.63 | 0.528 | -1.444764 | .7408837 |
| L1. | -.0563741 | .4773261 | -0.12 | 0.906 | -.991916 | .8791679 |
| L2. | .4142462 | .5789773 | 0.72 | 0.474 | -.7205285 | 1.549021 |
| Er_FC | | | | | | |
| --. | 5.603012 | 4.420416 | 1.27 | 0.205 | -3.060843 | 14.26687 |
| L1. | -.61981 | 4.097953 | -0.15 | 0.880 | -8.65165 | 7.41203 |
| L2. | 8.04889 | 4.418579 | 1.82 | 0.069 | -.6113649 | 16.70914 |
| SBD_FC | | | | | | |
| --. | -1.121396 | 1.323646 | -0.85 | 0.397 | -3.715695 | 1.472903 |
| L1. | .8291097 | 1.400569 | 0.59 | 0.554 | -1.915955 | 3.574174 |
| L2. | .4621725 | 1.340845 | 0.34 | 0.730 | -2.165835 | 3.09018 |
| SBP_FC | | | | | | |
| --. | -7.388644 | 8.761881 | -0.84 | 0.399 | -24.56161 | 9.784326 |
| L1. | 7.429211 | 9.019661 | 0.82 | 0.410 | -10.249 | 25.10742 |
| L2. | 15.48103 | 8.069171 | 1.92 | 0.055 | -.334256 | 31.29631 |

| | | | | | | |
|---|---|---|---|---|---|---|
| lnCCC_FC | | | | | | |
| --. | 3.59472 | 1.128241 | 3.19 | 0.001 | 1.383407 | 5.806032 |
| L1. | 1.290552 | 1.267413 | 1.02 | 0.309 | -1.193531 | 3.774635 |
| L2. | -.1105589 | 1.187509 | -0.09 | 0.926 | -2.438033 | 2.216915 |
| RF_FC | | | | | | |
| --. | 1.089673 | 1.502018 | 0.73 | 0.468 | -1.854227 | 4.033573 |
| L1. | -1.332051 | 1.382673 | -0.96 | 0.335 | -4.042041 | 1.377939 |
| L2. | -1.537624 | 1.330816 | -1.16 | 0.248 | -4.145976 | 1.070727 |
| FD_FC | | | | | | |
| --. | 1.672898 | 1.425438 | 1.17 | 0.241 | -1.120909 | 4.466706 |
| L1. | 1.660041 | 1.448961 | 1.15 | 0.252 | -1.17987 | 4.499952 |
| L2. | -1.733635 | 1.610247 | -1.08 | 0.282 | -4.889662 | 1.422391 |
| TA_FC | | | | | | |
| --. | -1.592882 | 5.271223 | -0.30 | 0.763 | -11.92429 | 8.738524 |
| L1. | -3.91652 | 5.749525 | -0.68 | 0.496 | -15.18538 | 7.352342 |
| L2. | 7.701481 | 4.448523 | 1.73 | 0.083 | -1.017464 | 16.42043 |
| TO_FC | | | | | | |
| --. | 1.514823 | 6.053169 | 0.25 | 0.802 | -10.34917 | 13.37882 |
| L1. | 4.192007 | 6.109722 | 0.69 | 0.493 | -7.782828 | 16.16684 |
| L2. | -6.41814 | 5.642501 | -1.14 | 0.255 | -17.47724 | 4.640959 |
| TF_FC | | | | | | |
| --. | -4.395934 | 5.29054 | -0.83 | 0.406 | -14.7652 | 5.973334 |
| L1. | -2.600768 | 5.944918 | -0.44 | 0.662 | -14.25259 | 9.051057 |
| L2. | -11.7981 | 5.65614 | -2.09 | 0.037 | -22.88393 | -.7122663 |

Arellano-Bond test for AR(2) in first differences: z = -0.45 Pr > z = 0.652

Sargan test of overid. restrictions: chi2(76) = 78.50 Prob > chi2 = 0.400
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(76) = 19.95 Prob > chi2 = 1.000
(Robust, but weakened by many instruments.)

