CHAPTER 1

Introduction

1.1. Background

The word liquidity is officially used by Keynes for the first time in this practical world. So, it is not improper to call it Keynesian word, Hick (1962). Liquidity is referring to an asset's conversion into cash at short notice without occurring any loss Keynes (1930). This definition completely spotlights on the immediate notice. If investors having assets from the long time and want to sell that so, at short notice what will be the topmost price for an asset? Correspondingly if an investor having the shortage of an assets and looking to buy that so, what will be the minimum price for an asset on the short notice? Under this perspective liquidity is estimated in the provision of the size of loss and to the length of the time spam. The loss here refers to the reduction in price or other different transaction cost. If the investors are going to buy assets, they keep in mind the potential of selling it again. Such as the potential of applying charge to which extent, if an investor would like to sell it in the future and at which price the investor will be able to sell it in the future. Furthermore, Hick (1962) decoded liquidity with marketability; a security will be marketable when it is directly sold after negotiation. Wyss (2004), there is no unique definition for liquidity because it has many dimensions not only a single one, so it is very difficult to cover its overall dimension. Generally, researchers define it by keeping only one dimension in their mind.

Harris (1990) and the same was observed by O'Hara (1995) that, liquidity is not a single, it is multidimensional concept. Harris (1990) displayed four interdependent dimensions of liquidity. These four dimensions are the market width, depth, immediacy and resiliency. First is the market width which is refers to the ratio between the rising stocks and falling stocks prices which can be calculated by the bid-ask spread. It is computed by buyer price minus seller price. Small bid-ask spread will represent the higher liquidity. The second dimension of liquidity is depth. Depth shows us the number of traded shares in a given period of time, which can be view as volume Chollete et el. (2007). The third one is the immediacy dimension which is the ability of quickly trading can be taken by turnover ratio. The last one is resiliency which shows the ability of trade with a slight effect of price. According to Liu (2006) liquidity shows the ability of both fast trading with a bit impact of price and with low exchanging cost. In this explanation Liu define liquidity with multiple dimensions, that are the rapidity of exchanging, the extra price demanding by exchanging and the impact of price.

Kay (2008) gave the illustration by another way, according to him, that an asset could be showing liquidity from one aspect and will be showed illiquid from the other aspect. Assume, investor has a security in hand of Treasury bond. This Treasury bond has 15% coupon rate. On the other hand, the market rate is 8% currently. It implies the bond is traded over par value. Assume that, if the investor is doing to sell the bond. He has the opportunity to acquire huge capital gain. Tax will be charge on that capital gain. On the other hand, ownership of the bond is less risky and the coupon rate of the bond is freed from the tax. As a result, if the investor is going to sell the bond it would be very expansive for him. As it is expansive for the investor by giving loss so the bond is illiquid from the one aspect of trading without having any loss. However, the investor can sell the bond quickly in the secondary market. In this manner the bond is liquid according the other aspect of liquidity to be quickly traded. This example demonstrates that, it is very difficult to cover these explanations in an individual proxy of liquidity, which can catch all the required characteristics. Likewise, Amihud (2002) declared that neither liquidity detects directly nor seizure in an individual measure.

Liquidity is referring to the easiness in which we can sold an asset quickly after buying it without charging any loss. These losses may be in the shape of downing the prices or other cost. Whenever an investor going to invest in an asset. First, he completely checks the capability of reselling of that particular asset. Second how much cost it will charge and on which price it will be sold in the future. These all attentions are associated with liquidity of an asset. The mention concerns influence the future cash flow of an asset. As the future cash flow can be influence by the liquidity so, it must be a very important factor in assets pricing. Certainly, its matter what asset you purchase, if an investor purchase stock of well know company listed on a well settled stock exchange. Then there will be no difficulties in sell it again immediately, approximately charging no cost. On the other hand, if an investor purchases a stock of the small and unlisted company. After sometime the investor wants to sell it again immediately then no doubt he will find himself having hard time to find a buyer for his stock. Thus, in order to sell the stock first he needs to search buyers for his stock and then start bargaining with them. These activities will charge costs on the investors.

1.2. Stock liquidity

The above discussed Liquidity qualities are authentic for the other asset's categories counting stocks. Damordan (2005) explained, when an investor buys asset he sometime confronted with buyer's remorse. Where the investor needs to switch his choice and offer what he just purchased. The cost of illiquidity is arising in the response of that remorse. This cost differs from one asset category to another. Demordan classified stocks in different classes' according to their liquidity level.

Liquidity level of different type of stocks

Heavily Traded Stock in widely held companies in Markets.	Traded Stock small companies in developed markets.	Traded companies with a small float.	less traded stock or Stock traded in emerging market.
Highly Liquid			Highly illiquid

Origin Demordan (2005)

From the symbol above stocks have different level of liquidity. Those stocks are the most liquid stock which is in the category of developed markets big companies. Less liquid stocks are those which are lies in the category of traded stocks of those companies which trading capacity is low. These are the less traded stocks. The last portion represents the developing market stocks. Unlisted company's stocks are generally consider being fewer liquid stocks. However, it is debated that a large unlisted organization stock is more liquid than thinly traded stock of listed companies. A stock will be very highly liquid when it has the characteristic of easily enter and exits position. When the buying and selling of a stock easy and without reducing the price.

It is very difficult to determine the accurate level of liquidity because of the various aspects. For example, different issuers issued asset in different markets the distribution of the market should be marked. Even if a single issuer issued different assets still it would have different characteristics such as maturity, voting right etc. For the interpretation of different financial market cases liquidity is very important. Investors look at many issues during the investment decision. These all issues are created by illiquidity. Usually the origins of illiquidity are immediate execution, the pressure of demand, the risk inventory, Asymmetric information and the frictions of search. Amihud et al. (2006). These all origins of illiquidity charge cost on the asset's holders.

1.3. Sources of illiquidity

Amihud et al. (2006) particularized five factors which create differences in stock liquidity. These factors are exogenous execution, the pressure of demand, the risk inventory, and asymmetric information and the friction of search. These origins charge cost and built a transaction difficult for the investors. The charge cost of these factors affects the asset prices. These illiquidity factors changing time to time so, investors are confronted with liquidity shock for holding assets. As the risk increases for the investor then they will ask for remuneration for the additional risk and associated cost with it in the shape of higher expected returns.

1.3.1. Exogenous execution costs

Some of definite origins of liquidity link with trading cost are the brokerage fees order processing cost and tax. These expenses will impact the benefit of the merchant, the dealer and purchaser might be influenced by exogenous transaction costs. these expenses' express friction in the asset's markets, they can count as a source of illiquidity. As they should influence the costs, the financial specialist will exchange at. Additionally, if investors don't exchange straightforwardly with one other in the medium of open market orders however rather exchange in makers market, the different exchange expenses will be reflected in the spread costs which are cited. That is, the dealer take consideration their costs while citing bid and ask costs - the spread between what they will purchase for (selling price) and what they will offer for (buying price) should take care of the dealer expenses. Coordinate exchange costs are some of these expenses. Alternate expenses for the market creators will be touched upon in the following section.

1.3.2. Demand pressure

The second source of illiquidity is Demand pressure. It is an essential source of illiquidity which is refers to the market depth for an asset. It portrays the investor's probability of offering huge sums of assets rapidly and without bringing down the price. For instance, if an investor is bettered by a liquidity shock, he/she should be compelled to sell her huge assets holding in a (less liquid) stock. If, in any case, the extent of the position is impressive, then there is a risk involve, and that risk will not leave the investor to exchange. The investor will not have the capability to do the exchange at the current market value. The main point is that, there won't really be a purchaser who is agree to trade at the present market value. In this circumstance if the huge quantity holders want to convert assets into cash, he/she would likely lower the price of stock. Thus, this huge exchange would move the cost of the stock which is a consequence of the way that the stock is not as much as superbly liquid. This phenomenon is ordinarily referred to demand pressure or value affect. At the point when stocks unable, flawlessly liquid, a substantial exchange will play a role for equilibrium between supply and demand. Along these lines, huge order of exchange will bring about value changes when stocks are not

strongly liquid. The value change will be negative at the point when the investor puts in an offering price and positive for a purchasing price. The smaller difference between these two values is indicating the highest liquidity. Some portion of the value effect could be informational. If an investor abruptly directs a substantial exchange (buy), there is a chance that others investors would see it as an indication of this investor having some new and private data. This could put an upward pressure on the cost of the stock. However, this value affect is for a short time. The cost would straighten out, that it had achieved unreasonably abnormal level.

1.3.3. Inventory risk

Inventory risk and demand pressure are highly related with each other. Inventory risk occurs when the market is not good for the asset. Investor considers that there is no buyer in the market to buy the assets. In this situation investor sell asset on the dealer before the buyer come, on the dealer bid price. Now the dealer has an asset and bearing the risk of decreasing market price. The dealer wants to compensate for it. So, for the compensation the dealer quoted the price to assure the present value and the expected future loss. Thus, higher the inventory risk will lead to higher the bid-ask spread.

1.3.4. Asymmetric information

The fourth source of illiquidity is Asymmetric information. Asymmetric information means a situation where one of the parties has better information. This information can affect the price of an asset. This information can be about the bankruptcy or the forecasting of price movement. The impact of the asymmetric information is for a shorty period of time.

1.3.5. Search friction

The fifth and last source of illiquidity is searches friction. Search friction is connected to demand pressure and inventory risk. Search friction comes into being because of the demand pressure. The search friction is the opportunity and financing costs that an investor brings about while hunting down a not really display purchaser of the stock to be sold. So most importantly, there will be opportunity costs related with waiting for counterparty. Next, when counterparty has been found, discussions start.

These compromises may prompt a value decrease. The other option to seeking to incur the cost with dealer – these expenses contain charges and the inventory risk that the dealer needs to be adjusted for as specified under demand pressure and inventory risk. This kind risk is especially noticeable in over-the-counter markets.

1.4. Liquidity premium

Liquidity premium refers to the extra expected returns earn by an asset holder on an asset because of its illiquidity. Holding illiquid asset increase the level of risk and also charge high transaction cost as compare to liquid asset. Asset holder asks for the compensation of these extra risk and cost. The market where the transactions take place gave more liquidity premium to the holder of illiquid asset as compared to the owner of liquid asset. The presence of liquidity premium has a direct linked with liquidity risk in asset pricing. This risk was studied by various Researchers in the capital asset pricing model with liquidity risk such as Holmstrom et al. (2001) and O'Hara (2003).

When the stock market crises were continued, Isaenko and Zhong (2015) investigated the premium of liquidity. They studied, stock market which was very liquid before the liquidity shock occurs. Their finding proposes that liquidity premium occurred by the liquidity crises is significant.

Many researchers use different proxies for the measurement of liquidity. Amihud and Mendelson (1986) took a step to investigate the effect of liquidity on the asset price, for finding they used bid-ask spread in their research. Amihud and Mendelson (1989) found invers relation of both liquidity and stock returns with each other, by using spread measure. Goyenko et al. (2008) dig out the relation of relative spread change and stock sensitivity by using the relative spread measure. Amihud (2002) has done another research on stock returns by using volume measure in his research. Recently another research done by Lam and Tam (2011) they utilized the Hong Kong stock market data and they used turnover ratio as a proxy of liquidity for investigation of liquidity and asset price.

1.4. Liquidity proxies

In the following, a portion of the generally utilized substitute for liquidity and illiquidity will be displayed. Shortly, liquidity can be measure by utilizing the components of illiquidity considered previously.

1.4.1. Bid-Ask spread

In the trading place, investment practitioners purchase the assets on the price which is the market maker's ask, and sell at the value which the market maker's bid. Maximum of the sources cited above drive the bid-ask spread. Ask price is referring to buying price while bid price is referring to selling price. When an order is putted, the market maker's take charges in the shape of transaction cost for the further process of order. The market makers are facing with so many risks during the order processing. One of them is out of the chances, the held inventory went to change the price. The second one is, dealing with the investor who has some private information about the inventory that the market makers do not also dragging him to the loss. By keeping these all points in mind, the market makers decided the quote price in such a way in which they cover the costs of the transaction, the risk of inventory and the risk of dealing with the private information holder's investors. Additionally, in case that the market makers quote the low asks price or the bid price too high, then it will become so difficult for them to find a trader.

The bid ask spread liquidity measure is introduced by Amihud and mendelson (1986). It is simply computed by process, dollar divide by the average of the offer and selling spread. The offer and selling (bid-ask) spread is the difference between the selling and buying value of a stock. The stock with high bid-ask will count in most illiquid stock. Roll (1984) clarified, Bid-ask spread is liable to estimate the errors just because physical treading is mostly done inside the quoted prices not absolutely at the decided quoted price. Peterson and Fialkowski (1994) they accepted the statement of Roll and disclosed that not as much only less than half of the transaction were done on the quoted price. They also reveal that there were only 10% correlation between the accuracy and quoted price while studying the New York stock exchange (NYSE). Furthermore, Haung and Stoll (1996) said that, there is no guarantee for the bid-ask spread measure that it will

give you the exact estimation of the transaction cost. Aitken et al. (2003) recognized that bid-ask spread won't be the good measure for liquidity.

1.4.2. The Roll's implies spread

Roll (1984) Bid-ask spread is just give us the estimation of errors in the quoted prices. It is not capable for the measurement of transaction cost. Hence, he introduced implies spread. For the calculation of liquidity, he utilized the serial correlation in occur in the transaction cost changes.

The mathematical form of this measure as fellow;

$$\text{Implies Spread} = 2\sqrt{-cov}$$

Here *cov* represent the covariance of changing of the first order price. This measure can calculate on the basis of different time periods such as daily, weekly and annual basis returns of stock.

1.4.3. Lesmond, Ogden and Trzcinka's measure

As mentioned before, trading cost plays one of the aspects of liquidity role among four aspects. Trading cost measured by the help of proxy variables or by the help of adding spread and commission. However, it is a poor way of catching the actual trading cost. Proxy variables are unable to capture directly the effect of transection cost. In addition, it may follow the impact of those variables which are insignificant to the trading cost. Furthermore, spread plus commission comprises of estimation issues. Various studies have the evidence of it that trading is occurred between the quoted Bid-Ask spread and the commission, is charged by the dealer may not be related to certain trade such is research expense. The most important thing, the data which we need for the calculation of proxy variables and for the calculation of spread plus commission may be not available. Due to these all issues, Lesmond et al. (1999) introduced a new proxy for capturing the dealing cost. This measure just needs daily stock returns which are very

easy and inexpensive to obtain for a long period of time and almost in each market in the whole world. The trading cost effect can be straight examined over the occurrences of Zero returns. this return is not an uncommon incident for any size of firms. Large firm have over 40% of day by day stock returns being zero on the other hand this measurement for a small firm is above than 80%. The main focus of the Lesmond et al. (1999) model on, if the cost of trading is over than the estimation of the informational signals, then at that point the marginal investors will hold back from trading or will never trade which can cause of the zero returns. When the stock is more liquid it cost will be lower on the investor to trade. This model is used for the estimation of effective transaction cost of the marginal traders.

1.4.4. The Turnover

Turnover is one of the common proxies used for the measuring of liquidity. The calculation of this proxy is simply divided the number shares traded during a specific period of time on the aggregate of shares issued in that certain period. Many measurements for liquidity are discussed in the literatures. The problems with that measures are the data, which is needed for that is not easily accessible as compare to turnover. Datar et al. (1998) used this proxy by replacing on the bid-ask spread for the estimation of liquidity because of the different advantages of this proxy as compare to the spread proxy. Turnover support which is proposed by Amihud and Mendelson (1986). The proposition of them was that, the longer period hold assets provide higher returns to the investor by estimating on bid-ask spread and explain that there is a direct proportion relationship between the returns of an assets and spread proxy. The collective elaboration of that proposition is the assets returns are associated with period of holding or the exchanging frequency of an asset. Atkins and Dyl (1994) used inverse turnover for the measurement of investor's holding period in their study. Inverse turnover simply calculated from the division of shares outstanding on the number of shares traded. Furthermore, in bid-ask spread the accessibility of monthly data is very difficult for long period. Against with it, the availability or the accessibility of the require data for the turnover is ready in almost every market. So, it becomes very easy to find out the

relationship of asset returns and liquidity for the large number of securities and for a long period.

1.4.5. Trading volume

Like turnover, it also shows the transaction quantity dimension. Volume or buying and selling quantity is described as the quantity of a security that had been traded all through a designated time frame. It is simply defining for a single stock to sum up of securities exchanged during given time frame. The stock with better volume is more liquid in the market. According to the Campbell et al. (1993) a decrease in price of stocks is because of the external pressure of selling by unaware dealers can result surprisingly high dealing volume. This is proposing that high trading volume of stocks also shows demand for the stock. It is also indicating; the volume is increases more with increases of stock prices rather the decreases of stock prices. Some researchers used volume/average volume as a measure of liquidity such as Brennan et al. (1998) as well as Chordia et al. (2001).

1.4.6. Amihud's ILLIQ measure

The most important thing needed for the empirical research is data. If data is not available, no one would be able to test hypothesis and as a result no research can be completed. In few markets, particularly in developing markets liquidity is also very significant the data of the transaction and quotes are mostly not obtainable for the long period. Thus, for the finishing of this resistance Amihud (2002) introduced a new proxy for the measurement of liquidity. The data which is needed for this measurement is easily available almost in each market for the long period. This measure simply calculated total value of stock divided by average volume of dollar. By using this measure of liquidity, you have just required two things, daily returns and volume.

$$ILLIQ_{it} = |returns_{it}| / volume_{it}$$

Where,

$Returns_{it}$= daily returns earn of stock *i* at date *t.*

$volume_{it}$= daily volume of the dollar, average over some period for stock *i* at date *t.*

The ILLIQ measure was modified by Brennan et al. (2011). They replaced the dollar volume by share turnover and applied natural logarithm to that measure.

