CHAPTER-2
REVIEW OF RELATED LITERATURE

Review of literature is an important part of any research problem. The review of earlier studies is very essential and useful to give the right direction of any study. It explores the developments in the subjects of the study. It helps the researcher in formulating the methodology comprising establishing hypotheses and selecting the variables to be studied and seeks to explore research gap. It describes what has actually been done and what remains yet to be done on the specific subject/phenomenon.

Basu (1977) found that stocks with low price-earnings ratios (P/Es) have been higher average returns than stocks with high P/Es, even after controlling for data.

Daigler and Fielitz (1981) employed multiple discriminant analysis to examine the ability of daily technical indicators to predict future movements of the stock market. The study investigates the ability of daily technical indicators to predict future change in the Standard and Poor’s 500 index (as measured by price relatives). Daily observations for the predictors’ variables and the Standard and Poor’s 500 stock price index were determined for the period January 1961 to December 1973. The notable features of this research included the use of a multivariate approach, a non-linear discriminant function, the Lachenbruch holdout method, test-space and reduced-space procedure, the complete stepwise method, and consideration of the characteristics of the data such as stationarity, the discreteness of the criteria variable, and the use of the two-group largest and smallest price relatives.

Treynor and Ferguson (1985) showed that past prices, when combined with other valuable information, can indeed be helpful in achieving unusual profits. Adherents of technical analysis claim that unusual profits can be achieved using only past security prices. Many investors occasionally receive that what they believe to be nonpublic information about a security. Others feel that by applying superior analytical skills to public information, they are able to arrive at valuable insights that are not generally appreciated. The investor must be correct on two counts. First, the estimate of the worth of the information must be reasonably accurate in terms of its impact on the price of the stock, and second, the investors
must make a realistic assessment of the likelihood that the market already has received the information or insight in question. This paper is concerned only with the later problem. The probability distribution of the date on which the market receives information already in the hands of the investors is calculated for a simple model of information propagation. It is then shown how this probability distribution can be brought to bear on management of a portfolio. However, it is the non price information that creates opportunity. The past prices serve only to permit its efficient exploitation.

Chen, Roll, and Ross (1986) found that innovations in the spread between short and long interest rates, expected inflation and unexpected inflation, industrial production and the spread between high and low grade bonds were significant determinants of stock price movements, and concluded that this worked through the way in which risk was priced by the market in particular that microeconomics risks were all significantly priced and seemed to replace other variables which might be expected to influence the price such as the movements of a market portfolio.

Lee (1987) examined the role of fundamental analysis in the stock market. Specifically, market responses to Abelson’s fundamental analyses in Barron’s were explored. The analyses in Abelson’s column were classified, according to their contents, into four categories. Market reactions to those different contents to analyses were measured. Univariate t-test, binomial Z-test, ANOVA F-test and Chi-square independence tests, were applied to check the significance and the uniformity of market reactions to various fundamental analyses. It was found that the market reacted discriminately to the contents of fundamental analyses and that investors did not make significant monetary gains from the use of Abelson’s analyses.

Brown (1989) examined a particular “exact” k-factor economy where each of the k-factors was priced and contributes equally on an average to the variance of returns. Both factor analysis of security return and the analysis of each value seemed to indicate that a market factor explain the major part of security returns. Authors found that such evidence was consistent with an economy where there were in fact k “equally important” priced factors, each value analysis in all context of such an
economy will lead an investigator to the false inference that the one important “factor” is the returns on an equally weighted marketing index.

Chan, Hamao, and Lakonishok (1991) tried to relate cross-sectional differences in returns on Japanese stocks to the underlying behavior of four variables: earning yield, size, book-to-market ratio, and cash flow yield. Alternative statistical specification and various estimation methods were applied to a comprehensive, high quality data set that extends from 1971 to 1988. The sample includes both manufacturing and nonmanufacturing firms, companies from both sections of the Tokyo Stock Exchange, and also delisted securities. Authors’ findings revealed a significant relationship between these variables and expected returns in the Japanese market of the four variables considered, the book-to-market ratio and cash flow yield have the most significant positive impact on expected returns.

Chan, Hamao, and Lakonishok (1993) various method were used to estimate the effect the earnings yield, company size, book-to-market ratio and cash flow yield on Japanese stock prices over the period 1971-88. The authors used monthly data on all the stocks of the first and second section of the Tokyo stock exchange from January 1971 to December 1988. The data set included both delisted stocks (123 companies over the period) and non-manufacturing companies. The entire sample as of December 1988 included 1570 companies, 1130 of which are in the first section. The findings revealed a significant relation between returns in the Japanese market and four fundamental variables Earning yield, size, book-to-market ratio and cash flow yield. The performance of the book-to-market ratio especially this variable is statistically and economically the most important of the four variables investigated. The difference in average returns between quartiles of firms ranked by the book-to-market ratio is 1.10 percent per month. Another variable, cash flow yield, also has positive and generally significant impact of returns. The authors made no attempt to rationalize the general level of such a value strategy, even if this entails sacrificing potentially superior performance in the long run.

King, Sentana, and Wadhwani (1994) set out to explain the time – variation in the international covariance between stock indices. They specified a model with both observable factors (economic variables) and unobservable factors. They also
allowed for time varying conditional variance of the factors by specifying GARCH type processes. The economic variables they used include: short and long-term interest rates, exchange rates, industrial production, money supply, real oil price, real commodity price index, although they found these variables to be rather insignificant in explaining linkage between stock markets compared to two unobservable factors.

Blume, Easley, and Ohara (1994) investigated the information role of volume and its applicability for technical analysis. The authors developed a new equilibrium model in which aggregate supply is fixed and traders receive signals with differing quality. The paper shows that volume provides information on information quality that cannot be deducted from the prices statistic. The paper showed how volume, information precision, and price movements relate, and demonstrate how sequences of volume and price can be information. The authors also showed that traders who use information contained in market statistics do better than traders, who do not. Technical analysis thus arises as a natural component agents learning process. As the analysis suggests, introducing volume unrelated to the underlying information structure would survey weakly the ability of uninformed traders to interpret market information accurately.

