Review of Literature

2.1 Introduction

Every research comes out with the retrospection of the theoretical and empirical works executed by the academicians. Studies conducted on the different facets of macroeconomic variables with special reference to Indian Stock Market have been reviewed to expand the understanding about the present issue. All these studies have been extensively reviewed but yet to arrive at consensus with regard to impact of Gross Domestic Product, Interest Rate, and Inflation Rate on Indian Stock Market. The aim of this chapter is to document various researches across the world pertaining to manifold aspects of the dynamic changes in the macroeconomic variables and its parallel impact on Securities Market.

For number of years, there has been an extensive debate in the literature assessing the influence of the macroeconomic variables on the stock market. In recent times, the studies on the relationship between macroeconomic variables and the national stock market have been the cornerstone of the most of economic literatures. Economic and financial specialists have examined the relationship between the macroeconomic variables and the stock market in various ways for the different countries for the different time periods. The impact, however seems to show a discrepancy depending on the time period and the country studied. Moreover, there has been a number of well documented evidence exploring the relationship between the macroeconomic variables and the stock market reactions in the developed countries. However, the impact of changes in the macroeconomic variables on the stock market is an interesting area to research with. For a better understanding of underlying issues pertaining to the dynamics of macroeconomic variables and stock
market, literature have been bifurcated into the two broad categories: Indian Literatures and International Literatures.

2.1 Indian Literatures

Naka, et. al. (1998) the study analyzed relationships among selected macroeconomic variables and the Indian stock market. By employing a vector error correction model, the Analysis finds that three long-term equilibrium relationships exist among these variables. The results suggest that domestic inflation is the most severe deterrent to Indian stock market performance, and domestic output growth is its predominant driving force. After accounting for macroeconomic factors, the Indian market still appears to be drawn downward by a residual negative trend.

Pethe and Karnik (2000) using Indian data for April 1992 to December 1997, attempts to find the way in which stock price indices are affected by and affect other crucial macroeconomic variables in India. The study of course avers that in the absence of cointegration it is not legitimate to test for causality between a pair of variables and it does so in view of the importance attached to the relation between the state of economy and stock markets. The study reports weak causality running from IIP to share price index (Sensex and Nifty) but not the other way round. In other words, it holds the view that the state of economy affects stock prices.

Bhattacharya and Mukherjee (2002) investigated the nature of the causal relationship between BSE Sensitive Index and the five macroeconomic aggregates in India (i.e., IIP, money supply, national income, interest rate and inflation rate) using monthly data for the period 1992- 93 to 2000. By applying the techniques of unit-root tests, co-integration and the long-run Granger non-causality test recently proposed by Toda and Yamamoto (1995), their major findings suggested that there was no causal linkage between stock prices and money supply, national income and interest rate while IIP lead the stock price, and there was two- way causation between stock price and inflation rate.
Mishra (2004) by using monthly data for the period 1992 to 2002, examined the relationship between stock market and foreign exchange markets using Granger causality test and Vector Auto Regression technique study suggested that there is no Granger causality between the exchange rate return and stock return.

Bhavna (2006) The research investigated the Fama and French three-factor model of stock returns along with its variants, including the one-factor Capital Asset Pricing Model for 79 stocks listed on the BSE-100 stock market index for India. These sample stocks are split into six portfolios sorted on size and book-to-market equity ratio. A strong evidence for the market factor in all the portfolios is being regarded with having highest explanatory power.

Ahmed (2008) studied and found the nature of the causal relationships between stock prices (i.e., Nifty and Sensex) and the key macroeconomic variables (i.e., IIP, FDI, exports, money supply, exchange rate, interest rate) representing real and financial sectors of India. Using quarterly data, Johansen’s approach of co-integration and Toda and Yamamoto (1995) Granger causality test have been applied to explore the long-run relationships while BVAR modeling for variance decomposition and impulse response functions has been applied to examine short run relationships. The study indicates that stock prices in India lead economic activity except movement in interest rate which seems to lead the stock prices.

Kanakaraj, et. al. (2008) have examined the trend of stock prices and various macro economic variables between the time periods 1997-2007. They have tried to explore upon and answer that if the recent stock market boom can be explained in the terms of macroeconomic fundamentals and have concluded by recommending a strong relationship between the two. The GDP growth in India has grown consistently at high levels touching the highest average from 2003-04 to 2006-07 since Independence, and is strongly backed by manufacturing sector growth and services sector growth.
**Kaur (2009)** In this research thesis, attempt has been made to explore the causal relation between BSE SENSEX and some macroeconomic variables by using correlation, descriptive statistics, unit root stationarity tests and Granger causality. Annual data has been used from 1950 to 2006 for all the variables, like, SENSEX, per capita gross national product (GNP), forex reserves, gross domestic product (GDP), bank rate, wholesale price index (WPI), gross domestic capital formation, domestic savings, broad money. Econometric techniques like unit root tests have been done to check out the stationarity and finally Granger causality has been applied to study the causal relationship between them and results that have come out are mixed.

**Singh (2010)** attempt has been made to explore the relation especially the causal relation between stock market index i.e. BSE Sensex and three key macroeconomic variables of Indian economy by using correlation, unit root stationarity tests and Granger causality test. Monthly data has been used for the year 1995 – 2009 for BSE Sensex, wholesale price index (WPI), index of industrial production (IIP) and exchange rate (Rs/$). The Granger causality test indicated that IIP is the only variable having bilateral causal relationship with BSE Sensex. WPI is having strong correlation with Sensex but it is having unilateral causality with BSE Sensex. Therefore, it is concluded that, Indian stock market is approaching towards informational efficiency at least with respect to two macroeconomic variables, viz. exchange rate and inflation (WPI).

**Sahu & Dhiman (2011)** an attempt has been made to explore the causal relationship between stock market indicators and macroeconomic variables of India by using both correlation and Granger Causality Regression techniques. Annual data has been used from 1981 to 2006 for all the above said variables to study the relationship. Augmented Dickey Fuller Unit Root Test has been done to check the stationary of the series. The findings of the study reveal that there is no causal relationship
between stock market indicator i.e. Sensex of Bombay stock exchange (BSE) and real gross domestic product of India despite they being highly correlated.

**Tripathy (2011)** studied investigated the market efficiency and causal relationship between selected Macroeconomic variables and the Indian stock market by using Ljung-Box Q test, Breusch-Godfrey LM test, Unit Root test, Granger Causality test. The study confirms the presence of autocorrelation in the Indian stock market and macro economic variables which implies that the market fell into form of Efficient Market Hypothesis. Then the Granger-causality test shows the bidirectional relationship between stock market and interest rate and exchange rate, international stock market and BSE volume, exchange rate and BSE volume. The study also reported unidirectional causality running from international stock market to domestic stock market, interest rate, exchange rate and inflation rate indicating sizeable influence in the stock market movement.