$MODIFIEDILLIQ_{it} = \log (|returns_{it}| / turnover_{it})$

1.4.7. Pastor and Stambaugh's measure

Pastor and Stambaugh are impressed by the struggle of Campbell et al. (1993) they also evaluate that in asset pricing liquidity is very important independent variable. They concentrated only on the value effect part of the liquidity. They used daily stock returns and volume, the data collected for of January 1966 to December 1999. The collected data was of the New York stock exchange (NYSE) and American stock exchange (AMEX). The model which they used is;

$$r^{e}_{i,d+1,t} = \Theta_{i.t} + \emptyset_{i,t} r_{i,d,t} + y_{i.t}\, sign(r^{e}_{i,d,t}) v_{i,d,t} + \epsilon_{i,d+1,v} \quad d = 1,\ldots, D$$

Here

$r^{e}_{i,d,t}$ = Returns of *I* share at the *d* day and in the month *t.*

$r_{i,d,t}$ = The least squares (OLS) coefficient estimate for the estimation of liquidity.

$y_{i.t}$ =. The sign order flow.

$sign\ (r^{e}_{i,d,t})$ = The representation of order flow.

$v_{i,d,t}$ = volume of the dollar for share *I* at day *d* and in the month *t*.

The perspective of Pastor and Stambaugh was that the order flow must be pursuing partly by contrary returns in the upcoming provided that the stock is not highly fluid. So, the $y_{i.t}$ which representing the liquidity must be negative and will have large magnitude when the liquidity is not higher. $r^{e}_{i,d,t}$ in the above model both taken as a dependent variable because of to knock out the marketwise shock, and for the division individual stock impact of volume-return negative relationship and to eliminate the issue of zero returns on sign volume.

1.4.8. Liu's multidimensional measure of liquidity

It is generally acknowledged that liquidity has numerous aspects. However, many researchers still concentrated only one dimension of liquidity while explaining the cross-section of the returns of assets, such as, trading volume, price impact and trading cost. Thus, the whole and accurate effect of liquidity on stock returns cannot be arrested altogether in those studies. In addition, very few studies have concentrated on the trading speed aspect of liquidity. Trading speed is the trading continuity and the obstacles on the way of performing an order Liu (2006). He also filled, gap in the literature of liquidity by introducing this new measurement of liquidity. Liu's liquidity measure comprises three liquidity aspects such as trading volume, cost and trading rapidity. This new liquidity measure of Liu is called LMX.

$$LMX = \left[\text{Number of zero daily volume in previous } x \text{ months} + \frac{1/(x\text{-month turnover})}{deflator}\right] \times \frac{21x}{NoTD}$$

Where

x-month turnover = turnover over the prior x months.

NoTD = the sum up trading days in the market over the previous x months.

Deflator = the adjusted turnover lies between 0 and 1.

Here the prior x months' turnover can be obtained by adding the daily turnover of the previous x months. Turnover, total traded number of shares in a day divided by the total number of shares issued. *Deflator* is picked in order that the turnover modification will lie between one and zero. In this manner, the *Deflator* of 1100 is decided for the *LM6* and for the *LM12*. On the other hand, 480000 *Deflator* is decided for *LM1*. The adjustment of turnover is empowering to differentiate the stocks having the same number of 0 volume over the past x months. To make practically identical over time the factor of $\frac{21x}{NoTD}$ incorporated in the equation. 21, indicating standardized counting of trading days in every month.

1.6. Problem statement

Liquidity is one of the significant areas in Finance which has its relationship with stock returns. The relationship of the liquidity and stock returns has been investigated all over the world especially in developed markets and in emerging markets. Liquidity has various determinants to be investigated and no one can claim its perfection. It has been investigated that its predictability in Asian market does not show positive response as compare to developed equity markets Tiing (2013). Ozdamir (2011), Unlu (2012) and Demirtas and Gunaydin (2015) found a negative relationship of the stock liquidity with its returns in emerging markets. On the other hand, Jun et al. (2003) Lischewski and Voronkova (2012) studied emerging market for the relationship of stock returns and liquidity. They found a direct and positive accociation of liquidity and with returns. There are few studies conducted in Asian markets generally and fewer in Pakistan equity markets to empirically test the effect of liquidity in stock returns. Previous studies are concentrated on one dimension of liquidity. Past literature does not empower us to determine solid outcomes about the presence of liquidity impact. This area is attractive for more investigation.

1.7. Objectives of the study

The main objectives of this study are,

1) To investigate the liquidity with reference to stock returns.
2) To measure the liquidity in a scientific method of share Turnover ratio, ILLIQ and Volume.
3) To find out the relationship between liquidity and stock returns in Pakistan.

1.8. Significance of the study

Various researchers have studied and highlighted the relation of liquidity with stock returns. Yet, there are few studies have been conducted on the basis of Asian data. Recent empirical discoveries propose that some developing Asian are different to those developed markets. Hence, going into the detail the study that will design to dig out the

impact of liquidity on stock returns in Pakistan in detail is essentially needed as a point of Asian study.

Furthermore, it will also be a source of information and data for the investors, researchers and other related field master like academicians etc. It will also give material related to the connection between liquidity and stock return in Pakistan Stock Market. The reason being is, this correlation among these variables is imperative and warranted for the stakeholders and fund managers to take the investment decisions. The same will also become a reason of references to more investigate the topic related to liquidity impact on stock returns in Asian market and also in developing countries.

CHAPTER 2

Literature Review

Liquidity was first included in the three-factor model by Fama and French (1992). They took liquidity as an asset price determining variable in their model. It is suggested by Pastor and Stambaugh (2003) that investors would require extra return in the response of having illiquid assets. It is founded by many researchers that; illiquidity risk is valued in the returns of a stock. Thus, cause risk premium Acharya and Pederson (2005). However, it is not generally the always true situation. Piqueira's (2005) did not found any liquidity risk premium in his study.

Amihud and Mendelsen (1986) come up with a theoretical model and after that approved the hypothesis which were exist in the model by empirical analysis. The main aim of their investigation was to check the link of illiquidity with stock returns. they used the Bid-Ask spread measure. First, they shaped a model which predict the assets having high Bid-Ask spread will provide high returns. For this purpose, they picked the sample period from 1960 to 1979. The sample size used in their study was the stocks traded in the New York stock exchange (NYSE). They took Bid-Ask spread and used a proxy for liquidity. They followed the Fama-MacBeth (1973) methodology. They ranked all the sample stocks according to the bid-ask spread. All the ranked stocks then divided into seven equal portfolios. After the portfolio making, they calculated beta for each portfolio. The calculated beta then given to all stocks exist in the portfolio. They divide the whole data into twenty overlapping periods. The beta and portfolio estimated was based on five years' period. They pooled both type of data cross-sectional and time series to collect estimates for the purpose to test the main hypotheses. The main findings of their study

were approved their model. Their outcomes give an indication of a positive link of illiquidity with stock returns.

Eleswarapu and Reinganum (1993) conducted an empirical study for the investigation of liquidity and stock returns link with each other. They checked this association in January and in other different months as well. To find this relationship they selected the New York stock exchange (NYSE). they picked the whole stock listed in stock exchange as a sample. The sample period which they have decided was from January 1961 to December 1990. They completely copied Amihud and Mendelsen (1986) changed by just increasing 10 years of period. To seize the liquidity, they used relative Bid-Ask spread proxy. It is calculated by dividing the dollar Bid-Ask spread by the average of Bid-Ask prices. They divided the whole stocks into 49 portfolios according to their spread and calculated beta suggested by Amihud and Mendelsen (1986). Their findings suggested the liquidity premium just in the month of January and showed no impact for the rest months. Eleswarapu (1997) providing the evidence of concave relationship of liquidity with the returns stock. He empirically examined the liquidity premium which was concluded by Amihud and Mendelson (1986). He took NASDAQ firms instead of NYSE as a sample for his study. He recommended NASDAQ documentations is much stronger than NYSE because of the execution process, which is done in the NASDAQ through market makers while NYSE empower the investors to bypass the cost of transaction through limit orders which provide preference on the specialist quotes. Furthermore, they had a long series of monthly data for the NASDAQ. He took the sample period from 1973 to 1987 and all the stock listed in the NASDAQ as a sample. he utilized the Bid-Ask spread proxy to catch liquidity. he made 49 portfolios from the collected data. The stocks were divide based on their betas and average spread in different portfolios. First divided the whole stocks ranked and divided into seven groups according to their average spread and the further divided each group into seven groups according to their betas. Fama-Macbeth cross-sectional regression was done for the analysis and he found inverse relationship of stock liquidity and returns.

Datar et al. (1998) tested the link of liquidity with stock returns. they took the non-financial firms which were traded on New York stock exchange (NYSE) as a

sample. The sample period taken by them was from July 1962 to December 1991. The sample size of their study was 880 average stocks in every month. The selected sample data was on monthly basis. Turnover is used instead of bid-asked spread for the measurement of liquidity. They took turnover as their independent variable and stock returns as a dependent variable, furthermore they picked size, book to market and beta as explanatory variables in their study. They used Generalized least square (GlS) in the methodology portion. They copied Fama-MacBeth (1973) improved version used by Litzenberger and Ramaswamy (1979) methodology. They did empirical analysis for the whole dataset which were collected from 1962 to1991. Their investigation proposed that turnover which was used as a liquidity measure has statisticsally negative relationship with stock returns in both scenarios with and without control variables. However, the impact of size and beta was insignificantly negative while the effect of book-to-market was insignificantly positive. As indicated by Aitken and Comerton-Forde (2003) these measures are basically used to figure promptly accessible information and they are generally acknowledged among market experts. Be that as it may, trade-based measures reflect ex post liquidity and this instigates the way that they are maybe the most dangerous measures. They demonstrate what individuals have exchanged the past yet not how they will exchange what's to come.

Brennan et al. (1998) conducted a study with the objective, to find out the relationship of the liquidity and stock returns with each other. In order to arrest the liquidity effect, they used volume measure. The inspiration to use volume for catching the liquidity because, it observed on of the most important determinant among the different liquidity determinants. Furthermore, it is easily accessible in all markets for the long period. volume is calculating the numbers of traded stocks so, it is simple to the stocks having high volume will be more liquid. Thus, according to the view of Amihud and Mendelsen (1986) volume must have inverse link with returns of stock. To check this link, they used common stock companies as a sample. The sample period which they picked was from January 1961 to December 1995. They used monthly data and convenience sample method in their study. They used individual securities rather than portfolios, as Roll (1977), Lo and MacKinlay (1990) have suggested portfolio is

uncertain. They followed the Fama-MacBeth procedure in their study. They used two different requirements, to adjust the model for risk. First the principle component method of Conner and Korajczyk (1988). Second the characteristics factor-based tactic. After the adjustment there finding suggest strongly negative and significant relationship between assets returns and liquidity which were calculated as a volume.

Chordia et al. (2001) reported the inverse relationship of stock returns with liquidity. They studied New York stock exchange (NYSX). They collected the sample data from institute for the study of securities market (ISSM). In addition, Trading activities quotations (TAQ). They used different time span for these sources, ISSM data time span was from January 1988 to December 1992 while TAQ was from 1993 to 1998. They used whole stock listed in the stock exchange of New York as a sample for the approximately 11 years' period. they used relative bid-ask spread and volume for to capture liquidity and found negative relationship.

Amihud (2002) examines the link of expected stock returns with illiquidity. This relationship examines over time in his study. To capture the stock illiquidity, he used the ILLIQ measure. This measure totally concerns to the price impact. It has the power to explain long time data and need the data which is easily accessible mostly in every country. It can be calculated as, daily returns divided by volume. He used all the stocks which is traded in the New York stock exchange (NYSE). The period of sample selected for the study was from January 1963 to December 1997 which is approximately thirty-four years. Fama-Macbeth (1973) procedure followed for the findings. he documented the positive relationship of stocks expected returns and illiquidity. Furthermore, his results proposed that, when illiquidity of the market is unexpected then the price of the stocks is lower. He argues that the expected exceeding returns is the risk premium and the illiquidity premium. In this study he also discussed that the effect of liquidity for a small firm is larger. It occurs because of the sensitivity change in the market illiquidity for the smaller firm is high than other firms. So, high illiquidity gives high expected returns. Amihud and Mendelson (2008), also stated in their study that, an organization's obligation and in addition its value are said to be liquidity on the off chance that they can be exchanged rapidly and easily. As of late market members have encountered extreme

liquidity stuns and we have seen tremendous changes in speculators' capacities to exchange amazing resources, for example, venture review securities and securities issued by U.S. government-supported endeavors. This is the reason we should focus on the liquidity of securities.

Chalmers and Kadlec (1998) conducted a study on the Amex and NYSE. The purpose of their study was to find out the link of stocks returns with liquidity. The sample period choose for the study was from 1983 to 1992. Amortized spread measure is used in his study instead of bid-ask spread. They claim that the Bid-Ask used in the asset pricing model purely concentrated on the magnitude of spread and opposing amortized cost. They Further explain that the magnitude of Bid-Ask spread is unable to measure the amortize cost connected with spread when stocks closed with various spread. The main reason of the use amortized spread is to cover the expected holding period as well as magnitude of spread. It is simply calculated as, effective spread multiply with turnover. They divided the whole sample stocks in 20 portfolios and then ranked according to their individual stock beta, then they estimate each portfolio beta and gave to all stock which was lies in the portfolio. They used asset pricing CAPM model in their study. The main results of their study provide the evidence of positive relationship between liquidity which was measure by amortized spread and stock returns. The result of chalmers an Kadlec is not in the line of Amihud and Mendelsen (1986). However, they found a negative relationship od returns with beta and size. They argue that the inconsistence result may just because of the specific sample.

Hu (1997) studied the Japanese stock market for the purpose to find out the association of liquidity and expected stock returns with each other’s. he used turnover proxy for capturing liquidity. He hypothesizes, if there is a link of turnover and trading frequencies of the investors with each other’s so, then turnover must have inverse relation with stock returns. To find out this link he took the Tokyo stock market as a sample for his study. The sample period which he selected was from April 1976 to March 1993. He copied Fama-Macbeth two steps methodology. In the first step, He estimated OLS regression for the turnover and returns. In the second step, he estimated the simple and weighted average of the time series. The first step, weight standard error assuming zero

correlation and homoscedasticity. To find out the interaction of turnover with other variables he run multiple regression. Others variable included book-to-market ratio, firm size, and cashflow-to-price ratio. He did not take firm beta because the previous studies found that beta is unable to explain Japanese stock market returns. His outcome suggests the inverse association of liquidity with stock returns in the Tokyo stock market which lies on the way of Amihud and Mendelsen (1986).

Marshall and Young (2003) investigated the connection of liquidity with stock returns in Australia. They serve turnover as a measure for catching liquidity. They simply calculated the turnover, just dividing the monthly volume by the yearly sum up of issued shares. They took the Australian stock market as a sample for their study. The sample period of their study was five years starting from January 1994 to December 1998. They collected the whole sample data from the Security Industry Research Center Asia-Pacific. The data consist almost 1100 average firms each year. They took firms beta and size as a control variable. They used two techniques in the methodology section the first one is seemingly unrelated Regression (SUR). The second is Cross-sectionally Correlated and Timewise Autoregressive (CSCTA). They preferred these two models instead of Fama-Macbeth. Furthermore, they explained that these methods evaluate the beta of portfolio simultaneously which leads to knock out the problems, comes due to the errors in variables. There finding suggest significant negative linkage of liquidity, measure by turnover proxy and stock returns. Along with these outcomes, they found very small liquidity premium. they did not find any special January effect, they found the negative relationship for the whole year. In addition, they used bid-ask spread and amortized spread as well for the same period. they found a positive relation between Illiquidity measure and returns which violated the theory of Amihud and Mendelson (1986). They found insignificant relationship between amortized spread and stock returns. They also suggest that this relationship of bid-ask spread and amortized spread should be investigated furthermore.

Likewise, Chan and Faff (2003) examines the influence of liquidity on stock earnings in Australia. To investigate the link between liquidity and stock returns they used Australian stock market as a sample for their study. The sample period which they

had selected for their study was from January 1990 to December 1999. To examines the existence of liquidity premium they used monthly data of the Australian stock exchange. Their sample exist 534 average companies listed in the Australian stock exchange. To capture liquidity, they used turnover as a proxy. They used stock returns as an independent and liquidity calculated by turnover as a dependent variable. They also used control variables which are book to market, the size of firm, the beta of stock and momentum in the stocks. In the analysis section they followed the three factor model time series version of Fama and French (1993). They examine liquidity existence for the special seasonal effect as well such as January effect and July effect. Their outcomes suggest that there is inverse linkage between liquidity measure by turnover and the returns of stocks, which is consistence with the theory of Amihud and Mendelsen (1986).

Hung et al. (2015) verified the positive affiliation between illiquidity and stock earnings, while studying the Chinese stock market. They used all the stock listed in the chine's stocks market. The sample period of their study was from July 1999 to June 2011. They used monthly data for the analysis and having 1286 stocks in the start of their sample period 1999. Along with time the number of stocks reached to 2169 at time of closing of the sample period 2011. The monthly data used in the study was collected from the DataStream. They divided the whole sample period into two slots 1st slot included the data from July 1999 till May 2005 while the second slot contain from January 2007 to June 2011. To capture liquidity and illiquidity they used different proxies. For catching liquidity, they serve Bid-Ask spread and LIQ Amivest liquidity measure as a proxy for liquidity. To arrest illiquidity, they used ILLIQ measure also known as price impact measure, and proportion of observed zero daily returns ZR. They mainly concentrate on non-tradable shares reform. They found the witness reveal the liquidity effect is especially marked after the reform. They used Fama and French three factor model in their investigation. Their results suggested the positive relationship of illiquidity and stock returns in the chines stock market which is on the way to Amihud and Mendelsen (1986) theory.

Bekaert et al. (2007) elaborated the impact of fluidity on stock earnings. They took 19 emerging market as a sample to analyses the existence of liquidity. They serve

the proportion of zero daily firm returns to arrest liquidity. Zero daily returns measure is almost similar with bid-ask spread. This spread data is difficult in collection while zero daily returns easily achievable almost in every country. Observe zero daily returns is the estimator of transaction cost. For the analysis of data, they used vector autoregression (VAR) model. Their outcome suggest that it is possible to calculate the expected returns in advance, and their main finding reported the inverse relationship of liquidity and stock earnings in nineteen emerging markets.

