Chapter - II
CHAPTER-II

REVIEW OF LITERATURE

2.1 INTRODUCTION

In order to find the research topic, an attempt was made by the researcher to review the research work made by the scholar in this area, especially, research on future and options has been studied in this chapter to have a greater insight into the subject of this study. An analysis of the studies already made on the prospects and the problems relevant to the current work, which were referred by the researcher, are presented in this section and it deals with studies on emergence of future and options in capital market on it.

Ferguson (1989)¹ in his article entitled “On crashes” discussed the principles of behavioural psychology that can explain how crashes occur. In particular, the concept of stimulus generalization tells us that organisms tend to respond in the same way to stimuli. In a crash, or pre-cash context, several stimuli-including rising prices, above-average equity allocations and prices perceived as excessive in relation to fundamentals are aversive because they have been associated with prior market crashes they induce escape behaviour on the part of some investors; that is, these investors sell stock. The sale of equities and consequent lower stock prices are particularly aversive to other investors, whose

¹ Robert Ferguson “On crashes” Financial Analysts Journal; Mar/Apr 1989; VOL15,NO.2; Pg.12.
escape behaviour ceases; selling ceases; the crash ends. Economists are trying to approximate such behaviour with a new economic model that distinguishes between value-based investors and portfolio insurers. In this model, a market dominated by value-based investors is characterized by the traditional economic model.

Rubinstein (1990)\(^2\) in his study entitled “Market Basket Alternatives” revealed that several exchange and government-sponsored studies of the stock market crash of 1987 pointed, rightly or wrongly, to program trading as one of its accessories. At the same time, they have accepted the growing need for financial institutions to trade large diversified portfolios of assets, and they called for innovation to find some means of preserving this benefit while reducing the potential for these trades to destabilize the market. This article examines alternative methods to facilitate simultaneous execution of trades of a large standardized diversified portfolio of stocks.

Boyle and Tse (1990)\(^3\) in their study titled “An Algorithm for Computing Values of Options on the Maximum or Minimum of Several Assets” developed for computing the values of European options on the maximum or the minimum of several assets. In this process accuracy and speed of the parameter are ascertain

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\(^3\) Phelim P. Boyle and Y.K. Tse “An Algorithm for Computing Values of Options on the Maximum or Minimum of Several Assets” School of Accountancy, University of Waterloo, Waterloo, Ontario N2I, 3GI, Canada, and University of Illinois, Urbana-Champaign: Second author, Department of Economics, National University of Singapore, Singapore 0511 and University of Illinois, Urbana-Champaign. This paper was written while both authors were visiting the University of Illinois. Journal of Financial and Quantitative Analysis; Jun 1990; 25, 2; VOL.25, NO.2, Pg. 215
very fast. The approach casts the problem in terms of order statistics and can be used to handle situations where the initial asset prices, the asset variances, and the co-variance are all unequal. Numerical values are given to illustrate the accuracy of the method.

Molony, Loughlin and Ambrose (1993)\(^4\) in their study entitled “Ireland provides the option of a future in FSC” explained that the rapid growth in the derivative products markets in recent years has given rise to the development of collective funds investing in these markets. Collective investment offers a number of advantages to the investor wishing to participate in the derivatives markets. These include the ability to rely on the specialist investment advice of the fund manager in a sophisticated market, the application of the principle of risk spreading in a multiple product – multiple investor fund and reliance on the regulation of the fund by an investor protection body.

Until recently, many regulatory bodies refused to permit derivative funds to the market their products other than to large professional investors. However, there are now regulatory regimes in most investment markets which allow derivative funds to operate in a tightly regulated fashion. The interactions among these different regimes and the continuous development of ever more sophisticated instruments have greatly complicated the operations of the relevant tax rules.

\(^4\) Molony, Ronan; Loughlin and Ambrose “Ireland provides the option of a future in FSC” International Tax review; Jun 1993; VOL4, NO.7; Pg.33
This study discusses some of the more important financial instruments and the key US tax issues associated with their use. In addition to the more traditional financial instruments such as debt, forwards, and options many new instruments have been, and continuous to be created to address particular financial challenges. Among these are so-called derivative such as interests rate swaps, currency swaps, and various forms of caps collars, floors and collars.

John (1995)\textsuperscript{5} in his study entitled “The options pricing model” explained an investment’s value has many tangible and intangible dimensions. One aspect of the value of a pilot project, a joint venture, or an R&D program is the option that it spontaneously creates. This option allows the investor the right, and the freedom, to participate in and exploit this option at some time in the future, or alternatively to let it expire. The option value of many capital projects probably isn’t worth computing. It is particularly, valid, however, when there is a far-off payoff on a capital project, plus unreliable predictions of cash flow. This combination exacerbates the problems of standard discounted cash flow, whose models have trouble handling information concerning future investment decision points.

The option pricing model stress that it is only an approximation of a true option. Options only make sense under special circumstances. The value of the

\textsuperscript{5} Thackray John “The options pricing model” Planning review, may/june 1995; VOL23;NO.3;Pg.19.
flexibility involved in a deferred investment may be irrelevant when a company faces competitive pressures that demand instant exploitation, for instance, when the price of waiting could be loss of market share.

**Fleming (1998)** in his study titled “Economic significance of the forecast bias S&P 100 index option implied volatility” analysed number of recent papers found that the volatility implied by index option prices significantly overstates future stock market volatility. He investigates whether this bias is purely due to measurement error and model misspecification, or whether the bias is also apparent in option market prices. Accomplish this by examining the profits for trading strategies designed to exploit the apparent bias. Ignoring transaction costs, the strategies consistently earn significant positive profits, which indicates the bias is indeed a function of option prices. The degree of bias, however, does not signal market inefficiency because the profits disappear once it has imposed bid/ask transaction costs.

**Robot and Michelle (1998)** in their study entitled “Ahead to more future” proposal for these instruments have been submitted to the commodity future trading commission for review and final regulatory approval should come late in 1998 with plan to start the contracts in early summer 1998. The dead line in long term interest rates that begin early in 1996 and continued through March 1997

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6  Jeff Fleming “Economic significance of the forecast bias S&P 100 index option implied volatility” Jones Graduation School of Management Rice University April 18, 1998.
7  Palazola, Robot L and Campbell, Michelle “Ahead to more future” Mortgage banking, April 1998, VOL. 48.NO.7.Pg. 23
stimulated already healthy mortgage markets. While issuance of mortgage securities declined slightly in 1997, production during the year was still extremely strong however organisation of mortgage securitization and trading are all highly risky undertaking during the past few years. The treasury basis has gone through a numerous gyrations, sometimes making hedging as precious as holding naked mortgage position.

Chamberlain et al (1999) in their study entitled “I Expiration – day effects of index future and options” analysed stock market crash of October 1987, injected a sense of urgency into the discussion of whether and to what extent trading in stock index future and options affects the price volatility and trading volume of the underlying stock market. Much of this discussion has focused on the unusually large fluctuations in stock prices and increase in trading volume that sometimes occur during the so called triple witching hour – the period immediately preceding the simultaneous expiration of stock index future, index options and options on index future. Some people attribute this price and volume activity to program trading associated with index future arbitrage and the order imbalances arising from the unwinding of the cash positions when options or future expire. The expiration day effects of index future and options on the stock market appear to have been uniquely as American phenomena. The possibility of similar effects in other countries has received almost no attention, despite the

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global proliferation of index related products. This study, following Stoll and Whaley’s work on the US market, examines the expiration day volume and price behaviour of the leading Canadian stock index the Toronto Stock Exchange.