**Ashish (2011)** The paper aimed at studying the nature of the causal relationship between stock prices and macroeconomic variables in India, the techniques of unit–root tests, cointegration and the Granger causality test have been applied between the NSE Index ‘Nifty’ and the macroeconomic variables, viz., Real effective economic rate (REER), Foreign Exchange Reserve (FER), and Balance of Trade (BoT), Foreign Direct Investment (FDI), Index of industrial production (IIP), Wholesale price index (WPI) using monthly data for the period from 1st April 2006 to 31st March 2010 have been studied. The major findings of the study are (i) there is no co integration between Nifty and all other variables except Wholesale price index (WPI) as per Johansen Co integration test.

**Dasgupta (2012)** has attempted to explore the long-run and short-run relationships between BSE Sensex and four key macroeconomic variables of Indian economy by using descriptive Statistics, ADF tests, Johansen and Juselius’s cointegration test and Granger causality test. Monthly data has been used for all the variables, i.e., BSE Sensex, WPI, IIP, and call money rate. Results showed that all the variables
has contained a unit root and are integrated of order one. The Granger causality test has found no short-run unilateral or bilateral causal relationships between BSE Sensex with the macroeconomic variables.

**Patel (2012)** the study has explored the impact of 8 macroeconomic variables on two widely used composite indices of the stock market – SENSEX & S&P NIFTY, using monthly data over the period January 1991-December 2011 by applying ADF Unit Root Test, Johansen cointegration test, Granger Causality Test Vector Error Correction Model (VECM) The study concluded that the long run relationship between macroeconomic variables and stock market indices, the study also revealed the causality run from exchange rate to stock market indices to IIP and oil prices.

**Naik and Padhi (2012)** examined the relationships between the Indian stock market index (BSE Sensex) and five macroeconomic variables, namely, industrial production index, wholesale price index, money supply, treasury bills rates and exchange rates over the period 1994:04–2011:06. Johansen’s co-integration and vector error correction model have been applied to explore the long-run equilibrium relationship between stock market index and macroeconomic variables. The analysis reveals that macroeconomic variables and the stock market index are co-integrated and, hence, a long-run equilibrium relationship exists between them.

**Makan, et. al. (2012)** investigated the relationship between Indian Stock Market and the and seven macroeconomic variables namely Index of Industrial production (IIP), Consumer price Index (CPI), Call Money Rate (CMR), Dollar Price (DP), Foreign Institutional Investment (FII), Crude Oil Prices (CO), Gold Price (GP), considering the BSE SENSEX as the representing the Indian Stock Market for the period of April, 2005 to March, 2012 using monthly data to portray a larger view of the relationship. The study also attempts to analyze the impact of macroeconomic variables on stock market sector wise. ADF test is used to find the stationarity or non stationarity variables of data and concluded that three out of seven variables are
relatively more significant and likely to influence Indian stock market. These factors are exchange rate, foreign institutional investment and call rate.

**Sahoo and Das (2012)** The study examined the validity of the Keynesian and the Ricardian views regarding the impact of GFD (as a measure of budget deficit) on the TD (or current account deficit) for India from 1971 to 2010. In order to examine the relationship between budget deficit and current account deficit in India, this study used the ARDL model and a new co-integration test called the bounds test to estimate the long-run dynamics between budget deficit and current account deficit. The empirical results support the Keynesian view that there is a strong linkage between budget deficit and the current account deficit in the case of India during the study period. It also shows that the direction of causality is unidirectional running from budget deficit to current account deficit. Thus, a higher budget deficit leads to a higher current account deficit. Therefore, the empirical results in this study suggest that any policy measures to reduce the budget deficit could assist in reducing the current account deficit in India.

**Sireesha (2013)** this paper attempts to investigate the impact of select macroeconomic factors upon the movements of the Indian stock market index, Nifty along with gold and silver prices by using linear regression technique. The behaviour of nominal and real returns at various levels of inflation, GDP, IIP and Money Supply is studied. The interdependence of the returns on stock, gold and silver is also identified.

**Shaikh & Padhi (2013)** this paper investigates how India VIX responds to the scheduled macroeconomic announcements. The study takes into account various macroeconomic indicators like national product, employment rate, industrial production, inflation rates, fed’s monetary policy statement, corporate confidence, balance of payment and international reserve. Results uncover that VIX is significantly attributed toward the macroeconomic indicators. We find that India VIX is more responsive to the GDP and employment rate. The empirical finding
reveals that market participants consider India VIX as the market expectation about the future volatility.

**Parmar (2013)** This paper discusses the various macroeconomic variables on Indian stock market, here variable to study on selected macroeconomic variables liked reverse repo rate, CRR, SLR, Repo rate, inflation rate, CPI, Index of industrial production, gold rate, oil rate, exchange rate to identify its relationship with stock market movement and predict market behavior in future. Main objectives of this study are to find inter relationship between macroeconomic variables and its impact. Hypothesis testing on correlation between stock market indices and macroeconomic variables. Empirical study period were selected January 2004 to December 2012. Each variable is tested one by one to find out significant relationship between the macroeconomic variables and SENSEX.

**Venkatraja (2014)** The study investigates the relationship between the Indian stock market performance (BSE Sensex) and five macroeconomic variables, namely, index of industrial production, wholesale price index, gold price, foreign institutional investment and real effective exchange rate over the period April 2010-June 2014 using monthly data. Multiple regression technique is employed for this purpose Durbin-Watson test is applied and no evidence of auto correlation between the independent variables is found and the data set is made available for further testing. From the results, it appears that 82 per cent of variation in Sensex is explained by the five selected macroeconomic factors. This leads to the conclusion that inflation, inflow of foreign institutional investment, exchange rate and gold price significantly impact the Indian stock market performance.

**Fedorova, Wallenius and Collan (2014)** This paper studies the impact of euro area macroeconomic announcements on CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey, and South Africa) stock markets. The data used is from between 2007 and 2012.Euro area macroeconomic news is shown to affect CIVETS stock market volatility and in some instances the stock returns. Evidence on the impact of overall
European macroeconomic news on stock market volatility is found for Colombia, Vietnam, Egypt, and Turkey. European announcements about GDP, retail sales, and unemployment have a significant effect on the stock returns. According to results, CIVETS stock markets seem to exhibit a negative relationship between market returns and volatility: negative news have a leverage effect for the most of CIVETS stock markets, as greater volatility is generated by negative than by positive shocks.

**Mohanamani & Sivagnanasithi (2014)** this study investigates the impact of macroeconomic variables on the behaviour of Indian Stock market. Monthly data about six macro economic variables such as BSE Sensex, Call Money rate, Exchange rate between Indian Rupees and US dollar, Foreign Institutional Investment, Industrial productivity, money supply and whole sale price index over the period 2006:04 to 2013:07 has been taken for study. Descriptive Statistics, Pearson’s correlation matrix, Unit root test and Granger Causality tests have been applied. The analysis reveals that Indian stock market is positively linked with whole sale price index, money supply and industrial productivity. In the Granger Causality sense, whole sale price index and industrial productivity influence the stock market to a great extent.