Salvati and Rsaeeyan (2005) conducted their study on Tehran Stock market. The time spam used in their study was from January 2001 to December 2004. The total time period used in their study was four years. They found out that reasoned that there is no noteworthy connection between the capital structure also, liquidity of the organization and in addition benefit. In any case, they uncovered the huge connection between the proportion of the market an incentive to the book esteem and the capital structure. A similar study was conducted by Namazi and Shirzadeh (2005) inspected the connection between the capital structure and benefit of the organizations recorded in the stock market of Tehran. The outcomes demonstrated the way that, in general, there is a positive connection between the capital structure and benefit of organizations, yet this relationship is measurably feeble.

Deuskar (2006) introduced a new way to study the liquidity and unpredictability of stock costs. In this method, the ongoing changes of costs are anticipated by financial specialists. He trusts that when unpredictability is high, the excellent hazard is high and when the current profits for resources is low, the hazard free rate of the profits on resources are low, as well, and the market won't have liquidity. Then again, illiquidity expands the supply stun.

Longstaff et al. (2005) investigated the American stock exchange. The total number of companies in the study were 984. The time period used in the study was from January 1979 to December 1983. In their study, they utilized the proportion of benefit normal to resources as a proportion of the productivity of the organization and arrived at

the decision that there is a negative connection between the obligation proportion and the productivity of organizations.

Yahya Zade Far and et al. (2010) investigated the linkage of liquidity and stock earing. they conducted their study in Tehran Stock Trade. The time period used in their study was from 2002 to 2008. In this examination, the connection between stock conversion standard as a liquidity measure and profit for value in Tehran Stock Exchange amid. The time arrangement information is gathered yearly through a mix of information (board) and examined by using Eviews programming. In such manner, in the wake of testing the connection between the two factors, the size and book esteem factors into the market an incentive as the control factors went into the model. This might be because of an expansion in the engaging quality of the money settled stock and an expansion popular for such stocks.

Abdoli and Zadeh (2003) conducted an investigation on Exploring Factors Affecting Expected Returns of Shares Procured. The study was conducted in Tehran Stock Exchange. He researched the connection between the hazard and expected returns of the offers of the organizations admitted to Tehran Stock Exchange through the CAPM test in the period from 1993 to 2002 and distinguished the factors influencing the normal returns of these organizations. To this end, the effect of beta factors, firm size, book an incentive to advertise value, benefit/benefit proportion, in spite of the fact that the CAPM hub predicts, but they didn't coordinate the consequences of comparable investigations in nations with created capital markets.

Rouwenhorst (1999) reported that, there is no affiliation of liquidity with stock earnings. His result was totally inconsistent with Amihud and Mendelsen (1986) theory of illiquidity premium. He investigated the 20 countries stock returns of emerging markets. He took 1705 firm as a sample in his investigation to analyses the link of liquidity and stock earnings. The sample period used in his study was from 1982 to 1997. He collected the sample monthly data from the emerging market database of the IFC as on April 1997. Turnover is used to seize the liquidity in his study. He made three portfolios top middle and bottom based on each country local beta, book-to-market, size,

turnover and previous six months' returns are also included. At the starting of every month the suitable information is accessible are together by country into three main portfolios, top contain 30 percent, middle contain 40 percent and bottom contain 30 percent as well. He gave equal weighted to each portfolio and rebalanced each month. His findings suggest that there is no association between liquidity measure by turnover proxy and stock earnings. Furthermore, he suggests that the association between turnover and firm characteristic survive. Therefore, he claims that to hold illiquid assets does not grant compensation in the shape of returns.

Nguyen and Puri (2009) investigated New York and American stock market. The main purpose of their investigation was to reveal the relationship between liquidity and stock returns. In order to complete their investigation, they took New York stock exchange (NYSE) and American stock exchange as their sample. The time period selected for their study was January 1963 to December 2004 which is approximately 42 years data. In the analysis portion they used Fama-French and Pastor and Stambaugh liquidity factor. Moreover, they contended that if the Fama-French three factor model become failed, then Pastor and Stambaugh is also unable to explain liquidity. For this purpose, they used Fama-French three factor model. Their results suggested positive relation between illiquidity and stock returns.

Galariotis and Giouvris (2009) studied London stock exchange. The aim of their study was to dig out what relation liquidity has with stock returns. They took the sample frame from January 1996 to December 2001. The whole sample used in their study was taken from UK FTSE 100 and from FTSE 250. For the arresting of liquidity, they used spread measure in their study. Their study exposed the negative relationship between liquidity and stock returns in London.

Hutchinson and Sullivan (2010) they also explored the London stock market. The focus of their study was mainly to expose the relationship of liquidity and stock returns. They extended the sample size. The sample size used in their study was from January 1986 to December 2007 approximately 22 years. For the capturing of liquidity, they used various proxies. Bid ask spread and turnover were the main proxies used for liquidity. In

the analysis portion they used various models such as Fama-French CAPM and another Illiquidity minus liquidity. Their study outcomes suggest that there is negative relationship between liquidity and stock returns.

Leschewski and Vorokova (2012) studied various factors which influence stock prices in the polish market. That various factors are, Market factor, the Size of firm, Book to Market and liquidity too. For this purpose, they took the whole domestic stocks traded in the Warsaw Stock Exchange as a sample for their study. The sample period of their study was from January 1996 to March 2009. he used the daily data of 64 observations each month. They used different measures to catch liquidity such as effective spread estimator, zero measure, ILLIQ, adjusted ILLIQ, volume and turnover. For the investigation the liquidity effect on stock returns, they first calculated ILLIQ ration based on this ratio they divided the whole sample stocks into two portfolios. The low ILLIQ ratio stocks are kept in very high liquid portfolio and high ILLIQ ratio stock are in illiquid portfolio. To examine the role of the different factors including liquidity in the stock pricing alternative pricing model. They divided the estimation into two phases. First, they applied Fama and French (1973) three factors for analyzing the effect. And in the second phase they first ranked the whole sample stocks according to book-to-market and size value. After that they divided that ranked stocks into seventeen portfolios and applied the standard CAPM with and without liquidity factor. Their findings did not find any evidence about liquidity effect on stock prices. However, they noticed the other factors effect on stock prices.

Donadelli and Prosperi (2012) explored the studies of the emerging markets liquidity impact on stock returns. To examine impact of liquidity, they took thirteen developed markets, 19 emerging markets and included 6 micro- area portfolios as well in their study as sample. the sample period used in their study was from January 1995 to December 2010. The whole monthly sample data collected from Morgan Stanley Capital International (MSCI). To analyses the impact of liquidity on emerging markets stocks returns they divided the 19 emerging markets into five equal portfolios. To arrest liquidity, they used turnover by volume as a proxy for it. For the analysis they used two factor linear model. they showed in their study that, the excess returns obtain from the

developed markets noticeably lower than the emerging markets. However, their main findings suggest that these excesses of returns are not just because of liquidity. In addition, they did not find any relation between liquidity measured as turnover by volume and stock prices.

Atilgan et al. (2016) studied Turkish, Istanbul stock market. Their study focused on to investigate the liquidity linked with stock returns. For their study they took monthly stock returns of the Istanbul stock market. The time spam they use for the investigation was 12 years from January 1999 to December 2012. In their study, they used many different measures of liquidity such as, illiqmonth, they used many types of this measure such as, mean adjusted and inflation adjusted and log transformed. In addition, illiqzero measure were used. To find out the impact of other influential factors, size, book-to-market, beta and momentum are taken as control variables. They went through Fama-Macbeth (1973) methodology. They followed the regression for every month of the sample time. Their analysis suggested the positive relationship of illiquidity and stock earnings.

Ozdamir (2011) explored, impact of liquidity on stock earnings in Turkish stock market. In her study she took weekly data of Turkish stock market. The time spam she selected for her study was lies between April 2005 to December 2010. She took weekly data of 100 index for her investigation. First, she estimated the daily data and then taken the average of that for weekly conversion. She utilized different measures to calculate liquidity such as ILLIQ and LR. In the analysis methodology she used ARCH and GARCH. Her main analysis detects the positive association between liquidity and stock returns.

Demir et al. (2008) examine the connection among liquidity and returns utilizing data acquired from 25 firms recorded in Bursa Istanbul stock market. The sample selection was made according to book-to-market rate. In the early half of 2007, that firm was selected whose value was the highest among all. In the last half of 2008, low value firm was taken as a sample. For the purpose, to look at the connection weighted Order Value (WOV) is used to arrest liquidity. The he used fixed effect model. Other influential

factors as also taken as control variables such as book-to-market, size and beta. His analysis suggested the positive relation of both liquidity and returns.

Unlu (2012) studied Turkish stock market. The aim of his study to find out the relationship between liquidity and stock returns. He took 20 years as a sample period. His sample period lies between January 1992 to December 2011. He checked the intensity of five factors model. He arrests liquidity by using turnover measure. He divides his sample into seventeen portfolios. He applied five factor model in the main analysis. His study proposed the negative relationship amongst liquidity and stock earnings. His findings were simillar with Amihud and Mendelsen (9186).

Pastor and Stambaugh (2003) attempted shed light on the influence of market liquidity on stock earnings. They studied market wide liquidity instead of the level of liquidity which is much closed to the price impact. Their study focused on the systematic risk of liquidity. To reveal the affiliation of market wide liquidity and expected stock earnings. they selected New York and American stock exchange (AMEX) and NASDAQ as a sample for their study. They used daily data of individual sample stocks for their investigation. They collected the stock returns and volume data from the Center of Research in Security Prices (CRSP). Their study focused of the temporary price change aspect among the various aspects of liquidity. They used the accompanying order flow LIQ measure to catch liquidity. According to this measure bigger stocks are more liquid and smaller stocks are less liquid. Their main findings suggest that there is a positive relationship between the LIQ used as liquidity measure and expected stock returns.

Gibson and Mougeot (2004) focused on the link amongst liquidity and stock earnings in United State. They used overall market liquidity instead of individual stock. They took the whole stocks of the United State, to estimate the association between liquidity and stock earnings for the period of 19973 to 1997. They were confronted with two difficulties interlinked with overall market liquidity. The very first one is to define a measure proxy for it. The second problem is to identify a joint stochastic method for the excess and latter returns. To estimate the overall market liquidity, they serve the sum up of shares traded during a month in the S&P 100 index as a proxy. They used bivariate

Garch (1,1) in-mean model for the joint stochastic process. They estimated the liquidity risk priced over sub-periods and as well as the whole period in United State, which is consistent with the theory of illiquidity Amihud and Mendelsen (1986).

Acharya and Pedersen (2005) provided evidence on the connection of liquidity and stock earnings. They took the whole common shares that were listed on the New York stock exchange (NYSE). In addition, along with America stock exchange (AMEX) as a sample. The sample period of their study was from July 1st, 1962 until December 31st, 1999. For the purpose to find out the association of liquidity and stock earnings they used adjusted CAPM instead of standard CAPM. They used ILLIQ measure to catch liquidity of each stock. They designed 25 test portfolios and market portfolio on the basis of ILLIQ, the firm size book-to-market and illiquidity variation and calculate returns for each portfolio. They found a direct proportional connection between liquidity and stock earnings. Their outcomes were inconsistent with Amihud and Mendelsen (1986).

Martnes et al. (2005) conducted a study on the link amid liquidity and stock earnings in Span. To estimate the link among liquidity and stock earnings. they took all the stock of the Spanish continuous market as a sample for their study. The sample period was almost 10 years, which is from January 1991 to December 2000. They collected individual monthly and daily both data of their sample. The whole sample stocks are organized and split into 10 portfolios according to liquidity. Then find each portfolio beta and that beta is given to each individual stock lies in that portfolio they used bid-ask spread and ILLIQ as a liquidity measure to calculate individual stock liquidity. Treasury bill was taken as a risk-free rate in their study. In the analysis section the used Fama-French unconditional three factor model. They utilize the size of firm and book-to-market ratio as a measure of company size for each month. They estimated that liquidity premium exists in the Spanish market. They found a negative affiliation among stock earnings and liquidity. Marcelo and Quiros (2006) tested the association of illiquidity and stock earnings on the same Spanish continuous market. They took the whole stock traded in the Spanish continuous market as sample for their study. The sample period of their study was from January 1994 to December 2002, which is approximately nine years. They collected both individual monthly and daily data for the selected sample. They

included the high-technology sector Nuevo Mercado in their sample. The data collected for this sector was from 1st January 2000 to 31th December 2002. To catch stock illiquidity, they used ILLIQ ratio Amihud (2002). They took a start with 140 to 159 stocks and at the end of the sample period they closed with 146 stocks. They divide the individual stocks in different portfolio followed the method of Fama-French (1993). For estimation the relationship between illiquidity and stock returns they used CAPM in their study. Their main findings suggest that illiquidity premium is just available in the month of January.

Liu (2006) examines the relationship of liquidity and stock returns. To estimate this relationship, he took New York stock market American stock exchange (AMEX) and NASDAQ all the ordinary stocks of these three, as a sample for his study. He utilized the time spam from 1960 to 2003 as a sample period. The whole sample data was collected from the CRSP and COMPUSTAT merged CCM database. For capturing liquidity, he presented a new measure to arrest liquidity for the selected sample period. He used LM12 as a proxy for liquidity. He explained LM as, standardized adjusted turnover and sum up zero daily trading volume ended the earlier twelve months. This proxy has power to cover two dimension of liquidity, trading speed and trading cost. The small stocks having low, value, turnover ratio and having high spread, return-to-volume ratio are counted in the illiquid stocks. He also introduced an innovative model, liquidity-augmented pricing model, to estimate the relationship. This model is two factors augmented, which consist both marketplace and fluidity features. This model has the capability to designate the cross-sectional of returns and the liquidity risk, which cannot be clarified by the CAPM and Fama-French three factor model. In conclusion, his result suggested, negative relation of both the liquidity and stocks returns.

Jun et al. (2002) tested the relationship of liquidity with stock returns. They tested this relationship on two ways cross-sectional and time series both. For this purpose, they took 27 emerging markets as a sample for their study. The selected 8 years sample period for their sample. The whole sample monthly data was collected from the International Financial Statisticss from January 1992 to December 1999. To arrest liquidity, they used turnover trading value aspects of liquidity, turnover volatility multiple used for market

liquidity, as a measure of liquidity. For the time series relationship, the panel data used for the whole 27 emerging stock markets. For the time series relationship, they used returns as dependent variable while for the cross-sectional familiar earnings used, a dependent variable. To estimate the relationship, they used regression in their study. Their results suggest that all the liquidity measure used in e study have a positive relationship with stock returns. They found this result on both ways time series and cross-sectional. They found fairly robust even afterward controlling world market beta, book to market and size.

Baekaert et al. (2007) studied 19 developing market for the purpose of dig out liquidity and returns relation. The took the sample period of 10 years from 1993 to 2003. They find out liquidity by methods for the extent of day by day zero firm returns arrived at the midpoint of over month. In the main analysis the carried-out VAR method. The found two things in their analysis. First, they found systematic liquidity is significant with returns. Secondly, they found unexpected liquidity relation with returns is positive. Wang, et al. (2012) investigated the influence of fluidity on stock earnings in Taiwan. They investigate this relation by framing 14 style portfolios. These 14 portfolios dependent on solitary and combined conditions as far as size and liquidity. Very fluid stocks altogether outflank standard in together short – term and long – term paying little respect to investor being bearish or bullish. In this manner, another venture style could be created.

Wenbi and Miaozhen (2013) explored very stimulating investigation on liquidity relation with stock returns. They explain that liquidity risk premium dependent on Three – moments. Capital Asset Pricing Model which supplement co-skewness to the model. To dig out the result they, run both cross sectional and time series regression. He concluded that, in the time series regression Three – Moment CAPM does not completely catch liquidity risk, while cross – sectional test demonstrates the presence of liquidity premium in the tested market. Tiebe and Andre (2014) examines the relationship among liquidity and stock return. the took 16 African nations. the took the time period for their sample from 1995 to 2010. they used fixed effect model for their sample data. He used turnover for liquidity measure.in addition, they used stock return insulated variable. however, the

include system generalized method of moments in their study. at the same time, creators incorporate macroeconomic factors. their study conclude, positive effect of liquidity on stock return is verified when the exclude the South Africa from the sample.

Minovic and Zivkovic (2010) investigated Serbia stock market. The aim of their investigation was to find out the relationship between illiquidity and liquidity with stock portfolios returns. They have taken 10 years of data from January 2005 to December 2009 for their study. They used price impact as a proxy for illiquidity. They analyze this investigation with the help of Liquidity-Adjusted Assets Pricing Model (LCAPM). Their investigation gave the suggestion of constructive bond of illiquidity and portfolio and the earing of stock for the period of 10 years Serbia market data.

Amihud and Mendelsen (1991) put a light on the bond. The investigated liquidity can affect bond like stock or not. For this reason, they took treasury bill and treasury notes. They took all those bill and notes which have the same cash flow and having the same risk. The bills and notes having the difference of just liquidity. They considered, the bill is more liquid just because of low transaction cost. On the other hand, they put treasury notes in a lower liquidity class just because of high transaction cost then bills. The maturity of bills is lower than notes. They have sight on, is this difference create different evaluation of these assets. Their analysis revealed that the financial specialist provides more money on bills for the purpose of having converting to money before the maturity date, and support that the bond is also affect by liquidity like stocks.

Kothari et al. (1995) investigated expected stock returns. In order to obtained their result, they took the data into two different pauses. In the first portion they took the data from January 1927 to December 1990. In the second portion the data is taken from January 1941 to December 1990. They calculated beta on annually basis. For the calculation of beta, they first divided the stocks into portfolio and then extract beta from that portfolio. The same study was done by Fama-French (1992) using the same sample period from January 19941 to December 1990. The difference between kothari et al. (1995) and Fama-French (1992) was the calculation of beta. Fama-French (1992) calculated beta on monthly basis while kothari et al. (1995) calculated on annualy basis.

They used the cross-sectional analysis and found that book-to-market has a lower relationship with stock returns. This finding is totally against Fama-French (1992) and rejected CAPM. The different occurred is created by the liquidity proxies Jacoby et al. (2000).