Cochrane (1994) examined the causes of variation between GDP growth and stock returns using the conventional VAR identification approach. In his analysis, he showed that substantial amount of variation is due to transitory stocks. He defined the transitory shock from two perspectives – in relation to the consumption/GDP ratio and in relation to the dividend/Price ratio. Transitory shock to consumption – GDP ratio is a shock to GDP holding consumption constant so that the shock does not affect consumption contemporaneously. The facts that the consumption (GDP ratio did not forecast consumption growth and that consumption was nearly a random walk this definition. Similarly, he defined transitory shocks to the dividend-price system as shocks to stock prices holding dividends constant so that the shock did not affect dividends contemporaneously. The fact that the dividend (price ratio may not forecast dividend growth and that dividend was nearly a random walk can justify this definition.
Elton, Gruber, and Blake (1995) developed relative pricing (APT) models that were successful in explaining expected returns in the bond market. In this study authors employed publicly available bond returns indices (passive bond portfolios) as the independent variables utilized in fitting the equilibrium models. The appendix lists the bond indices used. These include indices of government bonds, corporate bonds, and mortgages. The sample period covered the period from February 1980 to 1992 (155 monthly observations). Authors compared the four alternatives APT models, those that did not contain the fundamental expectation variables were rejected at the 5 percent level in favor of models that do contain those variables. The return indices were the most important variables in explaining the time series of return. Authors utilized our fundamental relative pricing models to examine the performance of bond funds. Bond funds underperform the returns predicted by the relative pricing models by the amount of expenses on adverse, and the models using fundamental variables, do a better job than other models in accounting for the difference in performance between types of bonds funds.

Caginalp and Balenorich (1996) generalized through the study that the assets flow model of the dynamic of equity prices to multiple groups of investor with distinct strategies and assessments of value applications include the closed-end fund puzzle, government privatization, and marketing of initial and secondary offering of equities. The generalized model provides a theoretical foundation for the practice of technical analysis, in which price history and patterns were examined in order to obtain an indication of future prices. The assets flow model, which was an extension of price adjusted due to disequilibria, tracks the finite assets of each groups and involved a preference function that was governed by the price trend in addition to the fundamental value of the equity. The system, which consisted of a system of ordinary differential equations, uses parameters that characteristics the extent to which investors preference were governed by trend versus fundamental value, and the scales associated with each motivation. The evolution toward equilibrium is found to be much more complex than the monotonic change that is implied by standard prices theories. Finally, the time scale for the return to equilibrium, a concept crucial to securities marketing, was considered in a precise quantitative context.
Barbee, Mukherji, and Raines (1996) suggested that the sales-price ratio (S/P) may be a more reliable indicator of firm’s relative market valuation than P/E or B/M because different accounting methods for depreciation and inventory affect earning and book value of equity but not sales. Unlike P/E and B/M, S/P was also a meaningful measure of value for all stocks because it cannot be negative. Barbee et al. found that S/P absorbs the rules of B/M, MYE, and P/E in explaining U.S. stock returns during the 1979-91 periods.

Mukherji, Dhatt, and Kim (1997) found that fundamental analysis of stock returns in Korea revealed that annual stock returns during the 1982-93 periods were positively related to B/M, S/P, and D/E and negatively related to firm size but not significantly related to E/P or Beta. The findings of the study also suggest that for Korean stocks, B/M, and S/P were more consistent indicators of fundamental value than E/P. Furthermore, D/E was a more reliable proxy for risk than that of beta.

Antoniou et al. (1997) The study was aimed to examine whether seemingly efficient can, in fact, be predicted by the use of technical analysis of both past volume and past returns data. The study used daily closing prices for 63 stocks traded in the Istanbul Stock Exchange (ISE) in the period from January, 1988 to December, 1993. This paper investigated the extent to which past volume, in conjunction with past returns, can predict returns from seemingly efficient prices. The result revealed that technical analysis on volume can aid the prediction of returns which cannot be predicted by the analysis of past returns in isolation. This was particularly the case for low levels of trading volume. The results presented here suggested that any assessment of the volume depicts the fact that market prices were not fully revealing. Volume has a useful role to play that was captured in the past sequence of returns.

Barnhart and Barnhart (1998) Introductory investments course offers students a unique opportunity to grasp the practical concepts of fundamental analysis. The project discussed in this article combines reading and reporting on an investment “pro’s” book that student enjoy with the fundamental analysis of two companies in a semester course. The project described here is based on information from Peter Lynch’s one upon Wall Street and on common elements of fundamental analysis.
Also provided were details concerning information required in the project, sources of this information, and the format used to present the material in the class. It provided students with the real world skills to analyze and make intelligent decisions about investing in stocks. Results are presented that confirm the enhancement of skills relevant to team work, presentation, technical writing, and the inherent and other areas.

Abarbanell and Bushee (1998) examined whether the application of fundamental analysis can yield significant abnormal return. The authors examined nine fundamental signals used by LT and AB as predictors of contemporaneous returns. The source of return data was the 1995 CRSP daily NYSE/AMEX file. Main sample included observations from 1974-1988. The holdout sample covered the 1989-1993 periods using a collection of signals that reflected traditional rules of fundamental analysis related to contemporaneous change in inventories, accounts receivable, gross margin, selling expenses, capital expenditure, effective tax rates, inventory methods, audit qualification, and labor force sales productivity. Authors form portfolios that on an average 12 months cumulative size-adjusted abnormal return of 13.2 percent. The paper found evidence that the fundamental signals provide information about future returns that is associated with future earning news. Moreover, a significant portion of the abnormal return was generated around subsequent earning announcement. Significant abnormal returns to the fundamental strategy were not earned after the end of one year of return cumulative, indicating little support for the idea that the signals capture information about the multiple-year-ahead earnings was not immediately impounded in price or about long-term shifts in firm risk.