**2.3 International Literature**

**Fama (1981)** the study documented evidence of a strong positive relationship between equity returns and real economic activities such as industrial production, capital expenditures and Gross National Product (GNP), while a negative relationship was found between the share market returns and inflation in the US market. Following Fama (1981), Chen et al. (1986) documented that macroeconomic variables such as industrial production, changes in the risk premium and variations in the yield curve were significant factors in explaining the stock returns.
Feldstein (1983) this paper exhibits a crucial cause of the share prices to rise during decade of substantial inflation during the period of 1967-1976 had been studied to understand the structural relation between the inflation and share prices. An explicit portfolio model could derive asset demand equations from expected utility maximisation and could recognise the indirect ways for the individual to hold assets in a tax favour way.

Chen et. al. (1986) the study tests whether innovations in macroeconomic variables are risks that are rewarded in the stock market. Financial theory suggests that the following macro-economic variables should systematically affect stock market returns: the spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between high- and low-grade bonds. The analysis finds that these sources of risk are significantly priced. Furthermore, neither the market portfolio nor aggregate consumption is priced separately. They also find that oil price risk is not separately re-warded in the stock market.

Kaul (1987) this paper explores that the relation between stock returns and inflation is caused by the equilibrium process in the monetary sector. More importantly, these relations vary over time in a systematic manner depending on the influence of money demand and supply factors. Post-war evidence from the United States, Canada, the United Kingdom and Germany indicates that the negative stock return-inflation relations are caused by money demand and counter-cyclical money supply effects. On the other hand, pro-cyclical movements in money, inflation, and stock prices during the 1930’s lead to relations which are either positive or insignificant.

Darat and Mukherjee (1987) applied a Vector Auto Regression (VAR) model and found that a significant causal relationship exists between stock returns and selected macroeconomic variables of China, India, Brazil and Russia which are emerging economies of the world using oil price, exchange rate, and moving average lags values as explanatory variables employed MA (Moving Average) method with OLS (Ordinary Least Square) and found insignificant results which postulate inefficiency
in market. Finally they concluded that in emerging economies the domestic factors influence more than external factors, i.e., exchange rate and oil prices.

**Zarnowitz & Braun (1989)** Exhibits the interrelationship between the six macroeconomic variables output, alternative measures of money and fiscal operations, inflation, interest rate, and indexes of selected leading indicators. Quarterly series are used, each taken with four lags, for three periods: 1949-82, 1919-40, and 1886-1914. The series are in stationary form, as indicated by unit root tests. For the early years, the quality of the available data presents some serious problems. We find evidence of strong effects on output of the leading indexes and the short-term interest rate. The monetary effects are greatly reduced when these variables are included. Most variables depend more on their own lagged values than on any other factors, but this is not true of the rates of change in output and the composite leading indexes.

**Sadeghi (1992)** paper explored the empirical evidence on the relationship between astonishing changes in macroeconomic variables and Australian stock returns over the period 1980-1991. The results suggest that stock returns are positively correlated with any surprise news in the current account deficit, the exchange rate and growth rate of real GDP, and negatively correlated with surprise news about the inflation rate and interest rates. Stock returns are also positively correlated with the unexpected unemployment rate and negatively correlated to revisions in the expected unemployment rate. The results additionally suggest that market portfolios can notice the impact of common economic shocks better than the portfolios of the two main subsectors.

**Mukherjee and Naka (1995)** applied Johansen’s (1998) VECM to analyze the relationship between the Japanese Stock Market and exchange rate, inflation rate, money supply, real economic activity, long-term government bond rate, and call money rate. They concluded that a co-integrating relation indeed existed and that stock prices contributed to this relation. Maysami and Koh (2000) examined such
relationships in Singapore. They found that inflation money supply growth, changes in short- and long-term interest rate and variations in exchange rate formed a co-integrating relation with changes in Singapore’s stock market levels.

Garrison & Lee (1995) examined the impact of macroeconomic variables on economic growth during the period 1960-1987. They found no evidence for the view that countries which pursue macroeconomic policies that result in high inflation, large budget deficits, and high levels of government consumption spending suffer low rates of growth of the per capita output. Further, the research found weak evidence, however for a negative effect of high marginal tax rates on growth. Further, strong evidence was found that countries which achieve low variability of output growth and which expand their foreign trade have high rates of economic growth.

Mookerjee & Yu (1997) used a subset of macroeconomic variables (narrow and broad money supply, nominal exchange rates and foreign currency reserves), that are especially pertinent in the context of a small open economy, this paper tests for the presence of informational inefficiencies in the Singapore stock market. The study uses the techniques of cointegration and causality together with forecasting equations to test for informational inefficiency in both the long and short run respectively. The results indicate that three of the inefficiencies in the long run.

Mookerjee and Yu (1997) The paper examined the presence of market inefficiency in Singapore stock market. The techniques like cointegration and causality used for forecasting equation for testing the informational inefficiencies in long run and short run respectively. The results concluded that three of four macroeconomic variables are cointegrated with stock market.

Oyama (1997) This paper discussed the general relationship between stock prices and macroeconomic variables in Zimbabwe, using the following models like revised dividend discount model, error-correction model, and multi-factor return-
generating model. Despite the large variation in stock prices since 1991, this analysis indicates that the Zimbabwe Stock Exchange has been carrying out quite consistently during this period. Whereas sharp increases in stock prices during 1993-94 were mainly due to the shift of risk premium that was caused by the partial capital account liberalization, the recent rapid increase in stock prices can be explained by the movements of monetary aggregates and market interest rates.

**Abdalla and Murinde (1997)** investigated the intersections between exchange rates and stock prices in the emerging financial markets of India, Korea, Pakistan and the Philippines. They found that results show unidirectional granger causality from exchange rates to stock prices in all the sample countries, except the Philippines, where they found that the stock price lead the exchange rate.

**Li & Hu (1998)** the study attempts to explore the responsiveness of stock market to the macroeconomic news. For this purpose it employs the daily returns of the Dow Jones Industrial Index, the S&P 500 index, the Russell 1000 index, and the Russell 2000 index to examine the stock market reactions to a broad list of macroeconomic announcements, including money supply, inflation, employment, housing starts, and trade balances etc. Several announcements concerning real economic activity that have received little attention in previous research are shown to have a significant impact on the stock prices. The paper also presents preliminary evidence for the different reaction to macroeconomic news by small cap stocks and large cap stocks.

**Gjerde & Saettem (1999)** The research investigated to what extent important results on relations among stock returns and macroeconomic factors from major markets are valid in a small, open economy by utilizing the multivariate vector autoregressive (VAR) approach on Norwegian data. Consistent with US and Japanese findings, real interest rate changes affect both stock returns and inflation, and the stock market responds accurately to oil price changes. On the other hand, the stock market shows a delayed response to changes in domestic real activity.
Ibrahim (1999) The article investigates the dynamic interactions between seven macroeconomic variables and the stock prices for an emerging market, Malaysia, using cointegration and Granger causality tests. The results strongly suggest informational inefficiency in the Malaysian market. The bivariate analysis suggests cointegration between the stock prices and three macroeconomic variables – consumer prices, credit aggregates and official reserves. From bivariate error-correction models, we note the reactions of the stock prices to deviations from the long run equilibrium. These results are further strengthened when we extend the analysis to multivariate settings. We also note some evidence that the stock prices are Granger-caused by changes in the official reserves and exchange rates in the short run.

