



*Chapter- II*  
***REVIEW OF LITERATURE***

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## **CHAPTER-II**

### **REVIEW OF LITERATURE**

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Review of literature plays an integral part to find the direction of any research problem. It helps researchers in proper formulation of research hypothesis, selection of the variables and to identify the gaps for pragmatic research. The main focus of this chapter is to discuss what has been studied earlier on stock market in India to draw the gaps. There are limited numbers of studies on price behaviour of stocks in India that have checked price behaviour with the help of fundamental and technical analyses; but no comprehensive study is found that has analysed the price behaviour of Sensex stocks with primary as well as secondary data. The present study not only aims to determine price behaviour of Sensex stocks with the help of fundamental and technical analyses but analysed the perception of Investors towards too the fundamental and technical analyses before investing in a particular stock. Current chapter is organized into five sections on account of the objectives of the study which captures various studies focusing on the impact of macroeconomic indicators, extent of volatility, relationship of stock returns with financial performance, analysis of market trend and investors' perspectives towards stock market.

#### **2.1 STUDIES FOCUSING ON THE IMPACT OF MACROECONOMIC INDICATORS**

The relevance of the economic indicators is significant to formulate a strategy for an investment. An analysis of the economic forces/indicators would give an idea about the future earnings of firm. Previous researches have clearly proved that most of the variability in the prices of stocks is determined by investigating the movements of the whole market. Macroeconomic environment is an essential part to determine the

behaviour of stock prices. **Abdalla & Murinde (1997)** investigated the exchange rate and stock price interactions in emerging financial markets and taken the evidences from India, Korea, Pakistan & Philippines. Monthly observations from January 1985 to July 1994 for stock price index and the real effective exchange rate were considered. Unidirectional causality from exchange rates to stock prices was observed with the help of econometric techniques in all the sample countries, except in the case of Philippines. Researcher suggested to the respective government of these markets that they should be careful in their implementation of exchange rate policies.

**Gunasekarage et al. (2004)** checked the impact of macroeconomic indicators i.e. treasury bills rate, inflation and exchange rate on stock market of Sri Lanka. Monthly data was considered from January 1985 to December 2001 to test long-run and short-run relationships. Analysis revealed that inflation, money supply and treasury bill rate have significant impact on the Sri Lankan stock market, while highest affecting indicator was treasury bill rate but share price index did not show impact on any macroeconomic indicator. Researchers have proved with impulse response functions that macroeconomic indicators had shown immediate effect of macroeconomic indicators on stock prices and results explored the presence of long-run equilibrium between stock prices and some macroeconomic indicators.

**Khan et al. (2006)** found the weak form efficiency for NSE and BSE for the period of 1999 to 2004 with the daily data. Researchers found that the random walk hypothesis was found rejected in case of Nifty & Sensex and these markets had become relatively more inefficient in the current periods with high and increasing volatility. However, analysis revealed that Sensex was comparatively less inefficient than Nifty during the period of analysis. The consequences obtained on the basis of Jarque-Bera normality test recommended that deviations from normality were comparatively less for Sensex than Nifty. The findings recommended for quick

spreading of information on the trades of foreign institutional investor and equity holding for achieving the path of efficiency.

**Coleman and Tettey (2008)** checked the impact of macroeconomic variables on the performance of the stock market of Ghana stock exchange from 1991 to 2005 and quarterly data was considered for this purpose. It was observed that treasury bill rate was positive but its effect on the Ghana stock exchange was statistically weak. Researchers have observed that lending rates showed an adverse affect on the performance of stock market and proved as a main obstruction for the growth in Ghana. Although, inflation rate is proved as a main macroeconomic variable which showed negative effect on the growth of stock market. It was recommended through the analysis that suitable monetary policies should be opted to reduce interest rates and inflation.

**Ray (2008)** examined the dynamic connections among the exchange rates & stock prices, and selected macroeconomic variables which were IIP, Money supply and FII in special context to India. Monthly data was considered from the period of April 1995 to July 2007. Results of the study elaborated that the exchange rate was found to be positively associated to stock prices and money supply, while negatively related to IIP and FIIs. Granger causality test was applied to test the relationship between the Indian economy & the exchange market and test suggested bidirectional causality between the selected macroeconomic variables and exchange rates. Findings elaborated that exchange rate interacts with itself, stock prices and its own macroeconomic indicators.

**Inoue (2009)** investigated the causalities of variance and mean with FII and returns of stocks in Indian context by dividing into two time periods of the study i.e. before and after May 2003. Daily data was considered for the study and the data was collected from January 1999 to March 2008. Uni-directional causalities were observed in variance and mean from stock returns to FII without depending on the

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sample periods and reverse causalities were also found in mean and variance in the starting of 2003. The findings proved that FII showed an impact on the changes of stock prices in Indian context.