Sullivan, Timmermann, and White (1999) In this paper authors utilized white’s Reality check bootstrap methodology to evaluate simple technical trading rules while qualifying the data snooping bias and fully adjusting its effect in the context of the full universe from which the trading rules were drawn. Hence, for the first time, the paper presented a comprehensive test of performance across all technical trading rules examined. The authors considered the study of Brock (1992), expended their universe of 26 trading rules, applied the rules of 100 years of daily date on the Dow Jones Industrial Average, and determined the effects of data
snooping. This applied a new methodology that allowed researchers to control for data snooping biases to compute the statistical significance of investment performance while accounting for the dependencies resulting from investigating several investment rules. It summarizes in a single spastic the significance of the best performing model after accounting for data snooping.

**Lo, Mamaysky, and Wang (2000)** proposed a new approach to evaluate the efficiency of technical analysis. The authors applied the goodness of fit and kalmogorov – smirnov tests to the daily returns of individual NYSE/AMEX and NASDAQ stocks from 1962 to 1996 using data from the center for research in securities prices (CRSP). The authors found that certain technical patterns, when applied to many stocks over many time periods, do provide incremental information, especially from NASDAQ stocks. Authors’ model suggested that technical analysis can be improved by using automated algorithms such as authors and traditional patterns such as head- end – shoulders and rectangles, although sometime effective, need not be optimal. By comparing the unconditional empirical distribution of daily stock returns to the conditional distribution conditioned on specific technical indicators such as head- end – shoulder or double- bottoms- authors found that over the 31 year sample period, several technical indicators do provide incremental information and may have some practical value.

**Fernando, Christian, and Simon (2000)** tested the profitability of simple technical trading rule based on Artificial Neural Network (ANN) model. They made a small study on ‘The Profitability of Technical Trading Rules based on Artificial Neural Network: Evidence from the Madrid Stock Market’. Their results were based on applying this investment strategy to the General Index of the Madrid stock market, and suggested that, in absence of trading costs, the technical trading rule was always superior to buy-and-hold strategy for both the “bear” market and “bull” market and “stable” market. On the other hand, they found that the buy-and-hold strategy generated higher return than the trading rule based on ANN for a sub-period presenting upward trend (bull market).
Dickinson (2000) found evidence that an approach which combines both the insights of the literature on macroeconomics forces and the stock market and the work on international stock market integration can provide a suitable empirical basis on which to investigate the relationship between fundamental and the stock market. The studies concentrated on the U.S. (New York) and three European stock markets (London, Paris and Frankfurt). This research has uncovered a number of key macroeconomics variables (e.g. output, inflation, interest rates) as significant determinants of stock market. In particular it consider the extent to which correlation between international stock markets is a result of globalization of financial market or whether they reflect the integrated nature of the real economy, as represented by common elements key macroeconomics variables.

Swanson, Rees, and Juarez (2001) examined developing Mexican equity market and found out that the value of fundamental analysis could contribute to generate higher returns. The findings were that though five fundamental analyses could help to eunuch investors, the earnings of the companies were not the primary factor that determines the share movement.

Beneish, Lee, and Tarpley (2001) used two-stage approach toward financial statements analysis. In the first stage, they used market based signals to identify likely extreme performers. In the second stage, they use fundamental signals to differentiate between winners and losers among the firms identified as likely extreme performers in the first stage. Their result indicates the importance of carrying fundamental contextually.

Lai, Balachandher, and Nor (2001) examined the predictability of technical trading rules on the daily returns of the Kuala Lumber Stock exchange composite index for the full sample period from January 1977 to December 1999, which includes both bull abs bear periods. The random walk model was tested by applying the variance ratio and the multiple variance ratio tests on the market returns. After testing for random walk in Malaysian stock market, the predictability of two technical trading rules of the variables, length moving average (FMA) rule was examined. The results indicated non- random loss of successive prices changes. The findings indicate no random walk in the KLSE and
imply a potential for technical trading rules to generate above average returns. This was verified by the predictability of FMA and VMA rules examined in this study and the significantly positive returns generated by these rules even in the presence of trading cost.

**Kwon and Kish (2002)** This study consisted of an empirical analysis on technical trading rules (the simple price moving average, the momentum, and trading volume) utilizing the NYSE value weighted index over the period 1962-1996 as well as, three sub periods. The sample period included 8685 daily observation from 1 July 1962 to 31 December 1996. In addition to the full sample period, three sub periods (01/07/1962-31/12/1972, 01/01/1973-31/12/1984 and 01/01/1985-31/12/1996) were tested to determine if the value of the trading rules dissipate over time. The methodology employed in this study included the tradition t-test and residual bootstrap methodology utilizing random weak, GARCH- M and GARCH-M with some instrument variables. The result indicated that the technical trading rules add a value to captive profit opportunity over a buy hold strategy when the trading rules were applied to the different sub samples; the results were weaker in the last sub period, 1985-1996. This may imply that the market was getting efficient information over the recent years because of technical improvements.

**Mitra (2002)** made a study on ‘Profiting from Technical Analysis in Indian Stock Market’. Researcher tried to find out a trading strategy that was profitable even after transaction cost. Author used daily closing prices of ACC, Reliance industries, State bank of India, and TISCO from the stock market published quotes during the period Dec, 1995 to Feb, 1999. Author used two tools for analysis purpose: (a) Moving average crossover (b) Use of filter rules. The trading tools or methods tested in the study were giving profitable results, which helps investor to believe that making profit in stock market was not just a matter of chance. Author concluded that investors are not always right in enjoying the trading, but they need to have an analytical and systematic approach to make trading profit on a cumulative basis.
Sehgal and Garhyan (2002) evaluated whether share recommendation based on technical analysis provide abnormal returns in the Indian capital market. Several returns measures have been employed including those adjusted for market trend, risk and transaction costs. The study involved 21645 recommendations for 21 companies using 13 technical indicators. The mean return was found statistically significant for the total period. But the gains disappear in the case of market adjusted measures. The returns were found significant for the risk- adjusted measures and also after the adjustment for transaction costs.