**Gaarder et al (2000)** in their study entitled “Closed form Valuation of American Barrier Options” revealed that closed form formula for European barrier options are well known from the literature. This is not the case for American barrier options, for which no closed form formulae have been published. One has therefore had to resort to numerical methods. Using lattice models like a binomial or a trinomial tree for valuation of barrier options is known to converge extremely slowly, compared to plain vanilla options. Methods for improving the algorithms have been described by several authors. However, these are still numerical methods that are quite computer intensive. The study showed how American barrier options can be valued analytically in a very simple way. This speeds up the valuation dramatically as well as gives new insight into barrier option valuation.

**Kofman (2001)** in his study entitled “Migration of Price Discovery with Constrained Future Markets” investigates the information content of future option prices when the future price is regulated while the future option price itself is not. The New York Board of Trade provides the empirical setting for this type of

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10 Anthony D. Hall Paul Kofman “Migration of Price Discovery with Constrained Future Markets” Two American Lane, Greenwich, CT 06836, USA Phone: (203) 861-4838, Fax: (203) 625 8676 e-mail ehaug@paloma.com February 10, 2000.
dichotomy in regulation. Most commodity derivatives markets regulate prices of all derivatives on a particular commodity simultaneously. NYBOT has taken an almost unique position by imposing daily price limits on their future contracts while leaving the options prices on these future contracts unconstrained. The study takes a particular interest in the volatility and future prices of the options-implied risk neutral density when the underlying future contract is locked limit.

Chandra (2002) in his articles entitled “Foreign Institutional Investment in the Indian equity market – An analysis of daily flow during January 1999 to May 2002” on the performances of the emerging equity markets vis a vis their matured counterparts in the developed world have shown repeated reversals in recent times; in the pre-Mexican crisis period (1990-1994), most of the emerging markets performed much better compared to the matured markets in terms of both return and associated risk, while the pattern reversed during 1995-2001 (a period affected by the Asian crisis). In the recent past emerging markets (those of Asia and Latin America, in particular) have shown a remarkable recovery, in terms of both the level of return and risk, while the matured markets have experienced drop in return and rise in risk.

This paper explore the relationship of Foreign Institutional Investment (FII) flows to the Indian equity market with its possible covariates based on a time

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series of daily data for the period January, 1999 to May, 2002. Here tries to identify the relevant covariates of FII flows in and out of the Indian equity market and also to determine the nature of causality between the relevant variables. The study incorporates into the analysis variables that appear, a priori, to be the primary determinants of global investors' demand/supply for/of stocks in the Indian market.

To fully reap the benefits of capital market integration, in India (and other countries having thin and shallow equity markets) the prime focus should be on regaining investors' confidence in the equity market so as to strengthen the domestic investor base of the market, which in turn could act as a built-in cushion against possible destabilizing effects of sudden reversal of foreign inflows.

**Bandivadekar and Ghosh** (2003)\(^{12}\) in their study entitled "Derivatives and Volatility on Indian Stock Markets" analysed derivative products like future and options on Indian stock markets have become important instruments of price discovery, portfolio diversification and risk hedging in recent times. These studies identify the impact of introduction of index future on spot market volatility on both S&P CNX Nifty and BSE Sensex using ARCH/GARCH technique. The empirical analysis points towards a decline in spot market volatility after the introduction of index future due to increased impact of recent news and reduced

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effect of uncertainty originating from the old news. However, further investigation also reveals that the market wide volatility has fallen during the period under consideration. Surrogate indices like BSE 200 and Nifty Junior are introduced to evaluate whether the introduction of index future has been instrumental in reducing the spot market volatility or the volatility has fallen in line with general fall in market wide volatility. The results using these surrogate index show that while the ‘future effect’ plays a definite role in the reduction of volatility in the case of S&P CNX Nifty, in the case of BSE Sensex, where derivative turnover is considerably low, its role seems to be ambiguous.

**M. T. Raju and Kiran Karande (2003)** in their paper entitled "Price Discovery and Volatility on NSE Future Market" analyses the price discovery and volatility in the context of introduction of Nifty future at the National Stock Exchange (NSE) in June 2000. Co integration and Generalised Autoregressive Conditional Heteroscedasticity (GARCH) techniques are used to study price discovery and volatility respectively. The major findings are that the future market (and not the spot market) responds to deviations from equilibrium; price discovery occurs in both the future and the spot market, especially in the latter half of the study period. The results also show that volatility in the spot market has come down after the introduction of stock index future.

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Guhathakurta et al (2003)\textsuperscript{14} in their study titled "Investigating presence of Nonlinearity in Indian Commodity Markets" identifying there are many evidences of nonlinearity in developed markets, there has not been many works in this direction in Indian financial markets. In this study they wish to bridge this gap by testing for nonlinearity in the Indian commodity market. They consider the index movements in Indian financial markets. The index under consideration are MCX-COMDEX, MCX-ENERGY, MCX-METAL, MCX-AGRI indices based on trading data from the Multi Commodity exchange of India from June 2005 to August 2010. They take the time series representing the daily log return of the daily close value of the indices as our input value for the tests. They first use the test method developed by Brock, Dechert, and Scheinkman (BDS) and test for nonlinearity in each of the time series. Additionally, we also perform the Keenan’s test for nonlinearity. Another popular non-linear test is the Hinich bispectrum test, which involves estimating the bispectrum of the observed time series. They also use this test to find out whether it detects nonlinearity in these time series. To reinforce the findings we White’s neural Network tests was conducted on the same data set.

Egelkrauta and Garciab (2004)\textsuperscript{15} in their study entitled “Applied Commodity Price Analysis, Forecasting, and Market Risk Management” examine

\textsuperscript{14}Kousik Guhathakurta, Basabi Bhattacharya and Roy Chowdhury \textsuperscript{14}“Investigating presence of Nonlinearity in Indian Commodity Markets” Research Officers in the Department of Economic Analysis and Policy, Reserve Bank of India, Reserve Bank of India Occasional Papers Vol. 24, No. 3, Winter 2003

a simultaneous estimation option-based approach to forecast future prices in the presence of daily price limit moves. The procedure explicitly allows for changing implied volatilities by estimating the implied future price and the implied volatility simultaneously. Using 15 years of future and future options data for three agricultural commodities, they find that the simultaneous estimation approach accounts for the abrupt changes in implied volatility associated with limit moves and generates more accurate price forecasts than conventional methods that rely on only one implied variable.

**Schneeweis and Spurgin** (2004)\(^{16}\) in their study entitled “Managed Future, Hedge Fund and Mutual Fund Return Estimation: A Multi-Factor Approach” identified that the past five years have witnessed a dramatic increase in managed future products whose managers (commodity trading advisors) trade primarily in future and options markets, they are available to the retail public as well as in hedge funds. They invest in both cash and future markets simultaneously and which are structured primarily for pool investment and not for public sale. Despite this growth, funds invested in managed future and hedge fund products are estimated to be less than 1% of the over 3 trillion dollar mutual fund industry. In this paper, various factors are chosen to capture managed future and hedge fund trading styles and investment markets, are used to explain managed future and hedge fund performance.

\(^{16}\) Thomas Schneeweis and Richard Spurgin “Managed Future, Hedge Fund and Mutual Fund Return Estimation: A Multi-Factor Approach” Professor of Finance, University of Massachusetts and Assistant Professor of Finance, Clark University.
Results indicate that technical trading rule and market momentum variables are shown to explain managed future return. In contrast, technical trading rules are shown to be less helpful in explaining return movements in traditional stock and bond funds. Their returns are consistent with long positions in underlying cash markets, and hedge funds whose trading style is often based on capturing undervalued stock or bond investments.

Shenbagaraman (2005)\(^{17}\) in his study entitled “Do Future and options trading increase stock market volatility?” revealed to assess the impact of introducing index future and options contracts on the volatility of the underlying stock index in India. Numerous studies on the effects of future and options listing on the underlying cash market volatility have been done in the developed markets. The empirical evidence is mixed and primarily that the introductions of derivatives do not destabilize the underlying market. The results suggest that future and options trading have not led to a change in the volatility of the underlying stock index, but the nature of volatility seems to have changed post-future. Further, it is examined that whether greater future trading activity (volume and open interest) is associated with greater spot market volatility. They find no evidence of any link between trading activity variables in the future market and spot market volatility. The results of this study are especially important to stock exchange officials and regulators in designing trading mechanisms and contract specifications for derivatives.