Bilson, Brailsford and Hooper (2000) the paper addressed the question of whether macroeconomic variables may be considered as proxy for the local risk sources. They found moderate evidence to support this hypothesis. Further, they investigated the degree of the commonality in the exposures across the emerging stock market returns using a principal components approach. They found little evidence of the commonality when the emerging markets are considered collectively, however at the regional level considerable commonality is found to exist.

Kar et., al. (2000) the paper studied the behaviour of price return volatility in its technical and statistical sense, in consonance it was identified and compared that what is the trend and patterns of volatility, asymmetries in volatility, with a sample of 13 developed and emerging markets for a time period of 15 years, the statistics such as standard deviation, kurtosis, skewness and estimators of Parkinson and Garman andklass, Box Pierce Test and test for auto correlation under variant conditions in the sample. A significant effort had been made to relate some of these patterns, to the changes taken place in the respective markets.

Naka, Mukherjee and Tufte (2001) analyzed long-term equilibrium relationships among selected macroeconomic variables and the BSE Sensex. The study used data
for the period 1960 to 1995 and macroeconomic variables; namely, the Industrial production index, the consumer price index, a narrow measure of money supply, and the money market rate in the Bombay interbank market. The study employed a VECM to avoid potential misspecification biases that might result from the use of a more conventional VAR modelling technique. The study found that the five variables were cointegrated and there exists three long-term equilibrium relationships among these variables.

Adarmola (2001) the study focus to explore the impacts of macroeconomic indicators on the stock prices of Nigerian stock market. The research is a unique in this respect as none of the previous researchers looked at this area at the individual firm’s level. The secondary data on the stock prices of the selected firms and six macroeconomic variables like money supply, interest rate, exchange rate, inflation rate, oil prices and gross domestic product between 1985:1 and 2009:4 were used for the analysis. The pooled and panel model was considered appropriate for its ability to combine both time series and cross-sectional data used to explore the impact of macroeconomic variables on the stock market of selected firms of Nigeria.

Bilson et., al. (2001) the paper seeks to address the question of whether the macroeconomic variables of local area have explanatory power over stock returns in emerging markets. A test is also conducted for identical sensitivity to a common set of extracted factors. While little evidence of common sensitivities is found when emerging markets are considered collectively, considerable commonality is found at the regional level. These results have implications for international investors as they suggest that the benefits from diversification are enhanced when the allocation of funds is spread across, rather than within, regions.

Flannery (2001) The paper estimated a GARCH model of daily equity returns, in which realized returns and their conditional volatility depend on seventeen macro series’ announcements. Stock market returns are known to be significantly correlated with inflation and money growth. The impact of real macroeconomic
variables on aggregate equity returns has been difficult to establish, perhaps because their effects are neither linear nor time-invariant. For the study, six variables for priced factors: three nominal (CPI, PPI, and a Monetary Aggregate) and three real (the Balance of Trade, the Employment Report, and Housing Starts).

Selamat (2001) this study attempts to investigate the relationships among stock prices, exchange rates, interest rates, trade balances, expected inflation, industrial production and money supply, by using data from six selected Asian countries namely Hong Kong, Singapore, Malaysia, Thailand, Philippines and Indonesia. The Multi index model (MIM) and the Error Correction Model (ECM) were applied to capture the dynamic relationship among these variables over the period of 1990-1 to 2000-4. The analysed were divided into two specifications - efficient market (Hong Kong, Singapore and Malaysia) and the less efficient market (Thailand, Philippines and Indonesia).

Dilip et., al. (2002) The research estimated a time-varying two-factor international asset pricing model for the weekly equity index returns of 16 OECD countries. It has been explained that these world market betas and alphas using a number of country-specific macroeconomic and financial variables with a panel approach. Several variables including imports, exports, inflation, market capitalisation, dividend yields and price-to-book ratios significantly affect a country’s exposure to world market risk. Similar conclusions are obtained by using lagged explanatory variables, and thus these variables may be useful as predictors of world market risks. Several variables also significantly impact the risk-adjusted excess returns over this time period.

Xue (2003) this paper investigated a new set of factors from stock return data by adopting an estimation procedure advocated in the chaos literature. This estimation procedure identifies two sources of underlying risk which can be captured by five empirical factors. This new set of factors outperforms the existing benchmarks in explaining cross-sectional returns, and it can be well explained by the commonly
used macroeconomic variables. In particular, the Fama-French three factors leave out a significant part of the risk information that this new set of factors proxy for, indicating an omitted variable problem when use Fama-French factors as a benchmark Fama-French and momentum four factors. As an alternative risk benchmark, this new set of factors suggests that the seasoned equity offering firms do not underperform in the long run, providing support for the bad-model argument of Fama (1998).

Cohen et., al. (2004) this paper explores the cross-sectional asset-pricing implications of the Modigliani- Cohn inflation-illusion hypothesis. We propose a behavioural hypothesis that the market uses the Sharpe-Lintner Capital Asset Pricing Model (CAPM, Sharpe 1964, Lintner 1965) but suffers from inflation illusion. Our method combines Fama-MacBeth (1973) cross-sectional and Black-Jensen-Scholes (1972) time-series regressions to solve for the excess slope and excess intercept as a function of the betas and conditional alphas from the time-series regression’s parameters. The results indicated that the excess intercept of the security market line comoves positively and the excess slope negatively with inflation.

Nieuwerburgh et., al. (2005) this paper investigates the long-term relationship between financial market development and economic development in Belgium. The study used a new data set of stock market development indicators to argue that financial market development substantially affected economic growth. Strong evidence was found that stock market development caused economic growth in Belgium, especially in the period between 1873 and 1935. Institutional changes affecting the stock exchange explain the time-varying nature of the link between stock market development and economic growth.

Wickremasinghe (2006) this paper is devoted to investigate the causal relationship among the stock prices and macroeconomic variables in an emerging stock market , the Colombo Stock Exchange by using the data on six macroeconomic variables and All Share Price Index (ASPI) of the CSE for the period January 1985 to December ,
2004. The study employed unit root tests, Johansen’s test, Error Correction models, Variance decomposition and impulse response analysis, and indicate that there are both short and long run causal relationship among the stock prices and macroeconomic variables in Sri Lanka.

Abugri (2006) this paper gave a noble discussions about the dynamics of macroeconomic variables like exchange rates, interest rates industrial production and money supply in four Latin American countries significantly explain stock market returns. By using vector autoregressive (VAR) model, the study signifies that the global factors are consistently important in explaining the returns in all the markets.

Rasmussen (2006) this paper evaluates the relative performance of these many variables in both time-series and cross-sectional setups. They collected the different measures and compare their forecasting ability for stock returns, and we examine the forecasting variables’ ability to reduce pricing errors in the conditional C-CAPM. A key result of the analysis is that the traditional price dividend ratio performs surprisingly well compared to the many new forecasting variables. The research found that at short and mid-range horizons Lettau and Ludvigson’s (2001a) consumption-aggregate wealth variable offers the strongest forecasting ability, although this variable’s predictive ability is sensitive to the sample period chosen.

