

Comparative study of historical volatility in futures market of Indian banking industry

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Abstract

The stock market is one of the most important sources for companies to raise money. This allows businesses to be publicly traded, or raise additional capital for expansion by selling shares of ownership of the company in a public market. The liquidity that an exchange provides affords investors the ability to quickly and easily sell securities. This is an attractive feature of investing in stocks, compared to other less liquid investments such as real estate. History has shown that the price of shares and other assets is an important part of the dynamics of economic activity, and can influence or be an indicator of social mood. An economy where the stock market is on the rise is considered to be an up and coming economy. In fact, the stock market is often considered the primary indicator of a country's economic strength and development. Purpose of this research is to analyse the trend of the NSE stock futures and to study the impact of fluctuations in the spot stock market on the stock futures market of five different banks. The study may assist the investors to understand the impact of fluctuations in the spot stock market on the stock futures market and thus can take the decision.

Keywords: Stock market, spot stock price, future stock price, volatility, NSE stock future, banking industry

Introduction

A stock market is a public market for the trading of company stock and derivatives at an agreed price; these are securities listed on a stock exchange as well as those only traded privately. The size of the world stock market was estimated at about \$36.6 trillion US at the beginning of October 2008. The total world derivatives market has been estimated at about \$791 trillion face or nominal value, 11 times the size of the entire world economy.

The stocks are listed and traded on stock exchanges which are entities a corporation or mutual organization specialized in the business of bringing buyers and sellers of the organizations to a listing of stocks and securities together. Rising share prices, for instance, tend to be associated with increased business investment and vice versa. Share prices also affect the wealth of households and their consumption. Therefore, central banks tend to keep an eye on the control and behavior of the stock market and, in general, on the smooth operation of financial system function.

As a concept, volatility is simple and intuitive. It measures variability or dispersion about a central tendency. To be more meaningful, it is a measure of how far the current price of an asset deviates from its average past prices. Greater this deviation, greater is the volatility. At a more fundamental level, volatility can indicate the strength or conviction behind a price move.

Review of literature

Markets have remained an active topic of analytic and empirical interest. Questions pertaining to the impact of derivative trading on cash market volatility have been empirically addressed in two ways: by comparing cash market volatilities during the pre- and post-futures/ options trading eras and second, by evaluating the impact of options and futures trading (generally proxied by trading volume) on the behaviour of cash markets. The literature is, however, inconclusive on whether introduction of derivative products lead to an increase or decrease in the spot market volatility. various researchers argues that the introduction of futures trading increases the spot market volatility and thereby, destabilizes the market (Cox 1976; Figlewski 1981; Stein, 1987). Others argue that the introduction of futures actually reduces the spot market volatility and thereby, stabilises the market (Powers, 1970; Schwarz and Laatsch, 1991 etc.). some researchers were of view that volatility not only depends on derivative instruments but also it is affected by various other factors. There are two main hypotheses to explain hedging. They are: (i) Destabilizing force hypothesis; and (ii) Market completion force / Non-destabilization hypothesis. Destabilizing force hypothesis propounds that derivatives market attracts highly levered and speculative participants due to lower trading costs, which creates artificial price bubbles and increases volatility in spot market. Market completion force / no destabilization hypothesis states that introduction of derivatives complements the spot market and improves information flow resulting in better investment choices for investors. It may bring more private information to the market and disseminate the same faster. Some studies suggest a possibility of speculators moving to derivatives market from spot market due to lower transaction costs and other benefits like cash settlement. This may lead to reduction in volatility.

About the banking industry

The growth in the Indian Banking Industry has been more qualitative than quantitative and it is expected to remain the same in the coming years. Based on the projections made in the "India Vision 2020" prepared by the Planning Commission and the Draft 10th Plan, the report forecasts that the pace of expansion in the balance-sheets of banks is likely to decelerate. The Indian Banking Industry can be categorized into non-scheduled banks and scheduled banks. Scheduled banks constitute of commercial banks and co-operative banks. There are about 67,000 branches of Scheduled banks spread across India. As far as the present scenario is concerned the Banking Industry in India is going through a transitional phase.

