

Do S&P CNX Nifty Options Lead Underlying Nifty in Price Discovery?

V.D.M.V. LAKSHMI*
MEDHA JOSHI**

Abstract

Paper aims at observing if S&P CNX Nifty Options lead the underlying Nifty in price discovery. In other words, the study observes the lead-lag relationship between S&P CNX Nifty options market and Nifty spot market. S&P CNX Nifty implied index values are derived for near the money call and put options separately using Black & Scholes option pricing model. The study applies Co-integration and Vector Error Correction Models to test the lead-lag relationship between S&P CNX Nifty Underlying values and S&P CNX Implied Index values. There is a strong evidence of call options market leading the spot market during the period under consideration. Such evidence is much strong during expiration day of the contracts. However, there is no such evidence in case of put options. The findings of study enable the investors to develop better trading strategies; regulators to formulate better policies to ensure efficient price discovery and reduce mishaps in the market. Regulator can take necessary steps to nullify the informational asymmetries to bring market efficiencies.

I. Introduction

SECURITIES EXCHANGE BOARD of India (SEBI), the Capital Market Regulator, as a part of its attempt to make the Indian market more efficient in price discovery and to provide a tool for risk management and hedging; permitted the introduction of Index based options on Indian bourses on June 4th 2001. Empirical research done till now in this area reveals that any piece of information initially reaches derivatives market due to the low cost of transactions and leverage; and subsequently gets reflected in the spot market. Thus, there is a flow of information from one market to another market. The existence of this type of predictability provides a scope for arbitrage profits to some traders in the market. The role of Regulatory

* Senior Assistant Professor, Vignana Jyothi Institute of Management (VJIM), Vignana Jyothi Nagar, Bachupally, Via Kukatpally, Hyderabad, Telangana 500090, INDIA

** Senior Associate Professor, National Institute of Construction Management and Research (NICMAR), 25, 1, Balewadi NIA Post Office, Pune, Maharashtra 411045, INDIA

V. Conclusion

When the same asset or related assets trade in more than one market, information gets reflected in all markets simultaneously in a perfect capital market. However, the differences in the nature of the markets in-terms of transaction costs, liquidity, technology etc. lead to non-simultaneity in the flow of information and hence one market may lead another market in price discovery and vice versa. Lead-lag relationship between futures and spot market has widely been researched in India. But, lead-lag relationship between options and spot market in India has been relatively untouched. The paper attempts to fill the gap by considering the S&P CNX Nifty underlying index values and S&P CNX Nifty implied index values derived from Black & Scholes option pricing model from November 2008 to October 2014.

When stationarity of underlying index and implied index series is tested using ADF and PP tests, they are found to be non-stationary at level and stationary in their first differences, indicating that they are integrated of the order I(1). There is an evidence of co-integration between underlying index and implied index, as observed from the results of Johansen's test, implying that there is a long run relationship between both the variables. Call option market leads the spot market, as evident from the results of VECM. Leading role of options market is stronger during the expiration period of option contracts on the exchange. However, there is no evidence of put option market leading the spot market.

The findings of the study enable investors to develop better trading strategies and regulators to formulate better policies to ensure efficient price discovery and reduce mishaps in the market. The regulator can take necessary steps to nullify the informational asymmetries.

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