**Mohammad et al. (2009)** investigated the association of macroeconomic variables i.e. foreign exchange rate, interest rates, industrial production index, foreign exchange reserve, gross fixed capital formation (GFCF), broad money & wholesale price index with prices of shares of Karachi stock exchange by considering quarterly data of the variables and data were taken from the period of 1986 to 2008. The findings of the study proved that two indicators i.e. reserve and foreign exchange rate significantly affected the stock market. On the contrary, IIP and GFCF did not affect stock prices significantly, while interest rates and broad money significantly and negatively affected the stock prices. Huge increase in the stock prices was observed after liberalization.

**Singh (2010)** investigated the relationship between macroeconomic variables which were index of industrial production (IIP), wholesale price index (WPI) & exchange rate with Sensex. Results obtained elaborated that IIP showed bilateral causal association with Sensex, while WPI showed unilateral association with Sensex but these macroeconomic variable proved a strong correlation with Sensex. On the contrary, No correlation was observed between exchange rate and Sensex. Hence, researchers found that exchange rates and WPI were not responsible for the volatility in Indian stock market. However, results of IIP can be considered to forecast the movements of stock market.

**Pal & Mittal (2011)** investigated the affect of macroeconomic variables on Indian capital market to examine the long-run relationship between the Indian capital markets and selected key macroeconomic variables. Data has been taken from the period of January 1995 to December 2008 with quarterly time series. Researchers obtained the existence of long-run relationship between macroeconomic variables and

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Indian stock indices because of the co-integration. Analysis revealed that rate of inflation had a significant impact on SENSEX and NIFTY, while interest rate did not have a significant impact on SENSEX but showed significant impact on NIFTY and foreign exchange rate significantly affected SENSEX only, whereas gross domestic saving was found to be insignificantly associated with both the markets. Eventually, researchers concluded that capital market indices were affected by macroeconomic variables.

**Sen (2011)** investigated short-run and long-run relationships between Sensex and stock indices of major countries like Australia, Hong Kong, Indonesia, Japan, Malaysia, Korea, Singapore and Taiwan of the Asia-Pacific region and monthly time series data from July 1997 to June 2009 was chosen for the analysis. Granger causality test results indicated that most of the monthly index returns had short-run unidirectional relationship with Sensex. Johansen cointegration test had been applied to identify the long-run relationship between Sensex and the selected indices of the stock markets of the Asia-Pacific region and results showed that there was long-run relationship between Sensex & selected stock indices of the Asia-Pacific region.

**Tripathy (2011)** examined the causal relationship between select macroeconomic indicators and BSE Sensex and autocorrelation was observed in the macroeconomic variables and stock market of India while using the weekly data of macroeconomic indicators and stock market. Findings of this study suggested the presence of bidirectional causality between exchange rate and stock market, inflation rate and stock market, international stock market and BSE volume, interest rate and stock market, exchange rate and BSE volume, while unidirectional causality was observed between international stock market & exchange rate, international stock market & domestic stock market, international stock market & interest rate, international stock market & inflation rate. Therefore, these variables could be considered to predict stock market price fluctuations and Indian markets were not

proved as weak form efficient. Hence, this study proved that rational investors in India could gain good returns by analyzing historical data.

**Imam et al. (2012)** analysed the relationship between the Australian dollars (AUD)/US dollar (USD) exchange rate to the Australian and the US stock market indices. All Ordinaries Index (AOI) and Dow Jones Industrial Average (DJI) were taken under consideration in this research. Researchers analysed for the time period January 1991–May 2011. Researchers found the influence of historical exchange rates, the immediate impact of AOI and the lagged effect of DJI. Study revealed that the AUD/USD exchange rate was best estimated by a linear forecast model and Monte Carlo stochastic approach was used to identify the parameters of this linear model.

**Kalra (2012)** checked the relationship between Sensex and seven macroeconomic variables which were cash reserve ratio, wholesale price index, oil rate, inflation rate, reverse repo rate, gold rate, GDP and monthly data was collected for this purpose for the period of nine years (January 2001 to 2009). Findings revealed that all other variables were related to Sensex except reverse repo rate. Researcher observed that inflation rate, WPI, foreign exchange rate and gold price were the significant indicators which supported in forming the models to forecast the empirical relationship among selected macroeconomic variables and Sensex. Five models were formed with different macroeconomic indicators in dissimilar combinations and the model with inflation rate, foreign exchange rate and gold price was found to be the best model.

**Naik & Padhi (2012)** analysed the relationship between BSE Sensex and selected economic variables which were wholesale price index, treasury bills rates, exchange rates, money supply and industrial production from 1994 to 2011. It was found that stock prices positively relate to two macroeconomic variables i.e. industrial production and the money supply, while it was negatively related to one

macroeconomic variable i.e. inflation. It was found that macroeconomic factors affect the stock prices in the long-run which was not in case of short-run. Bidirectional causality was observed by researchers between industrial production and stock prices. On the other hand, unidirectional causality was found in case of stock price to inflation, money supply to stock price and interest rates to stock prices. This study verified and concluded that key macroeconomic variables continued to affect Sensex.