Husain (2006) examined the causal relationship between stock price and real sector variables of Pakistan economy, using annual data from 1959-60 to 2004-05. It studied the causal relationship between them using various econometric techniques like ECM, Engle-Granger co integrating regressions and Augmented Dickey Fuller (ADF) Unit Root tests. The study indicates the presence of a long run relationship between the stock prices and real sector variables.

Yusof , Majid and Razali (2006) The study seeks to explore the extent to which macroeconomic variables affect the stock market behaviour in an emerging market
Malaysia in the post 1997 financial crisis period, employed the autoregressive distributed lag model (ARDL) to examine the long run relationship between the macroeconomic variables and the stock returns in Malaysia. The macroeconomic variables tested in the study are the money supply M3, industrial production index (IPI), real effective exchange rate (REER), and interest rate as proxied by Treasury bill rates (TBR). Changes in US monetary policy as measured by the changes in the FFR seems to also have a significant direct impact on the Malaysian stock market behaviour during the period of analysis. This implies that any changes in the US monetary policy may affect the Malaysian stock market.

Surachai et., al. (2007) The research exhibits the impact of several stock market price indices and macroeconomic variables on the Thai stock market, using a GARCH-M model and monthly data (1988M1-2004M12). We find that (a) changes in returns in Singapore, Malaysia and Indonesia before the 1997 crisis, and changes in Singapore, the Philippines and Korea after 1997 instantaneously influenced returns in the Thai stock market; (b) changes in oil prices negatively impacted on it only prior to 1997; (c) volatility clustering and a GARCH-M model were present only before 1997; and (d) markets outside the region had no immediate impact on the Thai market.

Ihsan et., al. (2007) the paper examines the relationship of Economic and Financial Variables with the behaviour of the stock returns in ten industrial sectors of KSE using monthly data. An Arbitrage Pricing Model is estimated in which follow an autoregressive specifications and exhibit the strong time-variation from month to month. The study indicates that unanticipated realizations of economic and financial variables are significant determinant of the movements in the stock returns. The result also imply that the predictable volatility in economic and financial factors in general has an insignificant effect on the risk –premium.

Mustafa et., al. (2007) have done a study to investigate the empirical relationship between the stock market and real economy in Pakistan economy by taking up
various variables like per capita GDP, output growth to represent the Real economy and stock market liquidity, size of stock market representing the Stock Market. Cointegration and Error Correction Model Technique has been adopted to establish the empirical relation, if any between the two from the time period 1980-2004.

Humpe and Macmillan (2007) the paper examined whether a number of macroeconomic variables influence stock prices in the US and Japan. A cointegration analysis is applied in order to model the long term relationship between industrial production, the consumer price index, money supply, long term interest rates and stock prices in the US and Japan. For the US we find the data are consistent with a single cointegrating vector, where stock prices are positively related to industrial production and negatively related to both the consumer price index and a long term interest rate. It was also found an insignificant (although positive) relationship between US stock prices and the money supply. However, for the Japanese data two cointegrating vector were found. Moreover, for one vector that stock prices are influenced positively by industrial production and negatively by the money supply.

Diebold & Yilmaz (2008) this paper is a impressive contributions to empirical financial economics, he research analyses a broad international cross sections of the stock market covering approximately forty countries. The analysis finds a clear link between the macroeconomic fundamentals and the stock market volatilities with volatile fundamentals translating into volatile stock markets.

Pierdzioch et, al. (2008) the study compares forecasts of stock market volatility based on real-time and revised macroeconomic data. To this end, it used a new dataset on monthly real-time macroeconomic variables for Germany. The dataset covers the period 1994–2005. Moreover they used statistical criteria, a utility-based criterion, and an options-based criterion to evaluate volatility forecasts. The main result is that the statistical and economic value of volatility forecasts based on real-
time macroeconomic data is comparable to the value of forecasts based on revised macroeconomic data.

**Hasan and Nasir (2008)** this study documented the relationship among the inflation, industrial production, oil prices, short term interest rate, exchange rates, foreign portfolio investment, money supply and equity prices for the period 6/98 to 6/2008 by using ARDL approach. Results of ARDL long run coefficients reveal that industrial production, oil prices and inflation are statistically insignificant in determining equity prices in long run while interest rates, exchange rates and money supply have significant long run effect on equity prices. The error correction model based upon ARDL approach captures the short term dynamics of prices and it also confirms that changes in industrial production; oil prices and inflation are not statistically significant in short run while changes in interest rates, exchange rates, and money supply have significant short term effect.

**Shahbaz, Ahmed and Ali (2008)** The study endeavours to investigate whether there is a relationship between stock market development and economic growth in case of developing economy such as Pakistan. The data set covers annual times series data from 1971 to 2006. They employed two new tests, i.e., DF-GLS, and Ng-Perron to find integrating order of the said variables of the study. To test long-run robustness, J-J Co-integration and ARDL bounds testing techniques are applied. To investigate long-run causal linkages and short-run dynamics, Engle-Granger causality and ARDL tests are applied respectively, findings suggested that there exist a very strong relationship between stock market development and economic growth. Engle-Granger-Causality estimation confirms in the long-run, there is bi-directional causality between stock market development and economic growth. However, for short-run, there exist only one-way causality, i.e., from stock market development to economic growth.

**Gay (2008)** The study investigated the time-series relationship between stock market index prices and the macroeconomic variables of exchange rate and oil price
for Brazil, Russia, relationship was found between respective exchange rate and oil price on the stock market index prices of either BRIC country, this may be due to the influence other domestic and international macroeconomic factors on stock market returns, warranting further research. Also, there was no significant relationship found between present and past stock market returns, suggesting the markets of Brazil, Russia, India, and China exhibit the weak-form of market efficiency.

Chen (2008) investigated whether macroeconomic variables can forecast recessions in the stock market. Series such as interest rate spreads inflation rates, money stocks, aggregate output, and unemployment rates are evaluated individually. Empirical evidence from monthly data on the Standard and Poor's S&P 500 price index suggests that among the macroeconomic variables that are considered, yield curve spreads and inflation rates are the most useful predictors of recessions in the U.S. stock market according to in-sample and out-of sample forecasting performance.

Mohmmad, et. al. (2009) the purpose behind this study is to explore the correlation among the macroeconomics variables and share prices of KSE (Karachi Stock Exchange) in context of Pakistan. The study consider several quarterly data for different macroeconomics variables re as foreign exchange reserve, foreign exchange rate, industrial production index (IPI), whole sale price index (WPI), gross fixed capital formation (GFCF) and broad money M2. These variables are obtained from the period 1986-2008. The result shows that after the reforms in 1991 the influence of foreign exchange rate and foreign exchange reserve significantly affect the stock prices, while other variables like IPI and GFCF are insignificantly affect stock prices.

Alam et., al. (2009) this study seeks evidence supporting the existence of share market efficiency based on the monthly data from January 1988 to March 2003 and also shows empirical relationship between stock index and interest rate for fifteen developed and developing countries- Australia, Bangladesh, Canada, Chile,
Colombia, Germany, Italy, Jamaica, Japan, Malaysia, Mexico, Philippine, S. Africa, Spain, and Venezuela. Stationarity of market return is tested and found none of this stock market follows random walk model, means not efficient in weak form. To investigate the reasons of market inefficiency, relationship between share price and interest rate, and changes of share price and changes of interest rate were determined through both time series and panel regressions. For all of the countries it is found that interest rate has significant negative relationship with share price and for six countries it is found that changes of interest rate has significant negative relationship with changes of share price.