Jacoby et al. (2000) investigated the expected stock returns. They took the data from January 1963 to December 1990. For the liquidity measure they used relative spread. They avoid the bid-ask spread just because that were the noisiest proxy. In the analysis portion they used liquidity adjusted CAPM instead of CAPM. They eliminated the whole assumption on the capm and leave just one the market imperfection. Their analysis suggests that there is positive relation with both the expected returns and liquidity. Their result goes against the Amihud and Mendelsen and in line with Brennan and Subrahmanyam (1996).

Atkins and Dyl (1997) analyze the hypothesis of Amihud and Mendelsen (1986). For this reason, they investigated the affiliation amid fluidity and the earning of stocks. Their sample period covered the time of 9 years. The sample period was from 1983 to 1991. The took the NASDAQ data as a sample. In addition, they used the second sample period for New York stock exchange (NYSE) from January 1975 to December 1989. For arresting liquidity, they used bid-ask spread proxy. In the main analysis two stage least, square methodology was used. They conclude the positive relation of liquidity with stock returns.

Harvey and Siddique (2000) studied the skewness in price of assets. In order to investigate this ai they constructed portfolio according to different method of the taken sample. They used the CAPM single factor model. They argue that the systematic risk is only calculated by the beta and all other factor become failed. Furthermore, they contended that like beta the other factor such as size and book-to-market is also playing an important role in the pricing of an asset. Their finding suggests that conditional skewness is play an important role in the price of an asset.

Keene and Petersen (2007) explored liquidity importance in the price of an asset. In order to obtain their aim, they utilize the monthly data from January 1963 to December

2002. They copied the method of Fama-French in portfolios construction. They constructed 54 portfolios sorted according to size and momentum and book-to-market ratio. They used six various proxies for the capturing liquidity. The well-known proxy of dollar volume, and the turnover ratio. In addition, they took the standard deviation of both the dollar volume and the turnover. Moreover, they added the coefficient to both the dollar volume and turnover in this manner, they completed six measures for liquidity. In the analysis portion, they used CAPM of time series. Their main finding suggested that, liquidity is playing an important role in the assets price.

Nguyen et al. (2007) studied whether liquidity can be accounted in the use CAPM three factor model. They used the time series testing method. They took the data of New York stock exchange (NYSE) and American stock exchange (AMSX) for their investigation. The whole data was obtained from the well-known source, center for research in security prices (CRSP). They utilized the sample period from January 1963 to December 2004 approximately 43 years. They formed 25 portfolios of the taken data. The portfolios made according to the turnover and size. In addition, according to book-to-market and turnover and at the end just on the basis of turnover. In the analysis portion the used ordinary least squares (OLS). The OLS was time series regression and tested for the overall 25 portfolios. In addition, with time series regression, the cross-sectional regression is also tested in the study. The cross-sectional regression was done for the purpose to investigate indirectly the impact of liquidity. For the liquidity arresting they used volume and Pastor and Stambaugh (2003) proxies. Their main finding suggests that pastor and Stambaugh (2003) measure is unable to provide detail of liquidity. Furthermore, liquidity is priced in the UK stock market.

Chui and Wei (1998) inspects the theory of Hopenhayn and Werner (1996). The sample of their inspection was NYSE, AMEX and Nasdaq stocks by utilizing indistinguishable technique and factors as used by Datar et al. (1998). In any case, the outcome is just huge in except January month, in this manner, this investigation is counted as an enhancement to Datar et al. (1998).

Chiang and Zheng (2015) reveal the connection among fluidity and the earning of stocks. they took the G7 markets as sample. It comprising of local Fama – French value factors. Time series components and worldwide Fama – French variables. It brings about testing the response of various market illiquidity. They found a concave affiliation is found among overabundance the earning of stocks. stock qualities to illiquidity impact. A positive connection between abundance stock returns.

Watanab and Watanab (2007), investigated the American Stock Exchange. The main focus of the study was on NYSE and NASDAQ. They took 100 high performing share form NYSE and 100 top performing shares from NSADAQ. They found a helpful connection among the absence of liquidity and variances in the earning of stocks. at the level of each organization and in addition the general level of organizations in their example. The liquidity criteria utilized in their examination are stock changes and the distinction in offer costs of relative offer buys. Their examination results demonstrate that the deciding variable is 75% of the tried offers, the distinction in the cost of procurement and deal. The more prominent the absence of liquidity of the stock, the more variances in stock returns.

Lam and Tam (2011) record that liquidity is a necessary feature for valuing returns in Hong Kong stock market. after of taking very much reported resource estimating factors into account. These examinations propose that the effect of liquidity on overabundance profits can be contingent for economic situations or the control factors to be incorporated into the test condition. Consequently, in analyzing the cross-sectional scattering in expected value returns, it is imperative to test whether firm attributes, for example, illiquidity, estimate, book-to-market, and energy assume a noteworthy job. Tending to this issue, this paper explores liquidity impacts crosswise over G7 nations dependent on an assets pricing model. including variables, for example, market overabundance return.

Sukor (2012) studied the influence of liquidity on stock returns. For this purpose, first, he checks the effect of Chinese New Year (is the equivalent as New Lunar Year) and Eid ul – Fitr occasion on stock returns of five Asian nations. these Asian countries

are, Hong Kong, Indonesia, Malaysia, Singapore and Taiwan. He took the data for the analysis from January 1991 to December 2011 which cover approximately 20 years. The inspiration of this examination lies on the way that each year, very high amount of cash is spender to plan for NLY occasion, which is lead to influence investors' liquidity before occasion. results are not out of their desire that unusual returns previously occasion is much lower than post – occasion period. In addition, the investigation additionally brings up that this outcome is more apparent for smaller firms.

Bremer and Hiraki (1999) inspected the linkage between short term returns and liquidity. for the measure of liquidity, they used volume proxy. They detailed that stocks with losses and high exchanging volume in week t−1, tend to have bigger or more incessant value inversions in week t and inferred that exchanging volume gives off an impression of being a helpful indicator of resulting stock returns. Be that as it may, they didn't control for different factors, for example, the book-to-market book to market was got essential by the researchers in clarifying returns in the Japanese securities exchange. Time series investigation of the liquidity– stock return relationship isn't taken in their examination either.

Yang et al. (2010) investigated Japanese stock market. The aim of their investigation was to find out the relationship between liquidity and stock returns. For aching their study purpose, they utilize monthly information taken from February 1975 to December 2004.they divided the data into sections such as, First Section, the Second Section, and the Mothers Section of the TSE. their outcomes agreed with the theory of Amihud and Mendelsen (1986). their outcomes suggest the relationship of liquidity negative while illiquidity positive with expected stock returns. however, when they consider the liquidity impact for extension and withdrawal periods of business cycles independently, the level of liquidity is estimated priced, during expansion periods, yet appears not to be valued during constriction periods. The connection additionally seems, by all accounts, to be significantly more grounded in the before half of the full sample period time frame and for stocks recorded on the Second and the Mothers Section of the TSE. In any case, when they control for liquidity inconstancy in these cross-sectional relapses, the job of the liquidity level indicates solid noteworthiness crosswise over

various periods of business cycles, diverse sub-periods and all Sections of the TSE. Concerning liquidity inconstancy, they watched, significantly and strong negative relationship with stock returns.

Ayako (2005) looked to explore the job of exchanging volume. as far as data it contains about future costs. He was keen on the intensity of exchanging volume in pedicting the course of future stock costs. His exploration was for firms recorded at NSE for a time of 5 years. His sample period covers the gap from January 1998 and December 2002. He discovered that there was no connection between exchanging volume what's more, stock return of firms recorded at NSE. He additionally fights that his discoveries are in accordance with Fama Random Walk theory which infers that a progression of stock value changes at NSE does not have any memory. Aduda (2010) completed an examination on market response to stock split in the NSE. He discovered that there was an expansion in the volumes of offers exchanged when stock parts were declared. This was particularly so in the days around the stock parts. He additionally saw that exchanging action by and large increment after the stock split when contrasted with that before the split.

Heeks (2000) upheld for computerization and they saw that the execution procedure of exchanges turns out to be quicker and less expensive under electronic exchanging frameworks. Computerized frameworks in this manner, ought to pull in more financial specialists, enhance exchanging volume and liquidity, and enhance the value revelation process. Busse and Green (2002) give proof from securities exchanges that demonstrates that markets with cutting edge exchanging innovation have more noteworthy effectiveness. Pundits of robotization contend that electronic exchanging could prompt fewer effective costs correctly in light of the fact that the judgmental angles of exchange execution are expelled with mechanization, which could be especially imperative in times of fast market value developments (Pagano 2000). As indicated by this view, liquidity and productivity of a securities exchange rely upon the guidelines administering the taking care of and execution of exchanges. In other words, if these principles don't change, proficiency isn't relied upon to change.

Baker and Stein (2004) fabricated a model utilizing New York stock exchange (NYSE). they took the data from January 1927 to December 1998. they investigate this yearly data by utilizing an OLS regression model. To support liquidity, the model utilized investor who were not reasonable; they respond less to order flow data. At the point when there were confinements on short deals. high market liquidity levels demonstrated that the market had been ruled by these irrational dealers an over esteem. They likewise proposed that expanded levels of liquidity in the market recommended the normal returns for the silly financial investors would be lower than ordinary.

In Africa, Mpofu (2012) inspected the connection between exchanging volume and stock returns. they took Johannesburg securities trade in South Africa. Vector autoregressive tests were utilized to dissect the FTSE/JSE index valuing and exchanging returns. they took the data from July, 1988 to June, 2012. The results exhibited negative relationship between volume exchanged and the total estimation of changes in cost. So also, Ehiedu (2014) investigated the effect of liquidity on profitability. he took in investigation the Nigerian securities trade in account. the purpose of his study was to dig out the connection between volume and returns. his findings presumed that 75% of the organizations demonstrated that liquidity had a positive connection with returns.

Makau et al. (2015) found mixed result. This mixed result raised many questions on the turnover use as proxy for liquidity. They took the data of cross-border as a sample. They used, volume and turnover both as measure of liquidity. both the pre-and post-cross-posting exchanging volume and turnover was computed and later taken through a five percent level combined t test to test for their significance. In spite of the fact that in the majority of the outcomes the impacts of liquidity were not factually huge, their general decisions were cross-posting can support the company's stock liquidity with the liquidity measure deciding the heading of the impact that is a positive or negative course.

Koech (2012) likewise completed an examination on the 57 organizations recorded in the National Stock Exchange (NSE). He took the data of 57 companies. His sample period cover 5 years from January 2007 to December 2011. He utilized a simple regression model to dig out the connection among liquidity and stock returns. he utilizing

turnover as his proxy for liquidity. he discovered that there was a powerless affiliation amongst liquidity and the earning of stocks. he wraps up not to be factually significant. This is opposing to a large portion of the experimental proof found by most analysts for the most part in the developed markets. He additionally clarifies that absence of market efficiency can be a reason for this opposite result.

De Groot et al. (2012) explore the returns of a single security in the frontier markets. Rather than utilizing frontier markets in general. The outcomes from the investigations of the security is assessed dependent on investment methodologies utilized by portfolio administrators. While exchanging stocks from frontier markets. The outcomes demonstrate that portfolios in frontier markets dependent on worth and motion have somewhere in the range of 6 percent and 16 percent overabundance return per year. Financial specialists who look for value and momentum impact on stock in the frontier markets. they need to likewise deliberate the exchange price associated with the exchanges as a result of the illiquidity of the market.

Hearn and Piesse (2015) incorporate the size of firm and fluidity on the three-factor model. it shows in deciding the assets value in African securities exchanges. In deciding the significant measure of liquidity. Hearn and Piesse (2015) uncover that three-liquidity proxy could be utilized for the examination. Their examination utilizes two liquidity proxies. In particular, (Liu, 2006), turnover, additionally, the relative volume exchanged scaled by the number of exchanging days in the period of estimation, and Amihud (2002) or, in other words the value impact proxy.

Pimentel and Lima (2011) studied liquidity and stock returns. they took the time period from march 1995 to march 2009 approximately 15 years data. They took the data of the firm registered on BM&FBOVESPA. they related, over time series, dry liquidity markers (current assets less stock divided by current liabilities) and the revenue of organizations from the textile sector. They observe that, in the medium to long run, there was a positive relation of liquidity and returns, on the other hand, organizations with low bookkeeping benefit would likewise be those with low liquidity, which would again repudiate a potential exchange off among liquidity and profit for the accounting level.

The author, in any case, couldn't set up a causal connection among liquidity and returns, with an opposite relationship being watched, for the greater part of the organizations investigated, among returns and liquidity. At the end of the outcomes, liquidity winds upcoming about because of the watched gainfulness (self-subsidizing), and not being a determinant of this returns.

Dey (2005) considers liquidity as projected by turnover as a factor of cross-sectional returns for 49 worldwide stock index portfolios. The empirical studies demonstrated a positive connection among the earning of stocks and turnover. however, another study appears, that showed, this connection grips for developing marketplaces. he further accomplishes it, elements of risk having contrast among developing and advanced marketplaces, which has suggestions for the assets pricing.

Claessens and Dasgupta (1995). studied the link between liquidity and the earning of stocks. they took 20 developing markets as a sample. they used the cross-section regression for the purpose to obtain the aim of their study. Their finding suggests that, size, beta and trading capacity have descriptive rule in various markets, but with an inverse impact to the one accomplished for developed marketplaces. They recommend that the reverse size and, also liquidity impacts could have been driven by bigger capital raising conceivable outcomes accessible to extensive organizations in these business sectors, because of higher enthusiasm of outside investor in the expansive stocks, accessibility of local government-sponsored credit or lower-cost global financing. It ought to be called attention to. though, that the example is constrained.

Brown et al. (2008) investigated of four Asian markets. they recognize (time-varying) rate premia in the security markets of Hong Kong. In addition, Korea and Singapore. on the other hand, they discover value markdown in the Taiwanese market. moreover, they contend that size and liquidity are necessary elements that impact on the value premia. In particular they find that representing size and liquidity factors lessens the pertinence of the value factor for assets pricing. Hearn (2010b) investigated about the size, value and liquidity impacts for industry blue-chips, South-Asian markets. They

concluded that, size drives the returns changeability in Sri Lanka, while liquidity assumes an extra job in Pakistan. In addition, Bangladesh and in a couple of businesses in India.

Gervais et al. (2001) analyzed the effect of short-term changes in exchanging volume. They found that stocks that have had curiously high (low) exchanging volumes over the previous day or week tend to encounter a cost increment! (diminish) over the resulting 20 exchanging days. This marvel is predictable! with the idea that exchanging movement stuns influence the perceivability of stock and thusly the resulting request. Hou and Robinson (2006) found that low volume stocks watch out for underreact to acquiring 14 news while high volume stocks tend to show overreaction driven cost energy.

Gutierrez and Kelley (2008) Investigated the weekly returns, they found that in spite of the concise inversion in the first weeks. the profits for the fifty-five weeks subsequent the exceedingly weekly returns. It's are very the same heading as the extrema occasion. In other words, they discovered momentum impact from the week by week returns. These outcomes are important to this proposition in two different ways. To start with, the check of force returns discoveries from the week by week information raise an unmistakable enthusiasm for concentrate significantly shorter periods (every day information inside this proposal). and second, the main weeks' inversion returns are considered in this examination by including a holding up period before portfolio development to keep away from the value inversion influence. The necessity to integrate the holding up period is additionally underscored by the discoveries from Chan et al. (2003) who claims that market under-responds to express news (freely discharged firm particular news) and blows up to verifiable (news just suggested by the value change).

Avramov et al. (2007) archive an association among momentum and credit rating. They discover extensive and huge momentum in low rate firms. however, none among the high-reviewed firms. they took the data comprises of the years 1985 to 2003 for their investigation and could be influenced by the dotcom bubble. Additionally, the momentum is more grounded in firms with higher data uncertainty Jiang et al. (2005) and Hodrick et al. (2006). These discoveries indicate out the course that the biggest, most

investigated and stable firms will experience the ill effects of the momentum phenomenon, which unmistakably underlines the likelihood of some third factor affecting to these benefits. One of such elements could be market liquidity.

Florackis et al. (2011) proposed another measure of price affect instead Amihud (2002). they utilizing a normal month to month proportion of every day outright stock returns to its turnover. he utilized the data pf LSE, over the period from 1991 to 2008. they provide 19 proof of a compound impact of exchanging frequency and exchange cost that issues for resource evaluating. They revealed that stocks with the most minimal RtoTR yield substantially higher risks adjusted returns than stocks with the most noteworthy RtoTRs. More particularly, stocks with high turnover proportions and subsequently extremely low RtoTRs direction high strange returns regardless of whether the value effect of exchanging action is generally low. This finding recommends that the exchanging recurrence impact overwhelmingly rules the exchange cost impact in deciding the comparing premium.

Banerjee et al. (2007) examined the connection between dividend policy and securities exchange liquidity. Their examination secured New York (NYSE) and American stock exchange (AMEX) firms. they cover the sample period from January 1963 to December 2003 approximately 40 years. They discovered proof that proprietors of less fluid basic stock are increasingly liable to get cash dividend. on the other hand, the proprietors of more fluid basic stock are less liable to obtain cash dividend. First, they contended that the financial specialist's interest for cash dividend is positively related with the exchanging friction. to which the financial specialists confront while making homemade dividend. The exchanging grinding alludes to liquidity costs and custom-made dividend is a type of salary that originates from stocks deals. In this manner in business sectors market with exchanging friction or in other words illiquid markets, speculators will have a more prominent interest for cash dividend cash dividend satisfied investor for liquidity needs with practically zero exchanging. This will empower them to abstain from exchanging friction. In a high fluid market in any case, speculators can make natively constructed profits economically and in light of that they won't require cash dividend as much as the proprietors of illiquid stock. Financial specialists' interest

for cash dividend with illiquid stocks. additionally, they hypostasize that the probability of a firm paying cash dividend is emphatically identified with financial specialist interest for profit installments and in this manner contrarily identified with the market liquidity of the association's stock. Whenever they tried the connection between an association's dividend strategy furthermore, stock liquidity they utilized the yearly offer turnover, the yearly exchanged dollar volume in the stock, the extent of days with zero exchanged volume, and the illiquidity proportion to proxies for liquidity. They found a solid experimental connection between the dividend approach of a firm what's more, the liquidity of its normal stock. There was a huge negative connection between share turnovers and the likelihood of dividend. The outcomes likewise demonstrated that organizations with higher illiquidity proportions will probably pay dividend. Correspondingly, companies with a lesser exchanging volume and firms with a higher extent of days with no exchanging are additionally more inclined to pay dividend.