**Siddiqui and Azad (2012)** found the relationship between the Foreign Institutional Investment (FII) and Indian financial markets like Power, Oil & Gas, IT, BSE-500 Auto, FMCG, Metals, Sensex, BSE-100, BANKEX, Realty & PSU and the period of ten years (2000 to 2010) was considered for the study. The findings of the study explored that the impact of FIIs was increasing more significantly in the Indian financial market. It was found that FIIs affected Sensex but FIIs did not have significant impact on Sensex, while mixed results were observed in case of other indices of Indian Financial market. Relationship between Foreign Institutional Investment and the indices were observed significant in case of indices like IT, Metal and Auto which proved that major FII concentration was going to the companies of Metal, IT and Auto. FII had shown a remarkable impact in these industries. Hence, researchers recommended that foreign institutional investors were emerged as the most leading investor segment in the financial market of India.

**Trivedi and Behera (2012)** analysed the impact of selected macroeconomic indicators which were IIP, WPI, Treasury bill rate, money supply, FIIs and Morgan Stanley Capital International world index on Sensex in long-run and short-run. The finding explored the interrelationship of BSE Sensex with selected macroeconomic variables in VAR frame. It was proved with the cointegration analyses that Sensex was significantly related to all selected macroeconomic variables and error-correction model justified the presence of long-run equilibrium among the macroeconomic variables in the model of the study, while impulse responses method showed that BSE



Sensex reacted positively for the increment in IIP, money supply, FIIs and index of MSCI world and negatively reacted to a positive shock in the WPI and treasury bill rate.

## 2.2 STUDIES FOCUSING ON EXTENT OF VOLATILITY

Volatility is an important aspect to consider while making an investment in the market and various researchers checked the nature of volatility of stock market of India. **Franses and Dijk (1996)** investigated the performance of GARCH model and its modifications of non-linear to predict the weekly volatility of stock market. Results explored that the performance of GARCH-family models appeared sensitive to extreme within the sample observations. This study depicted that QGARCH model was found to be significantly improved on the linear GRCH model whenever the models of forecasting were calibrated.

**Mohanty and Kamaiah (2000)** investigated the volatility with persistence of thirty scrips traded in BSE Sensex by considering the daily closing price. ARCH (5), GARCH (1,1)- M and GARCH (1,1) models were estimated. Results of the study suggested the presence of ARCH effect in most of the scrips and persistence of time varying volatility was also observed by ARCH (5) model. GARCH (1,1)- M model explored that returns of security was insignificantly affected by volatility. Although, this study did not test leverage effect by employing asymmetric GARCH models which was one of the limitations of this study.

**Kaur (2004)** analysed the nature of the volatility of Indian stock market (Sensex and Nifty) and result of the study indicated the nature of time varying volatility in Indian stock market. Findings revealed that February and March were the month of highest volatility with highest return and highest conditional volatility was tends to be increased in these months. The month of December was proved with the highest positive returns despite of the high volatility and, hence this month was

recommended to the investors for making the safe return. Researcher found that Wednesday was the day which has provided higher returns with lower volatility and it was proved a good day to invest. This research work did not find an evidence of consistent association of US market and Indian stock market.

**Karmakar (2005)** determined conditional volatility on the basis of daily returns of S&P CNX Nifty and BSE Sensex for fifty companies. GARCH (1,1) model was taken under consideration to fit the model for both the indices and forecasting evaluation parameters like MAE, MSE, MAPE and RMSE were opted for checking its forecasting ability. Findings of the study suggested evidences of time varying volatility, high persistence and volatility clustering and predictability of volatility. This model had provided good forecast of the volatility of market. Lagrange Multiplier test and asymmetric GARCH model delivered that there were leverage effects in both the indices. On the other hand, eight companies out of fifty revealed significant leverage effects.

**Karmakar (2006)** tested the volatility on the basis of daily stock returns of the Indian stock market. Volatility has been checked by GARCH (1,1) model and this model suggested that volatility was highly persistence, predictable and time varying. Asymmetric effect in volatility was tested through TARARCH model and findings explored that bad news reduced volatility slightly during pre-1990 period. On the other hand, volatility was increased due the bad news during the post- 1990 period which revealed that there was an asymmetric effect in the model.

**Padhi (2006)** investigated time varying volatility of the stocks of fifteen companies and two indices of India i.e. Sensex and Nifty. These companies were selected from the sectors like Electrical, Power Plants, Electronics, Non-metallic, Diversified and Machinery with daily closing price of the selected companies & indices and findings revealed the availability of leverage effect. GARCH (1,1) model indicated long persistence of volatility. E-GARCH and GJR-GARCH models proved

that the coefficient of leverage term was statistically significant & negative and showed the presence of asymmetric effect. Electronics sector showed the persistence of higher volatility.