Moube and Jannach (2003) tried to find out which of the concepts of fundamental analysis were the most important factors and indicators for the asset managers basically for everyone questioned the first factor of look at the financial state of the company, which was usually determined by such ratios as return easy returns, sales development, future earnings, stability of balance sheets dept easily, equity ratio). Besides, majority of respondents mentioned such key valuation concepts as price to earning and price to book value.

Wong, Manzar, and Chew (2003) focused on the role of technical analysis in signaling the timing of stock market entry and exists through the study ‘How Rewarding is Technical Analysis Evidence from Singapore Stock Market?’ Test statistics were introduced to test the performance of the most established of the trend followers, the moving average, and the most frequently used counter-trend indicator, the relative strength index. The result showed that, the indicators can be used to generate significant positive return. It was found that member firms of Singapore Stock Exchange tend to enjoy substantial profit by applying technical indicators. This could be the reason why most member firms do have their own trading teams that rely heavily on technical analysis.

Lucke (2003) made a study on the topic ‘Are Technical Trading Rules profitable Evidence for Head and Shoulder Rules?’ He focused on the prominent head and shoulder pattern as a representative trading rule which incorporate various technical ideas such as smoothed trends, trend reversal, resistance levels and volatility clustering. For various combinations of the building bullocks of head and shoulder definitions, the result was generally negative Returns to head and
shoulder trading rules were not significantly positive and if there is any evidence from non-zero returns at all then it is evidence for negative returns.

**Osler (2003)** documents clustering in currency stop loss and take profit orders, and used that clustering to provide an explanation for two families predictions from technical analysis: (1) tend to reverse course at predictable support and resistance levels, and (2) tend to be usually rapid after series cross such levels. The data comprises stop level and take profit orders placed at Natwest markets, a large foreign exchange dealing bank, in three currencies pairs- dollar-yen, dollar- UK pound, and Euro- dollar- from August 1, 1999, to April 11, 2000. All customer orders and the bulk of in house orders were included. The data was first available on individual currency stop loss and take profit orders. Take profit orders cluster particularly strongly at round numbers, which could explain the first prediction. Stop loss orders cluster strongly just beyond round numbers, which could explain the second prediction.

**Shostak (2005)** The stock market does not have a life of its own. Success or failure of the stock investing is determined ultimately by the failure or success of the business itself, which is undoubtedly true for the majority of cases.

**Sehgal and Gupta (2005)** aimed at providing insights about the ways to technical traders in the financial market and the trading strategies that they adopt. The sample consists of 25 respondents. The respondents are investment analysts, mutual fund managers, brokers, and active technical traders. It was a representative set of active investors, as in the study, authors were looking for a specialized sample involving respondents with a long experience in the stock market and a reasonable length of the time spent on technical trading. The questionnaire was distributed personally by hand or through e-mail to 50 individuals. It was observed that the sample respondents tend to use technical analysis with fundamental analysis for security selection. They fit the technical tools mainly on the equity segment of the market and relatively prefer their use during the market upturns. They further feel that volume indicators provide independent information compared to price indicators. The survey findings should be extremely relevant for technical traders who were continuously on the lookout for investment strategies to beat the market. They
should also be useful for financial software developers who wished to know that they should explain the technical tool box. Finally, it has implications for market regulators and the investing community in general, as it should help, in a better way, in the understanding the investors’ behavior, in the short-run for the Indian Market.

Westerhoff (2005) The goal of this paper was to develop a novel stock market model in which the orders of the chartists are not only based on past prices but also on past trading volume and to set up an artificial laboratory to explore the consequences of trading breaks. The authors proposed a novel model and investigated the effectiveness of trading breaks. The nonlinear model consisted of two types of traders: while fundamentalists expect prices to return toward their intrinsic value, cartelists extrapolate past price movements into the future. Moreover, chartists condition their orders on past trading volume. The model is able to replicate several stylized facts of stock markets such as facts tails and volatility clustering. Using the model as an artificial stock market laboratory the study found that trading breaks have the power to reduce volatility and if fundamentals do not move too strongly also mispricing.

Das (2005) showed there was evidence that stock prices and interest rates possess a common trend in many of the countries he studied with the exception of India. However, there was strong evidence of common cycles for the other countries. These findings provided support to the view that although bond markets and stock markets in these countries were linked, this may not be through a common trend, but through a common cyclical pattern. From the policy point of view, being linked through a common cyclical pattern provided the advantage of better forecasting or decomposition of stock price change off acted by bank interest rate change.

Koller, Mare, and David (2005) asserted that significant deviation from intrinsic value was rare, and markets revert to economic fundamentals discounted cash flow (DCF) analysis. But they also discovered three key conditions for market deviations from economic fundamental which included irrational investor behavior, systematic patterns of behavior across different investors, and limits to arbitrage financial markets the latter occurring where there were no barriers to arbitrage leading to the exploitation of systematic patterns of irrational behavior
when these conditions all apply, behavioral finance predicts that pricing biases in financial markets can be both significant and persistent.

**Hunjak and Cingula (2005)** argued that neither technical nor fundamental analysis can be used on the Croatian stock market due to low trading volumes and high volatility. The researchers have developed their model, which according to their opinions should suit during the investment process on the Croatian stock market. Fundamental analysis was assigned the weight of 8.1 percent, technical analysis 18.8 percent and the rest was dedicated to after factors, risk (Market, political and development) - 34.1 percent, insider trading 31.6 percent and subjective estimation 7.3 percent.

**Maillet and Michel (2005)** found that unlike the findings for main dollar rates, there was no significant technical analysis profitability for the European currencies. The significance of chartist performance did not depend, unlike previous findings, on the length of the period over which the moving average was computed, although the return differential between the naira and chartist strategies was positive for almost every combination of short and long moving average of some European currencies. The earlier results concluded that generally technical analysis trading rules were profitable when applied to several US dollar exchange rates. These results were linked to the presence of long swings in the dollar series, and here, it is tested whether they still hold in a different setting, with a quasi-fixed exchange rate system. Applying non-parametric and parametric tests to the main European currencies does not allow to confirm, in this case, the profitability of these rules. These results strengthen the likelihood of the hypothesis of a causal link from the exchange rate of DGP to the profitability of technical analysis trading rules, as already highlighted in several articles.