Westerholm (2002) investigated Stockholm Stock Exchange. the aim of his investigation was to discover the relationship of illiquidity and stock returns. for this purpose, he utilizes amortized spreads as a measure for illiquidity. he concentrated on the 80 generally effectively exchanged stocks on the Stockholm Stock. his sample period for the Stockholm stock exchange cover the time spam from January 1990 to December 1995 approximately 6 years of data. while on the hand, for the Helsinki Stock Exchange over the period 1987-2000. The amortized bid-ask spread records for both the extent of the spread and the normal holding times of financial investors that hold the stock where the normal holding time frame is estimated as the share turnover. This measure depends on the possibility that the expense of the spread is bigger for financial investors with short holding periods since they exchange more as often as possible. On the off chance that the normal holding times of financial investors contrast between stocks with comparative spreads. Chalmers and Kadlec (1998) contend that the spread alone would exaggerate the illiquidity expenses of the stock with long normal holding periods in respect to the stock with short normal holding periods. Westerholm (2002) finds that stock returns balanced for systematic risk, market-to-book esteem and measure increment with amortized spreads on the Swedish and Finnish securities exchanges. The rationale behind amortized

spreads as an intermediary for illiquidity has anyway been addressed since stocks with lower exchanging recurrence will be viewed as more fluid than stocks with higher exchanging recurrence if the stocks have comparative spreads (Loderer and Roth, 2005).

Brockman and Chung (2002) studied the impact of illiquidity on stock returns. they used the time spam from January 1996 to December 1999 approximately 5 years. they took Hong stock exchange as a sample for their study. for the measurement of illiquidity, they used, spread and depth determinants of liquidity and illiquidity. profundity over the period 1996-1999 on the Hong Kong Stock Exchange, or, in other words driven. however, that the impact tends to be littler than in quote-driven markets. The discoveries of shared trait in illiquidity measures crosswise over stocks propose that illiquidity has a segment that can't be wiped out through expansion. This is practically equivalent to the CAPM which recommends that risks related with the execution of the general securities exchange can't be broadened away.

Akram (2014) additionally utilized the bid-ask spread as the proxy of liquidity. he investigated the Pakistani stock market. he took seven firm as a sample for his investigation he used the seven years data of 10 listed companies on pakistan stock exchange. he used double stage regression for his investigation. his outcomes clarify the negative relationship among liquidity and stock return. His findings supporting both Amihud and Mendelson (1986) and Eleswarapu and Reinganum (2003) discoveries.

Vu et. al (2015) analyzes the evaluating of fluidity hazard on Australian stock market. they utilizing the data from January 1991 to December 2010. They examined the properties of dissimilar liquidity risk proxy on the earning of stocks utilizing Liquidity-balanced CAPM. The model was created by Acharya and Pedersen (2005). They found compact proof of co-developments among separate stock illiquidity in comparison market illiquidity. along with this they also found a strong connection among the earning of stocks and market illiquidity. In addition, between stock illiquidity and market returns. In overall, the net estimation of these liquidity co-developments is basically valued in Australia.

Hagstromer et al. (2013) investigated US stock. the investigation was for the connection between illiquidity level. illiquidity risk, size. value and momentum. As contrasting to quantifiable components both illiquidity level and illiquidity risk have a hypothetical establishment in the liquidity balanced capital asset pricing model (LCAPM). This model is the CAPM as far as capacity to clarify risk premiums of size and value arranged test portfolios. The examination finds an extremely solid relationship between Fama-French size betas and illiquidity level betas (around 0.97) and a genuinely solid connection between Fama-French value betas and illiquidity risk betas (about0.55) while Carhart's energy beta has high negative relationship with betas both for illiquidity level and hazard (- 0.77 and - 0.93 separately). The premiums identified with size can to huge degree be clarified as a pay for illiquidity level.

Hubers et al. (2012) studied London stock exchange (LSE). he tried to find out the connection between assets pricing and liquidity on London Stock exchange (LSE). for his investigation he took three models such CAPM, CAPM along with liquidity factor. in addition, he also takes CAPM with Fama French factor. The size and liquidity arranged portfolio returns are relapsed against liquidity in each model. The examination discovers proof concerning connection among liquidity and asset pricing.

Assefa and Mollick (2014) studied the African stock markets. The purpose of their study was divided into two portions. First, to investigate the real stock returns. Second, to investigate stock liquidity premia. They took a very large sample of sixteen countries. The sample period was taken from January 1995 to December 2010 approximately 16 years. For to arrest liquidity they use ILLIQ proxy of Amihud (2002). They used fixed effect model (FEM) along with system generalize method of momentum (SGMM) in order to complete their investigation. Their investigation results were also divided into two portions. In the first portion, when they include south Africa in the sample, which is less liquid market the result shows the positive relation. In the second portion, when they eliminate the south Africa, the result shows the negative relation.

Anand et al. (2005). It breaks down the effect of liquidity provided on the Stockholm Stock Exchange. Their sample comprises of 50 illiquid companies which mad

a contract with liquidity service organizations on the Stockholm Stock Exchange. As the above, they likewise find observational proof that there is a connection among liquidity and stock pricing. With everything considered, their discoveries propose that organization can profit by taking an interest in the market creation of its securities. Tevanen (2006) made the second research that discovers proof for an immediate relationship among liquidity and stock returns. he utilizing the data from the Helsinki and Stockholm Stock exchange. It tends to be considered as enhancement research to Anand et al. (2005) work on the grounds that the author utilizes a similar sample of 50 organizations recorded on the Stockholm Stock Exchange what's more, extra example for the Helsinki Stock Exchange. he also got the same result of illiquidity can be a cause of assets pricing.

Timofejeva and Hogholm (2008) propose that the nature of business sectors and securities exchange particularly are influenced by liquidity and some different variables like data asymmetry and disclosure. Besides, stock liquidity could be impacted by lower liquidity which prompt increment the normal rate of return which thus increment the cost of capital. Then again, the higher the stock liquidity, indicating the lower the rate of the earning of stocks and therefore diminishing the cost of capital and expanding the market value. In addition, association's capital structure choices could be affected by stock liquidity. Likewise, the inspiration of firms having more liquid stocks is more prominent than firms having fewer liquid assets.

Hund and Lesmond et al. (2008) propose that data asymmetry and because of that the liquidity cost will be expanded by expanding the proportion of debt to the proportion of value in the company's capital structure. consider to be a sample, some non-financial related firms are taken to explore the above connection. They pick levered firms and they find that these organizations can decrease the expense of raising capital because of decreasing the likelihood of exchanging relying upon inside data which accomplished by expanding its stock liquidity. However, Lipson and Mortal (2009) recommend that the rate of profit required for stock is decrease because of expanding its liquidity which at that point decrease the expense of raising capital all in all. Accordingly, unlevered firms attempt to increment the proportion of stocks to bonds in their capital structure

Ariel (1987) investigated the US stock market. He first reports turn of the month (TOM) impacts for a US stock index. Lakonishok and Smidt (1988) aprove the impact for a more extensive sample time spam. they dig out the way of unusual earning decline to 1 day prior and three days after the finish of the month. A few different studies have since archived TOM impacts for individual stocks. In addition, different markets as well as other resource levels. Nikkinen et al. (2007b). They guarantee that regular bunching of US macroeconomic news declarations causes return regularity in S&P 500 and S&P 100 file returns. Nikkinen et al. (2007a, 2009) stretch out the proof to securities exchange records from Finland, France, Germany, and the UK. For the German DAX they discover a TOM impact 1 day after the month's end. The impact winds up unimportant after controlling for declarations in regards to work, business cost, modern creation and ISM lists. Be that as it may, it stays indistinct whether this macroeconomic news speculation remains constant on different markets. Jalonen et al. (2010), e.g., do not locate any supporting proof on US and German government security markets. The present paper investigates impacts on German stocks at the stock level (instead of the DAX total). We locate that macroeconomic news are no conceivable clarification for the Early TOM or other occasional examples in this unique situation, as they group in the first third of multi month.

Salehi et al. (2011) studied Tehran stock market. They argue that most of the studied claiming the negative relationship between the liquidity and stock returns. They investigated this relation over the Tehran stock market. For the purpose to dig out the relation, they took the data from January 2002 to December 2009, approximately eight years data. In order to obtain more accurate result, they divided the data in monthly and annually classes. The proxy, which they used in their study was the ILLIQ measure of Amihud (2002). The used the single variable simple regression methodology in their study. Their finding provided, the negative relationship between liquidity and stock returns.

Mooradian (2010) explored New York stock market. The aim of his study was to dig out, what is the relationship of stock returns with illiquidity. In order to achieve his aim, he took the data from January 1980 to December 2003 as a sample for his study. He

gathered the quarterly fata of the whole sample selected for the study. For the arresting of illiquidity, he used trading volume measure. He follows the methodology of VAR. his finding extracted the positive relationship by both, statistically and economically.

Jones (2002) explored the liquidity and trading cost. He collected the bid-ask spread of the Dow jones financial market. The collection of this spread was annually basis. The time period for the spread collection was from January 1900 to December 200. In addition, with spread, he also obtained the annually commission. The annually commission rate was collected of the New York stock exchange (NYSE). The New York stock exchange commission time frame was from January 1925 to December 1967. The equity trading was computed by, the addition of half proportion and one-sided commission with multiply with turnover annually. The measures used for liquidity in his study was, bid-ask spread and turnover both. the high bid-ask spread is indicating huge quantity stock returns. High turnover resenting low returns. The Ordinary least square (OLS) time series regression is followed in the investigation. There finding given the suggestion that, liquidity played a very important role in the stock returns. This important role is inversely proportional to stock returns. all those securities were selected, which spread was known. In addition, with it they calculated the trading volume of each trading day. Hence, the selected the 254 observations sample beside with 60 size sample. They take two liquidity proxies in their study. First one, bid-ask spread. Second one, spread divided by price. They selected the time series base model for the analysis. The aim of this model was to catch the dynamic characteristic of each proxy of liquidity. This model is according to the Akaike Information Criterion (AIC). There main findings suggest the negative relation between systematic liquidity and stock returns.

Huberman and Halka (2001) studied New York stock market. The aim of their study was to find out the impact of systematic liquidity on the returns of stocks. They took the data from the Trade and Quotes (TAQ) of 1996.they sorted the all New York stock market securities according to size. They selected the 60 securities randomly from the sorted securities as a sample for their study. They used OLS in the analysis portion. They got the outcomes of concave relationship of all the proxies used for liquidity with the earning of stocks.

Lipson and Mortal (2006), found it surprising that current research has generally disregarded the job of asymmetric information in clarifying shared characteristic. His paper is committed exclusively to the job of data asymmetry in driving shared characteristic in liquidity. He utilizes income surprising in the US market. the purpose of his study was to finds that market liquidity contains a data asymmetry segment. Proof demonstrates the presence of shared trait in data asymmetry. in other words, By and large, total variation in data asymmetry are decidedly identified with total variation in liquidity. Total varieties in data asymmetry are likewise identified with firm-level exchanging costs what's more, exchanging action. These results propose that shared trait in data asymmetry clarifies one imperative source of shared trait in liquidity.

Salimpour (2005) studied about the relationship of both liquidity and stock excess earning. the sample of his investigation was the Tehran stock exchange. he presumed that there isn't significant connection between illiquidity of stock as a factor of risk and abundance return of investors in the Tehran the Stock Exchange. Bagher Mehmandoost (2007) in research also, clarifying the idea of liquidity. he analyzed connection between two proxies of stock liquidity (turnover proxy of stocks and Amihud measure). in addition, with he added and utilizing econometric technique. Result demonstrated that stock illiquidity makes to utilize liabilities monetary supervisors and the utilization of financial leverage.

Yahyazedhfar and Khoramdin (2008) given the significance of the connection among risk and return. they have considered the effect of illiquidity risk and liquidity factors, for example, abundance market return, firm size and the proportion of book-to market value and the abundance stock return. Consequence of this exploration demonstrated that every single autonomous variable significantly affects the depending variable of research. It implies that effect of illiquidity and firm size on abundance stock returns have been negative. However, the effect of the abundance market return and the proportion of book-to-market on abundance stock earning have been positive.

Lee (2011) is worked uniquely, as he observationally tested the LCAPM of Acharya and Pedersen (2005) on a worldwide level. The observational proof exhibited is

steady of the LCAPM, in which liquidity risks are valued freely of marketplace risk, in global monetary marketplaces. Li et al. (2014) utilized the data from the second biggest equity market such as, Japan. they tested whether liquidity and liquidity chance are priced. In steady with the discoveries of Acharya and Pedersen (2005) in the USA, these creators likewise report proof that the liquidity-balanced CAPM is having more capabilities than standard CAPM. Yet, they just acquire frail proof for the contention that liquidity risk is valued. moreover, the level of liquidity and the risk of market.

Dalgaard (2009) investigated the Danish Stock market to find out the connection of liquidity with the stock earning. His sample period was from January 1991 to November 2008 which includes a total of eighteen years. The sample data was on monthly basis. The data collection was on scientific method in which every nth number of companies was selected. He took 557 companies as a sample in his study out of which he deleted 120 companies due the information lacking and 3 due to the error and finally 141 companies were deleted due to different reasons. The model used in the study was Fama and French Three Factor Model. In addition, Capital asset Pricing Model (CAPM). He used bid-ask spread as a liquidity proxy. The main findings of the study were negative in the study. His research gap was to find out the relationship between the liquidity, liquidity risk and stock return by using Amihud ILLIQ measure and Archaraya and Pedersen model. Perobelli et al. (2016) claimed negative affiliation of stock liquidity and with earning of stocks, while investigating the Brazil market. For their study, they took the whole stocks traded on the Brazil stock market BM&FBOVESPA. They selected the sample period for their study is from 1994 to 2013 which is approximately 20 years. They used volume and Bid-ask spread for the arresting of liquidity. In addition, he provided the returns of the large firm is lower than the small firm.

Kahuthu (2017) studied the companies traded on Nairobi stock exchange in Kenya. the purpose of his investigation was to empirically test the relationship of liquidity with earning of stocks. He took 50 firms as a sample from the total population 64 firms listed on Nairobi stock exchange. His sample size consists 5 years from January 2012 to December 2016. His study exists both type of data primary data, which collected through questionnaire and secondary data on day-to-day basis. The spread and turnover

ratio was used in his study for the measurement of liquidity. He found a negative concave connection between liquidity and the earning of stocks. in Kenya. His study gap was to use more than two liquidity proxies in order to cover different segment of the market and to obtain better result.

Emrah (2015) estimated the relationship of liquidity and stock returns in Borsa Istanbul stock market. For the estimation of this relationship, she used the sample of 244 average firms, the whole sample data was on daily basis. The sample period which she used for her study was from 2002 to 2014 which were almost 13 years. To seizure the liquidity, she used turnover as a liquidity measure. To uncover the consequence of turnover on stock returns panel data analysis were conducted. She took book-to-market ratio, size and portfolio beta as a control variable. She tested different models such as FGLS on data. She also tested the January effect in his study as many suggested. For this purpose, she compared the results obtains from the data with and without January days still she found the same result of concave association between the earning of stocks and liquidity as measured by turnover.

2.1. Hypotheses:

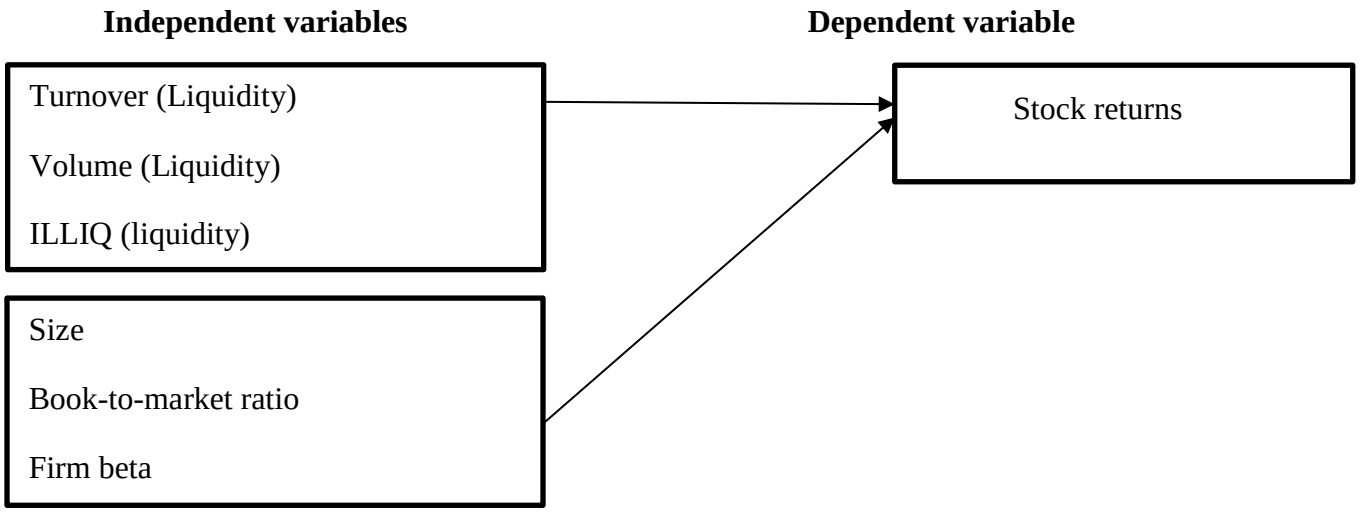
The main hypothesis of this study is,

H_1: Turnover (liquidity) has a negative relationship with stock returns.

H_2: Volume (liquidity) has a negative relationship with stock returns.

H_3: ILLIQ **(**liquidity) has a negative relationship with stock returns.

2.2. Theoretical Framework



CHAPTER 3

Methodology

This part of the study contains the methods of analysis, data collection and sample period. In this chapter every model that are tested is explained in detail. This chapter also includes the data collection method for the analysis.