**Islam (2007)** used the daily closing price of BSE Sensex to test the asymmetric volatility behaviour and applied ARCH family models. Results on the basis of analysis suggested that GARCH (2, 1) was an appropriate model to describe the nature of volatility. EGARCH and TARARCH models revealed no existence of leverage effect in returns of stock and news impact was symmetric. However, this study had not applied Box-Jenkins methodology and diagnostic tests for the adequacy of the models. The study had not mentioned the justification for selection of GARCH (2,1) model.

**Karmakar (2007)** tested the nature of Indian stock market by taking the daily data of S&P CNX Nifty and GARCH models were applied for this purpose. For determining the changes in stock return volatility, standard GARCH was employed and asymmetric volatility was tested through EGARCH model. The research work provided a proof of the time varying volatility and this volatility depicted high persistence, clustering and predictability. It was also seen that volatility was proved an asymmetric function of the past innovations and return was not significantly related to risk.

**Joshi and Pandya (2008)** checked the nature of volatility in Indian stock market (BSE) with the daily data of sixteen years. Autoregressive Moving Average structure for the process of error generating was identified with Box-Jenkins methodology. Researchers used ARCH and GARCH models to study the nature of volatility and found that GARCH (1, 1) model explains volatility clustering satisfactorily. Findings of the study revealed that BSE Sensex expressed volatility clustering, mean reverting behavior and persistence of volatility. Conditional volatility of the BSE Sensex was observed to be quite persistent.

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**Krishnan and Mukherjee (2010)** tested the volatility of Indian stock market by taking the daily data of NSE Nifty with GARCH family models and researchers have obtained the fact of the presence of leverage effects in the Indian stock market and it was found that smaller shocks affected return more in comparison with larger shocks. Tests on the basis of LR statistic implied that non-standard, non-linear GARCH model can elaborate the time-varying volatility data better. Results displayed that a nonlinear model may be preferable for better explaining time-varying volatility of Indian stock market.

**Joshi (2011)** mainly investigated the nature and pattern of the volatility in BSE Sensex & NSE Nifty and GARCH-family models were opted to model the volatility. Findings revealed the evidence of persistence of volatility, time varying volatility and asymmetric impact of news on volatility of the Indian Stock Market. Study also found that asymmetrical GARCH models performed better than symmetrical GARCH models and suggested the presence of leverage effect in Indian stock markets. No strong evidence was found for the relationship of volatility and returns using GARCH-M model.

**Malik (2011)** has checked the impact of good news on the volatility of stock market and this study declared that good news decreases the volatility under the asymmetric GARCH model. The findings of the study were consistent with the underlying mechanism that links volatility persistence with asymmetric effects of volatility. Researcher has validated the findings with Monte Carlo simulations and created better implication for framing more advance asset pricing models to forecast the stock market volatility.

**Lim and Sek (2013)** compared the performances of symmetric and asymmetric GARCH models for capturing the volatility of stock market of Malaysia and data was divided into three time-periods which was the time-period of pre and post time-period of crisis and during the crisis. Findings of the study revealed that

these GARCH-family models showed different performance in different time-period and symmetric GARCH model performed better in pre and post-crisis, while asymmetric GARCH model was preferred better during the period of crisis. This study also measured the impact of the factors which affected the movements of stock market. Exchange rate and crude oil price showed significant impact on the volatility of Malaysia stock market in pre and post crisis period, impact was not found to be significant during the period of crisis.

**Mahajan and Singh (2013)** investigated causal associations between volume, return and volatility in Indian stock market and effect of rolling settlement too by taking the data of NIFTY and SENSEX. Results of causality had given the evidences of improvement in the efficiencies of BSE and NSE after the introduction of settlement of rolling which proved that the settlement of rolling made the shares quite attractive to invest. Study depicted that the relationship between volume & returns for post rolling settlement period was not found for both the indices. However, positive relationship was observed only for pre-rolling settlement.

**Das et al. (2014)** estimated the pattern of volatility in Indian stock market by using daily closing price of BSE Sensex and CNX Nifty. EGARCH and TGARCH models were applied to determine the volatility. On the basis of Akaike Information Criterion with Bayesian Information Criterion, TGARCH model was found to be superior over EGARCH for BSE Sensex & CNX Nifty and results of the study expressed no volatility persistence and leverage effect during the period of the study under consideration. As all the coefficients in the equation of conditional variance were found to be statistically significant, there was the volatility in both the series and investors were advised to go for less risky investment.

### 2.3 STUDIES FOCUSING ON RELATIONSHIP OF STOCK RETURNS WITH FINANCIAL PERFORMANCE

Various researchers have made an attempt to analyse the financial performance of industries and companies and explored the most effective financial performance variables. Identifying the factors responsible for change in share return is important in share valuation. **Malhotra and Prakash (2001)** determined determinants of the market price of 'A' and 'B' groups shares of stock market of India. Analysis of the research objectives revealed that price behaviour of companies share was affected by dividend per share, earning per share, book value per share, market price to book value and P/E ratio. Hence, researchers recommended companies to take care of these variables seriously.

