Chapter -2

Review of Literature

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2. REVIEW OF LITERATURE:

Even though common, the word stock market is in some way theoretical for the appliance that facilitates the trading of the stocks of companies. Also it is utilized to explain the totality of all the stocks, particularly in a nation, for instance, in the saying that the “stock market bubble” or in the saying that “today the stock market is in down”. The stock market is divergent from that of the stock exchange, which is a firm (a mutual organization or a corporation) in the trade of bringing sellers or buyers of stock together. It was some decades ago, worldwide, the sellers and buyers in the stock market are the wealthy businessman and the individual investors together with long histories of family and emotional ties with specific firms. Over time, the markets had become much institutionalized with the sellers and buyers hugely institutions, for instance, insurance companies, hedge funds, banks, pension funds, mutual funds and investor groups. The increase of institutional depositor has carried with it some enhancements in the operations of the stock market. But not unavoidably in the attention of the minor investors or even of the native firms, of which there are so many (Shreenivasa & Yathish Chandra, 2009).

Currently, the contributors in the stock market get ranged from that of the minor singular stock investors to huge hedge traders of fund, who could be based somewhere. Usually their orders end up with the proficient at the stock exchange, who implements the order. Most of the stocks are used to trade on the exchanges, for example NYSE, that are the place in which the buyers of stock and the sellers of stock meet and resolve on the price. Some of the exchanges are the physical locations, in which the transactions will be conceded out on an exchange floor, by a technique called as open outcry. Another kind of exchange is called as the virtual kind, for example, Nasdaq. This includes of a network of systems in which the trades are done electronically through traders at the terminals of computer (Bhalla, 2011).

The relationship between stock market returns and fundamental economic activities in the U.S. are well documented (Fama, 1970, 1990, 1991). In recent years, numerous studies Fama (1981), Huang and Kracaw (1984), Chen, Roll, and Ross (1986), Pearce and Roley (1988), Fung and Lie (1990), Chen (1991), and Wei and Wong (1992)] modeled the relation between asset prices and real economic activities in terms of production rates, productivity, growth rate of GNP, unemployment, yield spread, interest rates, inflation, dividend yields, etc. However,
the economic role of the stock markets in relatively less developed Asian countries (e.g. Korea, Taiwan, Singapore, Hong Kong, Malaysia, China, India etc.) is less clear. Specifically, how do these less developed markets respond to changes in its fundamental economic variables, when compared to the well developed, well organized, and more efficient markets like the U.S. stock market? Below is the collated gist of various national and international studies that were reviewed for carrying on this research study. Various literatures reviewed to carry the study have been categorized into main group heads of:

1. Macroeconomic Variables & Stock Market
2. Inflation & Stock Market
3. GDP, Industrial Production & Stock Market
4. Exchange Rates & Stock Market
5. Foreign Institutional Investors & Stock Market
6. Interest Rates, Monetary Policy & Stock Market
7. Oil prices & Stock Market

2.1 Study of the impact of various macroeconomic determinants of stock market.

The study conducted by Naka and Mukherjee (1996) analyzes long-term equilibrium relationships between a group of macroeconomic variables and the Bombay Stock Exchange Index. The macroeconomic variables are represented by the industrial production index, the consumer price index, M1, and the value of an investment earning the money market rate. The study finds that these five variables are co-integrated and three long-term equilibrium relationships exist among these variables. Analysis of the results indicates that industrial production is the largest positive determinant of Indian stock prices, while inflation is the largest negative determinant.

A study by Sekhara and Radjeswari (2000) observed that at least three very significant factors influences the returns of assets during the study period. The first factor encompasses economy-wide variables like agricultural production; interest rate and money supply as well foreign exchange reserves, etc. The second factor characterized by inflation in its different manifestations. The third factor concentrates on industrial production. Interestingly the volume
of turnover in two major stock exchanges found a place in the estimated factors indicating the role of demand and supply forces at market ring. Ibrahim (2000) in his study analyzed the interactions between stock prices and exchange rates in Malaysia. The findings indicate that in the short run, a concerted stance on monetary, exchange rate and reserve policies is vital for stock market stability. These results also indicate informational inefficiency in the Malaysia stock market.

Anthony and Glen (2000) in their study compiled data from 23 countries, including 15 developing countries, in order to examine the ability of stock market prices to predict future economic growth in income, consumption and investment. It is found that stock prices generally have predictive ability, but with substantial variation across countries. Moreover, stocks are substantially better leading indicators of investment than either GDP or consumption. Despite their value as leading indicators, however, stock prices do not generally increase forecasting ability as measured by root mean squared error in out-of-sample forecasting equations.

Hondroyiannis and Papapetrou (2001) in their paper studied the dynamic interactions among indicators of economic activity, such as industrial production, interest rate and exchange rate, the performance of the foreign stock market, oil prices, and stock returns to examine whether economic activity movements affect the performance of the stock marker for Greece. The empirical evidence suggests that stock returns do not lead changes in real economic activity while the macroeconomic activity and foreign stock market changes explain only partial stock market movements. Oil price changes explain stock price movements and have a negative impact on macroeconomic activity.

Chaudhari and Koo (2001) investigated the volatility of stock returns in some Asian emerging markets in terms of the volatility of domestic and external factors. They explored that both domestic macroeconomic variables and international variables are found to have explanatory power for stock return volatility. The evidence strongly suggested the presence of a significant contagion effect and integration of capital markets in this region. We also document that the role of government in terms of fiscal and monetary policy in the smooth functioning of the stock market is crucial in this region.

The study by Prantik, Vani and Vina (2003) attempted to analyse the relationship between the real economic variables and the capital market in Indian context had been made. The paper considers the monthly data of several economic variables like the national output, fiscal deficit,
interest rate, inflation, exchange rate, money supply, foreign institutional investment in Indian markets between 1994 and 2003, and tries to reveal the relative influence of these variables on the sensitive index of the Bombay stock exchange. Compared to the earlier similar attempts, this paper applies the modern non-linear technique like VAR and Artificial Neural Network and compares the results. The finding shows that certain variables like the interest rate, output, money supply, inflation rate and the exchange rate has considerable influence in the stock market movement in the considered period, while the other variables have very negligible impact on the stock market.

Graham, Nikkinen, and Sahlström (2003) investigated the relative importance of scheduled U.S. macroeconomic news releases for stock valuation. The study focuses on 11 macroeconomic announcements selected on the basis of the previous literature and the Bureau of Labor Statistics classifications of major economic indicators. The paper shows that five out of the 11 announcements have significant influence on stock valuation. These are the Employment Report, NAPM (manufacturing), Producer Price Index, Import and Export Price Indices, and Employment Cost Index. Of these six announcements, the Employment Report and NAPM (manufacturing) exert the greatest influence. The time of the announcement, measured by days from the beginning of the month to the release day, has a moderating impact on the relationship between macroeconomic announcements and its importance.