3.1. Type of the Study

This study is based on the secondary data which is gathered from different sources. There are different sets of secondary data such as time series and cross-sectional data. Every set of these data has its own characteristics but there is one other kind of data which is recognized as panel data. Panel data is a set which has the characteristics of both cross sectional as well as time series data. This type data is also known as the longitudinal data. Panel data is the mixture of both time series and cross-sectional data. Panel data consist of various phenomena observation over different periods of time for the same individual or firms.

3.2. Sample

The sample size of this study consists of 50 firms. These 50 firms are randomly selected from the total targeted population which is 696 firms listed on Pakistan Stock Exchange. The population of the study are the non-financial firms registered on Pakistan stock exchange (PSX). The sample period of this study is from 2009 to 2017 which is approximately nine years.

3.3. Data collection

The nature of the data of this study is quantitative. The whole sample data of 50 firms was collected from the Pakistan Stock Exchange (PSX) (www.psx.com.pk), www.brecoder.com and other internet sources.

3.4. Variables

This study consists of one dependent, one independent and three control variables.

3.4.1. Dependent variables

Dependent variables refer to those variables which change its value due to the effect of other related factors. In this study dependent variable is stock returns.

3.4.2. Independent variables

Independent variables refer to those variables whose variation does not depend on other factors. In this study, independent variable is Liquidity (Turnover/Volume/ILLIQ) Emrah (2015), Brennan (1998) and Amihud (2002) respectively.

3.4.3. Control variables

Control variables are those variables which is constant and unaffected during the passage of examination. It powerfully effects the investigational result. It seized constant throughout the test. For the purpose, to test the relative relationship between dependent and independent variables. This variable itself is not of the key attention to the test. In this study the control variables are size, boot-to-market ratio and firm's betas.

3.5. Research Model

The main models which will be used in this study are

3.5.1. Turnover

$$R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta_{2t}\, ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t}\, portf\_beta_{it} + \varepsilon_{it} \qquad Eq\ 1$$

Where

R_{it}= daily returns on stock i at day t.

$turn_{it}$= natural logarithm of turnover of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

3.5.2. Volume

$$R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta_{2t}\, ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t}\, portf\_beta_{it} + \varepsilon_{it} \qquad Eq\ 2$$

Where as

R_{it}= daily returns on stock i at day t.

$Volume_{it}$= natural logarithm of volume of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

3.5.3. ILLIQ

$$R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta_{2t}\, ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t}\, portf\_beta_{it} + \varepsilon_{it} \qquad Eq\ 3$$

Where as

R_{it}= daily returns on stock i at day t.

$ILLIQ_{it}$= natural logarithm of ILLIQ of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

3.6. Calculation of variables

The whole 50 firms sample daily data was collected from the Pakistan stock exchange (PSX) website. The dependent variable Daily returns are obtained by, today closing price of a stock divided by yesterday closing price.

R_{it} = today closing price / yesterday closing price.

Formula 1

The independent variable Turnover is computed by, the average daily volume divided by shares outstanding of that day Datar et al. (1998).

Turnover = average daily volume / shares outstanding.

Formula 2

For the volume variable there are two ways to compute. First way is, just count the number of traded of security in a designated time frame. The second method is, volume divided by average volume (Chordia et al. (2001). In this study the first method is used daily volume.

Volume = number of traded of a security in a designated time frame.

Formula 3

For the ILLIQ variable there are also two methods. ILLIQ measure and modified ILLIQ measure. ILLIQ measure is calculated absolute value of stock divided by average dollar volume Amihud (2002). On the other hand, modified ILLIQ measure is computed by taking natural log of return divide by turnover Brennan et al. (2011). In this study, modified ILLIQ measure is used.

Modified ILLIQ = log ($|returns_{it}| / turnover_{it}$).

Formula 4

Now moving forward to the control variable used in the study;

Daily Ln size taken as a control variable is calculated by, stock issued multiplied with the closing price of the same day for a single security Emrah (2015).

Ln size = issued stock × closing price. Formula 5

Daily book-to-market is the second control variable included in this study. It is determined in various steps. The equation used for the book to market in this study is fellow,

Daily Book-to-market = book value / market value. Formula 6

Daily book value is calculated by the following formula:

Daily Book value = equity / issued share. Formula 7

Daily market value is obtained by the help of following formula:

Daily Market value = closing price of the stock. Formula 8

Portfolio beta is the last and 4^{th} control variable included in this study. By the use of individual beta there were the chance of occurring idiosyncratic error Emrah (2015). Therefore, portfolio beta is used instead individual beta in this study.

For to calculate portfolios beta, first individual stock beta is calculated by the following equation:

$$\beta = \sigma_{iM}/\sigma^2_M \quad \text{Formula 9}$$

In the above equation β is calculate σ_{iM} which shows the Covariance between stock *i* and the market return. The second part of the equation is σ2M shows Variance of the Market Returns. By using individual stock betas there were the chance of idiosyncratic error occurrence Emrah (2015). therefore, portfolio betas were used as an alternative of individual stock beta. In January of each year stocks were sorted on the basis of individual stock betas and then divided into seventeen portfolios. Additionally, each portfolio beta is calculated and the portfolio beta is assigned to each stock lies in that particular portfolio.

CHAPTER 4

Results and Discussion

The sample used in this thesis is 50 firms, listed on Pakistan stock exchange. The time period is from January 2009 to December 2017. As mention in the introduction, liquidity has various dimensions, this study covers three of them to find out the relationship with returns. These three dimensions are market immediacy, width and depth.

This study analyzes the impact of liquidity on stock returns in both, with and without control variables. Liquidity is measured by turnover, volume and ILLIQ measures. For each liquidity measure separate models are used.

First portion of the study consists of turnover measure with and without control variables. Turnover is obtained from daily average volume of given stocks divided by the shares outstanding of that day. To seizure the outcome of well-known influential factors of stock return, the investigation comprised, Size, book to market ratio and beta as control variables.

The values of both size and book-to-market were look high, hence in line with previous literatures the natural log is used in the study to calculate size and book to market.

To use individual stock betas there were the probability of occurring idiosyncratic error. Therefore, in order to eliminate idiosyncratic error, the portfolio betas were used in the analysis as an alternative of individual beta. Every year stocks were sorted according

to their individual betas and then divided into seventeen portfolios. Thereafter, the beta for each portfolio is calculated and then assign the portfolio beta to each stock lies within the particular portfolio. All of the portfolio restructured for January each year, Emrah (2015).

The main model which is used in this study for the measure of turnover is given below:

$$R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta_{2t}\, ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t}\, portf\_beta_{it} + \varepsilon_{it}$$

Where

R_{it}= daily returns on stock i at day t.

$turn_{it}$= natural logarithm of turnover of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

Variables in the main model for turnover are explained below;

Returns: daily returns are calculated by the end of day just simply log (today closing price /yesterday closing price)

Ln turnover: is obtained as the daily average volume of given stock was divided by the shares outstanding of that day. Daily average volume of a stock for a particular day is the average number of shares traded in the earlier three days.

Ln size: taking the natural log of the daily shares outstanding multiplied market value.

Ln bm: taking natural log of book to market ratio.

Portfolio beta: the beta of the portfolio that is given to each stock in the portfolio.

Descriptive statistics result for the variables is given below:

Table 4.1.

Descriptive statistics for variables

	Return	*Turnover*	*Ln size*	*Ln bm*	*Portfolio beta*
Mean	0.0006	11.7847	9.9667	0.4709	0.4299
Std Dev	0.0272	2.8547	1.6090	1.1890	0.5158
Minimum	-2.8587	0.0000	1.3439	-3.9764	-0.3240
Maximum	2.9562	18.5489	15.6381	21.8987	2.2092

This table shows descriptive statistics of the variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

Table 4.1 shows the outcomes of descriptive statistics of variables for the whole sample period taken for this study. The table shows the returns variable lies between -2.8587 to 2.9562 with the mean of 0.0006. For the turnover variable the table display the maximum value is 18.5489 and the minimum 0.0000 with the mean 11.7847. In addition, Ln size value lies between 1.3439 to 15.6381 with the mean 9.9667. moreover, ln bm shows the maximum value 21.8987 and the minimum -3.9764 and mean value 0.4709. however, portfolio beta having the maximum value 2.2092 and the minimum -0.340 with the mean of 0.4299 shown by the table 4.1.

Pairwise correlation for the variables is given below:

Table 4.2.

Pairwise correlation for variables

	Return	*Turnover*	*Ln size*	*Ln bm*	*Portfolio beta*
Return	1				
Turnover	0.0708	1			
Ln size	0.0052	0.2248	1		
Ln bm	-0.0280	-0.1077	-0.7068	1	
Portfolio beta	-0.0008	0.2250	0.0188	0.0920	1

This table summarized the pairwise correlation of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

The above table 4.2 expose the weak degree of correlation. but the correlation of Ln bm and Ln size is looking a little bit high. High correlation is a sign of multicollinearity in the data set. Therefore, to dig out weather multicollinearity is the problem for the data set or not, in this study variance inflation factor (VIF) is tested.

Table 4.3.

Variance Inflation Factor for variables

Variable	*VIF*	*1/VIF*
Ln turnover	1.11	0.899076
Ln size	2.10	0.475533
Ln bm	2.05	0.488470
Portfolio beta	1.07	0.930800
Mean VIF	1.58	

This table summarized the multicollinearity of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

In the above table 4.3, Variance inflation factor (VIF) expose the weak degree of multicollinearity for all variables. The rule of thumb for the VIF is, when the individual variable values in the VIF result is greater than 10 then there is high correlation between variables. In the table 3 the outcomes of the VIF table shows the value for Ln turnover, ln size, ln bm and portfolio beta is 1.11, 2.10, 2.05, and 1.07 consecutively with the mean of 1.58, which shows weak degree of correlation. The consistency of the correlation of variables are with the previous literatures. The correlation of the control variable is low. Low correlation is the sign of no multicollinearity. So, it means that multicollinearity is not a key problem in dataset.

For the purpose to find out the influence of liquidity on stock returns. panel data analysis is executed.

Before moving forward, fixed and random effect models were tried, because of the possibilities of unobserved heterogeneity including in data. It is very necessary for the given model to analyze the existence of fixed and random effect model. After applying

fixed and random effect model, then analyze the results of both models and select the appropriate model for the study.

First of all, the outcomes of F-test and Lagrangian Multiplier (LM) test are analyzed. To find out which, fixed effect or Random effect model is valid or no longer. In the following tables 4.4 and 4.5 the outcomes of the F test for the fixed effect model and the outcome of LM Breuch and pagan (1980) for the random effect model are given in the tables 4.6 and 4.7.

Table 4.4.

F test for fixed effect model coefficients (β)

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	.00171				-.19626	0.0050
M_2	.00172	-.00006			-.01902	0.0050
M_3	.00163		-.00099		-.01816	0.0054
M_4	.00164	-.00063	-.00147		-.01174	0.0061
M_5	.00173	-.00005		-.00091	-.01885	0.0052
M_6	.00164		-.00099	-.00096	-.01789	0.0056
M_7	.00165	-.00062	-.00146	-.00084	-.01161	0.0062

This table displays the outcomes of the coefficients (β) gathered from F-test checking for the fixed effect model.

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of turnover of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural

logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4 shows the results of coefficients obtained from f-test. M is used to represent model. Constant is representing the intercept values for all the models from M_1 to M_7 separately. R^2 is representing the quantity of change for the dependent variable that describe by independent variable, showing the value of overall, for each model separately.

Table 4.5.

F test for fixed effect model t-test and p-value

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	38.85				-37.24	1509.42
	(0.000)				(0.000)	(0.000)
M_2	38.57	-0.81			-20.88	755.03
	(0.000)	(0.418)			(0.000)	(0.000)
M_3	36.08		-8.56		-32.81	791.85
	(0.000)		(0.000)		(0.000)	(0.000)
M_4	36.08	-6.47	-10.70		-10.33	542.06
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)
M_5	38.60	-0.69		-2.38	-20.64	505.26
	(0.000)	(0.488)		(0.017)	(0.000)	(0.000)
M_6	36.14		-8.59	-2.53	-31.73	530.05
	(0.000)		(0.000)	(0.012)	(0.000)	(0.000)
M_7	36.28	-6.35	-10.67	-2.21	-10.20	407.77
	(0.000)	(0.000)	(0.000)	(0.027)	(0.000)	(0.000)

This model represents the results of t-test and p-value gathered from F-test checking for the fixed effect model.

The table 4.5 shows the results of t-test and the p-value, closed in the parentheses. M is used to represent model while other columns are representing turnover, Lnsize,

LnBM and beta. Constant is representing the intercept values, t-test and p-value for all the models. F (p-value) representing the significance of overall model for each model separately. In the table 4.5 all the models M1, M2, M3, M4, M5, M6, M7 reject the null hypothesis on the basis of F (p-value), (0.000) which is the suggestion for the fixed effect model usage.

Table 4.6.

Lagrangian Multiplier (LM) test Random effect model coefficients (β)

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	-.00734				-.00734	0.0050
M_2	.00069	-.00019			-.00573	0.0051
M_3	.00065		-.00047		-.00687	0.0054
M_4	.00072	-.00087	-.00128		.00135	0.0067
M_5	.00073	-.00020		-.00094	-.00569	0.0054
M_6	.00068		-.00043	-.00080	-.00695	0.0056
M_7	.00075	-.00085	-.00123	-.00066	.00108	0.0069

This table displays the outcomes of the coefficients (β) gathered from LM-test checking for the random effect model.

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of turnover of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4.6 shows the results of coefficients obtained from f-test. M is used to represent model. Constant is representing the intercept values for all the models separately. R^2 is representing the amount of variance for the dependent variable that describe by independent variable, showing the value of overall, for each model separately. From M_1 to M_7

Table 4.7.

Lagrangian Multiplier (LM) test Random effect model t-test and p-value

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	23.70 (0.000)				-21.27 (0.000)	561.51 (0.000)
M_2	23.91 (0.000)	-3.66 (0.000)			-10.26 (0.000)	575.00 (0.000)
M_3	22.83 (0.000)		-6.85 (0.000)		-19.53 (0.000)	608.70 (0.000)
M_4	24.86 (0.000)	-11.98 (0.000)	-13.31 (0.000)		1.75 (0.080)	752.94 (0.000)
M_5	24.62 (0.000)	-3.86 (0.000)		-5.86 (0.000)	-10.19 (0.000)	609.56 (0.000)
M_6	23.35 (0.000)		-6.21 (0.000)	-4.95 (0.000)	-19.74 (0.000)	633.35 (0.000)
M_7	25.15 (0.000)	-11.65 (0.000)	-12.63 (0.000)	-4.10 (0.027)	1.40 (0.163)	769.84 (0.000)

This table represents the results of t-test and p-value gathered from LM-test checking for the random effect model.

The table 4.7 representing the results of t-test and the p-value, closed in the parentheses obtained from the LM test. M is used to represent model while the other columns are representing turnover, Lnsize, LnBM and beta respectively. Constant is

representing the constant, t-test and p-values for all the models from M1 to M7. In the table 4.7 all the models M1, M2, M3, M4, M5, M6, and M7 reject the null hypothesis on the basis of F (p-value) (0.000) which is the suggestion for the random effect model usage.

For all the buildup models both fixed effect and random effect model proposed to reject null hypothesis. So, the formation of these models was a good step instead of pooled OLS.

Now, it is the time to choose which model is the best between the random and fixed effect model to explain the data in a proper way. For this reason, Hausman test is implemented and analyzed the outcomes of both models. rejection of the null hypothesis is the suggestion for the usage of fixed effect model is appropriate.

For the model which were contained all control variables, Hausman test proposed the rejection of null hypothesis (χ^2_4 = 866.18; p-value = 0.000). in this way, there are sufficient proofs to performed fixed effect models.

Before, going to take decision on the outcomes gathered from fixed effect model, some of this model assumption should be checked. These assumptions are homoscedasticity and serially uncorrelated errors terms.

4.1. Results of turnover

As autocorrelation and heteroskedasticity existence can mislead our interpretations. Therefore, it is very necessary to use error standard robust to keep safe the interpretations from misleading.

Software package providing various models to handle auto correlation and heteroskedasticity. These issues, autocorrelation and heteroskedasticity with the help of Feasible Generalized Least Squares (FGLS) is eliminated in this study. FGLS model is broadly used by many researchers. This model is mostly available for the panel data.

The main model comprised of all control variables are emphasized in the table 4.8 and 4.9. The main purpose of this thesis is to explore the impact of liquidity (turnover, volume and ILLIQ) on stock returns. The testable hypotheses of this thesis are, there is a negative relationship of stock returns with turnover and volume, and ILLIQ. In this study,

first checked the relationship of stock returns and turnover along with all control variables.

The impact of turnover (liquidity) and all control variables such as size, book-to-market and portfolio beta regressed on the daily returns and the outcomes of the main model are given below in table 4.8 and 4.9.

Table 4.8.

Feasible Generalized Least Squares (FGLS) model t-test and p-value

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	23.70				-21.27	561.52
	(0.000)				(0.000)	(0.000)
M_2	23.92	-3.66			-10.26	575.02
	(0.000)	(0.000)			(0.000)	(0.000)
M_3	22.83		-6.85		-19.53	608.71
	(0.000)		(0.000)		(0.000)	(0.000)
M_4	24.38			-5.74	-21.40	594.60
	(0.000)			(0.000)	(0.000)	(0.000)
M_5	24.86	-11.98	-13.31		1.75	752.97
	(0.000)	(0.000)	(0.000)		(0.080)	(0.000)
M_6	24.63	-3.86		-5.86	-10.19	609.58
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
M_7	23.35		-6.21	-4.95	-19.74	633.37
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
M_8	25.15	-11.65	-12.63	-4.10	1.40	769.88
	(0.000)	(0.000)	(0.000)	(0.000)	(0.163)	(0.000)

This table shows the outcomes of t-test and p-value of the below models for the period of January 2009 to December 2017.

