7.1 SUMMARY AND CONCLUSION

The financial system is the most important institutional and functional vehicle for economic transformation of a nation. Finance is a bridge between the present and the future and whether it is the mobilisation of savings or their efficient, effective and equitable allocation for investment, it is the success with which the financial system performs its functions that sets the pace for the achievement of broader national objectives. The financial system is a set of inter-related activities/services working together to achieve some predetermined purpose or goal which includes different markets, the institutions, instruments, services and mechanisms which influence the generation of savings, investment capital formation and growth.

As economies develop over time, financial systems become increasingly sophisticated, which calls for greater need of risk management techniques. In the wave of globalization, the external economic factors have an increasing impact on a country’s economy and the financial security issues are more prominent as well. Innovation of derivatives in this direction have redefined and revolutionized the landscape of financial system and it has earned a well deserved and extremely significant place among all the financial products available till date. The derivatives market in a financial system may act as a buffer to the country’s economy. Derivatives trading play an important role in providing the full range of markets necessary for economic efficiency. Derivatives are risk management tool that help in effective management of risk. It provides an opportunity to transfer risk, from the one who wish to avoid it; to one, who wish to accept it.

The concepts which underpin derivative contracts have been used for centuries and can be traced back to the Tulip futures market. It was developed in Holland in the 17th century. In the 21st century the global financial markets have undergone dramatic changes and shocks, as a direct result of the proliferation of derivative instruments. The general acceptance of derivative instruments in the global market place started in
the mid twentieth century through the introduction of currency futures. Following the successful introduction of currency futures, innovations had taken place to broaden the products in the derivative segment. There are various derivative contracts available, out of which Futures are standardized contracts traded on liquid markets according to well specified rules and procedures. Thus a futures contract is a legally binding agreement to buy or sell a specific quantity of the underlying asset at a predetermined date in the future at a price agreed on today. A stock Index future is one of the significant innovations in the financial derivative segment of the 1980s. Index futures have a variety of attractive features for a trader who wishes to trade a portfolio of shares corresponding to the index. Despite some controversy about index arbitrage and program trading that developed after the October stock market crash in 1987, these contracts is very successful and beneficial to stock portfolio managers. Institutional investors’ use hedging through trading futures is a process used to control or reduce the risk of adverse price changes. Until 1982, market participants could not control market risk of their portfolios. The introduction of stock index futures contracts offers them an opportunity to manage the market risk of their portfolios without changing the portfolio composition. The objective of hedging is to minimize the risk of the portfolio for a given level of return. Index futures is favored as a hedging vehicle because of its liquidity, speed, and lower transaction costs, including bid-ask spread and brokerage commissions. Stock Index futures not only hedge the movement of index but act as a vehicle in the efficient price discovery also.

In this respect the first stock index futures was launched in 1982 when the Kansas City Board of Trade introduced futures on the Value Line Index. In the same year, the Chicago Mercantile Exchange introduced futures contract on the S&P 500 Index. The three decade history of stock index future contracts has been marked by great success both in the United States and in many other countries.

The spectacular growth in financial derivatives in US and UK has fuelled interest among emerging countries like India to take the advantage of this innovative instrument in their markets. In India the financial derivatives is introduced after L.C. Gupta committee recommendations. Bombay Stock Exchange was the first to
introduce futures on its popular index Sensex on June 9, 2000 and the National Stock Exchange introduced futures contract on its Nifty Index in June 12, 2000. Thereafter other derivative instruments are being introduced in NSE in a phased manner. The derivative segment of NSE has grown by leaps and bounds not only in terms of volume but in terms of turnover too. In terms of turnover, stock index futures is one of the major instruments in the F&O segment of NSE. The enthusiasm among the traders in dealing with derivatives has made NSE one of the largest futures exchange in the world. Thus India has become one of the most successful and vibrant market for exchange-traded derivatives. This reiterates the strengths of the modern development of India’s securities markets, which are based on nationwide market access, anonymous safe and secure electronic trading, and a predominantly retail market.

Academic research in this area has been motivated by several considerations. First, the utility of these contracts for risk allocation and price discovery depends on the efficiency with which they are priced relative to the underlying index; Second to dispel the myth that stock index futures destabilize the underlying cash market by augmenting volatility, and Finally, to identify the degree of Cointegration and causal relation between futures and spot prices especially in an emerging market economy like India.

It is with this backdrop, the objective of this research work is to examine the empirical relationship between stock index and stock index futures in the context of India’s capital market with special reference to S&P CNX Nifty and Nifty futures over the sample period of June 2000 to May 2011.

The study used End of the Day (EOD) closing prices of near month futures contract as well as the daily closing price of the S&P CNX Nifty collected from NSE database. Econometric models based on GARCH class models, ADF, PP, Johansen’s Cointegration and VECM have been employed.