**Sen and Ray (2003)** checked main determinants for the stock price of India and this study was based on the stocks which were listed in BSE Sensex over a time period of 1988 to 2000. Analysis of the study depicted that dividend payout was proved as a prime factor to affect the stock prices in Indian market and earning per share as a weak factor to affect the stock prices, while dividend payout ratios showed crucial impact on Indian stock price.

**Punnose (2008)** analysed the electrical machine industry of India and 121 companies were taken for this purpose with the time period of three years. Total electrical machine industry of India was divided in three segments which were low, medium & high on the basis of assets and performance and no significant difference was observed between individual firms and group. Results of the study depicted that capital intensity and size showed explanatory powers on the performance and it was also observed that with the decrease of the size of the sample firms, the effect of size on profitability increased in the study.

**Somoye et al. (2009)** investigated the main indicators i.e. dividend per share, GDP, interest rate, earning per share, and oil price influencing share prices in stock

market of Nigerian from 2005 to 2007. With the help of regression model, it was found that earning per share, dividend per share and GDP showed positive correlation to stock prices but these were found to be insignificant determinants of share price, while other indicators i.e. interest rate and oil price were proved as irrelevant variables to influence the share price of Nigerian stock market.

**Al-Shubiri (2010)** analysed the determinants of the price movements for the stocks of Jordanian commercial bank of Amman stock exchange. Researcher opted the regression analysis and on the basis of results, it was found that net asset value per share, GDP, percentage of market price of stock dividend had positive and significant relationship with market price of stocks. On the other hand, negative and significant relationship of market price of stocks was observed with lending interest and inflation.

**Hosamane & Niranjana (2010)** checked the determinants of investment by using the panel data of fifteen years of ten selected manufacturing industries of India which included Textiles, Chemicals, Food & Beverages, Electronics, Gems & Jewellery, Pharmaceuticals, Leather products, Machinery, Automobile and Metals & Metal products. The results of the study of random effects model explored that the reaction of investment was higher with profit and output in comparison to other variable of the study for Indian manufacturing sector.

**De et al. (2011)** investigated the most relevant financial ratios which should be compulsorily taken under consideration for cement companies of India for the time period of ten years. Eight factors of financial ratios were identified on the basis of the analysis, that is, profitability & return on investment, productivity of working capital, short-term liquidity, dividend policy, asset & material management, capital structure, cash position and long-term solvency. Researchers concluded that while understanding the financial position of the companies of India which belong to the

cement industry, there was a requirement to consider these eight financial ratios because this will save the huge time and money of analyst.

**Hussainey et al. (2011)** checked the relation of dividend policy with the changes in the stock market of UK. Researchers analysed the fact of measuring the changes in share price due to the dividend policy in case of sample companies which were listed in London Stock Exchange. Results explored a positive relationship of dividend yield with stock price changes, while a negative relationship of dividend payout ratio with the changes of stock price was observed. It was also recorded that a firm's growth rate, size, earnings and level of debt also affected the changes in stock price.

**Nirmala et al. (2011)** identified the determinants in the share prices of Indian market. Panel data was taken for the study on the basis of auto, public sector undertakings and healthcare sectors. It was proved by the researchers that price-earning ratio, dividend and leverage were significant indicators in all the selected sectors under consideration, while profitability was found to be the most influencing factors to affect the share price in auto sector. Hence, it is concluded by the researchers that only those shares were more valuable which showed the higher price-earning ratio, portion of profit influenced to investor and investors prefer the firm with the lower debt portion.

**Sharma (2011)** tested the association of equity share prices with eight indicators i.e. dividend payout, net worth, dividend yield, price earning ratio, dividend per share, earning per share, book value per share, size and total one hundred fifteen companies from six sectors were taken as sample of the study. It was proved that dividend per share, book value per share and earning per share were having the significant impact on the share, while earning per share and dividend were found to be the highest affecting indicators. Researcher recommended to the authorities of the



companies to pay regular dividends, whereas investors were advised to analyse the accounting variables of a firm before deciding to invest.

**Srinivasan (2012)** investigated the six sectors which were Heavy & Manufacturing, IT & ITES, Pharmaceutical, Energy, Infrastructure and Banking. Fixed effects and random effects techniques were employed. Analysis of the study clearly expressed that dividend per share had a significant and negative impact on the share price of four sectors i.e. pharmaceutical, energy, manufacturing and infrastructure. However, book value per share positively affected the share prices of four sector i.e. energy, Infrastructure, IT & ITES and pharmaceutical. Price-earning ratio and earning per share were proved important determinants to affect the share price of five sectors i.e. pharmaceutical, energy, banking, manufacturing and infrastructure, while size was also determined as a crucial variable in concluding the share price for almost all the sectors. Therefore, researcher advised investors to go through the fundamental ratios of the industries for deciding the best stocks.

