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Title of the Ph.D Thesis Financial Derivatives & Stock Market Volatility- Evidence from NSE

Introduction of derivatives trading in the Indian financial market is one of the major and important steps taken by SEBI in June, 2000. Derivatives were primarily introduced to reduce volatility and to serve as a risk mitigation tool. Whether derivatives trading has led to stabilization or destabilization of the underlying spot market is still a controversial matter. Though derivatives trading can influence the underlying spot market in a number of different ways, the present research is confined to study the impact of equity derivatives, viz. equity index futures and equity index options, on the underlying spot market viz, S&P CNX Nifty.

The present study aims at determining the impact of introduction and trading of derivatives contracts (futures and options) on spot market volatility. The price discovery function of futures contracts over its underlying spot market is also investigated. More specifically, the present study has been conducted:

1. To examine the impact of Introduction of Financial Derivatives viz. futures and options on the volatility of the underlying Spot Market.
2. To test impact of Futures Trading activity viz. open interest and trading volume on the underlying Spot Market volatility.
3. To determine the impact of Option Trading viz. open interest and trading volume on the Spot Market volatility.
4. To study the Lead-Lag relationship in terms of price discovery between Spot and Futures markets.

For studying the impact of futures & options on the underlying spot market, daily data has been used. Daily closing prices of S&P CNX Nifty index since the inception of derivatives till 31st December 2013 has been collected from the official website of National Stock Exchange of India (www.nseindia.com). Further, for studying the price discovery role of futures market, intraday data for 1-year from 1st June 2012 to 31st May 2013 has also been used.

The present study has used a wide variety of statistical tools ranging from simple descriptive statistics to more sophisticated time varying conditional volatility models (GARCH, EGARCH and GJR-GARCH) and cointegration analysis (Johansen-Juselius Cointegration).

This study has found that in the post-derivatives period, both CNX Nifty and Nifty Junior exhibit slight reduction in volatility. For the period under study, there were no derivatives on CNX Nifty Junior. If derivatives trading alone had been responsible for the slight reduction in volatility, then volatility in Nifty Junior would not have reduced. Therefore, we cannot say that the slight reduction in volatility of CNX Nifty is due to introduction of derivatives. It may be due to various other measures introduced by the regulators which had affected the entire market. However, one thing is quite evident that introduction of derivatives has not destabilized the underlying spot market.

As far as trading activity variables viz. number of contracts and open interest, of the futures and options market is concerned, the study found that increase in trading volume of the derivatives causes spot market volatility to increase while increase in open interest causes spot market volatility to come down. In literature, open interest and volume of trade are considered to represent hedging and speculative activities respectively. The negative relationship between open interest and spot market volatility indicates that an increase in hedging activity stabilizes the spot market. On the other hand, positive relationship between volume of trade and spot market volatility implies that speculative activities destabilize the underlying market. Further, volume of trade variables were larger in magnitude and more significant than open interest variables indicating that derivatives market is dominated by speculators as against hedgers.

Regarding the price discovery role of the futures and the spot markets, the present study has found that price discovery takes place in both the markets. However, the role of price discovery is largely performed by futures market. New information arriving in the stock market first gets reflected in the futures market and then transferred to the spot market. The present study found that last 15 minutes information is more important as against Bhatia and Singh (2007), who found that last half an hour information is important. It means that Indian stock market has become more efficient in the last 5 years.