In India, the emergence of financial derivatives market is relatively a recent phenomenon. Since its inception in June 2000, the market has exhibited exponential growth both in terms of volume and number of traded contracts. Within a short span of ten years, derivatives trading in India has surpassed cash segment in terms of
turnover and number of traded contracts. The trading in Index futures has gained momentum in India because of its inherent characteristics like: a) index futures are cash settled; b) these are highly liquid since index futures are exchange traded and the investor can offset his position on any day prior to the expiration day; c) the performance of all index futures contract are guaranteed by the exchange’s clearing house; d) it carries margin requirements which ensures that the risk is limited to the previous day’s price movement on each outstanding position.

Though Bombay Stock Exchange and National stock exchange started trading in index derivatives concurrently, but currently NSE has the dominance in the turnover and growth of India’s index futures market. This can be attributed to the higher impact cost and lower liquidity in trading the BSE Sensex Futures from NSE Nifty futures. Thus Nifty future is one of the popular contracts among the traders. The futures on NSE’s most popular index Nifty as an underlying called FUTIDX is the first contract in its F&O segment. From the expiration point FUTIDX is of three types, near month, middle month and far month contracts those will expire in one, two and three months respectively.

Stock Index futures are used by investors primarily for short term trading purposes, rather than as a relatively long term alternative market basket. Considering the largely short term nature of positions in the index futures market, the use of index futures contract for allocating risk or as a vehicle for price discovery depends critically on the efficiency with which these contracts are priced relative to the underlying cash index. By efficiency it can be inferred that how fast information is reflected in the market price of an asset. The integration of capital markets across the globe is the important predicator for analyzing the efficiency of the emerging markets like India after introduction of stock index futures. The testing of efficient market hypothesis on the spot market (NSE) and the index futures market separately, contributes to weak form of inefficiency. Thus in both the markets the past result will not influence the current price of the securities. On the other hand, a comparative study of the efficiency between spot and index futures market reveals that index futures market is relatively more efficient than the spot market. Therefore index
futures market will act as an efficient price discovery vehicle which will certainly help the traders to take hedging and arbitrage positions to secure maximum returns at minimum risk exposure. In addition, the contribution of the futures market to minimize the volatility of the cash market is an important implication of the efficient price discovery.

The trading in stock index futures has attracted its share of criticism that it increases the volatility of the market as a whole. The evidence as to whether trading in index futures in NSE has coincided with an increase in market volatility is not very compelling. Volatility is in fact the manifestation of the arrival of fresh information into the market. As new information is received, buyers and sellers will re-assess their perceptions of the values of different securities and the observed prices will then adjust to reflect these changes and this process of adjustment will give rise to volatility. This work investigates the issue for a dynamic emerging market, i.e. National Stock Exchange of India that allows the examination of changes in the nature of volatility and for asymmetric responses to news. The results exhibit that spot price volatility is less affected following the introduction of index futures trading.

In an efficient market all available information is instantly converted into prices of securities. Prices in the futures and spot market should move simultaneously without any delay. The study of volatility of stock market with the introduction of derivatives is inconclusive if the lead-lag property between spot and index futures market is not studied. The lead-lag relationship between market index and its future reflects how fast each market reacts to market wide information and how well their co-movements are indicated. If one market reacts faster to the market wise information than the other, there will be a lead-lag relationship that is expected to be observed in data. In the Indian context by observing S&P CNX Nifty and Nifty Futures, it reveals that the Nifty futures lead the underlying index in the long run. The reason for the above finding may be: a) infrequent trading of stocks comprising the index; therefore the index reflects "stale" prices and so lags futures, b) differences in liquidity between the stock and futures markets, c) informed traders may have a preference to trade in one market and not the other depending on
whether the information is firm specific or systematic and d) due to market frictions such as transaction costs, capital requirements and short-selling restrictions may make it more optimal to trade in the futures markets.

7.2 MAIN FINDINGS

In accordance with the specific objectives of this research work, the main findings are enlisted below:

- The concept of stock index futures in India is only a decade old one. In these years it has achieved a lot. The spectacular growth and success in index futures is because of its liquidity. The liquidity of a contract is related to the cost of trading, the lower cost of trading of index futures leads to higher liquidity and leading to higher market capitalization.

- Since one of the pre-condition for competitive price discovery in the spot and futures market is the validity of the efficient market hypothesis, the research work proceeded in this direction and found that the spot market is showing weak form of inefficiency. Thus next period price will not reflect the previous day’s information. As regards to the futures market, the time series of spot and future prices of S & P CNX NIFTY are integrated of order one and Cointegrated in the long-run. This is the indication of relative efficiency of India’s Index Futures market.

- The very objective behind the introduction of stock index futures in India was to reduce the volatility of the underlying stock index. Thus, the research work investigated the nature and causes of spot and index futures market. And, it has been found the evidence of high persistence of time varying volatility and its asymmetric effects. Furthermore, the futures market is showing high level of volatility from that of the spot market. The result also exhibits that bad news have more role in the volatility in the futures as well as in the spot market.