The Public Sector Banks(PSBs), which are the base of the Banking sector in India account for more than 78 per cent of the total banking industry assets. Unfortunately they are burdened with excessive Non Performing assets (NPAs), massive manpower and lack of modern technology. On the other hand the Private Sector Banks are making tremendous progress. They are leaders in Internet banking, mobile banking, phone banking, ATMs. As far as foreign banks are concerned they are likely to succeed in the Indian Banking Industry.

Company Profile

ICICI:- ICICI Bank was originally promoted in 1994 by ICICI Limited, an Indian financial institution, and was its wholly-owned subsidiary. ICICI's shareholding in ICICI Bank was reduced to 46% through a public offering of shares in India in fiscal 1998, an equity offering in the form of ADRs listed on the NYSE in fiscal 2000. ICICI Bank is India's second-largest bank with total assets of Rs. 4,062.34 billion (US\$ 91 billion) at March 31, 2011 and profit after tax Rs. 51.51 billion (US\$ 1,155 million) for the year ended March 31, 2011. The Bank has a network of 2,610 branches and about 8,003 ATMs in India, and has a presence in 19 countries, including India. ICICI Bank offers a wide range of banking products and financial services to corporate and retail customers through a variety of delivery channels and through its specialised subsidiaries in the areas of investment banking, life and non-life insurance, venture capital and asset management. ICICI Bank's equity shares are listed in India on Bombay Stock Exchange and the National Stock Exchange of India Limited and its American Depositary Receipts (ADRs) are listed on the New York Stock Exchange (NYSE).

IDBI: - Industrial Development bank of India (IDBI) was constituted under Industrial Development bank of India Act, 1964 as a Development Financial Institution and came into being as on July 01, 1964. It was regarded as a Public Financial Institution in terms of the provisions of Section 4A of the Companies Act, 1956. Its headquarter is in Mumbai. As on March 31, 2011, IDBI Bank has a balance sheet of Rs.2.53 lakh crore and business size (deposits plus advances) of Rs.3.38 lakh crore. As an Universal Bank, IDBI Bank, besides its core banking and project finance domain, has an established presence in associated financial sector businesses like Capital Market, Investment Banking and more recently, the Mutual Fund Business. Going forward, IDBI Bank is strongly committed to work towards emerging as the 'Bank of choice' and 'the most valued financial conglomerate', besides

generating wealth and value to all its stakeholders. Its chairman and managing director is MR R.M. Malla.

PNB :- The Bank opened for business on 12 April, 1895. The first branch outside Lahore was opened in Rawalpindi in 1900. In 1951, the Bank took over the assets and liabilities of Bharat Bank Ltd. and became the second largest bank in the private sector. With over 60 million satisfied customers and more than 5100 offices including 5 overseas branches, PNB has continued to retain its leadership position amongst the nationalized banks. Apart from offering banking products, the bank has also entered the credit card, debit card; bullion business; life and non-life insurance; Gold coins & asset management business. PNB is ranked as the 2nd largest bank in the country after SBI in terms of branch network, business and many other parameters. During the FY 2010-11, with 39.16% share of CASA to domestic deposits, the Bank achieved a net profit of Rs 4433 crore. Its chairman and managing director is MR K.R. Kamath.

AXIS BANK:- Axis Bank was the first of the new private banks to have begun operations in 1994, after the Government of India allowed new private banks to be established. The Bank was promoted jointly by the Administrator of the specified undertaking of the Unit Trust of India (UTI - I), Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC) and other four PSU insurance companies, i.e. National Insurance Company Ltd., The New India Assurance Company Ltd., The Oriental Insurance Company Ltd. and United India Insurance Company Ltd. The Bank as on 31st December, 2011 is capitalized to the extent of Rs. 412.57 crores with the public holding (other than promoters and GDRs) at 53.63%. The Bank's Registered Office is at Ahmedabad and its Central Office is located at Mumbai. The Bank has a very wide network of more than 1281 branches (including 169 Service Branches/CPCs as on 31st March, 2011). The Bank has a network of over 7591 ATMs (as on 30th September, 2011) providing 24 hrs a day banking convenience to its customers. This is one of the largest ATM networks in the country. Its chairman is MR Adarsh Kishore.