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_8: $R_{it} = \beta_{0t} + \beta_{1t}\, turn_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of turnover of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

Table 4.8 displays the t-test and p-value found from the FGLS model. The values in the parentheses shows the P-value. Constant is displaying thethe intercept, t-test and p-value for each model separately. However, F (p-value) shows the overall model significance. From M_1 to M_8 all models are regressed separately in order to show the relationship of independent variable, control variables with dependent variable. Based on the results above, the overall model results F(P-value) shows significant outputs with p-value less than 0.05. On the other hand, all the individual variables values are also show significant values which are less than 0.05 as well.

Table 4.9.

Feasible Generalized Least Squares (FGLS) model coefficients (β)

Models	*Turnover*	*Lnsize*	*LnBM*	*Beta*	*Constant*
M_1	.00067				-.007345
M_2	.00069	-.00019			-.00573
M_3	.00065		-.00047		-.00687
M_4	.00071			-.00092	-.00739
M_5	.00072	-.00087	-.00128		.001352
M_6	.00073	-.00020		-.00094	-.00569
M_7	.00069		-.00043	-.00080	-.00695
M_8	.00075	-.00085	-.00123	-.00066	.00108

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017.

This table 4.9 represent the coefficients founds from the FGLS model. Constant is representing the constant coefficient value for each model separately. Analysis disclose

that, 1% increase of turnover linked with 0.07% increase in returns at the 1% significant level.

This analysis suggests the positive relation between liquidity (turnover) and stock returns. The result of this analysis is in line with Chalmers and Kadlec (1998), Rouwenhorst (1999), Jacoby et al. (2000), Donadelli and Prosperi (2012), Lischewski and Voronkova (2012), and in contrast with Amihud and Mendelsen (1986) theory, Datar et al. (1998) brennan (1998), By signifying the positive relationship between liquidity (turnover) and stock returns.

Outcomes concerning control variables, natural log of size and beta have negative relation with returns which is in line with Datar et al. (1998). One percent increase of size is associate with .06% decrease of returns. However, one percent increase of portfolio beta is linked with the -0.10 % decrease of returns. Unexpectedly book-to market ratio shows negative relation with return. One percent increase of book-to-market ration is linked 0.12 % increase of returns.

In addition, to cover the second determinant of liquidity, which is the market depth and can be measure through volume is used in this analysis. In this study separate model is used for the volume. Size, book-to-market and portfolio beta are taken as control variables with the volume measure of liquidity.

The main model is used for the volume is given below:

$$R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta_{2t}\, ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t}\, portf\_beta_{it} + \varepsilon_{it}$$

Where

R_{it}= daily returns on stock i at day t.

$Volume_{it}$= natural logarithm of volume of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

Variables in the model for volume are described below:

Return: daily returns is calculated by the end of day just simply log (today closing price /yesterday closing price)

Volume: the number of shares exchanged during a given period of time.

Ln size: taking the natural log of the daily shares outstanding's market value.

Ln bm: taking natural log of book to market ratio.

Portfolio beta: the beta of the portfolio that is given to each stock in the portfolio.

The table of descriptive statistics for the variables is given below:

Table 4.10.

Descriptive statistics for variables

	Return	*Volume*	*Ln size*	*Ln bm*	*Portfolio beta*
Mean	0.0006	11.92678	10.0124	-0.3640	0.4296
Std Dev	0.0317	2.53035	1.5409	0.8358	0.5158
Minimum	-4.2630	0	5.7911	-5.7715	-0.3240
Maximum	4.2473	18.5489	16.1292	2.5817	2.2092

This table shows descriptive statistics of the variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

Table 4.10 shows the results of descriptive statistics of variables for the whole sample period taken for this study. The table shows the returns variable lies between -4.2630 to 4.2473 with the mean of 0.0006. For the volume variable the table 10 display the maximum value is 18.5489 and the minimum 0.0000 with the mean 11.92678. In addition, Ln size value lies between 5.7911 to 16.1292 with the mean 10.0124. Moreover, ln bm shows the maximum value 2.5817 and the minimum -5.7715 and mean value -0.3640. however, portfolio beta having the maximum value 2.2092 and the minimum -0.3240 with the mean of 0.4296 shown by the table 4.10.

Pairwise correlation for the variables of given model is below:

Table 4.11.

Pairwise correlation for variables

	Return	*Volume*	*Ln size*	*Ln bm*	*Portfolio beta*
Return	1				
volume	0.0708	1			
Ln size	0.0046	0.2733	1		
Ln bm	-0.0208	0.0940	-0.6393	1	
Portfolio beta	-0.0014	0.2285	0.0013	0.0301	1

This table summarized the pairwise correlation of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

In the above table, the result of pairwise correlation given the suggestion of weak correlation but again, the value of Ln size and ln bm is a little bit increased the standard which is the indication of multicollinearity and can disturbed our conclusion. Therefore, to expose the multicollinearity VIF is tested.

Table 4.12.

Variance Inflation Factors for variables

Variable	*VIF*	*1/VIF*
Volume	1.32	0.75725
Ln size	2.10	0 0.4759
Ln bm	2.04	0.5119
Portfolio beta	1.06	0.9413
Mean VIF	1.16	

This table summarized the correlation of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

In the above table, the result of variance inflation factor given the suggestion of weak correlation. The rule of thumb for the VIF is, when the individual variable values in the VIF result is greater the 10 then there is high correlation between variables. the outcomes of the VIF table 8 the value of volume is 1.32, value of ln size is 2.10, value of ln bm is 2.04 and the value of portfolio beta is 1.06 which represent weak degree of correlation. The consistency of the correlation of variables with returns are with the literature. The correlation of the control variable is low. Low correlation is the sign of no multicollinearity. So, it means that multicollinearity is not a key problem in dataset.

In order to dig out the relationship between volume (liquidity) and stock returns, panel data is used. Before taking step forward, it is the requirement for the given model to check fixed and random effect model. Hence, both fixed and random effect model are applied in order to check whether unobserved heterogeneity exist or not.

In this study F-test tried for the fixed effect and Lagrangian Multiplier (LM) test for the random effect. The outcomes of both tests are investigated to decide, whether fixed or random model is fit or not valid.

The results of both tests are given below:

Table 4.13.

F-test for fixed effect model coefficients (β)

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	.00224				-.02611	0.0049
M_2	.00227	-.00034			-.02311	0.0050
M_3	.00222		-.00026		-.02599	0.0051
M_4	.00224	-.00237	-.00339		-.00360	0.0074
M_5	.00229	-.00031		-.00153	-.02290	0.0053
M_6	.00224		-.00031	-.00165	-.02554	0.0054
M_7	.00226	-.00241	-.00351	-.00183	-.00269	0.0079

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, volume_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of volume rate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4.13 shows the results of coefficients values. M is used to represent model. The other columns are representing volume, Lnsize, LnBM and beta. Constant is representing the intercept values for all the models from M_1 to M_7. R^2 is showing the value of overall, for each model separately. R^2 is representing the quantity of change for

the dependent variable that describe by independent variable, showing the value of overall, for each model separately.

Table 4.14.

F-test for fixed effect model t-test and p-value

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	38.19 (0.000)				- 36.96 (0.000)	1458.23 (0.000)
M_2	37.99 (0.000)	-2.86 (0.004)			-18.27 (0.000)	733.24 (0.000)
M_3	37.06 (0.000)		-1.48 (0.139)		-36.53 (0.000)	730.22 (0.000)
M_4	37.37 (0.000)	-9.12 (0.000)	-8.78 (0.000)		-1.41 (0.158)	514.87 (0.000)
M_5	38.14 (0.000)	-2.68 (0.007)		-3.41 (0.001)	-18.08 (0.000)	492.74 (0.000)
M_6	37.24 (0.000)		-1.76 (0.078)	-3.67 (0.000)	-35.39 (0.000)	491.36 (0.000)
M_7	37.59 (0.000)	-9.28 (0.000)	-9.06 (0.000)	-4.06 (0.000)	-1.05 (0.294)	390.34 (0.000)

This model represents the results of t-test and p-value gathered from F-test checking for the fixed effect model.

The table 4.14 shows the results of t-test and the p-value, closed in the parentheses. M is used to represent model while the other columns are representing volume, Lnsize, LnBM and beta. Constant is representing the constant values, t-test and p-value for all the models. F (p-value) representing the significance of overall model for each model separately. In the table 4.14 all the models M1, M2, M3, M4, M5, M6, M7 reject the null hypothesis on the basis of F (p-value), (0.000) which is the suggestion for the fixed effect model usage.

Table 4.15.

Lagrangian Multiplier (LM) test Random effect model coefficients (β)

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	.00087				-.00984	0.0049
M_2	.00093	-.00032			-.00725	0.0051
M_3	.00091		-.00104		-.01061	0.0057
M_4	.00119	-.00141	-.00279		-.00055	0.0079
M_5	.00099	-.00034		-.00119	-.00718	0.0055
M_6	.00096		-.00104	-.00111	-.01074	0.0060
M_7	.00127	-.00146	-.00285	-.00137	-.00034	0.0084

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017.

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, volume_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, volume_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of volume rate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4.15 shows the results of coefficients found from the LM test. M is used to represent model. The other columns are representing volume, Lnsize, LnBM and beta. Constant is representing the constant values, coefficient for all the models. R^2 is representing the quantity of change for the dependent variable that describe by independent variable, showing the value of overall, for each model separately**.**

Table 4.16. *Lagrangian Multiplier (LM) test Random effect model t-test and p-value.*

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	23.29 (0.000)				21.43 (0.000)	542.52 (0.000)
M_2	23.78 (0.000)	-5.02 (0.000)			-10.49 (0.000)	567.83 (0.000)
M_3	24.06 (0.000)		-9.16 (0.139)		-22.73 (0.000)	626.79 (0.000)
M_4	28.58 (0.000)	-15.83 (0.000)	-17.59 (0.000)		-0.71 (0.480)	878.78 (0.000)
M_5	24.60 (0.000)	-5.42 (0.000)		-6.30 (0.000)	-10.41 (0.000)	607.68 (0.000)
M_6	24.77 (0.000)		-9.11 (0.000)	-5.88 (0.000)	-23.00 (0.000)	661.51 (0.000)
M_7	29.48 (0.000)	-16.37 (0.000)	-17.94 (0.000)	-7.21 (0.000)	-0.44 (0.661)	931.15 (0.000)

This table represents the results of t-test and p-value gathered from LM-test checking for the random effect model.

The table 4.16 representing the results of t-test and the p-value, closed in the parentheses obtained from the LM test. M is used to represent model while the other columns are representing volume, Lnsize, LnBM and beta respectively. Constant is representing the constant, t-test and p-values for all the models from M1 to M7. In the table 16 all the models M1, M2, M3, M4, M5, M6, M7 reject the null hypothesis on the basis of p-value (0.000) which is the suggestion for the random effect model usage

The outcomes of both F-test and Lagrangian Multiplier (LM) gave the recommendation of null hypothesis rejection.

As both, fixed and random effect model rejected the null hypothesis. So, for the purpose to identified which model has the greater capability to explain the data in a

proper way, Hausman test is performed. Rejection of null hypothesis is in favor of fixed effect model while the acceptance is in favor of random effect model.

For the models having all control variables, Hausman test goes in the favor of fixed effect model by giving the signals of null hypothesis rejection (χ^2_4 =636.03; p-value = 0.0000). Before going to the conclusion on the basis of fixed effect results, some of the assumption concern with fixed model should be checked such as, heteroskedasticity and serially uncorrelated error. Heteroskedasticity and autocorrelation can bring some biasness in the conclusion. Therefore, in order to eliminate these issues, Heteroskedasticity and autocorrelation the FGLS model is used in the main analysis.

4.2. Results of Volume

As discussed, Heteroskedasticity and autocorrelation can disturb and mislead our interpretation. Therefore, it is needed to use standard error robust to avoid such sort of bias in the interpretation.

Different software provides different ways to avoid Heteroskedasticity and autocorrelation problems. The used model in this thesis for the volume will evaluate the parameter with the help of FGLS. This model is used by many researchers and commonly utilized for panel data.

The main model is used in this analysis contained all control variables, to observe the effect of volume (liquidity) on stock returns is the focal aim of this study. The negative relationship between volume (liquidity) and stock returns is the main testable hypothesis of this study.

The result of the main model is given below having all control variables:

Table 4.17.

Feasible Generalized Least Squares (FGLS) model t-test and p-value

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	23.29				-21.43	542.53
	(0.000)				(0.000)	(0.000)
M_2	23.78	-5.02			-10.49	567.84
	(0.000)	(0.000)			(0.000)	(0.000)
M_3	24.06		-9.16		-22.73	626.80
	(0.000)		(0.000)		(0.000)	(0.000)
M_4	24.04			-5.96	-21.71	578.18
	(0.000)			(0.000)	(0.000)	(0.000)
M_5	28.58	-15.83	-17.59		-0.71	878.81
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)
M_6	24.60	-5.42		-6.30	-10.41	607.70
	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
M_7	24.77		-9.11	-5.88	-23.00	661.54
	(0.000)		(0.000)	(0.000)	(0.000)	(0.000)
M_8	29.48	-16.37	-17.94	-7.21	-0.44	931.19
	(0.000)	(0.000)	(0.000)	(0.000)	(0.661)	(0.000)

This table shows the outcomes of t-test and p-value of the below models for the period of January 2009 to December 2017.

$M_1\ R_{it} = \beta_{0t} + \beta_{it}\ volume_{it} + \varepsilon_{it}$

$M_2\ R_{it} = \beta_{0t} + \beta_{it}\ volume_{it} + \beta 2_t\ ln\_size_{it} + \varepsilon_{it}$

$M_3\ R_{it} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 3_t\ ln\_bm_{it} + \varepsilon_{it}$

$M_4\ R_{it} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_5\ R_{it} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 2_t\ ln\_size_{it} + \beta 3_t\ ln\_bm_{it} + \varepsilon_{it}$

$M_{6\ \mathrm{Rit}} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 2_t\ ln\_size_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_7\ R_{it} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 3_t\ ln\_bm_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_8\ R_{it} = \beta_{0t} + \beta_{1t}\ volume_{it} + \beta 2_t\ ln\_size_{it} + \beta 3_t\ ln\_bm_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of volume rate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

Table 4.17 displays the t-test and p-value found from the FGLS model. The values in the parentheses show the P-value. Constant is displaying the constant t-test and p-value for each model separately while F (p-value) shows the overall model significance. From M_1 to M_8 all models are regressed separately in order to show the relationship of independent variable, control variables with dependent variable. Based on the results above, the overall model results F(P-value) shows significant outputs with p-value less than 0.05. On the other hand, all the individual variables values are also show significant values which are less than 0.05 as well.

Table 4.18.

Feasible Generalized Least Squares (FGLS) model coefficients (β)

Models	*Volume*	*Lnsize*	*LnBM*	*Beta*	*Constant*
M_1	.00087				-.00984
M_2	.00093	-.00032			-.00725
M_3	.00091		-.00104		-.01061
M_4	.00093			-.00113	-.00998
M_5	.00119	-.00141	-.00279		-.00055
M_6	.00099	-.00034		-.00119	-.00718
M_7	.00096		-.00104	-.00111	-.01074
M_8	.00127	-.001465	-.00285	-.00137	-.00034

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017.

This table 4.18 represent the coefficients founds from the FGLS model. Constant is representing the constant coefficient value for each model separately. This analysis shows that increase one percent volume is linked with 0.0013 % increase of returns, when the significant level is 1%.

This analysis submitted the positive relationship between volume (liquidity) and stock returns. The result of this analysis is the same with study of Marshall and Young (2003), and against Hu (1997). As for as the relationship of control variables concerns, size and beta have negative relationship with returns as the same with Data et al. (1998).

One percent increase of size is connected with 0.14% decrease of returns while, one percent increase of beta is associated with 0.13% decrease of returns. In addition, book-to-market ratio has also a negative relation with returns. One percent increase in book-to-market ratio brought -0.28% decrease in returns.

However, moving forward to cover the 3rd dimension of liquidity which is market resiliency, in this study the ILLIQ measure is used for the measurement of resiliency. In this study another separate model used, in order to evaluate the impact of ILLIQ on stock returns. Book-to-market, size and beta are also included in this model as control variables. The model formed for the resiliency dimension measured with the help of ILLIQ is given below:

Model of ILLIQ;

$$R_{it} = \beta_{0t} + \beta_{1t} ILLIQ_{it} + \beta_{2t} ln\_size_{it} + \beta_{3t} ln\_bm_{it} + \beta_{4t} portf\_beta_{it} + \varepsilon_{it}$$

Where

R_{it}= daily returns on stock i at day t.

$ILLIQ_{it}$= natural logarithm of ILLIQ of stock i at day t.

ln_size_{it}= natural logarithm of size of stock i at day t.

ln_bm_{it}= natural logarithm of book-to-market ratio of stock i at day t.

$portf\_beta_{it}$ = beta of the portfolio assigned to stock i at day t.

ε_{it}= idiosyncratic error term.

Variables used in the given model are explained below:

Return: daily returns is calculated by the end of day just simply log (today closing price /yesterday closing price)

ILLIQ: It is a measure of liquidity, calculated as, returns divided by turnover.

Volume: the number of shares exchanged during a given period of time.

Ln size: taking the natural log of the daily shares outstanding's market value.

Ln bm: taking natural log of book to market ratio.

Portfolio beta: the beta of the portfolio that is given to each stock in the portfolio.

Portfolio beta is used as an alternative of individual beta, for the purpose to avoid idiosyncratic errors, which is occurring in the use of individual beta.

The table of descriptive statistics for the variables is given below:

Table 4.19.

Descriptive statistics for variables

	Return	*ILLIQ*	*Ln size*	*Ln bm*	*Portfolio beta*
Mean	0.0006	4.47e-06	9.9667	0.4709	0.4299
Std Dev	0.0272	0.0005	1.6090	1.1890	0.5158
Minimum	-2.8587	-0.0402	1.3439	-3.9764	-0.3240
Maximum	2.9562	0.0697	15.6381	21.898	2.2092

This table shows descriptive statistics of the variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

Table 4.19 shows the results of descriptive statistics of variables for the whole sample period taken for this study. The table shows the returns variable lies between -2.8587 to 2.9562 with the mean of 0.0006. For the ILLIQ variable the table display the maximum value is 0.0697 and the minimum -0.0402 with the mean 4.47e-06. In addition, Ln size value lies between 1.3439 to 15.6381 with the mean 9.9667. Moreover, ln bm shows the maximum value 21.898 and the minimum -3.9764 and mean value 0.4709. however, portfolio beta having the maximum value 2.2092 and the minimum -0.3240 with the mean of 0.4299 shown by the table 4.19.