\(^{17}\) Dr. Premalata Shenbagaraman “Do Future and options trading increase stock market volatility?”
Sehgal and Tripathi (2005)\textsuperscript{18} in their study entitled “Size Effect in Indian Stock Market: Some Empirical Evidence” made an ascertain attempt to the size effect in Indian stock market. The data comprises of top 482 Indian companies for the period 1990-2003. They find a strong size premium using six alternative measures of company size viz. Market capitalization, Enterprise Value, Net Fixed Assets, Net Annual sales, Total Assets and Net Working Capital. Further, the size based investment strategy seems to be economically feasible as it provides extra normal returns on risk adjusted basis. Frequent re-balancing of size based portfolio is however found to be undesirable. The size effect does not seem to be owing to any seasonality or business cycle factors. This study has strong implications for mutual funds managers, investment analysts as well as small investors who are continuously on lookout for trading strategies that beat the market. The presence of a strong size premium also raises doubts about the informational efficiency of Indian equity market.

Pan and Poteshman (2005)\textsuperscript{19} in their study entitled “The Information in Option Volume for Future stock Prices” analysed the present strong evidence that option-trading volume contains information about future stock prices. Taking advantage of a unique data set, they have construct put-call ratios from option


\textsuperscript{19} Jun Pan and Allen M. Poteshman “The Information in Option Volume for Future stock Prices” MIT Sloan School of Management and NBER and University of Illinois at Urbana-Champaign
volume initiated by buyers to open new positions. Stocks with low put-call ratios outperform stocks with high put-call ratios by more than 40 basis points on the next day and more than 1% over the next week. Partitioning the option signals into components that are publicly and non publicly observable, The author found that the economic source of this predictability is non public information possessed by option traders rather than market inefficiency, and it also found that greater predictability for stocks with higher concentrations of informed traders and from option contracts with greater leverage.

This article examines the informational content of option trading for future movements in underlying stock prices. This topic addresses the fundamental economic question of how information gets incorporated into asset prices and also of obvious practical interest. Their main goals are to establish the presence of informed trading in the option market and also to explore several key issues regarding its nature.

Mercator et al (2006)\textsuperscript{20} in their study entitled “The Information in Option Volume for Future Stock Prices” assess the viability of a range of conventional and innovative options for financing investments and operations of highway and transit systems. Such options can help to reduce the gap between the funds being generated by currently used financing methods and government agencies

estimated needs for funds. The report will be useful to senior federal, state, and local government officials and other policy makers. The challenges which the government officials and other policy makers face in their efforts to secure sustainable resources and means for financing the nation’s transportation system are immense. Demand is expanding, and its patterns are shifting, exceeding the existing system’s capacity. Current options (for example, user fees, tolls, bonding, and use of general revenue) are unlikely to meet well-documented future resource needs; the Federal Highway Trust Fund is not able to keep pace with even the currently authorized highway and transit programs.

**Macovsich and Pinon (2006)**

In their study, Macovsich and Pinon titled “A Bull Call Spread as a Strategy for Small Investors” revealed that opinions with non-linear payoffs flexibility to investors, but there are few closed formulas known for linropean options with non-linear payoffs an adopted decomposition of the payoff can facilitate pricing with closed form formulas they show that it is possible to price a polynomial opinion by expressing in as a compensation of several power with adopted strikes.

**Jorgensen et al (2006)**

In their study entitled “Stock buybacks and their association with stock options exercised in the ITI industry” revealed that the securities and Exchange Commission (SEC) has grown in size and shape.

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The implementation of Sarbanes-Oxley (SOX) and the globalization of accounting standards have increased the sec’s work load and brought forth important question regarding the development and application of accounting and auditing standard setting and regulation. This study identifies key issues of importance to the SEC including recode level of restatements, SOX implementation, and the back dating of stock options as it relates to see speeches and rulemaking, drawing upon experience of 2005-2006.

Hurt et al (2006)\(^{23}\) in their study entitled “Recent developments at the securities and exchange commission – academic contributions and opportunities” explained one of the most complex and controversial issues confronting the financial accounting standards board (FASB) over the last several years has been the accounting and financial reporting of stock options, in December 2004, the FASB issued statement 123R.share –based payment, in hope that the long process of revising the accounting and financial reporting for stock options will be put to rest. FASB statement 123R requires the fair value based method of accounting of share based payments in order to offset the dilutive effects of generous stock option compensation packages for employee, companies are seemingly participating in stock purchase planes Companies have, however, disbursed that there is a direct relationship between exercised stock options stock buyback transaction nevertheless, several articles and studies have found that there is a

relationship and the FASB seems to believe that there is an association between stock buybacks and stock options, as statement 123R requires that companies disclose the relationship between stock payment programmes.

Heinemann (2006) in his study titled “A Bull Call Spread as a Strategy for Small Investors” revealed that options trading have drawn attention from investors as a viable choice for investment. Numerous books have been written, many different software programs have been developed, and quite a few websites have been designed to educate and attract potential investors to options. Unfortunately, these valuable information vehicles have developed a misconception among ordinary investors by emphasizing the profit opportunity without fully explaining the downside risk. Using the call options on the dow Jones industrial average stock, this study investigates whether so-called easy strategies, such as bull call speared is hardly profitable for ordinary investors, confirming that an option trading is truly risky.

Apostolou and crumpley (2006) in their study entitled “Accounting for stock options” analysed that a decade after beading to congressional pressure and backing away from requiring the expensive of options on financial statements, FASB issued a reversal standard to recognize stock –option compensation as an expense on income statements many in congress may try to thwart the proposal before it becomes effective.

Schied (2007)\textsuperscript{26} in his study entitled “Optimal investments for risk-and ambiguity-averse preferences: a duality approach” analyse that the characterise investor preferences under aversion against both risk and ambiguity. His result shows that these preferences can be numerically represented in terms of convex risk measures. The study also reveals the corresponding problem of optimal investment over a given time horizon.

Sarangi et al (2006)\textsuperscript{27} in their paper entitled "Impact of future and options on the Underlying Market Volatility: An Empirical Study on S&P CNX Nifty Index” provide a theoretical background to and empirical evidence of the impact of future and options on the spot market volatility. This study is based on both closing and opening price returns. The sample data consist of daily opening and closing price returns of S&P CNX Nifty, Nifty Junior and S&P 500 index from January 1, 1997 to March 31, 2005. Earlier studies have used different time-series techniques like GARCH, IGARCH, ECM, OLS, etc. to access the impact of derivatives on the spot market volatility. The present study uses family of GARCH techniques to capture the time-varying nature of volatility and volatility clustering phenomenon in the data. The empirical evidence suggests that there are no significant changes in the volatility of the stock market of the S&P CNX Nifty


Index, but the structure of the volatility has been changed to some extent. However, the study has also found that the new information is assimilated into prices more rapidly than before, and there is a decline in the persistence of volatility since the inception of future trading.

**Kumar** (2006)\(^{28}\) in his study entitled “A Study of the Determinants and Impacts of Indian ADRs and GDRs” addresses the following research issues in context of foreign listings by the Indian companies: (a) What are the motivating and deterring factors that influence firms' foreign listing decisions? (b) What considerations may influence managerial choice to foreign list their study on a particular financial market? (c) How the foreign listings by firms affect the returns available from the domestic stocks of the foreign listed firms? (d) How the foreign listings by firms affect the liquidity of domestic stocks of the foreign listed firms? (e) How the foreign listings by firms affect the volatility of domestic stocks of the foreign listed firms? (f) Whether foreign listing of firm's securities improves its access to the external capital markets? (g) Whether foreign listings reduce the investment-cash flow sensitivity of the foreign listed firms?