SBI:- It was founded on 1st July, 1955. Its headquarter is in Mumbai. As of March 2011, it had assets of US\$ 370 billion with over 13,000 outlets including 150 overseas branches and agents globally. Its chairman is Shri Pratip Chaudhuri. SBI provides a range of banking products through its vast network of branches in India and overseas, including products aimed at non-resident Indians (NRIs). The State Bank Group, with over 16,000 branches, has the largest banking branch network in India. SBI has 14 Local Head Offices situated at Chandigarh, Delhi, Lucknow, Patna, Kolkata, Guwahati (North East Circle), Bhubaneswar, Hyderabad, Chennai, Trivandram, Bangalore, Mumbai, Bhopal & Ahmedabad and 57 Zonal Offices that are located at important cities throughout the country. It also has around 130 branches overseas.

Objectives of Study

The objectives of the study are as under:

- 1) To analyse the fluctuations in the future market.
- 2) To analyse the current trend in the stock market.

Research Methodology

Scope of Study:-

My research is limited to 3 private sectors bank and 2 sectors bank. But the conclusion drawn from the study is applicable to investors in all over India as data is obtained from actual spot and future price at which actual trade was being conducted.

Limitations of Study:-

- 1) This study is limited to 5 banks only.
- 2) The most important constraint in this study is the data collection as Secondary data was selected for study. Secondary data means data that are already available i.e. they refer to the data which have already been collected and analyzed by someone else.
- 3) The data collected in research work was secondary data, So, this puts a question mark on the reliability of this data, which a very important factor of this study as conclusion has been derived from this secondary data only.
- 4) Here only one factor that affects stock market is taken into consideration but stock market is affected by many factors.

In our study we have adopted secondary source for the purpose of data collection. Data includes the spot price and future price of banks, that is being acquired from data exhibited in National Stock Exchange site and also some data is being acquired from various research journals.

Details of sample taken for analysis:-

Details of variables:-

Variables used in this research are as follows

- Spot stock price:- the price that is prevailing in the current market
- Future stock price:- it is calculated by the formula

$$F = S_0 \cdot E^{rt}$$

S_0 = spot price

E = Exponential

R = rate of risk free return

T = time period

➤ Basis: - the difference between the spot price & future price.

Method of analysis:-

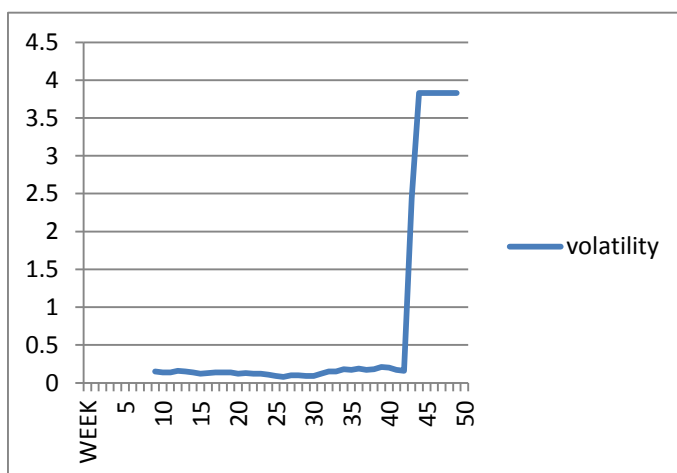
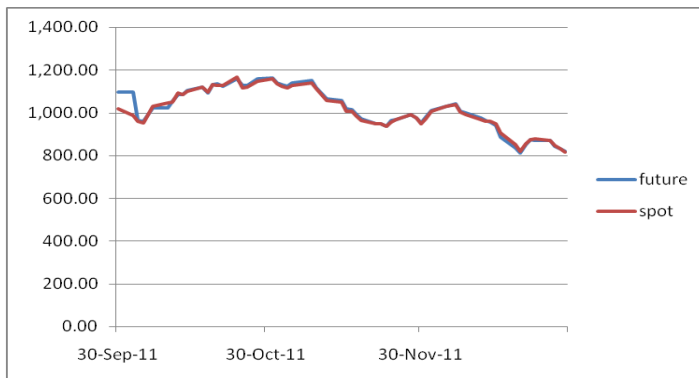
The research is being done so as to analyze the volatility in the stock futures as in the present scenario due to frequent fluctuations investors are unwilling to invest in the stock market, so to determine the rate of changes in the stock futures as compared to the spot prices In our study we have used the method of historical volatility for the purpose of computation of data.