Study by Nath & Reddy(2004) attempted to study the relationship of stock returns with macroeconomic variables in the Indian context. It is widely believed that stock market is related to macroeconomic fundamentals of an economy, as companies those are listed for trading in stock exchanges are the ones that contribute significantly to the economy’s growth. According to standard stock valuation model, the determinants of stock price are the expected cash flows from the stock and the required rate of return. The data taken consisted of 88 months from April 1996 to July 2003 comprising of all monthly macro indicators. The study included 10 macro variables, viz., WPI, exchange rate, IIP, foreign exchange reserves, stock index, M3, oil price index, real effective exchange rate, 91-day Treasury Bills yield as well as 10-year yields. The study finds a long-term equilibrium relationship between the macroeconomic variables and stock market indicator through Johansen’s co integration test. The Granger Causality Test finds short-term dynamics among macro variables. The vector error correction model (VECM) of Johansen
illustrates that stock prices are co-integrated with the set of macroeconomic variables considered under the study. An OLS regression test gives the result that the oil prices have a significant influence in stock price returns.

A research report (2004) in Asia Money on “India: Financial Market Metamorphosis” brings out the importance of globalization and liberalized interest rate regime in Indian economy. It suggests that Indian financial markets are increasingly getting integrated with the world markets. Rising financial integration has provided positive spillovers in the form of financial efficiencies, rising asset returns, improved corporate performance and strengthening of domestic market infrastructure. The metamorphosis in the financial world has been rapid and is generating investment and trading opportunities at an equivalent pace. Indian markets are no more seen as an isolated play, with global dynamics impacting all markets, exchange rate, interest rate and equity. As a result of the deregulation of interest rate structure over the past decade, interest rates are determined competitively in the market. There has been a downward trend in the interest rate in the economy with both the short-term and long-term rates falling. This fall in the interest rates in the recent period has been in congruence with the monetary policy stance of a soft and flexible interest rate regime.

Bordo and Wheelock (2006) in their study finds that booms generally occurred during periods of above-average economic growth and below-average inflation, and that booms typically ended when monetary policy tightened in response to rising inflation. They also proposed that some 20th Century booms were not associated with rapid economic growth or low inflation, and that stock markets were often affected by changes in regulation and other events, such as oil price shocks and political upheaval.

Biswas (2006) evaluates the impact of financial liberalisation on the growth, development and efficiency of the Indian stock market vis-à-vis other select Asian markets. Though the expansion of the Indian stock market in the post-liberalisation period is truly impressive, in terms of quality there has been a regress. Trading has become increasingly concentrated in some sectors and companies, and the higher volatility in the market, without a corresponding higher return, portends greater risk and more instability for investors. Balke and Wohart (2006) concludes that the data have difficulty distinguishing a stock price decomposition in which expectations of future real dividend growth is a primary determinant of stock price movements from one in
which expectations of future excess returns are a primary determinant. The data cannot
distinguish between these very different decompositions because movements in the price-
dividend ratio are very persistent whereas neither real dividend growth nor excess returns are;
most of the information about low-frequency movements in dividend growth and excess returns
is contained in stock prices and not the series themselves. We further show that this inability to
identify the source of stock price movements is not solely due to poor power and size properties
of our statistical procedure, nor does it appear to be due to the presence of a rational bubble.

Agrawalla (2006) Investigated the Relationship Between Stock Markets and Economic Growth”
attempts to examine for India, the causal relationships between the share price index and
industrial production in a multivariate vector error correction model which involved certain other
crucial macroeconomic variables namely money supply, credit to the private sector, exchange
rate, wholesale price index, and money market rate for the reason of right and robust model
specification. The proceeds with a single point investigative agenda- what is the relationship
between the health of the real economy and the health of the stock market? Does a rally in share
prices reflect better health of the economy or is it the pink economic health that causes share
prices to rise? The findings of the study reports, causality running from economic growth
proxied by industrial production to share price index and not the other way round. It may
therefore be stated that the state of the economy has a bearing on the share prices but the health
of the stock market in the sense of a rising share price index is not reflective of an improvement
in the health of the economy. This finding has lot of implications for the kind of rally we witness
in the Indian stock market in the recent years and the Sensex crossing 10000 marks provides a lot
of food for thought and research, both theoretical and empirical, in the future. Chakravarty
(2006) re-examines the relationship between stock price and some key macro economic variables
in India for the period 1991-2005 using monthly time series data. The study uses Granger non
causality test procedure developed by Toda and Yamamoto (1995). The results of the study
indicate that index of industrial production and inflation Granger cause stock price but stock
price does not cause either of the two so the causation is unidirectional. The causal relation
between stock price and money supply is unidirectional as stock price Granger cause money
supply but money supply does not. On the other hand there is no causal relation between stock
price and exchange rate. Similarly there is no causal linkage between gold price and stock price.
Desai and Tanna (2007) opined that the critical success factors for returns include some dominant and obvious factors such as GDP growth, interest rates, the inflation rate and the success of India’s infrastructure roll-out. A less obvious but increasingly accepted factor is global risk appetite, which has a bearing on the expected rate of return and hence the actual rate of return. Some of the least obvious factors include the pace at which Indian companies globalize, the rate of wage increases, the investment rate, the estimated asset life in the books of accounts and capital structure alterations.

Chen (2008) investigated whether macroeconomic variables can predict 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.

Kumar (2008) established and validate the long-term relationship of stock prices with exchange rate and inflation in Indian context. There were numerous studies on the relationship of stock indices with macroeconomic variables. This gave a strong subjective background to test the existence of any such relationship in India. The research primarily dealt with an empirical method by combining different statistical techniques to check the presence of co-integration between the stock index (Sensex) and other variables. Co-integration is a well accepted indicator of a long term relationship between more than one time series variables. The study took into consideration past ten years experience of Indian economy reflected into the stock index, wholesale price index and exchange rates. A causal relationship could not be established without the existence of cointegration between the selected macroeconomic variable.

Singh (2010) tried to explore the relation especially the causal relation between stock market index i.e. BSE Sensex and three key macro economic variables by using correlation, unit root stationarity tests and Granger causality test. Monthly data has been used for all the variables and
results showed that the stock market index, IIP, WPI, and exchange rate contained a unit root and were integrated of order one. They found that results show bilateral granger causality between IIP and Sensex while WPI is having strong correlation and unilateral causality with Sensex which means Indian stock market is approaching towards informational efficiency at least with respect to two macroeconomic variables, viz. exchange rate and inflation.

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.

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, EX and call money rate. Results showed that all the variables has contained a unit root and are integrated of order one. Johansen and Juselius’s cointegration test pointed out at least one cointegration vector and long run relationships between BSE Sensex with index of industrial production and call money rate. Granger causality test was then employed. The Granger causality test has found no short-run unilateral or bilateral causal relationships between BSE Sensex with the macroeconomic variables. Therefore, it is concluded that, Indian stock markets had no informational efficiency.

The study by Ahuja et al., (2012) consider macroeconomic variables as 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) and Bombay
Stock Exchanges indices in the form of SENSEX, BSE-Metals, Auto, Capital Goods, Fast Moving Consumer Goods and Consumer Durables by using monthly data that span from April, 2005 to March, 2012. The results conclude that exchange rate, foreign institutional investment and call rate are more likely variables to influence Indian stock market. factors are There is a positive relation between FII and Sensex, call rate and Sensex whereas exchange rate and Sensex shows a negative relation. The result has been concluded on the bases of the granger causality test in which call rate has been seen as affecting BSE in almost all the sectors (except FMCG sector) and regression analysis in which exchange rate and FII is affecting all the sector. This simply concludes that in long term the Indian stock market is more driven by domestic macroeconomic factors rather than global factors.