- Since the causal relation between spot and index futures market is essential to know the price discovery function, this research work investigated the nature and direction of the lead-lag relation between stock index and index futures market. It has been found the evidence of long-run causality running from the index futures market price to spot market price. In other words, the S & P CNX Nifty based
index futures market tends to lead the underlying stock index (i.e., S & P CNX NIFTY) over a long period of time.

7.3 IMPLICATIONS

- In the index futures market the observation of S&P CNX Nifty futures higher liquidity and also an increase in market capitalization is evident during the last decade. The higher liquidity of the Index futures market implies undertaking of large transactions at a low transaction cost. The low transaction costs will imply higher trading activities in the futures segment leading larger inflow of funds into the market.

- It is found that spot market (NSE Equity market) shows weak form informational inefficiency. The results imply that futures markets serve their prescribed role of improving pricing efficiency and improve the quality of information flowing to spot markets. This will enable investors to prudently structure their strategies investing in both spot and futures markets. Thus, the retail as well as domestic institutional traders in India can design their portfolio and can take positions in the futures market to safeguard themselves from the fluctuations in the cash market. In addition, the regulators will in advance come to know regarding the prospective price movement in the cash market and when they feel market overreacting to the information, they can take appropriate action in the interest of the common investor. Furthermore, it is found that Nifty futures Index is more efficient relative to its corresponding underlying index. It implies that the available information is processed faster in futures market than the spot market. This will pave the way for faster price discovery.

- In both the spot and futures market, it has been observed that the prices show informational asymmetry and greater role of bad news in increasing volatility. Thus, the result imply that when an information is released it will first adjusted in the prices in the futures market and after that it passes to the spot market leading lower level of volatility as compared to the index futures market. This effect is popularly called as volatility spillover effect. The volatility spillover effect implies
that investors are advised to predict volatility in the cash market by observing the volatility in the index futures.

- The present study suggested that the index futures return lead the cash market returns. This finding is significant to determine the nature and location of price discovery and to find out which market is most efficient. Further this lead-lag relationship is significant to arbitrageurs who are required to complete both legs of an index arbitrage transaction within a short span of time. In other words futures index leading the spot index suggest that for a short period of time, the prices in the two markets could be out of line resulting in profitable arbitrage opportunities. So traders can make profit from the discrepancy in the prices of Nifty Futures and Nifty Spot, provided they can react quickly. In this context the prior knowledge of Index futures leading the spot Index could likely influence arbitrageurs decision as to which market they should react in first, which leads to the initial trade in the index futures market. The finding of futures price leading spot price implies that investors will be able to use futures price as a good indicator in predicting spot price.

7.4 SUGGESTIONS

- This research work has observed relatively higher Index futures market liquidity in the last decade. So it is suggested here to improve the scenario further. Under normal market conditions short selling may be suggested which contributes to price efficiency as well as market liquidity.

- The present study observed the informational inefficiency of spot and futures market. In the domain of index future market, policy makers may implement financial transaction taxes which will help increasing revenue, reducing destabilizing speculation and improving the informational efficiency of the market (Matheson, 2011). Further it is suggested to lit away short selling, if any, so as to enhance the informational efficiency of the stock market relative to the index futures market.

- The present study provided the evidence of higher index futures market volatility. In this context the regulatory response may be the introduction of transaction
taxes, which help reduce noise trading (a significant source of price fluctuation) and hence decreasing volatility.

- The causal relationship in the direction futures price to spot price suggests that the policy makers should take into consideration the futures market towards the cash market when developing a policy for the futures market.
- Information and Communication technology (ICT) has to be made all pervasive in minimizing information asymmetry in the markets leading to an efficient price discovery and investor protection.

7.5 SCOPE FOR FURTHER RESEARCH

The analysis provided in this thesis suggests a number of areas for further research.

- In recent years crises hurt many developed and developing nations. During crises unrestricted short selling contributes to sudden price declines in securities that are unrelated to their true price valuation. In the absence of restrictions on short sells in derivatives markets, the greater leverage of futures creates a potential for greater speculative selling than would occur in the stock market. This may further worsen the turbulent environment. Hence further research is required in this direction.
- It has been observed that the transaction taxes prevent instant price adjustments according to new information and cause price jumps and higher volatility (Umlauf, 1993). From the investors’ perspective transaction taxes are also unwelcomed as it is expected to adversely affect the volume of trade. Thus in their effort to reduce volatility using taxes as a tool, regulators may end up creating more problems without necessarily resolving the original one. Hence it necessitates further research.
- Since market volatility is inevitable in emerging market economies like India it is not sufficient to investigate the lead lag relation between spot and future prices it is highly essential to examine the lead lag relationship in daily returns and volatilities between price movements of stock index futures and the underlying cash index.

****