**Chang, Metghalchi, and Chan (2006)** made a study on ‘Technical Trading Strategies and Cross-National Information Linkage: The Case of Taiwan Stock Exchange’. They tested four prevalent moving average technical trading rules for Taiwan stock market through this study. They used daily Taiwan stock exchange’s weighted price index from data stream from 1983 to 2002. After that, they investigated predictive power of trading strategies over buy-and-hold strategy.
They made suggestion from the results of this study that, technical rules were predictive for Taiwan stock market applying the information reflected in the U.S. stock markets to project Taiwan stock market. This movement was comparable to using Taiwan stock market information in isolation because the two markets were strongly correlated. Finally, this study indicated that leverage/money strategy helps investors to beat buy-and-hold strategy.

Chen and Li (2006) examined the problems of thin trading and inefficiency, use unadjusted and adjusted returns, considered past volume in conjunction with past returns, tried absolute and relative variable, in order to bring out the value, if any, of technical analysis. This paper uses daily stock prices and the trading volume of 39 constituent companies in SZSE component. A-Share index on the Shenzhen stock exchange examine the usefulness of technical analysis. The authors did not find reasonably strong evidence supporting either spurious or genuine predictability of returns, or that volume contains additional information omitted by prices, for the majority of the 39 companies listed of the SZSE component A-share index and its constituent stocks are considered, the value of technical analysis might have been exaggerated or overstated.

Becchetti and Giacomo (2007) found that the fundamental component of the earning price ratio (E/P) - evaluated with two-state growth DFC Model- plays a crucial role in explaining the cross-sectional variability of the observed EIP, when parameters of the risk premia and technical rate of growth are property calibrated. The traditional discounted cash flow model (PFF) in explaining stock price movements on two samples of US and EU stocks. The fundamental component is also shown to have superior explanatory power with respect to simple measures of earning growth forecasts usually adopted in the literature. In spite of the strong significance of the DCF variable, the relevance of the non-fundamental componential implies that something was missing in the traditional DCF evaluation. Current deviations from the fundamental are affected by export adjustment of publicly available information in EU sample. It was argued that difference in regulatory environments and in the composition of investors between the US and EU financial systems may help to explain these comparative findings. Results appeared
consistent with the market integrity hypothesis. It postulates that reliance of publicly observable fundamentals was higher when insider trading was lower.

**Loh (2007)** This study proposed a test for weak form efficiency based on the practitioner’s approach to technical analysis. The data consist of daily closing prices obtained from five Asian-Pacific stock markets—Australia (ASX), Hong Kong (HKSE), Japan (NIKKEI), South Korea (KOSPI) and Singapore (STI). The full sample data range from 4 January 1990 to 30 September 2005 and, to examine the robustness of results over time, tests were also conducted on three subsamples: 4 January 1990 to 31 March 1995, 1 April 1995 to 30 June 2000, and 1 July 2000 to 30 September 2005. This study examined a trend indicator examined in nearly all empirical analysis moving average. Moving Average rules emit buy and sell signals based on the behaviour of short run moving average and long run moving average. Applying the technical trading rules to data on five Asian-Pacific stock Markets, the evidence suggests that a test for weak form efficiency based on selling of trend indicators was noisy and that the alternative test proposed in this study was significantly more effective in capturing the information content in past prices. The study found, however, that the inverse relationship between technical trading profits and time was not established when the practitioner’s approach to technical analysis was applied.

**Park and Irwin (2007)** the purpose of this paper was to review the evidence on the profitability of technical analysis. The empirical literature was categorized in two groups. Early studies indicated that technical trading strategies were profitable in exchange market and futures markets, but not in stock markets. Modern studies indicated that technical trading strategies consistently generate economic profits in variety of speculative markets at least until the early 1990s. Among a total of 95 modern studies, 56 studies found positive results regarding technical trading strategies, 20 studies obtained negative results, and 19 studies indicated mixed results. Despite the positive evidence on the profitability of technical trading strategies, most empirical studies are subject to various problems in their testing procedure C.S. data snooping, ex post selection of trading rules or search technologies, and difficulties in estimation of risk and transaction costs. Future
research must address these deficiencies in testing in order to provide conclusive evidence of the profitability of technical trading strategies.

**Sehgal and Gupta (2007)** study evaluated prominent technical tools for 69 large Indian companies for the period January 1, 1999 to December 31, 2004. The empirical results suggested that technical analysis provide statistically significant returns for all the nine technical indicators on gross return basis during the entire study period. The technical tools perform better during bull phases compared to bear phase of market cycle, however, they do not beat SBH starting in either of these phases. The return generated by technical analysis was not economically feasible for any of the industries as none of the technical indicators could outperform the SBH strategy. DI gives statistically significant return in six industries followed by MACD and VO in four industries. Combining corporate fundamentals with technical analysis, we generated statistically significant returns for portfolios having small size and value stocks as compared to big size and growth stocks. However, none of the characteristics sorted portfolio was able to beat SBH strategy.

**Tripathi (2008)** examined the relationship between four company fundamental variables (viz. Market capitalization, book equity to market equity ratio, price-earnings ratio and debt equity ratio) and equity returns in the Indian stock market using monthly price data of a sample of 455 companies forming part of S & P CNX 500 index over the period June 1997 to June 2007. The results was that market capitalization and price earnings ratio have statistically significant negative relationship with equity returns while book equity to market equity ratio and debt equity ratio have statistically positive relationship with equity returns in India. The study further investigated wealth. The inclusion of any one or more of the fundamental variable can better explain cross sectional variations in equity returns in India than the single factor CAPM.