The study by Asghar et al., (2013) examines the impact of market return, oil price, exchange rate and interest rate changes on stock returns of 36 industry sectors in Tehran Stock Exchange (TSE) using monthly data during the period of November 22, 2003 to November 20, 2008. In this paper, the multivariate regression model was used to study the relationship among market return, oil price, exchange rate and interest rate to stock return of each industry and method of autoregressive distributed lag (ARDL) is employed to test the model. Findings indicate that market return, oil price, exchange rate and interest rate changes have significant impacts on some industries returns while some have obtained contrary results.

The study by Singh (2014) investigates the relationship between macroeconomic variables and Indian stock market. The Pearson’s correlation and multivariate stepwise regression is applied to understand the impact of macroeconomic indicators on the performance of stock market. Granger’s causality test is applied for the dynamic causal relationship among the variables. The explained variables in the study includes average monthly closing price of BSE 100 and CNX 100 while the explanatory variables are Index of Industrial Production (IIP), Wholesale Price Index (WPI), Money Supply (M3), Interest Rates (IR), Trade Deficit (TD), Foreign Institutional Investment (FII), Exchange rate (ER), Crude Oil Price (CP) and Gold Price (GP). The data used in the study is in the monthly frequency and period of the study includes from January 2011 to December 2012. The empirical results exhibit significant impact of macroeconomic variables on Indian stock market. The Indian Stock market improves with the increase in the inflow of foreign investment. Thus foreign capital is value addition to the market as it has significantly positive
impact on stock market. The gold prices are used as best alternative for investment which hampers the stock prices of share market. The Granger causality test signifies that there exists causal relationship from FII to stock market. Apart from this, there is no any causal relationship among the variables. Thus, any movement in the value of foreign investment has influence on stock market. The negative impact exchange rates on stock market appear during the period of study. With the strengthening of dollar, Indian currency depreciates in the international market. The stock market declines due to the decrease in the value of rupee with respect to US dollar. The appreciation in the value of Indian rupee with respect to US dollar needs to improve so as to facilitate bullish trend in the market.

2.2 Studies investigating the relationship between Inflation & Stock Market

A negative relationship between stock market returns and inflationary trends has been widely documented for developed economies in Europe and North America. Chatrath, Ramchander and Song (1997) in a paper on “Stock prices, inflation and output: evidence from India” provides similar evidence for India. Specifically, the study tests whether the negative stock return-inflation relationship is explained by a negative relationship between inflation and real economic activity, and a positive relationship between real activity and stock returns. The results from the heteroscedasticity and autocorrelation corrected models provide some support for Fama’s contentions. First, a negative relationship between inflation and real activity is documented. Second, the relationship between real activity and stock returns is found to be positive. However, the negative association between real stock returns and the unexpected component of inflation (and inflation per se) is found to persist, despite a two-step estimation that controls for the inflation-real activity relationship. The study documents some unique aspects in the relationships among inflation, real activity and stock returns in the Indian economy. Real activity is found to lead changes in inflation, rather than vice versa. Moreover, the study finds little evidence to indicate that the Indian stock market accurately reflects future real activity. A notable lag between industrial production and stock market activity is documented.

Kaul and Seyhun (1990) in a paper on “Relative Price Variability, Real shocks, and the Stock Market” investigate the effects of relative price variability on output and stock returns and gauge
the extent to which inflation proxies for relative price variability in stock return-inflation regressions. The evidence shows that the negative relations between stock returns and expected and unexpected inflation proxy for the negative effects or relative price variability on the stock market. However, the adverse effects of relative price variability on the output and the stock market are largely a reflection of the supply shocks witnessed in the seventies. The OPEC oil crisis of 1973-1974, in particular, appears to have had a major determinant effect on the output and the stock market. Nevertheless, controlling for the effects of future output growth does not attenuate that inflation spuriously affects the stock market in two ways: the aggregate output link suggested by Fama (1981) and the supply shocks reflected in relative price variability particularly in the seventies.

Henry (2002) in his paper on “Is Disinflation Good for the Stock Market?” finds that the stock market appreciates by an average of 24 percent in real dollar terms when countries attempt to stabilize annual inflation rates that are greater than 40 percent. In contrast, the average market response is 0 when the pre-stabilization rate of inflation is less than 40 percent. These results suggest that the potential long-run benefits of stabilization may dominate short-run costs at high levels of inflation, but at low to moderate levels of inflation, benefits may be offset by costs in a present value sense. The traditional view says that disinflation is costly, because reducing inflation causes a fall in output in accordance with the Phillips Curve. The rational expectations view says that disinflation need not be costly if policy makers credibly commit to reducing inflation. The stock market approach underscores the myopia inherent in both views. The paramount issue is not whether disinflation is costly in the short run, but whether the benefits of disinflation outweigh the costs.

Dupor and Conley (2004) in a paper on “The Fed Response to Equity Prices and Inflation” studies how Federal Reserve interest rate policy, from 1979-2004, responds to an aggregate measure of stock market activity under high versus low inflation. Two conventional findings of research are that the federal Reserve: 1) raises the short-term real interest rate in response to inflation and (ii) does not change policy in response to equity price movements. The findings of the researchers confirm (i) and (ii) for the high inflation period. However, during the low-inflation period, the conclusions are different. They could not reject the hypothesis that policy does not respond to inflation, however, they conclude that the central bank responds to stock
market activity. Dupor (2002,2003) studies a model where a non-fundamental increase in equity prices leads to inefficient physical investment. Optimal policy responds to these asset price fluctuations by raising the real interest rate to offset investment.

Hondroyiannis and Papapetrou (2006) in a paper on “Stock returns and inflation in Greece: A Markov switching approach” studied the dynamic relationship between real stock returns and expected and unexpected inflation utilizing a Markov Switching vector autoregressive model (MS-VAR). The empirical evidence suggests that real stock returns are not related to expected and unexpected inflation and this result is independent of the method used to separate inflation into the two components. Rather, the results suggest that stock market movements are regime dependent, implying that stock market performance is not predictable.

Chao Wei (2006) used VAR results to advocate in inflation illusion as the explanation for the positive association between inflation and the dividend yield. Contrary to their results, we find that a fully rational dynamic general equilibrium model can generate a positive correlation between the dividend yield and inflation of comparable size to its data counterpart. The model results support a proxy hypothesis, according to which, a third factor, which in our model represents technology shocks, moves both inflation and the dividend yield in the same direction, resulting in a positive correlation between the two. The VAR structure of our model solutions makes it possible to decompose the dividend yield into the long-run expected dividend growth rate and the discount rate components, so that their relative importance can be studied.