**Table 8:** *Results of Difference GMM for Financing Alternatives, CGMI, and ROA (Pakistan)*

Dynamic panel-data estimation, two-step difference GMM

| | | | |
|---|---|---|---|
| Group variable: Id | | Number of obs | = 3201 |
| Time variable : Year | | Number of groups | = 291 |
| Number of instruments = 128 | | Obs per group: min | = 11 |
| Wald chi2(52) = 159.92 | | avg | = 11.00 |
| Prob > chi2 = 0.000 | | max | = 11 |

| ROA | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| ROA | | | | | | |
| L1. | -.0113009 | .0145629 | -0.78 | 0.438 | -.0398437 | .0172419 |
| lnCA_CGMI | | | | | | |
| --. | 1.056328 | 2.412573 | 0.44 | 0.662 | -3.672228 | 5.784884 |
| L1. | -4.423508 | 2.302911 | -1.92 | 0.055 | -8.93713 | .0901135 |
| L2. | -1.669798 | 2.60827 | -0.64 | 0.522 | -6.781914 | 3.442317 |
| lnFA_CGMI | | | | | | |
| --. | -.7840936 | 1.868774 | -0.42 | 0.675 | -4.446823 | 2.878636 |
| L1. | -.5381114 | 1.773603 | -0.30 | 0.762 | -4.014309 | 2.938086 |
| L2. | -3.096404 | 1.953766 | -1.58 | 0.113 | -6.925715 | .7329071 |
| RE_CGMI | | | | | | |
| --. | 14.24521 | 7.054814 | 2.02 | 0.043 | .4180269 | 28.07239 |
| L1. | 8.275066 | 8.805474 | 0.94 | 0.347 | -8.983346 | 25.53348 |
| L2. | -8.199652 | 10.33193 | -0.79 | 0.427 | -28.44985 | 12.05055 |
| LTD_CGMI | | | | | | |
| --. | 36.15214 | 15.55754 | 2.32 | 0.020 | 5.659925 | 66.64434 |
| L1. | 1.575417 | 14.86179 | 0.11 | 0.916 | -27.55316 | 30.70399 |
| L2. | 59.60182 | 14.0444 | 4.24 | 0.000 | 32.07531 | 87.12833 |
| STD_CGMI | | | | | | |
| --. | -1.867748 | 18.00751 | -0.10 | 0.917 | -37.16182 | 33.42632 |
| L1. | -1.55479 | 17.40557 | -0.09 | 0.929 | -35.66907 | 32.55949 |
| L2. | -35.7099 | 17.89671 | -2.00 | 0.046 | -70.78682 | -.6329839 |
| TD_CGMI | | | | | | |
| --. | -13.53229 | 14.81755 | -0.91 | 0.361 | -42.57415 | 15.50958 |
| L1. | -22.44261 | 13.92357 | -1.61 | 0.107 | -49.7323 | 4.847081 |
| L2. | -7.887172 | 14.69559 | -0.54 | 0.591 | -36.68999 | 20.91565 |
| lnCS_CGMI | | | | | | |
| --. | -1.337611 | 2.918462 | -0.46 | 0.647 | -7.057692 | 4.382469 |
| L1. | -2.198201 | 2.991439 | -0.73 | 0.462 | -8.061313 | 3.664911 |
| L2. | -2.856035 | 2.457895 | -1.16 | 0.245 | -7.67342 | 1.96135 |
| lnPS_CGMI | | | | | | |
| --. | 2.618414 | 2.022864 | 1.29 | 0.196 | -1.346327 | 6.583155 |
| L1. | 1.954256 | 2.172026 | 0.90 | 0.368 | -2.302836 | 6.211348 |
| L2. | .0844404 | 2.583709 | 0.03 | 0.974 | -4.979537 | 5.148418 |
| Er_CGMI | | | | | | |
| --. | 7.591505 | 11.48652 | 0.66 | 0.509 | -14.92165 | 30.10466 |
| L1. | 40.33328 | 11.96418 | 3.37 | 0.001 | 16.88392 | 63.78264 |
| L2. | -3.013582 | 12.22229 | -0.25 | 0.805 | -26.96883 | 20.94167 |
| SBD_CGMI | | | | | | |
| --. | -1.941512 | 3.17152 | -0.61 | 0.540 | -8.157577 | 4.274552 |
| L1. | 6.627054 | 3.941065 | 1.68 | 0.093 | -1.097292 | 14.3514 |
| L2. | 1.213839 | 3.494215 | 0.35 | 0.728 | -5.634697 | 8.062374 |
| SBP_CGMI | | | | | | |
| --. | 26.86854 | 18.8378 | 1.43 | 0.154 | -10.05287 | 63.78995 |
| L1. | 83.38038 | 17.80023 | 4.68 | 0.000 | 48.49256 | 118.2682 |
| L2. | 24.87987 | 20.04 | 1.24 | 0.214 | -14.39781 | 64.15756 |