**Saravanan and Malabika** (2006)\(^{29}\) in their study entitled ”New insights into the impact of future trading on the underlying spot market volatility” analysed


\(^{29}\) Saravanan G and Malabika Deo ”New insights into the impact of future trading on the underlying spot market volatility” Journal of Financial and QuantitativeAnalysis, 25, 441468.
Indian capital market and saw the launching of index future in NSE on June 12, 2000. This launching of future in Indian stock markets was perceived to increase volatility in the stock market by some researchers. At the same time some other researchers anticipated decline in volatility. But, this paper tries in micro level, that is, to study how the volatility implications are there across the days of the week in post future period in Indian stock market. This study also tries to examine the nature of the volatility after the introduction of future contracts. The study has been undertaken with a comprehensive daily data set from January 1, 1996 to March 31, 2007. To measure the volatility GARCH (1, 1) model has been used. The results indicate that the existence of future market have declined lesser degree of volatility in underlying spot market, and volatility implications of Spot Market on Days of the week after the introduction of future contracts, shows and support the volatility reduction, as days and amount of reduction is higher than days and amount of increment in the week after the introduction of future contract. In post future period, information effect has come down and these signals indicate that increased market efficiency in post future period.

**Bose and Mukherjee (2006)**\(^{30}\) in their study entitled “A Study of Interlinkages between the Indian Stock Market and some other Emerging and Developed Market” revealed the liberalization of the Indian capital market and its

integration with international financial markets have grown. Here, they examine the co-
movement of the Indian stock market with developed markets like US, Japan and other
Asian market, using daily data for the period January, 1999 to June, 2004, and tools like
pair-wise and group-wise co-integration and Granger-causality tests. They found that
the US market may not be playing a unique role in integration of Asian markets.
The Indian market had so far not been considered in studies on regional
integration, thus the study yields an interesting result that, excluding the Indian
market from the set of Asian markets leads to no or fewer co-integrating relations;
this indicates a unique role of India in the degree of linkages of these stock
markets during the recent period of more open capital markets, where FII
investments play a key role in synthesizing markets across a region.

Kumar (2007) in his study entitled “Implications of Hedge Funds on the
Indian Capital Market” analysed tall claims that Hedge Funds have been
demystified, the fact remains a big segment of the investment community is not
aware of the risk return permutations that this asset class has to offer. Hedge fund
is not a new terminology for those tracking Indian Capital market at least for the
last 10 years. The interesting part has been the increased acceptance (even by the
regulator) of their presence, in spite of the fact that they are not permitted to 'invest' in
Indian markets. The impact which these funds can have on the financial stability
could be substantial - but like any other coin it has positives and negatives. This study

31 Nikhil Kumar. N “Implications of Hedge Funds on the Indian Capital Market” Goa Institute
of Management, August 20, 2007
investigates the impact of Hedge Funds on emerging Indian financial markets as well as the possible implications of marketing of hedge funds in India.

**Finch, Rue and Volkan** (2007)\(^{32}\) in their study entitled “A Simple Model of Accounting for and Hedging Employee Stock Options” revealed the escalating size of compensation packages to senior managers and investor disillusionment which have resulted in growing calls for the expensing of employee stock options (ESO). While initially slow to respond, the FASB has now mandated the expensing of ESO. The two primary methods used to value ESO, Black-Scholes closed form equation and the lattice model, suffer from several deficiencies. A simple model for valuing ESO that marks the option expense to market in succeeding financial statement dates and allows for the staggered exercise dates of option holders is available. The model which is easy to understand, would have a low cost of implementations it further offers a superior estimate of the true cash flow effects associated with the opportunity cost to shareholders of ESO exercise, and allows for the use of treasury stock to hedge the ESO expense that results.

**Kamat and Kamat** (2007)\(^{33}\) in their study entitled “Sources of Growth in the Indian Economy” investigate the nexus between developments in financial intermediation with the growth in capital market activity and implications for the retail investors in India, over the post-liberalization period ranging 1993-2004.

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\(^{33}\) Dr. Manoj Subhash Kamat and Manasvi Manoj Kamat “Sources of Growth in the Indian Economy” VVM's Shree Damodar College, Goa University, July 14, 2007.
The estimations using unrestricted VAR based on error correction models, both in the short term and the long term models illustrate the short run relationship the time-series properties of stock market development and the new information age nexus. The coherent picture which emerges from Granger-causality test based on vector error correction model (VECM) further reveals that in the long run, stock market development Granger-causes financial infrastructural growth. The author suggested that the evolution of financial sector and in particular the stock market tends to, or is more likely to stimulate and promote economic growth when monetary authorities adopt liberalized investment and openness policies, improve the size of the market and the de-regulate the stock market in with the objectives of macroeconomic stability.

**Bosworth, Collins and Virmani** (2007) in their paper entitled The New Information Age and the Stock Market Growth Puzzle” empirically examine India's economic growth experience during 1960-2004, focusing on the post 1973 acceleration. Careful attention is paid to data quality. The analysis focuses on two unusual dimensions of India's experience -- the concentration of growth in services production, and the modest levels of human and physical capital accumulation. A growth accounting analysis disaggregates by major sector, and highlights implications for aggregate productivity growth of the reallocation of resources out

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of agriculture to more productive activities in industry and services. Increased public saving, as well as a rise in foreign saving particularly FDI could augment the rising household saving and support the increased investment necessary to sustain rapid growth.

**Manmohan Singh** (2007)\(^{35}\) in his paper entitled “Use of Participatory Notes in Indian Equity Markets and Recent Regulatory Changes” focuses on the use of Participatory Notes (PNs) by foreign investors, as a conduit for portfolio flows into Indian equity markets for more than a decade. The broadening of India's foreign investor base, in recent years, has a bias towards hedge funds/unregistered foreign investors who invest primarily via PNs. While tax arbitrage via capital gains tax has almost disappeared since July 2004, it is intriguing to note that since then the demand for PNs has actually increased. The paper suggests some reasons for the continuation of a buoyant market in PNs, and explains the possible impact from the recent regulatory changes.

**Gahlot, Datta and Kapil** (2008)\(^ {36}\) have examined in their research entitled “The Impact of Future Trading on the Spot Market Volatility of Selected Commercial Banks in India” Exponential GARCH model was employed to examine the impact of future trading on spot market volatility of the selected

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twenty-one commercial banking stocks of India. The empirical analysis was conducted for the daily closing price returns of each stock of commercial bank for the different time periods from 1st January, 1996 through 29th May, 2008 and it is retrieved from National Stock Exchange (NSE) website. The analysis reveals that most of the selected commercial banking stocks reveal an introduction of future market declined the volatility of spot market. This is followed by insignificant and positive impact of introduction of future on the spot market volatility of the selected commercial banks in India. Besides, most of the banks are having significant negative and insignificant asymmetric effects of information on volatility of spot prices of selected public and private sector banks respectively.

**Kakani and Chatterjee (2007)** in their paper entitled “The Impact of Future Trading on the Spot Market Volatility of Selected Commercial Banks in India” analysed the recent bull run of the Indian equity markets. Using capital market data and facts, it is found that the recent equity markets bull run is a shallow one, especially, during the last two years. It is observed that this shallowness is due to - (a) Index rally being driven by only a few big stocks with large number of underperformers; and (b) Increasing narrowness of even the broad equity markets. In fact, in the last two years, more than 82% of the gains in BSE Sensitive Index (India's barometer for equity markets) can be explained by a mere seven stocks. The results are not different with even NSE Nifty Index. While the

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foreign institutional investors own investment norms make the funds get concentrated to a few but the problem gets aggravated due to the role being played by the institutional intermediaries (especially the stock exchanges by promoting future and options), government, analysts, and investment bankers in the same and the wide spread inter-linkage among them. This Study explores the above issues and other links which are increasing the shallowness of the Indian equity markets. The above issues aggravate the chances of systemic errors and failures leading to one side movements in the market.