Saryal (2007) studied the impact of inflation on conditional stock market volatility in Turkey and Canada. He examined the two questions. First, how does inflation stock market volatility estimated by using nominal stock return series. Second, does the relation differ between countries with different rates of inflation. The Canada and Turkey data were selected for comparison on the basis of their inflation level. The reason of selected countries because Turkey was an emerging market country with a high inflation rate and Canada a developed country with a low inflation rate. The results suggests that the higher the rate of inflation, the higher the nominal stock returns consistent with the simple Fisher effect. The result showed the rate of inflation was one of the underlying determinants of conditional stock market volatility.
particularly in a highly inflated country like Turkey. The variability in the inflation rate had a stronger impact in forecasting stock market volatility in Turkey than in Canada.

Ahmed (2008), tried to explore the nature of causal relationships between stock prices and the economic variables. In this study, researchers collected quarterly data of index of industrial production, exports, foreign direct investment, money supply, exchange rates, interest rate, NSE-Nifty and BSE-Sensex in India. Johansen’s approach of Cointegration and Todu and Yamamato Granger causality test were applied to explore the long-run relationships while BAVR modeling for variance decomposition and impulse response functions were applied to examine the short-run relationships The study revealed that the movement of stock prices was not only the behavior of the key macroeconomic variables but it was also one of the causes of movement in macro dimension in the economy.

Aliyu (2010) assessed stock market returns and volatility by using GARCH model (autoregressive conditional heteroskedasticity) in Nigeria and Ghana. Inflation rate and its three month average were found that there is a significant effect on stock market volatility in the two countries. It was concluded that Measures employed towards restraining inflation in the two countries, therefore, would certainly reduce stock market volatility, improve stock market returns and boost investor confidence.

Caroline et.al. (2011), studied the relationships between inflation and stock returns. Researchers revealed that there were no long-run relationships between expected and unexpected inflation with stock returns and there was also no short-run relationships between the variables for Malaysia and US but it existed for China.

Daferigheet. Al., (2012) investigated the impact of inflation on stock market performance in Nigeria using time series data for twenty years from 1991-2010. Regression analysis was used to evaluate the influence of inflation on various measures of stock market performance. Market capitalization, Total value traded ratio, Percentage change in all-share index and turnover ratio. It was found out that there is negative relationship exists between inflation and the stock market performance measures but inflation had a positive relationship with the turnover ratio. Low level of inflation revealed that stock market investment is a good hedge against inflation in Nigeria.
Study by Shanmugam and Misra (2008) tests whether the Indian stock market provides an effective hedge against inflation using monthly data on real stock return, inflation and real activity from April 1980 to March 2004 and a two-step estimation procedure. Results of the study indicate that (i) the Indian stock market reflects future real activity; (ii) the negative stock returns-inflation relation emerges from the unexpected component of the inflation and (iii) this negative relation vanishes when we control for the inflation-real activity relation, thereby providing a strong support for Fama’s proxy effect hypothesis. The split sample analyses indicate that the Fama hypothesis is valid only in pre reform period. In the post reform period, real stock returns have been independent of inflation, i.e., the Fisher Hypothesis is valid.

The paper by (SINGH et al., 2012) examines the primary factors responsible for affecting Bombay Stock Exchange (BSE) in India. Further this paper attempts to investigate the relative influence of the factors affecting BSE and thereby categorizing them. It is a well known fact that dollar price or money exchange rate and Inflation has a great influence on BSE Sensex therefore; this research identifies the level of influence of exchange rate and rate of inflation on BSE Sensex. For establishing the relationship Regression Analysis has been used by using SPSS. The results suggest that Inflation Rate and Exchange Rate significantly affect the performance of BSE Sensex.

Mohan and Chittradevi (2014) investigated the impact of inflation and exchange rate on stock market return in India for the period of 2003 to 2013:9. Multiple correlation and linear multiple regression tools have been applied to find out the relationship between Inflation and Exchange rate taken as Independent variables and Price return of NSE NIFTY as dependent variable. The Results shows that inflation is negatively influencing the price return of NSE NIFTY, the exchange rate is positively affecting the price return of NSE Nifty.

The study by Pradhan et al., (2014) investigates the impact of stock market development, money supply and inflation on economic growth in India during the post-globalisation era of the 1990s, especially during the period from 1994 to 2012. Using autoregressive distributive lag (ARDL) bounds testing approach, the study finds stock market development, money supply, inflation and economic growth are cointegrated, suggesting the presence of a long-run equilibrium relationship between them. The vector autoregressive error correction model (VECM) further confirms the
existence of both bidirectional and unidirectional causality between economic growth, money supply, inflation and stock market development in India. The policy implication of this study is that inflation and money supply can be considered a policy variable to predict both economic growth and stock market development in the Indian economy during the post globalisation era.

This study by Yadav et al., (2015) examines the impact of inflation on stock returns for the period of 10 years. Kranchi stock 300 index month closing value has been used in the study to represent the monthly stock market returns and the Consumer price index as a measure of inflation. The study examines the monthly data of Kranchi stock index from December 2004 to December 2014. The study analyzes the relationship between the dependent and independent variables using the simple regression model. CPI monthly values are taken as independent variable and stock index value as dependent variable and used one lag percentage differentials value by converting both the time series to analyze the nature of stationary. These tests examine both long-run and short-run dynamic relationships between the stock market index and the inflation. This paper established that there is positive but not significant relationship between stock market returns and inflation in Pakistan.

2.3 Studies investigating the relationship between GDP & Stock Market

Comincioli and Wesleyan’s (1996) findings in a paper on “The Stock Market as a Leading Indicator: An Application of Granger Causality” indicates a "causal" relationship between the stock market and the economy. We found that while stock prices Granger-caused economic activity, no reverse causality was observed. Furthermore, we found that statistically significant lag lengths between fluctuations in the stock market and changes in the real economy are relatively short. The longest significant lag length observed from the results was three quarters.

Humpe and Macmillan (2005) analysed the extent to which macroeconomic variables explained stock market movements in the US and Japan. Using a log-linear model, they found that a 1 per cent increase in industrial production triggered a 1.09 per cent increase in US stock prices whilst a 1 per cent increase in Japanese industrial production triggered a 0.4 per cent increase in Japanese stock prices. Both parameters were highly statistically significant.
Hong, Torous and Valkanov (2007) in a paper on “Do industries lead stock markets?, investigated whether the returns of industry portfolios predict stock market movements. In the US, a significant number of industry returns, including retail, services, commercial real estate, metal, and petroleum, forecast the stock market by up to two months. Moreover, the propensity of an industry to predict the market is correlated with its propensity to forecast various indicators of economic activity. The eight largest non-US stock markets show remarkably similar patterns. These findings suggested that stock markets react with a delay to information contained in industry returns about their fundamentals and that information diffuses only gradually across markets.

Gevit Duca (2007) observed unidirectional causality between GDP and stock prices implies that the level of economic activity in a country, can potentially depend on the stock market amongst other variables. The observed phenomenon hinted in the introduction, that long periods of weaknesses such as the Great Depression and the ‘lost decade’ in Japan are identified with the asset-price busts that preceded them, could therefore be no mere coincidence. The significant contraction in asset values, triggered a subsequent contraction in consumption and economic activity levels. Hence a large downfall in stock prices caused a similar decrease in economic activity.