Period of study

The present study covers a period of one year from 2010-2011.

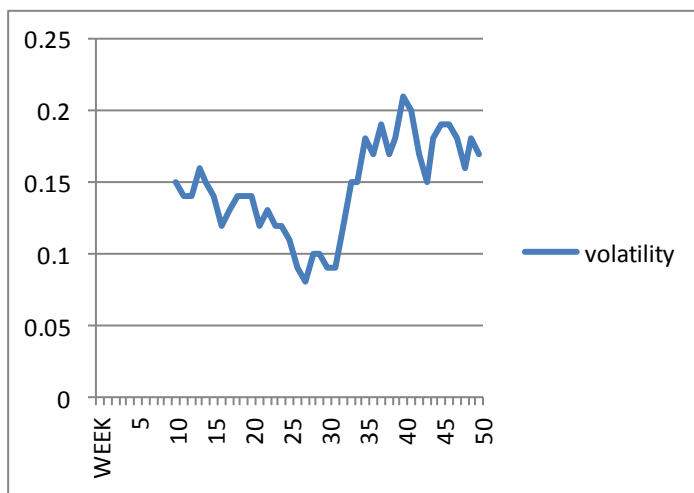
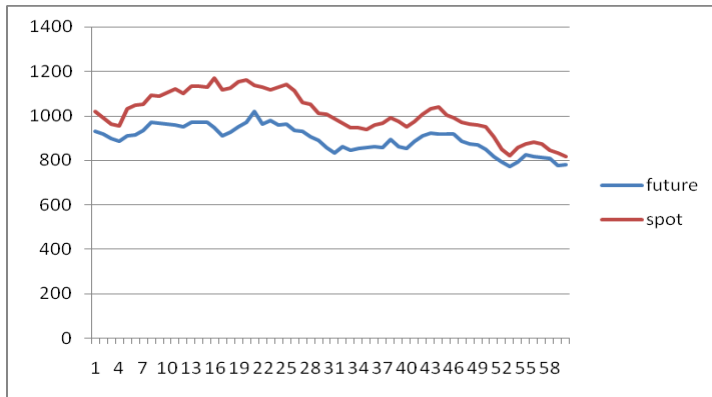
Empirical analysis

AXIS BANK



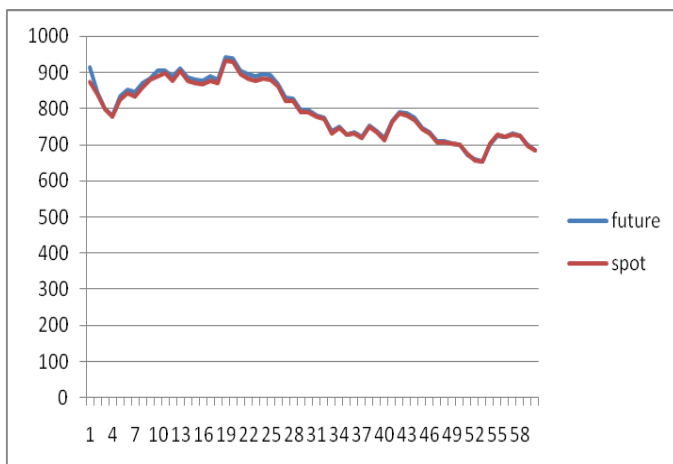
Interpretation: - From the above it can be analyzed that from the 10th week till 43rd week the volatility in the prices were constant and after 43rd week there was a sudden hike in the volatility.