| | | | | | | |
|---|---|---|---|---|---|---|
| lnCCC_CGMI | | | | | | |
| --. | 7.126895 | 3.448478 | 2.07 | 0.039 | .3680027 | 13.88579 |
| L1. | -.0577536 | 2.862063 | -0.02 | 0.984 | -5.667294 | 5.551786 |
| L2. | 1.444134 | 2.90617 | 0.50 | 0.619 | -4.251854 | 7.140121 |
| RF_CGMI | | | | | | |
| --. | .7162632 | 3.889306 | 0.18 | 0.854 | -6.906637 | 8.339163 |
| L1. | .2178061 | 4.477894 | 0.05 | 0.961 | -8.558704 | 8.994316 |
| L2. | -2.583503 | 3.558816 | -0.73 | 0.468 | -9.558655 | 4.391648 |
| FD_CGMI | | | | | | |
| --. | 5.071065 | 4.038607 | 1.26 | 0.209 | -2.84446 | 12.98659 |
| L1. | 3.340034 | 4.844366 | 0.69 | 0.491 | -6.15475 | 12.83482 |
| L2. | -5.909923 | 4.301559 | -1.37 | 0.169 | -14.34082 | 2.520977 |
| TA_CGMI | | | | | | |
| --. | 7.186749 | 11.83814 | 0.61 | 0.544 | -16.01557 | 30.38907 |
| L1. | -6.174835 | 12.49148 | -0.49 | 0.621 | -30.65769 | 18.30802 |
| L2. | 2.423119 | 11.47455 | 0.21 | 0.833 | -20.06658 | 24.91282 |
| TO_CGMI | | | | | | |
| --. | 22.0362 | 12.17461 | 1.81 | 0.070 | -1.825595 | 45.89799 |
| L1. | 42.09712 | 12.44623 | 3.38 | 0.001 | 17.70295 | 66.49129 |
| L2. | .6513826 | 13.32461 | 0.05 | 0.961 | -25.46437 | 26.76713 |
| TF_CGMI | | | | | | |
| --. | -33.6087 | 13.1842 | -2.55 | 0.011 | -59.44926 | -7.768147 |
| L1. | -23.27395 | 14.48241 | -1.61 | 0.108 | -51.65896 | 5.111056 |
| L2. | -37.14922 | 14.63739 | -2.54 | 0.011 | -65.83798 | -8.460464 |

Arellano-Bond test for AR(2) in first differences: z = -0.21 Pr > z = 0.834

Sargan test of overid. restrictions: chi2(76) = 78.34 Prob > chi2 = 0.404
(Not robust, but not weakened by many instruments.)
Hansen test of overid. restrictions: chi2(76) = 19.30 Prob > chi2 = 1.000
(Robust, but weakened by many instruments.)

APPENDIX D *Hypotheses Development*

$H_1$: There is a significant impact of financing alternatives on the financial performance of nonfinancial companies in the SCO member states.

$H_{1a}$: There is a significant impact of financing alternatives on the return on assets of nonfinancial companies in the SCO member states.

$H_{1b}$: There is a significant impact of financing alternatives on the return on equity of nonfinancial companies in the SCO member states.

$H_{1c}$: There is a significant impact of financing alternatives on the net profit margin of nonfinancial companies in the SCO member states.

$H_{1d}$: There is a significant impact of financing alternatives on the return on capital employed of nonfinancial companies in the SCO member states.

$H_{1e}$: There is a significant impact of financing alternatives on the return on invested capital of nonfinancial companies in the SCO member states.

$H_{1f}$: There is a significant impact of financing alternatives on the Tobin's q of nonfinancial companies in the SCO member states.

$H_{1g}$:There is a significant impact of financing alternatives on the earnings per share of nonfinancial companies in the SCO member states.

$H_2$: There is a significant impact of financing alternatives on the sustainable performance of nonfinancial companies in the SCO member states.

$H_{2a}$: There is a significant impact of financing alternatives on the GRI sustainability performance of nonfinancial companies in the SCO member states.