The study by George Fills (2009) suggest that Industrial production affects stock market cycles positively but the influence is not significant. Further the cyclical component of the Greek stock market exercises a negative impact of CPI. Oil cyclical components do not seem to have any influence on industrial production or CPI. Based on these findings, we can assert that the cyclical components of oil prices lead these of the Greek stock market and that there is a bidirectional relationship between the cyclical components of CPI and the stock market. Finally, a high percentage error variance of the Greek stock market originates from CPI and oil prices and in addition to that a high percentage error variance of CPI originates from the Greek stock market.

The research by Al-Abedallat & Al Shabib (2012) studies the effect of the change in investment and gross domestic product (GDP) on the Amman Stock Exchange Index, through the study of the relationship between the change in the investment and the rate of growth in gross domestic product (GDP) and the movement of Amman Stock Exchange index for the period of 1990-
2009. The study concluded that there are relationship between two macroeconomic indicators (the investment and GDP) and the Amman Stock Exchange index, and between each of them separately and the stock index, which means that the movement of prices in the Amman Stock Exchange affected by the movement of these two variables, and there is the effect of both variables on the movement of Amman Stock Exchange index. The impact of the change in investments was greater than the impact of change in GDP on the Amman Stock Exchange index. The study recommended the importance to the investment in Jordan because of it’s great impact on the Amman Stock Exchange index, and increase investment into the Jordanian economy, and the adoption of economic policies that stimulate the diversification of the components of the Jordanian economy in order to increase the impact of growth in gross domestic product on the index, especially that the index includes various sectors of the Jordanian economy.

The study conducted by Reddy (2012) suggests that the market reacts differently to various factors ranging from economic political, and socio-cultural. The stock prices of quoted companies are affected either positively or negatively by a number of factors occurring within or without the economic system. The impact of Real Gross Domestic Product (RGDP), Interest Rate (INT) and Inflation Rate (INF) on stock prices of quoted companies from 1997 – 2009. Stock prices were represented by Stock Market Value Index in the model. A regression analysis showed that the explanatory variables accounted for 95.6% of the variation in stock prices. While a reduction in interest and inflation rate resulted in increased stock prices, increased RDGP has a positive impact. Government should therefore implement policies that will reduce inflation rate and improve the standard of living of its citizens. The interest rate should be made moderate so as to encourage investment and transactions in stock.

2.4 Studies investigating the relationship between Exchange Rate & Stock Market

A study was conducted by Bhattacharya & Mukherjee (2002) on “Causal Relationship Between Stock Market and Exchange Rate, Foreign Exchange Reserves and Value Of Trade Balance: A Case Study For India.” This paper investigates the nature of the causal relationship between stock prices and macroeconomic aggregates in the foreign sector in India. By applying the
techniques of unit-root tests, co-integration and the long-run Granger non-causality test, the study tests the causal relationships between the BSE Sensitive Index and the three macroeconomic variables, viz., exchange rate, foreign exchange reserves and value of trade balance using monthly data for the period 1990-91 to 2000-01. The results suggest that there is no causal linkage between stock prices and the three variables under consideration.

Nath and Samanta (2003) in a paper on “Relationship Between Exchange Rate and Stock Prices in India – An Empirical Analysis” empirically showed that generally returns in these two markets are not interrelated, though in recent years, the return in stock market had causal influence on return in exchange rate with possibility of mild influence in reverse direction. These results have opened up some interesting issues regarding the exchange rate and stock price causal relationship. In India, though stock market investment does not constitute a very significant portion of total household savings compared to other form of financial assets, it may have a significant impact on exchange rate movement as FII investment has played a dominant role. The results, however, are tentative and there is a need to undertake an in-depth research to address the issue.

Kasman (2003) in his paper on “The relationship Between Exchange Rates and stock prices: A Causality Analysis” suggests that the macroeconomic variables move together in the long-run but variation in exchange rates do not cause a variation in three indices of the ISE. The results of this paper also indicate that change in exchange rate causes, in Granger sense, change in industry sector index.

Tahir and Ghani (2003) in a paper on “Relationship Between Exchange Rates and Stock Prices: Empirical Evidence from Bahrain’s Financial Markets: examined the relationship between stock prices and exchange rates in Bahrain using monthly data form January 1992 to October 2002. Co-integration and ECM models and Granger causality tests were used to determine the causal relationship between stock prices and exchange rates. The empirical results suggests long-run bi-directional causal relationship between stock prices and exchange rates (British Pond & Japanese Yen) and only uni-directional, from stock prices to exchange rate, causal relationship between them. There is, however, no evidence of uni or bi-directional causality between stock prices and
exchange rate (German Mark) in short-run or long-run. The overall evidence support the goods market approach of exchange rate determination.

Hussain and Liew (2004) in a paper on “Causal Relationships between Exchange Rates and Stock Prices in Malaysia and Thailand during the 1997 Currency Crisis Turmoil” Using Granger causality tests, this study finds a feedback causal relationship between exchange rate and stock price in Malaysia, whereas a unidirectional causal relationship running from exchange rate to stock price in Thailand. The stock markets of these countries are also found to be closely linked, with a feedback causal relationship between them. Most importantly, this study is able to identify the path through which the fall in Thai baht was transmitted to Malaysian ringgit plunge during the 1997 Currency Crisis turmoil.

Mishra (2004) in a paper on “Stock Market and Foreign Exchange Market in India: Are they Related?” attempted to examine whether stock market and foreign exchange markets are related to each other or not. The study uses Granger’s Causality test and Vector Auto Regression technique on monthly stock return, exchange rate, interest rate and demand for money for the period April 1992 to March 2002. The major findings of the study are (a) there exists a unidirectional causality between the exchange rate and interest rate and between the exchange rate return and demand for money; (b) there is no Granger’s causality between the exchange rate return and stock return. Through Vector Auto Regression modeling, the study confirms that though stock return, exchange rate return, the demand for money and interest rate are related to each other but any consistent relationship doesn’t exist between them. The forecast error variance decomposition further evidences that (a) the exchange rate return affects the demand for money, (b) the interest rate causes exchange rate return change (c) the exchange rate return affects the stock return, (d) the demand for money affects stock return, (e) the interest rate affects the stock return, and (f) the demand for money affects the interest rate. Our results have implications for investors, policy makers and researchers.

Dimitrova (2005) in his study “The Relationship between Exchange Rates and Stock Prices: Studied in a Multivariate Model” developed the hypothesis that there is a link between the foreign exchange and stock markets. He asserted this link is positive when stock prices are the
lead variable and likely negative when exchange rates are the lead variable. The empirical results were somewhat weak. He find support for the hypothesis that a depreciation of the currency may depress the stock market—the stock market will react with a less than one percent decline to a one percent depreciation of the exchange rate. This also implied that an appreciating exchange rate boosts the stock market.

Padhan (2006) in her paper on “The Dynamic Relationship between the Stock Price and Exchange Rate in India” examines the dynamic relationship between stock price and exchange rate expressed in terms of long run, short run and causal relationships in the context of India, using monthly data for the period 1990-2004. She too finds unidirectional Granger Causality from exchange rate to stock price, through the Granger Causality tests in the long run.