**Marshall, Young, and Cahan (2008)** tested the profitability of candlestick technical trading rule in the Japanese capital market through the study ‘Are Candlestick Technical Trading Strategies profitable in the Japanese Equity Market’. They used daily price data from the Pacific Basin capital Market Research Center (PACAP) for the period 1st January, 1975 to 31st December,
2004. They examined the largest 100 stocks that were listed on the Tokyo Stock Exchange (TSE) over the entire period of 30 years. They found, no evidence candlestick technical analysis was profitable when applied to the largest 100 stock listed on TSE over the period 1975 to 2004, period even prior to adjustment for transaction costs. Candlestick analysis is not profitable for a majority of stock for any of the sub-period or in bull or bear markets. This study suggested the popularity of candlestick charting in Japan due to links with Japanese culture rather than the profits it generated for investors.

Nyonna (2008) examined the intraday spread, volume, and volatility patterns of NASDAQ-listed stock on trading days surrounding holidays through the study ‘Intraday Behavior of BID-Ask Spread on NASDAQ Stock on Trading Days around Holidays’. For the sample purpose he took 1924 NASDAQ stocks with four-letter tickers that traded continuously from July, 2003 to July, 2005. He found that mean pattern of Bid-Ask spreads were highest at the open of trading, decline sharply during the first few months of trading and remain relatively constant till about two hours before closing when they slightly. Finally, he showed through this study that electronic communication network participation on NASDAQ-listed stocks around holidays was lower than on regular trading days. As a result the spread determination process in Nasdaq-listed stocks around holiday trading was dominated by the NASDAQ market makers. He also found that NASDAQ dealers intensify their quoting activity when there was a decline in electronic communication network quoting pattern.

Ince and Trafalis (2008) presented an approach for short term stock price prediction based on technical indicators. For this purpose a study was made by them on the topic ‘Short Term Forecasting with Support Vector Machines and Application to Stock Price Prediction’. They used two different models Support Vector Regression (SVR) and Multi Layer perceptron (MLP) to explain the relationship between stock price and technical indicators. They had observed a non-linear and highly correlated relationship between current and previous relationship indicators and underlying stock prices. This relation had been exploited by using those indicators as the input variable for SVR and MLP techniques then they had; compare these methods with a pure time series technique.
which is called ARIMA. The relationship from technical analysis comparison showed that SVR outperformed the MLP Network for a short term prediction in terms of the mean square error. If the risk premium is used as comparison criterion, then the SVR technique is as good as the MLP method or better. Finally, they suggested that, performance of a forecasting technique depend on the trading strategy.

Chong and Ng (2008) examined two oscillators the moving average convergence-divergence (MACD) and the Relative Strength Index (RSI) to see if these rules were profitable. Using 60 years data on the London stock exchange FT 30 index. It was the longest UK index and the sample period is from July 1995 to January 1994. To avoid the problem of data snooping, authors split the whole sample into three fairly long sub samples, namely 1935-1954, 1955-1974, and 1975-1994. Each subsample contains about 5000 observations. Daily closing prices within this period were adopted for analysis. It is found that the RSI as well as the MACD rules can generate returns higher than the buy and hold strategy in most cases.

Krausz, Lee, and Nam (2009) explored a possible link between an asymmetric dynamic process of stock returns and profitable technical trading rules. Using Pacific Basin stock market indexes, the authors’ show that the dynamic process of daily index returns is better characterized by nonlinearity arising from an asymmetric reverting property, and that the asymmetric reverting property of stock returns was exploitable in generating profitable buy and sells signals for technical trading rules. The paper showed that the positive (negative) returns from buy (sell) signals were consequences of trading rules to exploit the asymmetric dynamics of stock returns that resolve around positive (negative) unconditional mean returns under prior positive (negative) return pattern. The results collaborated the arguments for the usefulness of technical analysis.

Haastreest and Pelsser (2009) dealt with the pricing of stocks, foreign exchange and inflation options under stochastic interest ratios and volatility. They considered a generic foreign exchange framework for the pricing of foreign exchange framework for the prancing of foreign exchange, inflation and stock options. Moreover they allowed for a general correlation structure between the drivers of the
volatility, the inflation index, the domestic (nominal) and the foreign (real) rates. Having the flexibility to correlate the underlying foreign exchange/inflation/stock exchange with both stochastic volatility and stochastic interest rates yields a realistic model which was of practical importance for the pricing and hedging the option with a long-term exposure. They drive explicit option pricing formulas for various securities, like call/put options, forward starting options, inflation indexed swaps and inflation cap/floors. Finally, this told the numerical quality of this approximation and considers a calibration example to foreign exchange market data.

**Aggarwal and Gupta (2009)** investigated if accounts based fundamental analysis strategy can help investors earn excess returns on portfolio of high book to market companies in India. The strategy adopted was based on Piotroski (2008) who identified 9 fundamental signals to form a composite score (f-score) capable of separate but ex-post winner from losing among high book-to-market composition the US stock market. However, it was not clear whether the result of such a strategy could be directly applied to Indian stock market. This was so because there was evidence that market efficiencies in India is at the most week form. Also, during the 1990s when the trading and investments were mostly domestic, the markets weathered scams like the Harshad Mehta and Ketee Perech scam. The research was carried out for the period of financial year ending 2003 to financial year ending 2007. As on 31st march 2004, all the companies listed on the national stock exchange were arranged in descending order of book to market radiocasting the CMIE database prowess. In the study 104 capping were selected. All the nine fundamental indicates were calculated for all those companies using financial statements for the financial year 2003 and 2004 and the composite f-score was arrived using the f-score framework from piotroski (2000) but a different approach to portfolio formation (for practical purpose). Research found convincing evidence that fundamental analysis based investor strategy for high boot to market companies and separate winners from eventual losers. The study showed that portfolios with high f-score (7 to 9) provided excellent returns for superior to market returns and risk-adjusted returns. Portfolios with low F-score (0 to 3) offered very poor returns and often underperformed the markets or required risk adjusted returns. A value
investor could shift distribution of returns rightwards by influencing only high f-score companies. Shorting low f-score could further enhance returns.