**Ozbay (2009)** this study seeks to address the causal relationship between stock prices and macroeconomic factors such as interest rate, inflation, exchange rates, money supply and real economy, applying monthly data covering the period of 1998:01 to 2008:12 from Turkey. Granger causality model is employed to explore such relationships. The results of the study indicate that interest rate (OIR), inflation (CPI), CD/GDP, do Granger cause stock returns, while stock returns do Granger cause money supply (M1, M2, and M2Y), exchange rate, interest rate (OIR and TIR) inflation (PPI), foreign transactions. Industrial production is indicated as neither the result variable nor the cause variable of stock price movement. Furthermore, the analysis of the results infers that interest rates (CPI and PPI) are the negative determinants of stock prices, while foreign transactions are the positive determinants of stock prices in Turkey.

**Shubita & Sharkas (2010)** the paper has made an attempt to look at the ‘size-effect’ question using a large sample drawn from New York Stock Exchange prices. The impact of the stock returns' size is also examined and the validity of models explaining the observed negative relations between asset returns and inflation are addressed. The generalized impulse response functions are adopted. Further, the vector error correction model (VECM) (Johansen (1991)) is utilized to determine the impact of selected macroeconomic variables on NYSE. Results revealed that size
had an impact on stock returns. Further, it exhibits that there is reliable negative
relationship between stock prices and inflation. The level of real economic activity
affects stock prices positively. Finally, interest rates have a negative relationship
with stock prices.

Oskenbayev, Yilmaz and Chagirov (2011) This paper aims to investigate the
causal relationship between macroeconomic indicators and Kazakhstan stock
exchange (KASE) index. The results indicate the existence of cointegration between
these series implying violation of market efficiency hypothesis. The results of the
study are in compliance not only with theory but also with the issues in practice.
Using the bound testing approach, within the Autoregressive Distributed Lag
(ARDL) model framework, they examined their long-run relationship. Johansen
Cointegration test, Engel-Granger two-step approach and Granger causality test
reveal that the main determinants of KASE are income per capita, inflation and the
exchange rate and dummy variable accounting for worldwide crisis impact. Other
effect on stock index comes from oil price volatility measure, causing windfall gain
effect as a consequence of rapid, but temporary, increase in oil price.

Milani (2011) this paper employs a structural two-country New Keynesian model,
which incorporates a cross-border wealth channel, to estimate the effect that foreign
stock market fluctuations may have on macroeconomic variables in open economy
countries. The model is estimated using Bayesian methods on a sample of open
economies that can potentially be affected by changes in a larger foreign stock
market: Australia, Canada, New Zealand, Ireland, Austria, and the Netherlands. The
estimation allows for deviations from rational expectations and for learning by
economic agents. The empirical results indicate important cross-country wealth
effects for Ireland and Austria, from fluctuations in the U.S. and U.K. and in the
U.S. and German stock markets, respectively.

Izedonmi & Abdullahi (2011) empirically tested the performance of Arbitrage
The monthly data of the selected macroeconomic variables i.e. inflation, exchange rate, and market capitalisation were investigated against the 20 sectors of the Nigerian Stock Exchange. By using the technique of Ordinary Least Square it was observed that there is no significant effect of the above mentioned variables on the stocks’ return in Nigeria.

Adaramola et., al. (2011) the study investigated the impact of macroeconomic variables on the Nigerian Stock Market for the period of 1985-2009. The macroeconomic variables like Money supply, Interest rate, Exchange rate, inflation rate, oil prices and GDP were tested by time series and cross sectional data. The study found a significant impact macroeconomic variables ON Nigerian stock market. Except Inflation rate and money supply, all other macroeconomic variables have significant impact in the stock market of Nigeria.

Apergis et., al. (2011) the study analysed explored the role of macroeconomic factors in explaining excess returns for a group of emerging countries. The results of the study are expected to enrich the present literature and add significant value to investors, market practitioners as well as regulators. In particular, portfolio managers and investors are expected to find results useful for determining the future behaviour and performance of the firms’ excess returns, for identifying investment approaches, pursuing available investment opportunities, and reducing the likelihood of high value losses in the market. In addition, market regulators in those economies are expected to find the results useful in avoiding any unexpected catastrophes, controlling market strategies and assessing the degree to which the stock market in their countries may need to be reformed.

Rangel (2011) this paper examines the effect of macroeconomic releases on stock market volatility through a Poisson–Gaussian-GARCH process with time-varying jump intensity, which is allowed to respond to such information. The day of the announcement, per se, is found to have little impact on jump intensities. Employment releases are an exception. However, when macroeconomic surprises
are considered, inflation shocks show persistent effects while monetary policy and employment shocks reveal only short-lived effects. Also, the jump intensity responds asymmetrically to macroeconomic shocks. Evidence on macroeconomic variables relevance in explaining jump dynamics and improving volatility forecasts on event days is provided.

Şerife (2012) this research aims to identify the effects of selected macroeconomic variables including inflation rate, exchange rate, interest rate, current account deficit and Unemployment rate on stock returns of 45 companies from 11 different sectors. Autoregressive distributed lag method is employed for the data spanning from February, 2005 to May, 2012. The overall results indicate that exchange rate and interest rate are the most significant factors in the stock price fluctuations of the companies. Stock returns of the companies in any industry are very sensitive to the changes in exchange rate and interest rate.

Beetsma et., al. (2012) the study used US data since 1950 to show that the macroeconomic response pattern to stock market volatility shocks has changed substantially over time. The negative response of GDP growth to such shocks has become smaller over time. A variance decomposition for consumption growth shows that the contribution of stock market volatility becomes negligible as we go from earlier to later parts of the sample, while the corresponding decomposition for investment growth reveals an increase in the role of stock market volatility.

Ngare et., al. (2012) the objective of this study is to investigate the role of stock market development on economic growth in Africa. It uses annual data from a panel of 36 countries, of which 18 have stock markets, in Africa over the period 1980–2010. Panel data econometrics technique is used in data analysis. The main findings are as follows:(i) countries with stock markets tend to grow faster compared to countries without stock markets, (ii) countries which are relatively developed and have stock markets tend to grow less faster compared to small countries with stock markets, (iii) Stock market development has a positive effect on economic growth,
(iv) investment, human capital formation and openness positively influence economic growth in the Africa region, (v) macroeconomic instability (inflation) and government consumption impact economic growth negatively, and (vi) countries that are politically stable and less corrupt tend to grow faster.

Montes and Tiberto (2012) The paper aims at providing empirical evidence about the influence of macroeconomic variables and economic policies on country risk and the influence of macroeconomic variables and country risk on the main Brazilian index of the stock market (Ibovespa). The study analyzes the role that macroeconomic fundamentals plays, but also the role that the credibility of the regime of inflation targeting and the reputation of the central bank play in lessening country risk and in the improvement of the stock market performance. The empirical evidence was obtained through the application of ordinary least squares (OLS), generalized method of moments (GMM) and GMM systems. The results found suggest that monetary policy and public debt management, as well as credibility and reputation affect country risk and the performance of the Brazilian stock market.