Chkili & Nguyen (2014) investigated the dynamic linkages between the exchange rates and stock market returns for the BRICS countries (Brazil, Russia, India, China and South Africa). The univariate analysis indicates that stock returns of the BRICS countries evolve according to two different regimes: a low volatility regime and a high volatility regime. On the other hand, Markov switching VAR models suggests that stock markets have more influence on exchange rates during both calm and turbulent periods. These empirical insights have important implications for portfolio investments and currency risk hedging.

2.5 Studies investigating the relationship between FII’s & Stock Market

Kohli (2001) in her paper on “Capital Flows and their Macroeconomic Effects in India” attempts to analyse the patterns and trends in capital flows into India in the 1990s and how these have affected the key macroeconomic variables in the economy. It also attempts to study the response of the policy makers to the new challenges posed by the partial capital account liberalisation. The paper finds that an inflow of foreign capital during this period has resulted in real exchange rate appreciation and has had a significant impact on domestic money supply. During a capital surge, these effects have been countered through intervention and sterilisation. The costs of these policies in the event of heavy inflows of foreign capital into India are spelt out in the paper.

Using a monthly data-set for the period May 1993 to December 1999, Chakrabarti (2001) found that the FII net inflows were not only correlated with the return in Indian equity market but was more likely the effect than the cause of the Indian equity market return. FIIs did not appear to be at an informational disadvantage compared to domestic investors in the Indian markets. Furthermore, the Asian crisis marked a regime shift. In the post-Asian crisis period, the return in the Indian equity market turned out to be the sole driver of the FII inflow, while for the pre-Asian crisis period, other covariates reflecting return in other competing markets were also correlated with FII net inflow.

Mukherjee, Bose and Coondoo (2002) explored the relationship of daily FII flows to the Indian equity market for the period January, 1999 to May, 2002 with two types of variables. The first type included variables reflecting daily market return and its volatility (representing risk) in domestic and international equity markets, based on the BSE Sensex, S&P 500 and the MSCI WI, as well as measures of co-movement of returns in these markets (the relevant betas). The second type of variables, on the other hand, were essentially macroeconomic like daily returns on the Rupee-Dollar exchange rate, short-term interest rate and index of industrial production (IIP); variables that are likely to affect foreign investors' expectation about returns in the Indian equity market. They distinguished among three kinds of daily FII flows, namely, FII flows into the
country or FII purchases, FII flows out of the country or FII sales, and the net FII inflows into the country or FII net, and related these to the above mentioned variables along with their past history over different time frames, like a week or fortnight. According to them, contrary to the general perception of FII activities having a strong demonstration effect and driving the domestic stock market in India, evidence from causality tests suggests that FII flows to and from the Indian market tend to be caused by return in the domestic equity market and not the other way round. “The regression analysis, in various stages, reveals that returns in the Indian equity market is indeed an important (and perhaps the single most important) factor that influences FII flows into the country. While, the dependence of net FII flows on daily return in the domestic equity market (at a lag, to be more specific) is suggestive of foreign investors' return-chasing behaviour, the recent history of market return and its volatility in international and domestic stock markets have some significant effect as well. However, while FII sale (and FII net inflow) is significantly affected by the performance of the Indian equity market, FII purchase is not responsive to this market performance. Looking at the role of the beta's of the Indian market with respect to the S&P 500 and MSCI indices, it is concluded that foreign institutional investors do not seem to use the Indian equity market for the purpose of diversification of their investments. It is also seen that return from exchange rate variation and fundamentals of the Indian economy may have some influence on FII decisions, but such influence does not seem to be strong, and finally, daily FII flows are highly autocorrelated and this autocorrelation can not be accounted for by all or some of the covariates considered in the study.

Kulwant Rai& N R Bhanumurthy (2003) in their paper on “Determinants of Foreign Institutional Investment in India: The role of Return, Risk and Inflation” studies the determinants of Foreign Institutional Investments in India, which had crossed almost US$ 12 billions by the end of 2002. In this study, by using monthly data, they found that FII inflow depends on stock market returns, inflation rate (both domestic and foreign) and ex-ante risk. In terms of magnitude, the impact of stock market returns and the ex-ante risk turned out to be major determinants of FII inflow. This study did not find any causation running from FII inflow to stock returns as it was found by some studies. Stabilizing the stock market volatility and minimizing the ex-ante risk would help in attracting more FII inflow that has positive impact on the real economy.
Gordon and Gupta (2003) found both global and domestic factors important in determining portfolio flows. Global factor is the London Inter-bank Offered Rate (LIBOR), which inversely related to FII inflows. Among domestic factors, lagged stock market returns, rating downgrades and rupee depreciation affected FII flows adversely. They report “While we do not have data on company specific variables, and can not directly test the bottom-up hypothesis, we interpret the significance of domestic macroeconomic variables in the regressions as evidence that FII strategy is not purely bottom-up. In other words, India’s macroeconomic fundamentals do affect FII flows.

Batra (2003) in his paper on “The Dynamics of Foreign Portfolio inflows and Equity Returns in India” makes an attempt to develop an understanding of the dynamics of the trading behavior of FIIs and returns in the Indian equity market by analyzing daily and monthly data. He finds that there is strong evidence of FIIs chasing trends and adopting positive feedback trading strategies at the aggregate level on a daily basis. However there is no evidence of positive feedback trading on a monthly basis. The results of their analysis also indicate that foreign investors have a tendency to herd together in their trading activity in India. The trading behavior and biases of the FIIs do not appear to have a destabilizing impact on the equity market.

Ram Mohan T.T (2005) in his paper on “Taking Stock of Foreign Institutional Investors” suggests that Institutional investors have grown in importance in the mature economies in recent years and come to supplant banks as the primary custodians of people’s savings. Flows of private capital through FIIs have in recent years augmented forex reserves in emerging markets. In India, over the past decade FIIs have displaced domestic mutual funds in importance in the equity market. Their shareholding in the Sensex companies is large enough for them to be able to move the market. The volatility in portfolio inflows to India has been modest compared to other emerging markets. As domestic funds grow in size and pension funds enter the equity market, that would provide a measure of self-insurance against volatility occasioned by FII flows. The real problem caused by variations in FII inflows from year to year is not stock market volatility but difficulties posed in management of money supply and the exchange rate.

Chakraborty, Indrani (2006) in her paper on “Capital Inflows during the Post-Liberalisation period”, examines the time series properties of foreign capital inflows into India in the 1990s,
particularly in the period that followed certain liberalisation measures in the financial sector. An analysis of the quarterly data for the period 1993 to 2003 showed that net capital inflows have been volatile, though not all components of aggregate inflows have moved in a similar fashion. The paper further analysed how capital inflows adjusted to changes in the real exchange rate and other macroeconomic variables in India since 1993. The econometric results indicated that an error-correction mechanism was operating between net inflows of capital and the real exchange rate. Macroeconomic fundamentals did not have any significant effect on the dynamic adjustment of capital inflows, and a co-integration relationship exists between the net inflows of capital, real exchange rate and interest rate differential. It is argued that co-movement in these variables was due to the intervention of the Reserve Bank of India in the foreign exchange market, which helped prevent the volatility of the real exchange rate in spite of this volatility in net inflows of capital.