Jain and Sharma (2008)\textsuperscript{38} in his article entitled “Mandatory IPO Grading: Reflections from the Indian Capital Markets” discussed the Capital market regulators who have hitherto insisted on a disclosure based regime, with respect to Initial Public Offerings (IPO), to provide investors with more and more information so that they can evaluate their investment options in a better way. However, more disclosure creates information overload for unsophisticated investors and this coupled with limited decision making capacity of such investor’s results in bad investment decisions. This calls for innovative regulation which would increase the probability of effective utilization of the disclosed information by such investors. Taking cognizance of this problem, the Securities and Exchange Board of India (SEBI) has introduced a novel concept of mandatory

\textsuperscript{38} Tarun Jain and Raghav Sharma “Mandatory IPO Grading: Reflections from the Indian Capital Markets” Supreme Court of India; London School of Economics & Political Science (LSE); National Law University Jodhpur (NLUJ), Icfai Journal of Corporate and Securities Law, Vol. 5, No. 4, pp. 8-22, November 2008.
IPO grading for assessment of 'fundamentals' of issuer companies by Credit Rating Agencies. The assigned grades will act as an additional investment guidance tool for the unsophisticated investors who are vary of prolix disclosure documentation. The issue has immense international significance in view of the fact that it is a unique regulatory stance without precedent in any jurisdiction across the globe.

Ray, Sharma and Sahu (2008)\(^{39}\) in their paper entitled “Market Reaction to Beta-Returns Relationship in Indian Capital Market” examined the unconditional and conditional beta-return relation for selected sectors (automobile, banking, energy, information technology and steel) in NSE, India, using cross-sectional regression. The author suggests that when the market is split on the market excess returns, there is a significant positive relationship between beta and returns in up markets for individual and portfolio of stocks and vice versa. Research on the relationship between beta and market phase offers only weak evidence that security and portfolio betas are influenced by the alternating forces of up and down markets. Moreover, the market is not fuelled by investment in a particular sector.

Richard (2008)\(^{40}\) in his study entitled discusses the benefits of using equity index options on future to rebalance a portfolio. Portfolio managers often operate under investment guidelines requiring them to maintain a certain mix between equity and fixed-income investments. If the ratio departs from the prescribed long-term target, they

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are obliged to tinker with the portfolio and, through rebalancing, restore the ratio to within an acceptable range. Further it is discusses one possible rebalancing strategy that uses options on equity index future. A key benefit of this strategy is that the portfolio manager can monetize the inherent alpha-generating nature of the rebalancing strategy through an appropriate options writing program.

**Chhaochharia** (2008)\(^{41}\) in his study titled “Capital Market Development: The Race between China and India” identified that China and India are the world's most watched countries. The common knowledge is that India's financial system is ahead of China's in terms of sophistication, but not in terms of volumes. India's market depth is also considered more than that of China, though China is gradually catching up. China attracts almost ten times more FDI, when compared with India. China accounts for more than 4% of the world's financial assets, whereas India holds less than 1% and this difference cannot be fully explained by the two economies' size. The study presented a comparative analysis of the capital markets of the two countries and the development measures taken by both the countries for their capital markets and their assessment their off.


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\(^{41}\) Sweta Chhaochharia “Capital Market Development: The Race between China and India” Institute of Chartered Financial Analysts of India (ICFAI), April 1, 2008.

\(^{42}\) Brajesh Kumar, Priyanka Singh, Ajay Pandey, Brajesh Kumar, Priyanka Singh and Ajay Pandey “Hedging Effectiveness of Constant and Time Varying Hedge Ratio in Indian Stock and Commodity Future Markets” Jindal Global Business School; IIM Ahmedabad, August 6, 2008.
Markets” examine hedging effectiveness of future contract on a financial asset and commodities in Indian markets. In an emerging market context like India, the growth of capital and commodity future market would depend on effectiveness of derivatives in managing risk. For managing risk, understanding optimal hedge ratio is critical for devising effective hedging strategy. The study estimates dynamic and constant hedge ratio for S&P CNX Nifty index future, Gold future and Soybean future. It is found that in most of the cases, VAR-MGARCH model estimates of time varying hedge ratio provide highest variance reduction as compared to hedges based on constant hedge ratio.

Bhaduri (2008)43 in her paper entitled “Preface to: Investment and Capital Market Imperfections: Some Evidence from a Developing Economy, India” presents a switching regression model of investment decision where the probability of a firm facing financial constraint is endogenously determined. The approach, therefore, obviates the use of a priori criteria to exogenously identify the financially constrained firms, and thereby addresses the potential misclassification problem faced in the existing literature. A sample of 576 Indian manufacturing firms, collected across 15 broad industries is used for this study. The study establishes that financially constrained firms exhibit much higher investment-cash flow sensitivity than those identified to be unconstrained. It also probes into the possible determinants of financial constraints, and finds empirical

support for its hypothesis that young, liquidity constrained and low dividend payout firms are more likely to face financial constraints, when compared to their respective counterparts. This study also provides some insight into the impact of the ongoing liberalization program on the financial constraints faced by the Indian firms.

Gupta (2009)\textsuperscript{44} in his article entitled “Portfolio Optimisation in the Indian Stock Market – Industry Sector Analysis” discussed the changing global financial environment and emergence of new economic powers in recent decades, diversification of investment portfolios at country and sector levels assumed additional significance. Optimum portfolio selection within a capital market is primarily based on the best risk-return trade-off among the industry sectors. Literature suggests that much of market volatility can be attributed to substantial increase in sector specific and sub-sector specific risks. Analysis of daily and monthly market data for the period April 1997 to April 2007 on a sample of 10 industry sectors selected randomly indicates that investors can substantially improve their reward to risk as compared with the market returns. Major contributions of this research are twofold. It used a computationally efficient model for estimating correlations that can incorporate the changes in correlations over time and it applied the model for the Indian market where research is extremely inadequate.

Mishra (2009) in his study entitled “Role of FIIs in Indian Capital Market” identified that there was a general disinclination towards foreign investment or private commercial flows as India’s development strategy was focused on self-reliance and import substitution and current account deficits were financed largely through debt flows and official development assistance. After the launch of the reforms, Foreign Institutional Investors (FIIs) have been allowed to invest in all securities traded on the primary and secondary markets, including shares, debentures and warrants issued by companies which were listed or were to be listed on the Stock Exchanges in India and in schemes floated by domestic mutual funds. In this study, an effort was made to examine the performance of the Indian capital market by empirically studying the impact of net equity investment by FIIs on stock returns. The study using monthly data on Sensex based stock return and net FII flows over a period of 17 years spanning from Jan 1993 to May 2009, provides the evidence of positive correlation between FII net flows into India and stock market return. And, the analysis finds that the movements in the Indian capital market are fairly explained by the FII net inflows.

Rekha and Dutta (2009) in their study entitled “Impact of FIIs and DIIs in Dynamism of Indian Capital Market” examined the effects of different sources of institutional investors – both domestic and foreign – on the dynamism of Indian

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45 P. K. Mishra “Role of FIIs in Indian Capital Market” Institute of Technical Education and Research (ITER), June 7, 2009.

capital market in the recent years. This study begins with an understanding of what has been the trend of FIIs and DIIs flow in the Indian capital market in the last decade. In this context it has been studied that how FIIs acted as a trigger for the Sensex in the recent years. This study also proposes that the dynamics of the Foreign Institutional Investors’ (FIIs) investment in Indian capital market is queer and is different in debt and equity segments. In particular, it believes that the Domestic Institutional Investors (DIIs) provide the much needed support to the market in hours of crisis.