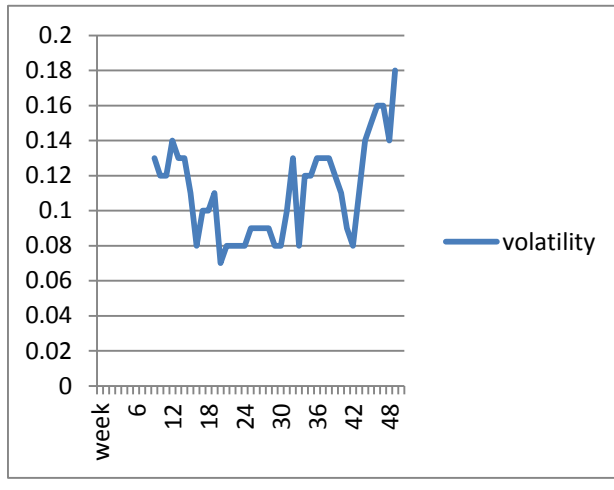
PNB



Interpretation: - from the above graph it can be analyzed that at 27th week the volatility was below 0.1 and at 40th week volatility has reached above 0.2.

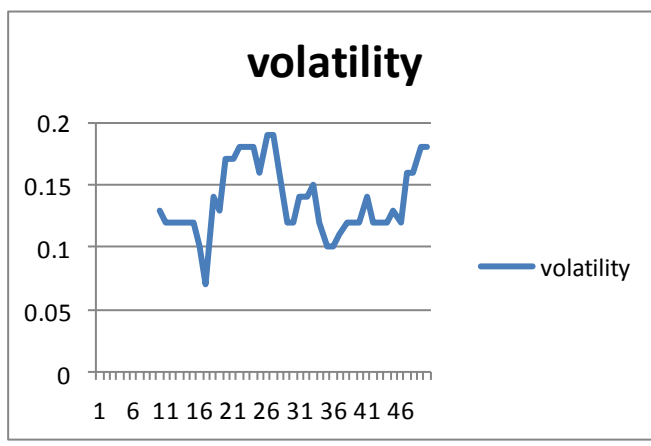
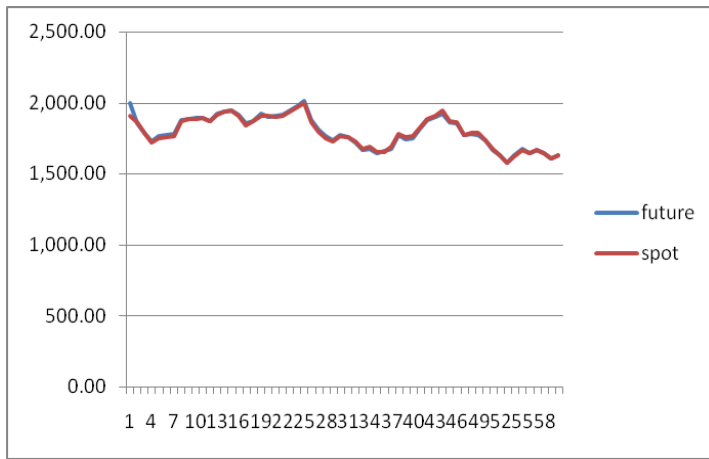
ICICI





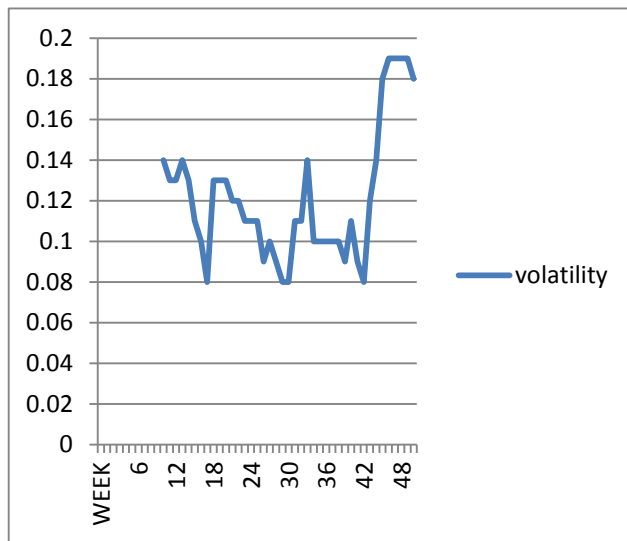
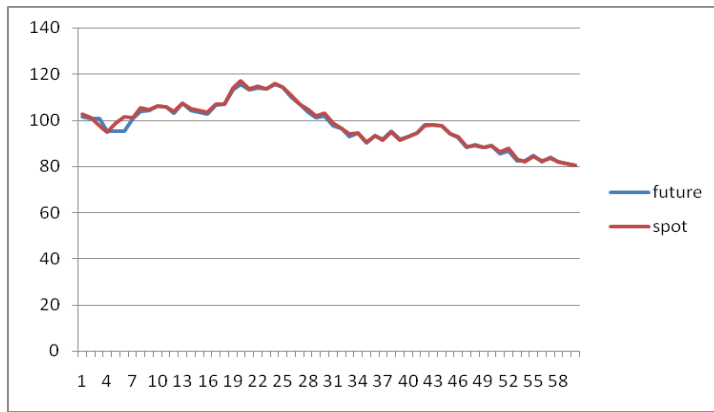
Interpretation: - in the graph of ICICI Bank it can be analyzed that there was regular fluctuations in the volatility as it started from 0.13 and the volatility has reached to 0.18 at the last week.