Rakshit, Mihir (2006) in his paper on “On Liberalising Foreign Institutional Investments” critiques the approach and recommendations of the 2004 government of India expert group on foreign institutional investment flows. According to him, the group’s approach, raise several important analytical and policy issues. The most crucial of these relate to effects of FII flows on (a) aggregate and sectoral investment; (b) behaviour of financial, including foreign currency, markets with special reference to their volatility; and (c) efficacy of fiscal and monetary instruments in attaining the objectives of macro stabilisation and growth. The paper also examines the macroeconomic impact of FII flows in the light of the Indian experience, and draws some policy conclusions regarding the role of such flows. It also addresses the issue of volatility in the Indian context. It finds there is no coherent macroeconomic model behind the expert group’s analysis and recommendations; no appraisal either of the optimal scale of capital inflows or the relative merit of FII vis-à-vis other categories of capital receipts at the current juncture of the economy; and no examination of monetary/fiscal problems associated with FII or of the quantitative impact of such flows on investment and other macro variables.

The study by Loomba (2012) makes an attempt to develop an understanding of the dynamics of the trading behaviour of FIIs and effect on the Indian equity market. The study is conducted using daily data on BSE Sensex and FII activity over a period of 10 years spanning from 01st Jan 2001 to 31st Dec 2011. It provides the evidence of significant positive correlation between FII
activity and effects on Indian Capital Market. The analysis also finds that the movements in the Indian Capital Market are fairly explained by the FII net inflows.

The study conducted by Shrivastav (2013) observed that investments by FIIs and the movements of Sensex are quite closely correlated in India and FIIs wield significant influence on the movement of sensex. There is little doubt that FII inflows have significantly grown in importance over the last few years. According to findings FII did have high significant impact on the Indian capital market apart from other major factors. BSE CG, BSE CD, and BSE IT showed positive correlation but BSE FMCG showed negative correlation with FII. The degree of relation was low in all the case. It shows low degree of linear relation between FII and other stock index. This implies that their impact on the stock prices varies from sector to sector which is further influenced by the industry to which it belongs to and the sectoral performance. In the absence of any other substantial form of capital inflows, the potential ill effects of a reduction in the FII flows into the Indian economy can be severe which can be seen at the time of U.S subprime crisis. Data on trading activity of FIIs and domestic stock market turnover suggest that FII’s are becoming more important at the margin as an increasingly higher share of stock market turnover is accounted for by FII trading. Moreover, the findings of this study also indicate that Foreign Institutional Investors have emerged as the most dominant investor group in the domestic stock market in India.

This study by Reddy & Saleem (2013) makes an attempt to develop an understanding of the dynamics of the trading behavior and the factors influencing FIIs and returns in the Indian equity market by analyzing daily and monthly data. The study concludes that FIIs follow positive feedback trading on a daily basis, while they follow negative feedback trading on a monthly basis. But the main determinant remains lagged stock returns. The study concludes that FIIs inflows in India are determined by stock market characteristics, macroeconomic factors and international factors.

The important result of the study by Jayachandran & Prasanna (2014) suggests that the foreign investment is determined by stock market return. But foreign investment is not a major factor for the stock market boom in India the FII are increasingly dominant in the stock market. The domestic investors and domestic companies remain not so dominant. There is the fear of
suddenly outflows of the foreign capital and this may be a trigger a third stock market scam as most regularity changes are being made only as a follow up of an adverse event. On the basis of a simultaneous determination of general price level and Bombay Stock Exchange Rate, Foreign Institutional Investment for in India which includes the growth variables of GDP. The model was estimated for the period 1998-2012 for in India. The results for in India show that the three variables are closely related and that causality is established in every possible direction. This is consistent with the fact that India is more trade dependent and has a more open economy than the India.

2.6 Studies investigating the relationship between Interest Rates & Stock Market

Keungwong, Khan and JunDu in a paper on “Do Money and Interest Rates Matter for Stock Prices? An Econometric Study of Singapore and USA” examines the long-term as well as short-term equilibrium relationships between the major stock indices and selected macroeconomic variables (such as money supply and interest rate) of Singapore and the United States by employing the advanced time series analysis techniques that include cointegration, Johansen multivariate cointegrated system, fractional cointegration and Granger causality. The cointegration results based on data covering the period January 1982 to December 2002 suggest that Singapore’s stock prices generally display a long-run equilibrium relationship with interest rate and money supply (M1) but a similar relationship does not hold for the United States. To capture the short-run dynamics of the relationship, we replicate the same experiments with different subsets of data representing shorter time periods. It is evident that stock markets in Singapore moved in tandem with interest rate and money supply before the Asian Crisis of 1997, but this pattern was not observed after the crisis. In the United States, stock prices were strongly cointegrated with macroeconomic variables before the 1987 equity crisis but the relationships gradually weakened and totally disappeared with the emergence of Asian Crisis that also indirectly affected the United States. The results of fractional cointegration and the Johansen multivariate system are consistent with the earlier cointegration results that both Singapore and US stock markets did possess equilibrium relationships with M1 and interest rate at the early days. However, the stability of the systems was disturbed by a series of well-known financial turbulence in the past two decades and eventually weakened for Singapore and completely
disappeared for the US. This may imply that monetary authority may take action to respond to the asset price turbulence in order to maintain the stability of monetary economy and thus break the existing equilibrium between stock markets and macroeconomic variables like interest rate and M1. Another possible explanation is that the market became more efficient after 1997 Asian crisis. Finally, the results of Granger causality tests uncover some systematic causal relationships, implying that stock market performance might be a good gauge for Central Bank’s monetary policy adjustment.

A study by Bernanke and Kuttner on “What Explains the Stock Market’s Reaction to Federal Reserve Policy?” has documented a relatively strong and consistent response of the stock market to unexpected monetary policy actions, using Federal funds futures data to gauge policy expectations. We find that, on average, a hypothetical unanticipated 25-basis-point cut in the Federal funds rate target is associated with about a 1% increase in broad stock indexes. The result is robust to the exclusion of outliers and to the choice of windows for measuring the stock market’s response. They also find that reactions to monetary policy surprises tend to differ across industry-based portfolios, with the high-tech and telecommunications sectors exhibiting a response half again as large as that of the broad market indices. Other sectors, such as energy and utilities, seem not to be significantly affected by monetary policy. The industry responses to monetary policy changes seem broadly consistent with the predictions of the standard CAPM.

Thorbecke (1997) in a paper on “On Stock Market Returns and Monetary Policy” have addressed the question that whether monetary policy is neutral by examining how stock return data respond to monetary policy shocks. Theory posits that stock prices equal the expected present value of future net cash flows. Thus evidence that positive monetary shocks increase stock returns indicates that expansionary monetary policy exerts real effects by increasing future cash flows or by decreasing the discount factors at which those cash flows are capitalized. Using several measures of monetary policy and a variety of empirical techniques, this article presents evidence that monetary policy exerts large effects on ex-ante and ex-post stock returns. These findings are consistent with the hypothesis that monetary policy, at least in the short run, has real and quantitatively important effects on real variables." Results from size portfolios indicate that monetary shocks have larger effects on small firms than large firms. This evidence supports the hypothesis that monetary policy matters partly because it affects firms' access to credit.
Adrienne, Kearney and Lombra (2004) in a paper on “Stock Market Volatility, The News, And Monetary Policy” investigates the dynamic relationship linking the volatility of equity prices with “the news” and the expected path for monetary policy. Previous results that link the impact of the news about real activity to changes in current and future interest rates are employed in developing a positive link between changes in volatility and the news. Empirically, our results uncover a positive and statistically significant response of the Chicago Board Options Exchange (CBOE) volatility index, VIX, to unanticipated changes in employment, but not to inflation. Hence, agents’ expectations for the policy response to news have an important influence on the expected volatility of stock prices.