The pairwise correlation for the variables used in the model is given below;

Table 4.20.

Pairwise correlation for variables

	Return	ILLIQ	Ln size	Ln bm	Portfolio beta
Return	1				
ILLIQ	0.0375	1			
Ln size	0.0052	-0.0154	1		
Ln bm	-0.0208	0.0141	-0.7068	1	
Portfolio beta	-0.0008	-0.0090	0.0188	0.0920	1

This table summarized the pairwise correlation of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

In the above table the outcomes of pairwise correlation suggest that the correlation between variables is not strong. The value of ln bm and ln size is exceeding the standard. So, high correlation of variable can affect our conclusion. Therefore, to investigate the multicollinearity problem VIF is tested in this study.

Table 4.21.

Variance Inflation Factors for variables

Variable	*VIF*	*1/VIF*
ILLIQ	1.00	0.9996
Ln size	2.03	0.4933
Ln bm	2.04	0.4893
Portfolio beta	1.00	0.9996
Mean VIF	1.52	

This table summarized the correlation of variables. Such as turnover, natural log of size, natural log of book to market and portfolio beta.

In the above table the outcomes of variance inflation factor (VIF) suggest that the correlation between variables is not strong. So, Low correlation of variable cannot affect our conclusion. The consistency of ILLIQ variable is with literatures showed in the table 4.21.

To estimate the relationship of ILLIQ (liquidity) with stock returns panel data analysis carried out. Before, going to the interpretation we run the fixed and random effect models first. It's a very necessary part of the analysis for the given model to first check fixed and random effect models, because of the possibilities of unobserved heterogeneity including in data.

Fixed effect is carried out with the help of F-test while random was with the help of Lagrangian Multiplier (LM). The results of both tests are given below:

Table 4.22.

F-test for fixed effect model coefficients (β)

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	1.79872				.00059	0.0014
M_2	1.80576	.00039			-.00337	0.0012
M_3	1.82287		-.00191		.00149	0.0017
M_4	1.81870	-.00052	-.00231		.00691	0.0021
M_5	1.80827	.00038		.00069	-.00357	0.0011
M_6	1.82501		-.00190	.00057	.00124	0.0017
M_7	1.82117	-.00053	-.00231	.00068	.00671	0.0021

This table displays the outcomes of the coefficients (β) gathered from F-test checking for the fixed effect model.

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, ILLIQ_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of ILLIQrate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4.22 shows the results of coefficients of F-test. M is used to represent model. The other columns are representing ILLIQ, Lnsize, LnBM and beta. Constant is representing the constant values, coefficient for all the models. R^2 is representing the quantity of change for the dependent variable that describe by independent variable, showing the value of overall, for each Model separately.

Table 4.23.

F-test for fixed effect model t-test and p-value

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	12.52				7.36	156.67
	(0.000)				(0.000)	(0.000)
M_2	12.57	4.87			-4.11	90.21
	(0.000)	(0.000)			(0.000)	(0.000)
M_3	12.70		-16.84		15.40	220.32
	(0.000)		(0.000)		(0.000)	(0.000)
M_4	12.67	-5.34	-16.98		6.79	156.44
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)
M_5	12.58	4.74		1.81	-4.32	61.23
	(0.000)	(0.000)		(0.070)	(0.000)	(0.000)
M_6	12.71		-16.77	1.50	6.47	147.63
	(0.000)		(0.000)	(0.133)	(0.000)	(0.000)
M_7	12.69	-5.43	-5.43	1.79	6.55	118.13
	(0.000)	(0.000)	(0.000)	(0.740)	(0.000)	(0.000)

This model represents the results of t-test and p-value gathered from F-test checking for the fixed effect model.

The table 4.23 shows the results of t-test and the p-value, closed in the parentheses. M is used to represent model while the other columns are representing ILLIQ, Lnsize, LnBM and beta. Constant is representing the constant values, t-test and p-value for all the models. F (p-value) representing the significance of overall model for each model separately. In the table 23 all the models M1, M2, M3, M4, M5, M6, M7 reject the null hypothesis on the basis of F (p-value), (0.000) which is the recommendation for the fixed effect model usage.

Table 4.24.

Lagrangian Multiplier (LM) test Random effect model coefficients (β)

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*	R^2
M_1	1.80226				.00059	0.0014
M_2	1.80658	.00009			-.00038	0.0015
M_3	1.82154		-.00065		.00090	0.0022
M_4	1.81405	-.00048	-.00111		.00594	0.0026
M_5	1.80635	.00009		-.00002	-.00037	-.0002
M_6	1.8226		-.00065	.00011	.00085	0.0022
M_7	1.81616	-.00049	-.00113	.00024	.00598	0.0027

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017

M_1: $R_{it} = \beta_{0t} + \beta_{it}\, ILLIQ_{it} + \varepsilon_{it}$

M_2: $R_{it} = \beta_{0t} + \beta_{it}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \varepsilon_{it}$

M_3: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_4: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \varepsilon_{it}$

M_5: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_6: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

M_7: $R_{it} = \beta_{0t} + \beta_{1t}\, ILLIQ_{it} + \beta 2_t\, ln\_size_{it} + \beta 3_t\, ln\_bm_{it} + \beta 4_t\ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of ILLIQrate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

The table 4.24 shows the results of coefficients LM test for random effect model. M is used to represent model. The others columns are representing volume, Lnsize, LnBM and beta. Constant is representing the constant values, coefficient for all the models. R^2 is representing the quantity of change for the dependent variable that describe by independent variable, showing the value of overall, for each model separately**.**

Table 4.25.

Lagrangian Multiplier (LM) test Random effect model t-test and p-value

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	12.55 (0.000)				7.36 (0.000)	157.48 (0.000)
M_2	12.58 (0.000)	1.95 (0.051)			-0.75 (0.453)	161.28 (0.000)
M_3	12.69 (0.000)		-9.53 (0.000)		10.35 (0.000)	248.38 (0.000)
M_4	12.64 (0.000)	-6.76 (0.000)	-11.52 (0.000)		7.93 (0.000)	294.24 (0.000)
M_5	12.59 (0.000)	1.95 (0.051)		-0.18 (0.857)	-0.73 (0.468)	161.31 (0.000)
M_6	12.69 (0.000)		-9.55 (0.000)	0.74 (0.461)	7.86 (0.000)	248.92 (0.000)
M_7	12.65 (0.000)	-6.90 (0.000)	-11.63 (0.000)	1.55 (0.121)	7.97 (0.000)	296.65 (0.000)

This table represents the results of t-test and p-value gathered from LM-test checking for the random effect model.

The table 4.25 representing the results of t-test and the p-value, closed in the parentheses obtained from the LM test. M is used to represent model while the others columns are representing volume, Lnsize, LnBM and beta respectively. Constant is representing the constant, t-test and p-values for all the models from M1 to M7. In the table 25 all the models M1, M2, M3, M4, M5, M6, M7 reject the null hypothesis on the basis of p-value (0.000) which is the suggestion for the random effect model usage.

For the ILLIQ formed model both fixed and random effects models showed the rejection of null hypothesis. Now, it is very important to decide which model will suit for our data to interpret in the proper way, for this decision, in this study, Hausman test used to identified the best one between them. For the model along with all control variables, Hausman test is executed. The outcomes of Hausman test are (χ^2_4 = 179.57; p-value =

0.000). The results of Hausman test showed the rejection of null hypothesis which is the sign to used fixed effect model.

For going to the interpretation on the basis of fixed effect model outcomes first checked the assumptions of fixed effect model. There are two assumption attached with fixed models such heteroskedasticity and autocorrelation. These both assumptions can carry our interpretation to the wrong way. Therefore, to keep safe our interpretation from the misleading just because of heteroskedasticity and autocorrelation FGLS is used.

4.3. Results of ILLIQ

As mentioned, autocorrelation and heteroskedasticity can affect the conclusion of this study. Therefore, standard error robust is used in this analysis. Different models were provided by various software, to eliminated the error, occurring by the autocorrelation and heteroskedasticity in the conclusion. In this study, FGLS is used to handle such problems. The main model for ILLIQ consist all control variables highlighted in the table 26. The purpose of this study is to disclose the relationship of liquidity (turnover, volume and ILLIQ) and stock returns.

The relationship of ILLIQ and all control variables such as size, book-to-market, and beta is checked with the daily returns. The outcomes for the ILLIQ model are given below in the table 26 and 27.

Table 4.26.

Feasible Generalized Least Squares (FGLS) model t-test and p-value

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*	*F (p-value)*
M_1	12.55				7.36	157.49
	(0.000)					(0.000)
M_2	12.58	1.95			-0.75	161.29
	(0.000)	(0.051)			(0.453)	(0.000)
M_3	12.69		-9.53		10.35	248.39
	(0.000)		(0.000)			(0.000)
M_4	12.55			-0.14	5.74	157.51
	(0.000)			(0.886)	(0.000)	(0.000)
M_5	12.64	-6.76	-11.52		7.93	294.25
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)
M_6	12.5	1.96		-0.18	-0.73	161.32
	(0.000)	(0.050)		(0.857)	(0.468)	(0.000)
M_7	12.69		-9.55	0.74	7.86	248.93
	(0.000)		(0.000)	(0.461)	(0.000)	(0.000)
M_8	12.65	-6.90	-11.63	1.55	7.97	296.67
	(0.000)	(0.000)	(0.000)	(0.121)	(0.000)	(0.000)

This table shows the outcomes of t-test and p-value of the below models for the period of January 2009 to December 2017.

$M_1\ R_{it} = \beta_{0t} + \beta_{it}\ ILLIQ_{it} + \varepsilon_{it}$

$M_2\ R_{it} = \beta_{0t} + \beta_{it}\ ILLIQ_{it} + \beta 2_t\ ln\_size_{it} + \varepsilon_{it}$

$M_3\ R_{it} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 3_t\ ln\_bm_{it} + \varepsilon_{it}$

$M_4\ R_{it} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_5\ R_{it} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 2_t\ ln\_size_{it} + \beta 3_t\ ln\_bm_{it} + \varepsilon_{it}$

$M_{6\ Rit} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 2_t\ ln\_size_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_7\ R_{it} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 3_t\ ln\_bm_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

$M_8\ R_{it} = \beta_{0t} + \beta_{1t}\ ILLIQ_{it} + \beta 2_t\ ln\_size_{it} + \beta 3_t\ ln\_bm_{it} + \beta 4_t\ \ portf\_beta_{it} + \varepsilon_{it}$

Here M represent model. R_{it} is the percentage of daily returns. $turn_{it}$ showing natural logarithm of ILLIQrate of stock i at day t. ln_size_{it} represent natural logarithm of size of stock i at day t. ln_bm_{it} showing natural logarithm of book-to-market ratio of stock i at day t. $portf\_beta_{it}$ is the beta of the portfolio given to stock i at day t. ε_{it} is indicating idiosyncratic error term.

Table 4.26 displays the t-test and p-value found from the FGLS model. The values in the parentheses show the P-value. Constant is displaying the constant t-test and p-value for each model separately while F (p-value) shows the overall model

significance. From M_1 to M_8 all models are regressed separately in order to show the relationship of independent variable, control variables with dependent variable. Based on the results above, the overall model results F(P-value) shows significant outputs with p-value less than 0.05. On the other hand, all the individual variables values are also show significant values which are less than 0.05 as well.

Table 4.27.

Feasible Generalized Least Squares (FGLS) model coefficients (β)

Models	*ILLIQ*	*Lnsize*	*LnBM*	*Beta*	*Constant*
M_1	1.8022				.00059
M_2	1.8065	.00009			-.00038
M_3	1.8215		-.00065		.00090
M_4	1.8020			-.00002	.00060
M_5	1.8140	-.00048	-.00111		.00594
M_6	1.8063	.00008		-.00003	-.00037
M_7	1.8226		-.0006	.00011	.00085
M_8	1.8161	-.00049	-.00113	.00024	.00598

This table shows the outcomes of coefficients (β) of the below models for the period of January 2009 to December 2017.

The coefficient obtained from the FGLS model is shown in this table 27. The analysis of this study proposed that 1 percent increase in ILLIQ is linked with 1.8 % increase of daily returns at 1% significant level. The analysis of ILLIQ model proposed that, there is a positive relationship between ILLIQ and stock returns. The result of this analysis is the same with the results of Jacoby et al. (2000), jun et al. (2003) and in contrast with Amihud (2002) and Brennan et al. (2011). However, the results of control variables, size has a negative relationship with returns, in line with Datar et al. (1998). One percent increase on size is linked with 0.04% decrease in returns. In addition, book-to-market is also having a negative relationship with stock returns. On the other hand,

portfolio beta showed positive relationship with stock returns. One percent increase in portfolio beta associated with 0.02% increase of returns.

CHAPTER 5

Conclusion

5.1. Conclusion

The basic purpose of this study is to evaluate the relationship of liquidity and stock returns traded in Pakistan stock exchange. To evaluate this relationship, 50 firms is taken as a sample listed on Pakistan stock exchange. Nine (9) years daily data is utilized from January 2009 to December 2017, of the whole sample firms. The daily data of the sample firms is collected from the Pakistan stock exchange official website, state bank of Pakistan official website and other internet sources. The main three hypotheses of this study are, there is a negative relationship between Turnover (liquidity) and stock returns, there is negative relationship between volume (liquidity) and stock returns and there is a negative relationship between ILLIQ (liquidity) and stock returns. Three different proxies are used for to capture liquidity such as turnover ratio, volume and ILLIQ. The turnover suggested by Datar et al. (1998), volume proposed by Chordia et al. (2001) and ILLIQ suggested by Amihud (2002).

Turnover is used as liquidity measure. Turnover is calculated simply; daily average volume of given stock was divided by the shares outstanding of that day. However, volume is calculated, the number of shares exchanged during a given period of time. While, ILLIQ is measure, returns divided by turnover.

To evaluate the effect of all the three, Turnover, Volume and ILLIQ on daily returns, panel data analysis is conducted. To seizure the outcome of well-known

influential factor of stock return. the study includes, size, book to market ratio and beta as control variables.

To use individual stock betas there were the probability of occurring idiosyncratic error. Therefor in order to eliminate idiosyncratic error the portfolio betas were used in the analysis as an alternative of individual beta. Every year stocks were sorted according to their individual betas and then divided into seventeen portfolios. Thereafter the beta for each portfolio is calculated and then assign the portfolio beta to each stock lies within the particular portfolio. All of the portfolio restructured for January each year.

After the calculating of turnover, volume, ILLIQ and portfolio beta, fixed effect model and random effect model is tested for all the three models, turnover, volume and ILLIQ. Both models fixed and random effect reject the null hypothesis for all the three models, turnover, volume and ILLIQ. After the rejection of null hypothesis by both models, Hausman test is executed for the purpose to find out which model has the greater capability to interpret our data. Hausman results gives the suggestion of Fixed effect model for all the three models. As the assumptions of heteroskedasticity and autocorrelation are attached with fixed effect models, therefore, Feasible Generalized Least Squares (FGLS) is used to eliminate such problems.

The main outcomes of this study explored the positive relationship for the turnover with sock returns for the stock traded on Pakistan stock exchange. Analysis disclose that, 1% increase of turnover linked with 0.07% increase returns at the 1% significant level. In addition, the outcome of the volume proposed the positive relationship between volume and stock returns for the period January 2009 to December 2017. This analysis shows that increase one percent volume is linked with 0.0012 % increase of returns, when the significant level is 1%. However, the outcomes of ILLIQ measure suggest the positive link of ILLIQ with stock returns for the stock traded on Pakistan stock exchange covered the period of 9 years from January 2009 to December 2017. The analysis of this study proposed that 1 percent increase in ILLIQ is linked with 1.8 % increase of daily returns at 1% significant level.

It is concluded that, liquidity, measured by (Turnover, volume and ILLIQ) has a positive relationship with returns for the stock traded in Pakistan stock exchange. These results are in line with Chalmers and Kadlec (1998), Rouwenhorst (1999), Jacoby et al. (2000), Donadelli and Prosperi (2012), Lischewski and Voronkova (2012), Marshall and Young (2003), and against Hu (1997), Amihud and Mendelsen (1986) theory, Datar et al. (1998) brennan (1998) Amihud (2002).

5.2. Limitations

This investigation has various limitations such as, due to the shortage of time and the inaccessibility of data, the fourth dimension of liquidity, which is the market width and can be measure by the bid-ask spread proxy is not utilized in this study. Furthermore, other measure of liquidity such as, pastor and Stambaugh's measure, Lesmond et al. (2003) measure and Liu multidimensional were not utilized. In addition, the small sample of 50 firms is utilized in this study for the short period of nine (9) years. Finally, this study did not pay attention on the weekly, monthly and annually data.

5.2. Recommendation

This study has concentrated to the relationship of liquidity and stock returns in Pakistan stock market. Panel data is taken for the investigation. The investigation is done by using FGLS model on daily data from January 2009 to December 2017. The result of this thesis showed the positive relationship between liquidity and stock returns.

The empirical results of this investigation are demonstrative for further empirical work. In this study, three proxies of liquidity are used such as, turnover volume and ILLIQ which covered three dimensions of liquidity such as, market depth, immediacy and resiliency. However, due to the shortage of time and the inaccessibility of data, the fourth dimension of liquidity, which is the market width and can be measure by the bid-ask spread proxy is not utilized in this study, one can use this proxy to cover the fourth dimension of liquidity would be a great work for future research. Furthermore, other measure of liquidity such as, pastor and Stambaugh's measure, Lesmond et al. (2003) measure and Liu multidimensional were not utilized, one can utilize these measures of liquidity for further investigation. In addition, the sample of 50 firms is utilized in this

study for the period of nine (9) years, one can use focus on the large sample size along with the large sample period for future research. Finally, this investigation has been done only on the basis of daily data, the use of weekly, monthly and annually data would be a great work for future research to dig out the impact of liquidity on stock returns.

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