Carp (2012) this paper aims to analyze the dynamic of the stock market in Central and Eastern Europe under the impact of the macroeconomic imbalances, emphasizing the volatility of the foreign capital inflows. The data selected for the study will be used to test the impact of stock market development on the correlation between foreign capital inflows and economic growth. The result allowed the comparisons between the macroeconomic performances and identifying the adequate measures through which national capital market can become more attractive for investors.

Sirucek (2012) the focus of this paper are the effect, implication, impact and relationship between selected macroeconomic variables and wider US indices S&P 500 and industrial Dow Jones Industrial Average (DJIA). I Consider inflation, interest rates, money supply, producer price index, industrial production index, oil price and unemployment and their impact on selected stock indices in the USA.
between 1999 and 2012. The hypothesis of this paper is, that between selected macroeconomic variables, namely producer price index, industrial production index, oil price and Dow Jones index is strongly relationship than between these factors and S&P 500.

Erdugan (2012) this thesis used the macroeconomic version of the semi strong efficiency of the EMH and macro variable model of the APT to investigate the relationship between stock market return and macroeconomic variables. Consistent with these ideas, this thesis investigated the effects of seven macroeconomic variables which are proposed as the likely sources of systematic risk on aggregate stock returns. These variables are real GDP, inflation, interest rates, wage rate, commodity prices, exchange rate and US stock market. Among these seven variables, real GDP, interest rate and the US stock market were found more significant in explaining stock market return in Australia.

Hasanzadeh and Kianvand (2012) this paper examines the effects of selected macroeconomic variables on the stock market index in Iran. Using quarterly data, we examine the relationships between the Tehran Stock Index (TSI) and five macroeconomic variables which consist of gross domestic product, nominal effective exchange rate, money supply, gold coin price and investment in housing sector from 1996:1 to 2008:1. Various econometric analyses such as Co-integration and Vector Error Correction Method (VECM) are employed on time series data. It finds that Iran’s stock market index is positively influenced by the growth rate of the GDP, the money supply and negatively affected by the gold prices, the private sector investment in housing sector and the nominal effective exchange rate.

Fathi, Sameti and Nouri (2012) the study attempted to examine the effect of macroeconomic variables on the development of the Tehran Stock Exchange. To do so, national income, investment rate, financial intermediary development and macroeconomic instability are considered as macroeconomic variables, and depth and breadth are considered as indices of the stock exchange development. Necessary
data were collected seasonally during 1998-2007. For statistical analysis augmented Dickey-Fuller Unit Root Test, the Johansen co-integration Test were used to estimate co-integration vectors. Findings suggest that national income and investment rates have a positive, significant effect on the depth and breadth of the stock exchange. Also, financial intermediary development and macroeconomic instability have a negative, significant effect on the depth and breadth of the stock exchange.

**Gupta & Modise (2013)** examined both in-sample and out-of-sample predictability of South African stock return using macroeconomic variables, monthly data covering the in-sample period between 1990:01 and 1996:12, and the out-of-sample period commencing from 1997:01 to 2010:06 is used. When using multiple variables in a predictive regression model, the results become susceptible to data mining. For the out-of-sample forecasts, only interest rates and money supply show short-horizon predictability. Further, the inflation rate shows very strong out-of-sample predictive power from 6-month-ahead horizons. The general-to-specific model confirms the importance of different interest rate variables in explaining the behaviour of stock returns, despite their inability to predict stock returns.

**Haroon & Jabeen (2013).** This study had been conducted with a attempt to find out the relationship of macroeconomic variables i.e. 3-Months, 6-Month and 12 Month Treasury Bill Rate (Proxy of Interest Rate), Consumer Price Index, Wholesale Price Index and Sensitive Price Index (Proxy for Inflation) on Karachi Stock Exchange—KSE 100 Share index. Monthly data has been collected from the period of July 2001 to June 2010. Coefficient of correlation and regression analysis have been used to test the hypothesis. The study explored the impact of inflation indices, interest rate (treasury bills), on KSE movement. The results showed that there was significant relationship between macroeconomic variables and KSE-100 Share index. The study further revealed significant impact of treasury bills on KSE-100 index.
Joseph et., al. (2013) this paper investigates and analyzes the long-run equilibrium relationship between the Thai stock Exchange Index (SETI) and selected macroeconomic variables using monthly time series data that cover a 20-year period from January 1990 to December 2009. The following macroeconomic variables are included in our analysis: money supply (MS), the consumer price index (CPI), interest rate (IR) and the industrial production index (IP) (as a proxy for GDP). Using Toda and Yamamoto’s augmented Granger causality test, we identify a bi-causal relationship between industrial production and money supply and unilateral causal relationships between CPI and IR, IP and CPI, MS and CPI, and IP and SETI, indicating that all of these variables are sensitive to Thai stock market movements.

Florackis et., al. (2014) this study examines whether stock market illiquidity forecasts real UK GDP growth using data over the period 1989q1-2012q2. Apart from standard linear model specifications, they also utilized nonlinear models, which allow for regime switching behaviour in terms of a liquid versus an illiquid market regime and over the Phases of the business cycle. The findings support a statistically significant negative relationship between stock market illiquidity and future UK GDP growth over and above the usual control variables. This relationship is found to be stronger during periods of highly illiquid market conditions and weak economic growth.

Mensi et., al. (2014) this paper examines the dependence structure between the emerging stock markets of the BRICS countries and influential global factors. Using the regression approach, our results for the period from September 1997 to September 2013 show that the BRICS stock markets exhibit dependence with the global stock and commodity markets (S&P index, oil, and gold) as well as changes in the U.S. stock market uncertainty (CBOE Volatility Index). This dependence structure is often asymmetric and affected by the onset of the recent global financial crisis. By contrast, the U.S. economic policy uncertainty has no impact on the BRICS stock markets.
Kibria et al. (2014) The study explored the impact of macroeconomic variables (interest rate, exchange rate, inflation and FDI) on GDP growth of Pakistan by using annual data over the period of 1980 to 2013. For determining correlation coefficient, regression analysis and Granger causality test are used. From the outcome of correlation coefficient, the inflation and interest rate have negative and important association with GDP growth. The result of Granger causality test indicated that the interest rate and inflation have a unidirectional causality and exchange rate and FDI have also unidirectional causality. From the regression analysis result it indicates that inflation, interest rate, exchange rate and FDI demonstrate significant impact on GDP growth. The results of the study recommended. Further, high rate of interest rate should be removed in order to attract FDI ultimately it does improve the Pakistan GDP growth.

Bhargava (2014) This paper analyzed in detail the stochastic properties of quarterly stock prices of US firms in the period 2000–07 and developed comprehensive models explaining stock prices by firms’ fundamentals and macroeconomic variables. This paper modeled the effects of firms’ fundamentals such as total assets and long-term debt and of macroeconomic variables such as unemployment and interest rates on quarterly stock prices of over 3000 US firms in the period 2000–07. The main findings were that the estimated coefficients of lagged stock prices in simple dynamic random effects models were in the interval 0.90–0.95. Second, comprehensive dynamic models for stock prices showed that the firms’ earnings per share, total assets, and long-term debt, dividends per share, and unemployment and interest rates were significant predictors; there were significant interactions between firms’ long-term debt and interest rates.