Ologunde, Elumilade and Asaolu (2006) “Stock Market Capitalization and Interest Rate in Nigeria: A Time Series Analysis” study examines the relationships between stock market capitalization rate and interest rate. Time series data obtained from Central Bank of Nigeria (CBN) and Nigeria Stock Exchange (NSE) were analyzed using regression. Results showed that the prevailing interest rate exerts positive influence on stock market capitalization rate. Government development stock rate exerts negative influence on stock market capitalization rate and prevailing interest rate exerts negative influence on government development stock rate. The study further revealed information as very important to capital market development. It was therefore recommended that the operators of the Nigeria capital market should raise the level of awareness so that investors will be abreast with the happenings in the market.

The study by Teja et al., (2013) examines the effect of cash reserve ratio along with other factors which influence stock market returns in India. The study considers various variables like Inflation, Cash balance of scheduled and commercial banks with RBI, Repo rate, Reverse repo rate, Index of industrial product, Domestic institutional investment, Foreign institutional investment, Bank nifty and Nifty prices. The result indicate that any fluctuations in cash reserve ratio will be having direct impact on stock market and on overall economy of the nation.

The study by Paramati& Gupta (2013) investigates the relationship between call money rates, exchange rates and stock returns from the perspective of India. We use monthly data for the time span of April 1992 to March 2011. This provides sufficient data set for the empirical analysis. Result from Granger causality test evidences bidirectional relationship between call money rates
and exchange rates. It is also identified that call money rates and exchange rates Granger cause stock returns and did not find reverse causality from stock returns to call money and exchange rates. To explore, lead-lag interaction among the variables studied we employed VAR models. Results suggest that there is substantial lead-lag relationship from call money rates to exchange rates and stock returns. Similar relationship also found from exchange rates to call money rates and stock returns. However, there is no evidence of lead-lag causation from stock returns to call money and exchange rates. Findings of this study are useful for the investors and policy makers.

The quantitative research by Safitri & Kumar (2014) investigates the impact of interest rate, inflation rate, and exchange rate of Indonesia Rupiah toward Dollar, as well as GDP on Plantation sector’s stock price index at the Indonesia Stock Exchange (IDX) for the year 2008–2012 by using multiple regression analysis. The results suggest that only GDP significantly influences the stock price index of plantation sector. The other variables such as interest rate, inflation rate, and exchange rate of Indonesia Rupiah toward Dollar do not give any significant influence to the plantation sector’s stock price index. Hence GDP could be considered to gauge the economic health of Indonesia for investments.

The study by Akpan & Chukwudum (2014) examines the impact of interest rate changes on the Nigerian stock market- two very key aspects of the economy of a country. It studies the behavior of the Nigerian Stock Exchange All Share Index (NSE ASI) to the changes in the central bank of Nigeria’s (CBN) interest rate over a period of 25 years (1986-2011). The problem identified indicated that the All Share Index responded differently to interest rate hikes and cuts. The objective, therefore, is to study the relationship which exists between the All Share Index and the changes in interest rates. Data obtained from the CBN and NSE was analyzed based on a six-month and twelve-month percentage change basis with their respective averages taken. The paper makes use of the bivariate and multivariate regression analysis models for periods of interest rate hikes and cuts. The study finds that the impact of interest rate is not significant when other variables affecting stock prices are controlled.
2.7 Studies investigating the relationship between Oil Prices & Stock Market

Jones and Kaul (1996) in their paper on “Oil and the Stock Markets” test whether the reaction of international stock markets to oil shocks can be justified by current and future changes in real cash flows and/or changes in expected returns. They find that in the postwar period, the reaction of United States and Canadian stock prices to oil shocks can be completely accounted for by the impact of these shocks on real cash flows alone. In contrast, in both the United Kingdom and Japan, innovations in oil prices appear to cause larger changes in stock prices than can be justified by subsequent changes in real cash flows or by changing expected returns.

Driesprong, Jacobsen and Maat (2004) in a paper on “Stock Markets and Oil Prices” report evidence that investors in stock markets under react to oil price changes in the short run. As a consequence changes in oil prices predict future stock market returns: a rise in oil prices, lowers future stock market returns. While conflicting with the notion of market efficiency, they argue that— even though oil price changes are public information (i.e. easily and quickly available to all investors) – the results are in line with the gradual information diffusion hypothesis proposed by Hong and Stein (1999). As is to be expected under the hypothesis they find that this predictability effect is less strong for oil related sectors. In general, however, the predictability of stock returns using oil price changes is substantial: in their thirty-year sample of monthly data for developed stock markets, they find statistically and economically significant predictability. For a shorter time series of emerging markets they obtain similar results. These results are robust with respect to different kind of oil prices considered, well-known calendar effects and other economic variables that are known to forecast stock returns.

This paper by Ravichandran & Alkhathlan (2010) investigates the impact of oil Prices on Gulf Cooperation Council (GCC) stock markets’. Since GCC countries are major suppliers of oil, their stock markets are likely to be susceptible to change in oil prices. The results confirm that there is an influence of oil price change on GCC stock markets returns in the long-term. Long term is defined here as the period of time required for the effect of oil price changes to work out its way to influence major macroeconomic indicators that influence profitability of firms traded in GCC stock markets.
This study by Le & Chang (2011) examines the response of stock markets to oil price volatilities in Japan, Singapore, Korea and Malaysia by applying the generalized impulse response and variance decomposition analyses to the monthly data spanning 1986:01 – 2011:02. The results suggest that the reaction of stock markets to oil price shocks varies significantly across markets. Specifically, the stock market responds positively in Japan while negatively in Malaysia; the signal in Singapore and South Korea is unclear. The stock market inefficiency, among others, appeared to have slowed the responses of the stock market to aggregate shocks such as oil price surges.

The study by Ansar and Asghar (2013) analyzed the impact of oil prices on the Consumer Price Index (CPI) and Stock market (KSE-100 Index) in Pakistan for the period 2007 to 2012. To analyze the impact of the oil prices Johansen cointegration Test is used which indicate the positive relationship among oil price, CPI and KSE-100 Index, though the relationship is very strong relationship but it helps in concluding that oil prices have effect on CPI and KSE-100 Index.

This paper by Dhaoui & Khraief (2014) examines empirically whether oil price shocks impact stock market returns. Using monthly data for eight developed countries from January 1991 to September 2013, strong negative connections between oil price and stock market returns are found in seven of the selected countries. Oil price changes are without significant effect on the stock market of Singapore. On the volatility of returns, the changes in oil prices are significant for six markets and they have not much effect on the others.