Debasish (2009) in his paper entitled "An Empirical Study on Impact of Index Future Trading On Spot Market in India” made an attempt was made to investigate the effect of future trading on the volatility and operating efficiency of the underlying Indian stock market by taking a sample of selected individual stocks. Specifically, the study examines whether the index future trading in India has caused a significant change in spot price volatility of the underlying stocks and how the index future trading has affected market/trading efficiency in the Indian future and stock markets. The effect of the introduction of future trading is examined using an extended period of June 1995 to May 2009. The study compares spot price volatility changes before and after future trading is introduced in the stock indices. The result shows that the introduction of Nifty index future trading in India is associated with both reduction in spot price volatility and

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47 Sathya Swaroop Debasish "An Empirical Study on Impact of Index Future Trading On Spot Market in India” Senior Lecturer in the Department of Business Management, Fakir Mohan University, Balasore, Orissa, India, KCA JOURNAL OF BUSINESS MANAGEMENT. VOL. 2, ISSUE 2 (2009).
reduced trading efficiency in the underlying stock market. The results of this study suggest that there is a trade-off between gains and costs associated with the introduction of derivatives trading at least on a short-term perspective. The results suggest that the market would have to pay a certain price, such as a loss of market efficiency for the sake of market stabilization. Hence, a desirable market policy for derivatives trading would be one that would preserve market stabilization while still not damaging market efficiency in the underlying spot market.

Sakthivel (2009)\textsuperscript{48} in his study entitled "The Effect of Future Trading on the Underlying Volatility: Evidence from the Indian Stock Market" analysed the effect of the introduction of future trading on the spot market volatility has been widely documented in the financial literature. The main objective of the study was to investigate the impact of introduction of index future trading on volatility of Nifty. The study employed GARCH model to capture the time varying nature of the volatility and volatility clustering phenomena using daily closing price of the Nifty. The results showed that after introduction of the future trading reduced stock market volatility, due to increase market efficiency. The study is also examined future trading changes structure of spot market volatility using GARCH model. The study observed that there is a structural change in spot market volatility after introduction of future trading. The study finally observed that the introduction of the derivatives contract improved the market efficiency and reduced the asymmetric information.

Debasish (2009)\(^49\) in her paper entitled "Effect of future trading on spot-price volatility: evidence for NSE Nifty using GARCH" aims to study the impact of the introduction of Nifty index future on the volatility of the Indian spot markets by use of econometric models. This study considered six measures of volatility, the dynamic linear regression model, and the GARCH models to investigate volatility in National Stock Exchange (NSE) Nifty prices both before and after the onset of future trading. The GARCH analysis confirmed no structural change after the introduction of future trading on Nifty, and found that whilst the pre-future sample was integrated, the post-future sample was stationary. Spot returns volatility is found to be less important in explaining spot returns after the advent of future trading in NSE Nifty.

Singh (2009)\(^50\) in his study entitled “Investors' Behaviour at Indian Capital Markets” explores and identified the investor’s criterion while assigning weights as regards to various factors before investing, under similar situations. The economic theory, as accepted at present, is based on the principle of scarcity, and in this condition assumes individuals to be behaving in rational manner. While simultaneously another assumption that comes to fore regards to information available. It is assumed here, that all the existing information is embedded in the investment process and is equally available to all. These two assumptions provide a chance to study the role one attribute over other by manipulating the concerned


or impacting attribute. The attribute, which for long-time was in isolation or getting perpetually neglected despite of being of vital consequence, was the investor and impact of his self behaviour on the investment process. This study identifies, understands and explains that how human emotions influence the investors’ decision making process.

Choudhary (2010)\(^{51}\) in his article entitled “Competitiveness of U.S. Securities Market: An Indian Perspective” discussed the increased inter-connectedness of the world due to rapid advances in technology and globalization has resulted in an international market for trade and investment in securities. The development and maturing of third world economies has also contributed to the steady rise in the volume of multinational transactions. Creation of an international securities market has resulted in ease of access for issuers to investors across the globe and for investors, an option to diversify their portfolios with purchases of securities emanating from varied geographical locations. As the access to global capital becomes easy, it also results in competition among nations to attract a larger share of the global capital.

Another major reason attributed to this trend has been the rise of private market where foreign issuers have accessed U.S. capital from qualified institutional buyers using the Rule 144A route, which permits foreign issuers to raise capital without registering the offering with the Securities and Exchange Commission (“SEC”) and

\(^{51}\) Anil Choudhary “Competitiveness of U.S. Securities Market: An Indian Perspective” March 25, 2010.
free of most U.S. securities regulation, including liability under the Securities Act 1933 (“the Securities Act”) and the Sarbanes-Oxley Act 2002 (“SOX”).

Mayur and Kumar (2010) in their paper entitled “Determinant Factors of Going Public Decision in an Emerging Market: Evidence from India” examine the determinant factors of going public decision of the Indian firms. Both pre IPO and post IPO factors are identified. Pre IPO factors are identified by comparing pre IPO characteristics of public firms with that of private firms using a probit regression model. Post IPO factors are identified by examining the consequences of IPO on firm specific variables like insider’s ownership, capital expenditure, investment and cost of credit. The pre-IPO profit analysis identified the firm's size, age, profitability and sales growth, level of disclosures, market risk, asset risk and cost of credit to be the significant determinants of its going public decision. The post-IPO analysis suggests that firms do IPOs to finance their growth and investments, diversify owner’s risk and reduce financial leverage and weak evidence to suggest that firms do IPO to bargain for a lower cost of credit.

Chou and Huang (2010) in their study entitled “Investor Attitudes and Behavior towards Inherent Risk and Potential Returns in Financial Products” made an attempt

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to establish and measure attitudes and behaviour of investors towards investment risk. A sample of Taiwanese investors are surveyed to determine their past investment experience as an anchor, and to record their responses when exposed to economic signals. This was implemented to form a framework (framing) for interpretation of their respective attitudes and behaviours. Empirical results found that no difference by gender to investor propensity to take risk, nor in cognitive perception of such. However, investors according to their personal investment experience indicated higher and lower perceptions of risk. Investors with little experience in stocks and structured notes were found to have significantly heightened perception of risk. Thus, the model proposed is relevant in finding a positive correlation between experience and propensity of risk, though the understanding of such remains uncertain. In respect to financial products other than mutual funds, investor propensity and perception of risk tend to show a negative correlation. Similarly, investor perceptions of risk and expected returns indicate a significant negative correlation. Finally, when positive information is presented, investor perception on structured notes is lower with higher expected remuneration.

Debasish (2010)\textsuperscript{54} in her study entitled “Investigating Expiration Day Effects in Stock Index Future in India” attempts to examine whether potential expiration effects exist on the NSE Nifty index by comparing the trading volume

\textsuperscript{54} Sathya Swaroop Debasish “Investigating Expiration Day Effects in Stock Index Future in India” Reader, P.G.Department of Business Administration, Utkal University, Vani Vihar, Bhubaneswar-4, Orissa, India, sathyaswaroop2000@yahoo.com, Journal of Economics and Behavioral Studies Vol. 1, No. 1, pp. 9-19, Dec 2010.
and return process at expiration with a comparison group. The trading volume and return process on expiration days and during expiration weeks were compared with a set of comparison days and comparison weeks. The current study used the pooled t-test and Wilcoxon rank sum test to investigate whether mean returns, price ranges, and adjusted trading volumes were significantly different at expiration. The procedure as used by Stoll and Whaley (1987) was used to examine if price reversals existed during expiration days and comparison days. The evidence indicates that the trading volume on expiration days and in expiration weeks was significantly larger than on comparison days and during comparison weeks. Further, the results suggest that there were no price distortions on the expiration day or during the expiration week for the complete sample period and the second sub-period. For the first sub-period, however, evidence suggesting that expiration days and weeks experienced higher volatility than normal does exist.