**Marshall, Qian, and Young (2009)** investigated whether the popularity of technical trading rules with practitioners is due to their profitability on a small subset of stocks with certain size, liquidity and industry characteristics. The data for this study was obtained from the center for research in Security Prices (CRSP) database and included all stocks listed on NYSE and NASDAQ markets over the period 1990 to 2004. For the core results the authors include only those stocks that were listed at both the beginning and the end of the period to keep the methodology manageable. The authors found that there rules were not profitable when applied to the vast majority of stocks. The result was robust to different time periods and different markets (NYSE and NASDAQ). There was some evidence that these trading rules were more profitable on small, illiquid stocks, but this result was not strong. The papers did not find any link between a firm’s industry and the profitability of technical analysis. There was no evidence of any industry bias in applying these rules and when a rule did produce statistically significant profit on stocks, these profits tend to be greater for longer decision period.

**Bistrova and Lace (2009)** The main target of the research paper was to discover the importance of fundamental analysis on the Baltic Equity Market. This study was done on the basis of the fundamental and trading data of companies that were components of the main Baltic Equity Market benchmark ONXBBGI, making 45 companies a corpus of the research. The period examined in the course of the study was January 2000 to November 2008. The data used in the research was originated from corporate annual reports and from OMX homepage. Monthly closing share prices were used. The hypothesis that fundamental analysis was not able to generate sustaining addition value to the performance of the portfolio comprised of Baltic enterprises stock was proved. The relevance and need of the fundamental analysis was checked by analyzing the performance of portfolios, which were created on the basis of key fundamental ratios: ROE, Equity Ratio, ROIC, Net debt to assets as well as PE and BE. The companies with better than average ratio were selected from stock portfolios. The finding of the study demonstrates that neither of the mentioned ratios helped in the creating portfolios,
performance of which would beat market performance. The only exception price to earnings ratio, which proved that cheap companies seem to be attractive to the investors. The recommendations to the investors in Baltic equities would be to analyze the growth potential of the companies and to put more emphasis on company’s expected earnings income, while also considering the valuation of the companies, basing investing decisions of PE ratios. The results of this study would provide certain orientation when deciding on the assets allocation. It would be advisable to analyze longer time period and particularly to focus attention to the time span when the global liquidity crouch started to influence equity market.

**Bettman, Sault, and Schultz (2009)** The present paper propose an equity valuation model integrating both fundamental and technical analysis and, doing so, recognize their potential and complements rather than as substitutes. The authors used a dataset pertaining to US listed companies that spans the period January 1983 through December 2002 inclusive, without initial sample comprising the universe of companies for which all necessary data was available. The authors fit a two factor fundamental model, relating price to the book value per share and current earnings per share. Testing confirms the complementary nature of fundamental and technical analysis by showing that, although each perform well in isolation, models integrating, both have superior explanatory power. The integration of both analyses in equity valuation, models sees considerable increases in adjusted r square value and marked drops in corresponding AIC figure, with the significance of study result further verified by the highly significant result of likehood ration testing. The findings of this study were related to valuing shares, the complementary nature of fundamental and technical analysis has implications in the context of other valuation.

**Agu and Agu (2010)** showed the relationship between stock pricing and behavior of the stock market on one hand and micro and macroeconomics fundamentals in Nigerian economy. on the other hand fundamental values of the ASPI are driven by monetary and relative price variables, actual values were driven by external sector variables and prices, output was largely insignificant either for fundamental or actual movement in the ASPI. In this study primary and secondary data was used. A survey instrument which aims at eliciting information on the causes and impact of the fall in
key market indices was designed and administered on a select numbers of market operations, regulators, employees of quoted firms, investors and other stakeholders. For the secondary data the publication of Nigeria stock exchange, the central bank of Nigeria and other major institution in the country will be used. The primary data was analyzed using a censored logistic model while the secondary data was modeled using an error correction approach. The long value of the all share price index in the time series model was obtained using a single equation approach that relates the dependent variables to fundamental values of its core explanatory variables. Two equations were therefore estimated, the first showing the relationship of this long run all share price index with major indicators in the economy and the second showing the relationship of the actual value of the all share price index with same set (or argument sets) of indicators. Data from the primary survey indicate that the key drivers of share prices, particularly for the boom period were neither broad macroeconomics indicators (through such factors as inflation rate and macro instability are noted to affect it) nor key indicators of the health of the firm. Prices were clearly shown to be much above levels that could have been determined by firm fundamentals from the secondary data, authors find that while

Lai, Chen, and Huang (2010) investigated common psychological biases, namely, the “disposition”, information- cascade”, “anchoring” effects, on market trading activity surrounding technical signals. This study examined TSE- listed firms covering the period from January 1987 to March 2008, with all stock price series being adjusted for dividends. The data were collected from the Taiwan Economic Journal (TEJ) database, with the sample including 690 firms and a total of about 2 million samples of daily prices and volume data. The sample of all TSE$ listed firms is further divided into three equity groups based on the 30 percent and 70 percent break points of capitalization raking: the lowest 30 percent (same cap firm), middle 40 percent (mid cap firms), and highest 30 percent (big Cap Firms). The two popular types of technical analysis employed in the study were the “moving average” (MA) and “trading range break out” (TRB) rules. To determine whether the psychological biases of investors will affect their trading decisions when faced with technical signals. For this purpose four hypothesis were addressed in the study. Authors found that the trading performance levels of buy
signals versus sell signals, big cap versus small cap, and even MA rules versus TRB rules were quite divers, with the empirical results revealing that the “disposition” and “anchoring” effects, along with the personal psychological biases of traders, all play crucial roles in these performance differentials. The results should help to further light on the asymmetric market responses to technical buy and sell signals, while also providing some potential clarification of somewhat different potential clarification of different attitudes of traders towards big caps and small caps firms.