Pradhan et al. (2014) This paper examines the relationship between banking sector development, stock market development, economic growth, and four other macroeconomic variables in ASEAN countries for the period 1961–2012. Using principal component analysis for the construction of the development indices and a
panel vector auto-regressive model for testing the Granger causalities, this study finds the presence of both unidirectional and bidirectional causality links between these variables.

**Onan et., al. (2014)** this paper examines the impact of macroeconomic announcements on the high-frequency behaviour of the observed implied volatility skew of S&P 500 index options and VIX. The study documented that macroeconomic announcements affect VIX significantly and slope at a lesser extent. They also found evidence that good and bad announcements significantly and asymmetrically change implied volatility slope and VIX.

**Toraman & Basarir (2014)** this paper investigates the long run relationship between stock market capitalization rate and interest rates in Turkey over the period 1998-2012. Prior to conducting the analysis in a time series, in order to test the stability of the series, a unit root test was initially applied. It is determined that both stock market capitalization rate and interest rate series are not stationary. Long-run relationship is tested by Johansen Co-integration tests. According to the results of the study, there is long-run relationship between stock market capitalization rate and interest.

**Fedorova et., al. (2014)** this paper studies the impact of euro area macroeconomic announcements on CIVETS (Colombia, Indonesia, Vietnam, Egypt, Turkey, and South Africa) stock markets. The data used is from between 2007 and 2012. Euro area macroeconomic news is shown to affect CIVETS stock market volatility and in some instances the stock returns. Evidence on the impact of overall European macroeconomic news on stock market volatility is found for Colombia, Vietnam, Egypt, and Turkey. European announcements about GDP, retail sales, and unemployment have a significant effect on the stock returns. According to results, CIVETS stock markets seem to exhibit a negative relationship between market returns and volatility.
**Ouma & Muriu (2014)** this study investigates the impact of the macroeconomic variables on stock returns in Kenya during the period 2003-2013, using the Arbitrage Pricing Theory (APT) and Capital Asset Pricing Model (CAPM) framework for monthly data. The Ordinary Least Square (OLS) technique is applied to test the validity of the model and the relative importance of different variables which may have an impact on the stock returns. The empirical analysis found two interesting results. First, all variables are I(0). Second, with the exception of interest rates, there exists a significant relation between stock market returns and macroeconomic variables. According to the findings of the study, Money Supply, exchange rates and inflation affect the stock market returns in Kenya. Money supply and inflation are found to be significant determinants of the returns at NSE. Exchange rates is however, found to have a negative impact on stock returns, while interest rates is not important in determining long rung run returns in the NSE.

**Sadiye (2014)** this study investigates the influence of four macroeconomic variables: crude oil, interest rate, exchange rate and gold, on stock returns of ten U.S. industries. The study uses monthly data from January 1997 to September 2014 and the ordinary least squares approach. The observation period is divided into a pre-crisis and post-crisis period; the period as a whole is also analysed. The findings of this paper demonstrate that the impact of some macroeconomic variables differs between industries, whereas other macroeconomic variables have a homogenous impact. The negative impact of crude oil on stock returns is confirmed for four industries, namely consumer goods, consumer services, financials and healthcare. During the pre-crisis period, no relation between gold and stock performance was found for any industry. During the post-crisis period, significantly negative results were found for the consumer services, financials and industrials sectors, which could be a result of a substitution effect from shares to gold.

**Maio & Phillip (2015)** the study conducted a decomposition for the stock market return by incorporating the information from 124 macro variables. Using factor
analysis estimated six common factors and run a VAR containing these factors and financial variables such as the market dividend yield and the T-bill rate. Including the macro factors does not have a significant impact in the estimation of the components of aggregate (excess) stock returns cash-flow, discount-rate, and interest-rate news. Using the macro factors in the computation of cash-flow and discount-rate news does not significantly improve the fit of a two-factor ICAPM for the cross-section of stock returns.

**Pradhan et., al. (2015)** this paper examines the linkages between economic growth, oil prices, depth in the stock market, and three other key macroeconomic indicators: real effective exchange rate, inflation rate, and real rate of interest. A panel vector autoregressive model to test Granger causality for the G-20 countries over the period 1961–2012 was employed. The results show a robust long-run economic relationship between economic growth, oil prices, stock market depth, real effective exchange rate, inflation rate, and real rate of interest. In the long run, real economic growth is found to respond to any deviation in the long-run equilibrium relationship that is found to exist between the different measures of stock market depth, oil prices, and the other macroeconomic variables.

**Ahmad, Abdullah, Sulong and Abdullahi (2015)** this thesis provides an empirical investigation of the causal relationship between stock market returns and macroeconomic variables in Nigeria using Autoregressive Distributive Lag (ARDL) and Vector Autoregressive Model (VAR). Annual time series data of six variables namely; broad money supply, nominal effective exchange rate, short term treasury bills rate, foreign direct investment, gross domestic per capita income, and gross domestic saving from 1984-2013 were employed. The Bound test revealed that the stock market returns and the macroeconomic variables were cointegrated and, thus, a long-run equilibrium relationship exists between them, the Granger causality tests showed that some of the macroeconomic variables were having bidirectional causality with the stock market returns; while others have unidirectional causality.
Furthermore, the impulse response function indicated that the impact of shocks in broad money supply, nominal effective exchange rate, gross domestic per capita income and short-term Treasury bill rate on the stock market returns in this study was consistent with other stock market empirical results. The variance decomposition test indicated that the stock market returns can be explained by gross domestic saving and nominal effective exchange rate.

**Kinyondo and Byaro (2015)** this paper investigates the relationship between stock market capitalization (MC) and money demand in Tanzania between 2000 and 2010, the study found a unidirectional relationship between MC and real GDP with causality running from MC to real GDP. This suggests that MC plays a vital role in promoting economic growth in Tanzania. Moreover, bidirectional causality between M3 and MC was found. This implies that MC has an impact on M3 in the short run. In turn, unidirectional causality running from broad money (M2) to MC was found meaning M2 has an impact on MC growth.

**2.4 Conclusion**

This section gave a summarised account of the copious studies in the diverse dimensions conducted in the national and international context with regard to interrelationship between macroeconomic variables and Stock Market. Reviews are expressed with regard to several countries where the macroeconomic variables are considered as an imperative aspect for the dynamic changes in the Securities market returns. It provides a broader insight of the different macroeconomic variables and their respective impact on the Stock Market using the broad set of techniques of the analysis and specification of the data for the empirical analysis. However, there lies contention in the conclusions derived with regard to the different macroeconomic variables and Stock Market and far away from any consensus result for this polemic issue. In consonance with the above assorted implications, the present study tries to fill this gap by examining the long run cointegration and causal relationship between the macroeconomic variables and the Indian Stock Market Returns.