**Raithatha & Bapat (2013)** identified the forces which affected the variations of stock prices of manufacturing sector of India and researchers considered 3,027 companies of manufacturing sector for this purpose. Centre for Monitoring Indian Economy database was used to collect the data of more than three thousands companies. Panel data models were employed and results of the study indicated that out of six indicators only beta, earnings per share and market capitalization significantly affected the stock prices.

#### **2.4 STUDIES FOCUSING ON THE ANALYSIS OF MARKET TREND**

Technical analysis is a commonly used and important appraisal technique to investigate the stock price behaviour. Number of studies used this analysis of stocks to determine the path of movement of the stocks which indicates the buy/sell signal and examination of past movement of stocks price assists in determining the future

price movements which is useful for the decisions of investment in the market. **Brock et al. (1992)** analysed moving average rules on daily data Industrial Index of the Dow Jones. Researchers observed that rules based on moving average were pertinent to find out the abnormal returns. On the basis of moving averages of length; 5, 2 and 1 days for short period of time and 50 to 200 days for the long period were noticed and this study also found that support & resistance levels generated signals which were appropriate to notice abnormal returns.

**Mitra (2002)** applied methods of technical analysis and it was observed that few sets of moving averages were more profitable, while few sets gave losses. The study has conducted the test in one hundred twenty combinations and total seventy nine cases were proved to be profitable, while forty one were in the wrong direction. Research emphasized on the result that there is no method of technical analysis which provide fool proof and hence, there is an absence of infallible system.

**Thamaraiselvi & Anupama (2008)** checked the performance of Indian banking sector on the basis of selected ratios and moving average convergence / divergence. State Bank of India, Punjab National Bank and Oriental bank of Commerce were selected for this purpose. Researcher discovered that the chart of SBI was producing a rising trend. Resistance level was noticed in case of PNB. OBC was observed at current level after a deep correction. The study recommended that an improvement in the productivity level was expected to maintain in case of SBI with the use of advanced technology & efficient staff and OBC was not proved as an attractive option.

**Chitra (2011)** examined stocks of energy sector with the help of technical analysis and advised investors to buy the stocks of NTPC, GAIL CAIRN, ONGC, Power Grid Corporation of India, BPCL, Reliance Industries and Reliance Power because net profits of these companies were rising at a higher rate. It was suggested to sell the shares of Suzlon and consider number of factors like performance of

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company, political events, climate conditions etc. while planning to invest in the stocks of a company. Overall, Investors were recommended to analyse the stocks on the basis of the indicators of technical analysis for obtaining the fruitful returns of the investments.

**Mitra (2011)** investigated the profitability of moving average based rules of trading in special context to four stock index series of Indian stock market. The analysis of the study proved that trading rule was completely capable to find out the directions of the movements of the market. These rules were also able to produce the significant positive returns in long and short position. It was also suggested through this study that the trading rules based on short-term moving averages were more capable to find out the trends in financial series easily and technical traders have to concentrate more on minimizing the transaction costs.

**Varadharajan & Vikkraman (2011)** studied eight companies of various sectors to find the best stocks for investment by employing candlestick charts. SBI and ICICI were found to be the best stocks for investment, ONGC was proved best in power sector. SBI have shown an upward trend in the selected financial year 2009-2010. Bullish trend was observed for banking sector and a picture of growth was recorded for this sector. Telecommunications sector showed a negative growth. Reliance Industries was noticed as the worst company to invest because it showed a downtrend and there were very limited chances of recovery for the next year.

**Sane (2012)** studied the price movements of the shares of Infosys by employing technical analysis. Various charts and tools were used for this purpose. Signal to sell was recorded in the negative zone which were on 1<sup>st</sup> May, 2011 and 26<sup>th</sup> July, 2011 on the basis of MACD. Researchers recommended that fundamental analysis was more important tool which should be applied along with the technical analysis for the long-term investment and there was a need to estimate risk factor before any investment. Study suggested to employ all charts, indicators and oscillators

for the better prediction of the future trend because single indicators did not explore the true prediction of the future trend.

**Sathya & Tamilenth** (2012) tested the stocks of ten companies of NIFTY i.e. ONGC, NTPC, Reliance Communication, SBI, Reliance, ICICI, L& T, SAIL, Bharti Airtel and BHEL to recognize the future price movements of the share price. Price movements of the three months were studied by technical analysis to estimate the signals of buy and sell for advising the right kind of strategies to the investors. Investment opportunities were recommended to long, medium & short term investors in case of Reliance, SBI and ONGC. NTPC, L & T were found to be suitable for long-term investors. Reliance Communication, BHEL & Bharti Airtel were recommended suitable for medium and short-term investors. Long & medium-term investors were suggested to invest in SAIL & ICICI for better return.