Droms (2010) examined a new approach to constructing index fund gaining increasing prominence in the never-ending debate over active versus passive equity management. As total assets invested in fundamental index mutual funds approach $8 billion, personal financial planners and private wealth manager can expect to receive more inquires from their clients about this relatively new phenomenon. In contrast to conventional index funds weight, the percentage allocate of each stock in the index is based on “fundamental” factor, such as total dollars of earnings or dividend paid, rather than simply market capitalization. Whether or not fundamental indexing was a valuation in theory, the intuitively appealing logic in favor of fundamental index funds to date should command the attention of individual investors and their advices. Since the first FTSE RAFI 1000 fundamental index fund was launched in December of 2005, FTSE RAFI and wisdom tree fundamental index funds have attracted more than $7.5 billion of investments in mutual funds and exchange traded funds (ETFs) dedicated to the fundamental index strategy on the institutional side, institutional investors have more than $22 billion invested that follow the Research Affiliates’ fundamental index models. The extraordinary success of this new investment concept most likely flows from the fact that fundamental indexing make as an opportunity for risk reduction and return entailment. Fundamental indexing to prove to be a viable investment option for many years to come.

Mona, Ahmad, and Fayssal (2010) investigated the static and dynamic relationship between annual stock returns, dividend yield, PE ratio and total assets. A sample of 24 companies listed in the Amman Bursa was selected. The annual average value for the suggested variables from 1980 to 2006 was calculated. A dynamic model of
stock return using Vector Error correction model (VECM) representation of Engle and Granger (1987) was applied with the insight that even though stock returns, dividend yield, PE Ratio and total assets were non-stationary they may be co-integrated. The results showed that there is long run equilibrium between dividend yield, PE ratio, size and the return on the stocks of Jordanian companies. The findings of this study indicated that, the Jordanian stock market suffers from informational inefficiencies and investors can apply investment criteria that utilize PE and size anomalies to earn abnormal return.

**Choua (2011)** made a study on ‘Information Trading around Open Market Share Repurchases: Evidence from the Taiwan Stock Exchange’. They examined the risk of information trading around share repurchase on Taiwan stock exchange (TSE). Their samples were the repurchasing firm on TSE from August, 2000 to July, 2005. They found that, the share repurchase events in Taiwan, the risk of information trading is influenced by the probability of new information events occurring, as well as the trading intensities of informed versus uninformed investors. The risk of information trading significantly increased during the repurchase execution period and decreases during the past-expiration period. During the execution period, the possibility of information event occurring increased and the trading intensity of uninformed trading decreased. It implied that, as new information event occur more frequently during the execution period; same cautious uninformed traders temporarily face higher probability to trade with informed traders.

**Mitra (2011)** analyzed the profitability of moving average based trading rules in the Indian market through the study on ‘How rewarding is Technical Analysis in the Indian Stock market?’ He used four stock index series in this study, like: - S&P CNX Nifty, CNX Nifty Junior, CNX IT Index for the period 1st January, 1998 to 31st March, 2008. The study found that, most technical trading rules were able to capture the direction of market movement reasonably well and give significant positive returns both in long and short position. But these returns cannot be exploited fully due to real world transaction costs. Although the transaction cost has come down over the years, various components of transaction costs due to bid-ask spread, brokerage, etc. will never be zero. The trading rules
based on short moving average may be able to detect in financial series very quickly, but those rule also generate a large numbers of trade causing higher transaction costs. Thus, technical trades have to pay more attention to minimizing transaction cost while choosing a trading rule. Nevertheless, profit opportunities from technical analysis continue to remain an interesting and debatable issue in the Indian stock market.

Zafar, Chaubey, and Sharma (2011) made a small study on ‘Indian Social Sector Banks’ by taking the aspects of fundamental analysis. They used operating profit margin, net profit margin, earning per share, dividend per share, D/P ratio and price-earnings ratio in their study. Further analytical tools on return on net worth, current ratio, debt equity ratio and fixed assets turnover ratio were also used by them to find out the fundamental results of five banks (i.e., PNB, SBI, OBC, AB and BOI). They found that these above given ratio play a significant role in making the investment decision by the different categories of investors. In their findings, OBC was observed most efficient in the context expenses and high operating profits. It was noticed by them that the quality of banks’ asset was deteriorating marginally.

Bhardwaj, Raheja, and Priyanka (2012) The paper examined the profitability of Maruti Suzuki Ltd. and Tata Motors Ltd. on the basis of Fundamental analysis tools. The paper covered five years period 2005-06 to 2009-10. Authors used ROI, ROE, GP Ratio, NP Ratio, OP Ratio, EPS, DPS and Dividend Payout Ratio to examined the profitability. Authors used Average, S.D and C.V to analyze the data. The research found that Maruti Suzuki Ltd. was more profitable than Tata Motors Ltd. Maruti Suzuki has more ROI but Tata Motors has more ROE in all years. The EPS of Maruti Suzuki was high as compared to Tata Motors but the DPS and Dividend Payout Ratio were not as much of Tata Motors.

Research Gap and Justification of the study: After review of literature, it was found that many studies have been made on technical analysis to gain about the capital market, to know technical traders and trading strategies, to examine the ability of technical indicators to predict future movements of the stock market, to evaluate the efficiency of technical analysis, to know the profitability of technical
trading rules, profitability of moving average based trading rules, technical analysis profitability for currencies prices and examined the oscillators. Many studies have also been made on fundamental analysis to know fundamental variables and equity returns, GDP growth and stock returns, macroeconomic factors and stock market, importance of fundamental analysis, relationship between company fundamental variables, fundamental analysis and abnormal returns and role of fundamental analysis in the stock market. But, no study has been made on Application of Ralph Nelson Elliott Wave theory. Many research works had been made on technical and fundamental in foreign capital markets. But in Indian context, a little research had been made on technical and fundamental analysis and separate research work has been done on technical and fundamental analysis. Therefore, the present study entitled “technical and fundamental analyses of sensex representative companies” has been conducted to solve the problem.
References