**Galot, Datta and Kapil (2010)** in their article entitled “Impact of Derivative Trading On Stock Market Volatility in India: A Study of S&PCNX Nifty” examine the impact of derivative trading on stock market volatility. The sample data consist of closing prices of S&P CNX Nifty as well as closing prices of five derivative stocks and five non derivative stocks from April 1, 2002 to March 31, 2005. The study used GARCH model to capture nature of volatility

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over time and volatility clustering phenomenon of data. The evidences suggested that there is no significant change in the volatility of S &P CNX Nifty, but the structure of volatility has changed to some extent. However, results show mixed effect in case of 10 individual stocks. These results can assist investors in making investment decision. It also helps to identify need for regulation.

Pathak (2010)\textsuperscript{56} in his study entitled “What Determines Capital Structure of Listed Firms in India? Some Empirical Evidences from The Indian Capital Market” examines the relative importance of six factors in the capital structure decisions of publicly traded Indian firms. The papers related to emerging economies usually group several countries together. The Indian Financial Market has been developing at an exponential rate and dedicated research in the required field. The paper utilises a larger data set in comparison to the earlier studies on India and examines additional factors. The objective of this paper is to build on previous studies on the Indian capital market and model all the important factors affecting capital structure decisions of Indian firms on post liberalization policy. It is found that factors such as tangibility of assets, growth, firm size, business risk, liquidity, and profitability have significant influences on the leverage structure chosen by firms in the Indian context.

\textsuperscript{56} Joy Pathak “What Determines Capital Structure of Listed Firms in India? Some Empirical Evidences from The Indian Capital Market” CUNY Baruch College 17 Lexington Avenue, New York, NY 10021, United States, June 10, 2010.
Smitha and Chendroyaperumal (2011) in their article entitled “Violation of SEBI Act and Rules in India: A Study on other than Collective Investment Scheme” discussed the economy of any country largely depends on its capital market now more than ever before. A capital market is a market for securities (debt or equity), where business enterprises (companies) and governments can raise funds by selling securities to general public and other financial institutions. The capital market includes the stock market (equity securities) and the bond market (debt). Capital markets of India are monitored by financial regulator SEBI (Securities Exchange Board of India). SEBI oversee the capital markets in their designated jurisdictions to ensure that investors are protected against fraud, among other duties. The need for a financial regulator for a country like India is due to the following reasons as India is an 'informationally' weak market, to boost the confidence of lay investors who have been beaten by repeated scams, to soften interest rates and to enhance investing skills in India. But since the formation SEBI in the year 1992 every 2-3 years there has been a new 'scam'. Each scam has led to SEBI being conferred with greater powers. Scams are administered by SEBI officials. This study focuses on the numerous cases filed with SEBI which prove that SEBI needs to maintain much closer watch in the market. The main objectives of this work, taking 586 cases of SEBI rule violations for analysis, are to study various cases of SEBI rule violations.
violations in other than collective investment scheme, categorize these cases into six categories, to identify the most violated provision of Act with SEBI and to attempt to provide suggestions to minimize violation of SEBI norms.

Singh and Agarwal (2011)\textsuperscript{58} in their study entitled “Impact of Index Future on the Index Spot Market: An Empirical Study at National Stock Exchange” conducted to assess the impact of trading of index future on the returns and volatility of the index by examining the nature and strength of relationship that exists between Nifty Index and Nifty future. The lagged future returns have forecasting power in explaining current spot index returns as the lag one coefficient is 0.1103. The subsequent lead/lag coefficients are diminishing and the results suggest that the cross correlation coefficients at longer leads/lags are not significant. The cross correlation coefficients indicate that the current spot returns are correlated to the current future returns and one-lead/lag future returns. Future thus leads the Index by one lead/lag in Nifty market. Granger Causality shows that returns on Nifty Future cause returns on Nifty Index while the reverse is not true. There exists both the ARCH Effect (due to recent news) and GARCH effect (due to old news). GARCH effects are stronger in spot index markets for Nifty. ARCH effects are stronger in Index future market. Future absorbs recent information whereas index markets absorb old information.

\textsuperscript{58} Y. P. Singh and Megha Agarwal “Impact of Index Future on the Index Spot Market: An Empirical Study at National Stock Exchange” University of Delhi, Second IIM A International conference on advanced data analysis, Business analytics and intelligence, January 8-9, 2011, Ahmedabad, India.
Laha and Gupta (2011)\textsuperscript{59} in their study entitled “Modeling the Indian Stock Market using Jump Diffusion Processes” focuses that an attempt was made to model the Bombay Stock Exchange’s Sensitivity Index (Sensex). It is seen that the Geometric Brownian Motion model having continuous sample paths is not a good fit for the observed data. The inclusion of jumps through use of Jump Diffusion processes lead to better models. Two Jump Diffusion based models one having jump sizes normally distributed and another with jump sizes double exponentially distributed are considered and their parameters are estimated. Both of these models are found to fit the given data adequately. The parameter estimates of these models can be interpreted easily and the findings are consistent with the stylized facts known for stock markets in advanced economies.

Srinivasan, Parth and Deo (2011)\textsuperscript{60} in their study entitled “Modeling the Symmetric and Asymmetric Volatility for Select Stock Future in India: Evidence from GARCH Family Models” examine the modeling and forecasting volatility of stock future market in India over the period beginning from 1st April 2003 and ending 31st December 2008, for a total of 1440 observations by using Symmetric GARCH and Asymmetric TGARCH, EGARCH and IGARCH model to draw


\textsuperscript{60} K. Srinivasan, Shukla Parth and Malabika Deo “Modeling the Symmetric and Asymmetric Volatility for Select Stock Future in India: Evidence from GARCH Family Models” Christ University and Pondicherry Central University, Second IIM A International conference on advanced data analysis, Business analytics and intelligence, January 8-9, 2011, Ahmedabad, India.
valid conclusion. In sample analysis is carried out for the period from April 1, 2003 to March 31, 2008 and the remaining 184 observations are used to evaluate the out-of-sample forecasting performance of the model. The forecasting performance of two different models was evaluated by considering two forecasting error statistics like Root Mean Square Error (RMSE) and the Mean Absolute Percentage Error (MAPE). The results of the study indicate that in RMSE statistics, the IGARCH model was performed and it is considered as the best model followed by TGARCH model. Despite its mathematical and statistical simplicity, the IGARCH model provides the most accurate forecast compared to other competing models in the study. Finally, our findings suggest that volatility is a part and parcel of derivative market, which is mainly influenced due to the other key determining factors like inflow of foreign capital into the country like exchange rate, balance of payment, interest rate.

Arekar and Jain (2011)\textsuperscript{61} in their study entitled “Comparative Study of different Sectors of Stock Market Volatility in India: During 2007-2010” analysed Stock Market started falling from January 2007 to January 2010, the descent accelerating towards the end of 2008, due the global fallout of the U.S. mortgage crisis. After that there is a slow improvement in the performance of the Indian Stock market relative to the other World markets. In this article, a snapshot of the

\textsuperscript{61} Kirti Arekar and Rinku Jain “Comparative Study of different Sectors of Stock Market Volatility in India: During 2007-2010” K.J. Somaiya Institute of Management Studies & Research, Second IIM A International conference on advanced data analysis, Business analytics and intelligence, January 8-9, 2011, Ahmedabad, India,
market performance during the two-year is presented and compared with the major overseas markets. A study considered a market performance of different sectors i.e. Information Technology and Banking with respect to the market. Further analysed that which sector influenced most during the recession period. A number of parameters were used to capture the market performance such as daily return, Volatility of daily return, market capitalization and mutual fund activity. The period from January 2007 to November 2010 showed Indian market’s march towards the highest-ever levels of market capitalization and stock indices in 2007, and, thereafter, a precipitous fall in 2008. These include strong economic fundamentals, relatively stable political climate and, hence, large foreign funds inflow. Finally, they interpreted that which sector performing good and bad at this Global recession period and which sector has performed good after the recession or we can say there is no impact of recession for that particular sector.