**Vasantha et al.** (2012) analysed the movements of stock price of IT sector by using technical analysis and it was observed by the researchers that stock price of HCL, Polaris and TCS were positively related with the CNX index. Share price of Infosys and Wipro were highly correlated with CNX price index. CNX share price was examined to be more volatile after 125<sup>th</sup> day. The share price of TCS, HCL and Wipro were neither overbought nor oversold because RSI of these companies stood at 50 from January –December 2011, while bullish phase was seen for Polaris. On the basis of MACD, Huge volatility of the stocks was detected. Scripts of TCS moved flatly, stock prices of Wipro showed an upward movement. On the basis of complete analysis, it was recorded that TCS, Infosys and Polaris were likely to perform better in comparison to other stocks.

**Rajan & Parimala** (2013) applied the technical analysis to understand the historic price movements of the three stocks (HUL, Britannia and Godrej) of FMCG sector for estimating the trend of future price. The data of twelve months was analysed with the help of Simple Moving Average and Bollinger Bands to take an

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appropriate decision regarding buy or sell of the stocks. On the basis of Bollinger Bands, it was found that there were chances to sell the stocks during February, 2012 and volume was highest particularly on 16<sup>th</sup> October, 2012 in case of HUL, whereas the narrowing band of Britannia share price showed an opportunities of breakthrough and an investors was allowed to buy or sell in between the high and low points of the band. The movements of Godrej share price provided an obvious scene of the positive movement of target price. Moving average method explored the fluctuations of selling and buying levels for HUL from December, 2011 to July, 2012 and scrips of Britannia revealed a random nature from June to November of 2012 and a continuous rise was seen for the shares of Godrej.

**Boobalan (2014)** analysed stocks of WIPRO, SBI, GAIL, ONGC and ITC by using the tools of technical analysis. On the basis of the indicators, it was noticed that Wipro had a bullish trend in short and medium term, buy above at 1930 in case of SBI, strong signal to buy in short, medium and long terms for GAIL, ONGC is technically strong according to MACD, short term bullish trend was detected on the basis of RSI and MACD for ITC. This study suggested investors to use technical analysis which was found to be utmost important to forecast the trend of price movement of short & medium term and assists an investor to get a right plan. But, fundamental knowledge was also observed as a basic concept to find more accurate idea of investment pattern. Hence, both the analyses were recommended to get better insight of the stocks.

**Kumar & Kulothungan (2014)** examined the investment opportunities by applying the indicators of technical analysis in Realty and Pharmaceutical sectors. Researchers noticed that 70 % scrips in CNX REALTY, while 50 % scrips in CNX PHARMA were in the position to select for the investment in short-term. Hence, it was recommended to prefer Realty sector more in comparison with Pharmaceutical sector. Investors were suggested to buy the shares of Cipla Ltd., Glenmark

Pharmaceuticals Ltd., Lupin Ltd, Piramal Enterprises Ltd & Ranbaxy Laboratories Ltd under pharmaceutical sector and shares of Phoenix Mills Ltd, Housing Development and Infrastructure Ltd., Godrej Properties Ltd., Oberoi Realty Ltd., DLF Ltd., Indiabulls Real Estate Ltd, Anantraj Industries Ltd under realty sector.

## **2.5 STUDIES FOCUSING ON INVESTORS' PERSPECTIVE TOWARDS STOCK MARKET**

Various authors have investigated the perspective of investors towards the appraisal techniques to evaluate the assets in the stock market because an investor can better analyse a particular stock with the knowledge of appraisal techniques. **Ou and Penman (1989a & 1989b)** highlighted the role of using information based on financial statements by adopting the process of reviewing or analyzing company's financial statements which includes income statement, balance sheet, statement of cash flow, statement of retained earnings and hence, researchers have produced an importance of conducting fundamental analysis while selecting the stock of a company. The study emphasized that financial statements consider more useful news of various permanent and transitory part of company's past earnings.

**Warren et al. (1990)** highlighted the fact that profile of investors on the basis of demographic and lifestyle differentiates investors in active & passive and light & heavy investors. Researchers found that investors of almost same age or income may have different needs for investment which can be examined in depth by doing lifestyle analysis. The study suggested that light investors tend to be more dress-conscious, while active investors were not found in this direction and they were more nonconformists.

**Lim (1992)** conducted an analysis for Malaysian investors which proved that these investors opted speculative behavior when economy showed the growth, GDP increased and stock increased which indicated the bullish markets. Most of the

investors admitted that they used speculative activities like rumours, tips or sometimes on random basis (**Mansor and Lim, 1995**). It is also reported that one-third of investors took the help of 'top down approach' i.e. fundamental approach. On the other hand, small portion of the investors selected technical analysis to get the better return from their investment. Applicability of fundamental analysis was increased by investors in the bearish period.