SBI



Interpretation: - from the above graph it can be analyzed that there was constant up and down in the volatility of SBI Stock price.

IDBI



Interpretation :- from the above graph it can be analyzed that the volatility in 17th week has fallen to .08 then at 19th week it rose again to 0.13 and again it came down to 0.08 at 30th week. It can also be said that volatility has never fallen below 0.08 levels.

Conclusion

Financial derivatives are the extensively used as an hedging instrument all over the world. Future and options are the two divisions of the derivative market. As we see that there is a lot of fluctuations in the spot market. So in order to hedge the risk of such fluctuations investors are going for derivative instruments. In our study we have focused five banks stock prices in order to determine the volatility in the stock market. The study states the difference between the spot prices and the future price of the stocks of the bank. The study shows the volatility in stock prices of five different banks of the year 2010-2011.

From the study it can be concluded that

The stock of Axis bank was very constant till 43rd week by after that the volatility increased from 0.3 to 3.7. This change is due to changes in the basis of the stock.

Holder of PNB stock can minimize the risk of loss by entering into future contracts. As through the graph we can see a wide difference in the spot stock price and the future stock price.

The stock of ICICI & SBI is showing constant volatility. It states that there is less fluctuations in both the stock.

The stock of IDBI is highly volatile. There is huge up & down in the volatility chart.

References

- Antoniou, A and P Holmes (1995): "Futures Trading, Information and Spot Price Volatility: Evidence from FTSE -100 Stock Index Futures Contracts Using GARCH?" *Journal of Banking and Finance*, 19(2), 117-129.
- Antoniou, A.P Holmes and R Priestley (1998): "The Effects of Stock Index Futures Trading on stock index volatility: An Analysis of the Asymmetric Response of Volatility to News?" *The Journal of Futures Markets*, 18 (2), 151-166.
- Bologna, P and L. Cavallo (2002): "Does the Introduction of Stock Index Futures Effectively Reduce Stock Market Volatility? Is the 'Futures Effect' Immediate? Evidence from the Italian stock exchange using GARCH", *Applied Financial Economics*, 12, 183-192.
- Bollerslev T. (1986): "Generalised Autoregressive Conditional Heteroscedasticity" *Journal of Econometrics*, 31, 307-327.
- Chatrath, Arjun, Sanjay Ramchander and Frank Song (1995): "Does Options Trading Lead to Greater Cash Market Volatility?" *Journal of Futures Markets*, 15 (7), 785-803.
- Cox, C C (1976): "Futures Trading and Market Information" *Journal of Political Economy*, 84,1215-37.
- Engle, R. (1982), "Autorregressive Conditional Heteroskedasticity with Estimates of United Kingdom Inflation", *Econometrica*, 50, 987-1008.
- Figlewski, Stephen(1981): "Futures Trading and Volatility in the GNMA Market" *Journal of Finance*, 36, 445-84.
- Kumar, Raman, Atulya Sarin and Kuldeep Shastri (1995): "The Impact of the Listing of Index Options on the Underlying Stocks" *Pacific-Basin Finance Journal*, 3, 303-317.
- Pericli, A. and G. Koutmos (1997): "Index Futures and Options and Stock Market Volatility" *Journal of Futures Markets*, 17(8), 957-974.