

The main focus of the present study is to investigate the model that is most superior to estimate, forecast and analyze and further examine the spillover effects of portfolio returns volatility of the stocks traded in Karachi Stock Exchange (KSE) of Pakistan for the time period of July 1998 to June 2011 on daily basis. From 100 stocks, 10 portfolio returns (10 stocks each) are constructed sorted on high/low betas to estimate portfolio volatility. Due to autoregressiveness and heteroskedasticity characteristic of stock returns ARCH models are used to estimate the volatilities of portfolio returns. For analysis one symmetric GARCH-M model and three asymmetric TGARCH-M, EGARCH-M and PGARCH-M are used where conditional mean equation follows ARMA specification. The GARCH-M Models are employed because they allow to estimate the reward for facing the volatility risk by the investor. Based on the specification criteria of minimum Akaike Information Criterion (AIC) and the higher R², the ARMA (1, 0)-EGARCH (1, 1)-M is found to be the better specification to estimate portfolio returns volatility for all 10 portfolios. To arrive at the best model to estimate volatility for 10 portfolios returns the specific to general approach is adopted based on EGARCH-M specification. The specific models are extended by including first portfolios volume, then business cycle variables (market return, oil prices, gold prices, foreign exchange, foreign cash reserves), then deterministic shocks and finally stochastic shocks. The in-sample and out-sample forecasting performance evaluation suggests that general model is most superior to estimate and forecast portfolio returns volatility for all ten portfolios. The ARMA(1,0)-EGARCH(1,1)-M in general form is used further for examining the volatility spillover effect between the high risky and low risky portfolio returns volatilities and also among high risk, low risky portfolio volatility and business cycle variables. The results reveal that the high/low beta portfolios returns are more volatile and that the risk premium for facing volatility risk by almost all of the high-beta portfolios returns is highly significant compared to the low-beta portfolios returns. This indicates that the low-beta portfolios are less volatile and hence slowly respond to the new/surprises. The forecasting performance of the low-beta portfolios returns volatilities is high relative to the high-beta portfolios returns volatilities because of the strong predictability power of the less risky stocks relative to the high volatile stocks. Also, the empirical results reveal the existence of the volatility spillover effect between the high beta portfolio returns and the low beta portfolio returns as well as between the high/low portfolio returns and the business cycle variables respectively. The present study tend to be a comprehensive study that engulfs in itself all of the major and potential factors that may influence the portfolios returns volatilities and the predictability of the high-to-low beta portfolios returns volatilities as well as the volatility spillover effect. This analysis could be helpful for the academicians, researchers, financial analysts, local and foreign investors, portfolio managers, macro-economic policy makers and the Securities and Exchange Commission of Pakistan to forecast volatility, analyze spillover effects on one hand. On the other hand, the present study uses this analysis for understanding linkage between stock market volatility and financial and business cycle variables, development of modern corporate sector and efficient capital market to foster investment and economic growth in Pakistan.