**Shanmugham (2000)** analysed individual investors to understand the source of information which investors used, their perceptions regarding various strategies of investment and the variables which motivated them to decide the investment. The results of the study clearly explored that tips of broker, relatives and friends heavily affected the perception of investors. It was also observed by the researchers that psychological and sociological variables were more dominated than economic variables in case of investment.

**Lai et al. (2001)** examined the rationalism of investors for stock selection and observed that most of the investors depended on the information before making any stock selection of the company which might be internal or external. Fundamental analysis was judged the most popular appraisal technique for shares and investors were found to be prudent and not easily affected by feelings or psychological interference to take a decision regarding any investment. This study has also added the fact that political speculations and rumours do not influence the investors and they take decision rationally.

**Ghazali and Othman (2004)** analysed the investors on the basis of their demographic and lifestyle characteristics of two groups i.e. active and passive investors and significant difference was observed in various demographic factors, while active investors were observed to be more risk taker and significant difference was found in case of activity dimension of the two groups. This study also revealed that there was a positive significance of publications for collecting information

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regarding investment and active investors were examined to be more information-intensive. Researchers recommended that use of internet for selecting investment will be increased with the passage of time.

**Seghal and Gupta (2005)** conducted the survey to get an insight of the way technical traders used in the market and the strategies of trading which investors adopted. This study analysed institutional & individual technical traders along with the trading record of long and active period in the market of India. Study concluded that respondents of the study were tending to apply technical technique along with fundamental technique for deciding the security to invest.

**Shah and Verma (2011)** analysed the investment behavior of youth investors of Indian stock market and summarized that banking, metals, PSUs, Pharma & FMCG were the favored sectors during the study period. Capital gain and fundamental information were the extracted factors while fundamental information of the industry were obtained from past movements of stock, factors responsible for risk, rules & regulations of the government and price-earning ratio, while capital gain was mainly reported on the basis of bonus share, dividend payout ratio, growth of share price and dividend. Four clusters of investors were marked on the basis of their investment behavior. The segment of well-informed investors was highest with 65% of the respondents of the total and this segment was found to be of alert investors who considered information prior to invest. Thus, this research work was designed to strategies the companies for targeting more investors and finalise the best mode of communication for them.

**Venkatesh & Tyagi (2011)** examined the importance of fundamental and technical analyses for valuation of shares. The results of this study proved that fundamental analysis was found to be the best appraisal techniques in comparison to technical analysis by majority of the respondents to predict the movements of shares price. Study also highlighted the fact that investors more depended on technical



analysis in bullish market, while their dependency increased on fundamental analysis in bearish market and investors preferred fundamental analysis to analyse all conventional sector. On the contrary, technical analysis was used to predict the trend of share price of modern sector.

**Wang et al. (2011)** investigated the approaches and information which were used by financial analyst in investment appraisal of shares and factors which affected the decision of analysts towards investment environment. Analysis proved that fundamental analysis was the foremost important technique which was adopted by investors. Fundamental analysis was preferred over technical analysis and they took the help of annual reports of the companies most of the times as an influential source to decide about investment. Ratio analysis & analysis of financial statement were highly preferred under fundamental analysis.

**Hossain & Nasrin (2012)** conducted the research to find out the factors which affected the investors at the of selection of equity shares and this study emphasised on the fact that attributes related to company and information of accounting usually influenced investors while selecting the shares in Dhaka Stock Exchange. Other factors like interaction with dealers and brokers are also found to play a significant part in influencing the investors' decision which highlighted that investors took the help of various appraisal technique but they preferred to take the advice of experts.

**Jamal et al. (2014)** investigated the factors which influenced investors' decision for investment and it was concluded by the researchers that investor act rationally when deciding to invest. Positive relationship was observed between financial analyses and the success of investment decision-making which clearly expressed that information related to the background of company, news and the knowledge to apply fundamental analysis helped investors while deciding good investment decisions. The study also revealed that fundamental analysis was marked to be the best method of share appraisal by investors in bullish and bearish market.

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## **2.6 RESEARCH GAP**

On the basis of extensive literature review, it is identified that there is an availability of the studies related to price behaviour of stocks but these studies are not extensive. These studies are considering limited aspects to determine the price behaviour of stocks. Most of the previous studies were based on the small sample with less number of variables and analysed the performance of companies/ industries without comparing the performance, while current study is an improvement on the earlier studies because it considers large sample and large period for investigation and tried to fill the gaps for determining the price behaviour of Sensex stocks with investors' perspectives. Further, no comprehensive study has been conducted to measure the price behaviour of Sensex stocks in the recent years on the basis of fundamental and technical analyses. The lack of comprehensive studies in India inspired to study the current topic. Therefore, this research work analysed the comparative financial strength of the industries & companies, recognised most significant indicator from macroeconomic environment, estimate nature of volatility of Indian stock market to understand the risk-factor, found the market trend and identified the most important factors influencing the investment decision. Hence, this study is different because of its comprehensiveness.