Bandyopadhyay and Upadhyay (2011) in their study entitled “The Effect of Weather on Indian Stock Market – An Empirical Study” discussed Behavioral finance proposes a relationship between the weather and equity market by way of investors moods. A well-established and diverse literature, primarily in the field of psychology, has investigated the premise that “weather variables affect an individual’s emotional state or mood, which creates a predisposition to

engage in particular behaviours” Howarth and Hoffman, 1984). Some researchers also examined the significance of moods in economic decision-making (Elster, 1998; Loewenstein, 2000; Romer, 2000; Loewenstein et al., 2001; Hanock, 2002). This paper intends to examine the impact of environment on Indian stock market. The daily market returns on National Stock Exchange (NSE) price index (NIFTY) are regressed against three daily weather observations e.g. minimum temperature, maximum temperatures, and relative humidity. The weather data for this study is collected from Indian Meteorological Department (IMD), Government of India, and the stock market data is collected from National Stock Exchange (NSE).

Rao and Thakur (2011)⁶³ in their study entitled “Does Market Volatility Affects Hedge Effectiveness? An Empirical Investigation of Time-Invariant and Time-Varying Hedges During Period of Financial Crisis in Indian Future Market.” identify the financial derivatives are extensively used as hedging instruments worldwide, including emerging markets like Malaysian, Italian, and Portuguese equity markets. However, hedging one’s stock position through future is still the road less traveled in India. This study is, therefore, an attempt to explore Indian future market for hedging by equity holders in general as well as in period of financial crisis. The authors have estimated effectiveness of the optimal hedge ratio based on HKM [Herbst, Kare and Marshall (1993)] methodology with

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⁶³ Kirti Arekar and Rinku Jain “Does Market Volatility Affects Hedge Effectiveness? An Empirical Investigation of Time-Invariant and Time-Varying Hedges During Period of Financial Crisis in Indian Future Market.” Professor and PhD Student, Shailesh J. Mehta School Of Management, Indian Institute of Technology Bombay, Powai, Mumbai. PIN-400076, India. Phone No.: +91-22-25764785 Email Id: sanjay.thar@iitb.ac.in
benchmark model JSE [Johnson (1960), Stein (1961) and Ederington (1979)] methodology for future. Hedge ratio based on HKM methodology is a time-variant whereas hedge ratio based on JSE methodology is a constant and time-invariant. To bring the comparison of hedge effectiveness on equal level (from transaction cost point of view), time-varying hedge ratio estimated based on HKM methodology time-invariant and then Bases using the hedge ratios are estimated. For empirical validation of the Effectiveness of the optimal hedge ratios and their stability in normal as well in the period of financial crisis, the study of S&P Nifty Index {National Stock Exchange of India (NSE) 50 Index and its future is conducted using daily data for the year 2005 (representing normal period) and January,2007 to June,2009 (representing turbulent time period) based on the value of volatility index. Result suggests that hedge using HKM model is more effective than that of hedge based on JSE model. The results are statistically significant at 95% confidence level. An additional contribution of the study was to help the hedger to decide when to re-balance the hedge.

Singh and Kansal (2011)\textsuperscript{64} in their paper entitled “Impact of Derivative Trading on Stock Market Volatility during Pre and Post Future and Options Period: A Case Study of NSE” examined the impact of financial derivatives trading on the volatility of Indian stock market. NSE S& P CNX Nifty index has

\textsuperscript{64} Dr. Gurcharan Singh and Salony Kansal “Impact of Derivative Trading on Stock Market Volatility during Pre and Post FUTURE AND OPTIONS Period: A Case Study of NSE” Reader, and Junior Research Fellow, School of Management Studies, Punjabi University, Patiala, e-mail : salony_kansal@yahoo.com, Vol. - I No. - 1, June-2010
been used as a proxy for stock market and period covered under the study varies from 1995-1996 to 2008-09 on the financial year basis. The finding reveals that a derivative trading has reduced the volatility. The decrease in volatility would be mainly being attributed to the fact that derivative markets attract an additional set of traders to the market, which led to increase in the trading volume. With the increase in trading volume, a greater liquidity will be reflected in the prices of the underlying market and then the market will become more stable.

**Mishra** (2011) in his article entitled “Capital Market Efficiency” analysed the capital market is one of the most important segments of the Indian financial system. It is the market available to the companies for meeting their requirements of the long-term funds or assets that is share and debentures. In order to understand why good financial decisions are reflected in positive share prices adjustment as well as how the securities are valued or priced in the market, it is necessary to have an understanding of the efficiency of the market. The speed at which the movement in prices appears and the speed at which the prices of securities reach an equilibrium level depends on the efficiency of the capital market. The efficiency of the capital market is often defined in terms of its ability to reflect the impact of all relevant information in the prices of securities. An efficient market is one which ensures that the prices of the securities quickly adjust to new information and reflect it in market prices of the securities. The demand for long term capital comes predominantly from private sector

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manufacturing industries, agriculture sector, trade and the Government agencies. While, the supply of funds for the capital market comes largely from individual and corporate savings, banks, insurance companies, specialized financing agencies and the surplus of Governments.

Debasish (2011)\textsuperscript{66} in his article entitled “A Study on Relative Volatility in Spot and Future Market in Selected Stock Indices of NSE” attempts to investigate the change, if any, in the volatility observed in the Indian stock market due to the introduction of future trading. The change in the volatility is compared in terms of the structure of the volatility. The main objective of the study is to investigate whether there has been significant change in relative volatility of the underlying spot return and future return. The study used three stock indices of NSE namely Nifty, CNX IT and CNX Bank. The index future time series analyzed here uses data on the near month contract as they are most heavily traded. The study has used four measures of volatility. The study finds that for the three NSE indices, the study rejects the null hypothesis of 'no significant change in relative inter-day volatility between spot prices and future prices' over the entire period 2000-2010, There is significant change in relative intra-day volatility between spot prices and future prices for all the three NSE indices.

\textsuperscript{66} Dr.Sathya Swaroop Debasish “A Study on Relative Volatility in Spot and Future Market in Selected Stock Indices of NSE” Viewpoint Volume 2, No. 1, January-June 2011.
Mishra (2011) in his study entitled “A Study on Relative Volatility in Spot and Future Market in Selected Stock Indices of NSE” analysed the advent of liberalisation, privatisation and globalization with the free economy environment, maximum efforts are made in strengthening the investor confidence. The basic reason underlined is in context to free and regular flow of funds to the corporate sector along with establishing a strong investor base by including more and more middle and small investors with their investible funds. In one way, the stock market is an experienced platform for any existing investors to go for accumulating their wealth by means of diversification without any hedging to the prevailing risk factors, while the new concept of derivative market trading mechanism has helped them a lot in minimizing the risk factors to a greater extent. This has also led to the redefining the economy of the nation to a significant status before the global scenario. The inclination of MNCs towards Indian corporate world has again added some fuel in giving a new shape and size to the existing investor population, increased pace of industrialization, speedy growth of market capitalization along with a focused and sustainable economy.

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CONCLUSION

It is obvious to know that many researchers have shown keen interest to conduct research on future and options on various dimensions. They have disclosed the facts in figures of NIFTY, BSE and NSE assess the volatility of Indian stock market. They have also portrayed the impotence of the investors’ behavior on different dimensions especially economic options psychological moods in investing in their capital. A few studies have conducted on investor’s perception, awareness and investment pattern on derivative market. The study also focuses the main stream of investment and the expectations of return on investment through apply economic models. But none of these studies have focused on risk mitigation of future and options in Indian capital market. This was identified as the research gap, in order to fulfill the gap, the researcher has chosen this topic as his research area hence, this study.