$H_{2b}$: There is a significant impact of financing alternatives on the sustainable growth rate of nonfinancial companies in the SCO member states.

$H_3$: The stagflation cycles moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_{3a}$: The stagflation cycles moderate the relationship between financing alternatives and the return on assets of nonfinancial companies in the SCO member states.

$H_{3b}$: The stagflation cycles moderate the relationship between financing alternatives and the return on equity of nonfinancial companies in the SCO member states.

$H_{3c}$: The stagflation cycles moderate the relationship between financing alternatives and the net profit margin of nonfinancial companies in the SCO member states.

$H_{3d}$: The stagflation cycles moderate the relationship between financing alternatives and the return on capital employed of nonfinancial companies in the SCO member states.

$H_{3e}$: The stagflation cycles moderate the relationship between financing alternatives and the return on invested capital of nonfinancial companies in the SCO member states.

$H_{3f}$: The stagflation cycles moderate the relationship between financing alternatives and the Tobin's q of nonfinancial companies in the SCO member states.

$H_{3g}$: The stagflation cycles moderate the relationship between financing alternatives and the earnings per share of nonfinancial companies in the SCO member states.

$H_4$: The stagflation cycles moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

$H_{4a}$: The stagflation cycles moderate the relationship between financing alternatives and the GRI sustainability performance of nonfinancial companies in the SCO member states.

$H_{4b}$: The stagflation cycles moderate the relationship between financing alternatives and the sustainable growth rate of nonfinancial companies in the SCO member states.

$H_5$: The financial constraints moderate the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_{5a}$: The financial constraints moderate the relationship between financing alternatives and the return on assets of nonfinancial companies in the SCO member states.

$H_{5b}$: The financial constraints moderate the relationship between financing alternatives and the return on equity of nonfinancial companies in the SCO member states.

$H_{5c}$: The financial constraints moderate the relationship between financing alternatives and the net profit margin of nonfinancial companies in the SCO member states.

$H_{5d}$: The financial constraints moderate the relationship between financing alternatives and the return on capital employed of nonfinancial companies in the SCO member states.

$H_{5e}$: The financial constraints moderate the relationship between financing alternatives and the return on invested capital of nonfinancial companies in the SCO member states.

$H_{5f}$: The financial constraints moderate the relationship between financing alternatives and the Tobin's q of nonfinancial companies in the SCO member states.

$H_{5g}$: The financial constraints moderate the relationship between financing alternatives and the earnings per share of nonfinancial companies in the SCO member states.

$H_6$: The financial constraints moderate the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

$H_{6a}$: The financial constraints moderate the relationship between financing alternatives and the GRI sustainability performance of nonfinancial companies in the SCO member states.

$H_{6b}$: The financial constraints moderate the relationship between financing alternatives and the sustainable growth rate of nonfinancial companies in the SCO member states.

$H_7$: The corporate governance mechanism moderates the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_{7a}$: The corporate governance mechanism moderates the relationship between financing alternatives and the return on assets of nonfinancial companies in the SCO member states.

$H_{7b}$: The corporate governance mechanism moderates the relationship between financing alternatives and the return on equity of nonfinancial companies in the SCO member states.

$H_{7c}$: The corporate governance mechanism moderates the relationship between financing alternatives and the net profit margin of nonfinancial companies in the SCO member states.

$H_{7d}$: The corporate governance mechanism moderates the relationship between financing alternatives and the return on capital employed of nonfinancial companies in the SCO member states.

$H_{7e}$: The corporate governance mechanism moderates the relationship between financing alternatives and the return on invested capital of nonfinancial companies in the SCO member states.

$H_{7f}$: The corporate governance mechanism moderates the relationship between financing alternatives and the financial performance of nonfinancial companies in the SCO member states.

$H_{7g}$: The corporate governance mechanism moderates the relationship between financing alternatives and the earnings per share of nonfinancial companies in the SCO member states.

$H_8$: The corporate governance mechanism moderates the relationship between financing alternatives and the sustainable performance of nonfinancial companies in the SCO member states.

$H_{8a}$: The corporate governance mechanism moderates the relationship between financing alternatives and the GRI sustainability performance of nonfinancial companies in the SCO member states.

$H_{8b}$: The corporate governance mechanism moderates the relationship between financing alternatives and the sustainable growth rate of nonfinancial companies in the SCO member states.