Money Basics-Series 1

VIX **16 August 2010**

Aditya Birla Money

Introduction

What is Volatility exactly?
Volatility is just a statistical term to measure the tendency of the market to fluctuate. Big fluctuations suggest fear, because they mean that investors are frantically changing their minds about what stocks are worth, in the face of great uncertainty. Smaller fluctuations suggest that investors are confident and they know what the stocks are worth.

Volatility Index (VIX) is a measure of market's expectation of volatility over the near term. In simple words, Volatility Index (calculated as annualised volatility, denoted in percentage e.g. 20%) is a measure of the amount by which an underlying Index is expected to fluctuate based on the order book of the underlying index options.

VIX is the ticker symbol for the **Chicago Board Options Exchange Volatility Index**, a popular measure of the implied volatility of S&P 500 index options. It is commonly called the VIX, and is often referred to as the "fear index."

India VIX is a volatility index based on the Nifty 50 Index Option prices. From the best bid-ask prices of Nifty 50 Options contracts, a volatility figure (%) is calculated which indicates the expected market volatility over the next 30 calendar days. i.e. higher the India VIX values, higher is the expected volatility and vice-versa.

History

The first VIX, introduced by the CBOE in 1993, was a weighted measure of the implied volatility of eight S&P 100 at-the-money put and call options. Ten years later, it expanded to use options based on a broader index, the S&P 500, which allows for a more accurate view of investors' expectations on future market volatility.

India VIX

Specifications: India VIX is a volatility index based on the Nifty 50 Index Option prices. From the best bid ask prices of near term Nifty 50 Options contracts (which are traded on the F&O segment of NSE), a volatility figure (%) is calculated which indicates the expected market volatility over the next 30 calendar days.

Calculation: Higher the implied volatility higher the India VIX value and vice versa. There are some differences between a price index, such as the Nifty 50 and India VIX. Nifty 50 is calculated based on the price movement of the underlying 50 stocks which comprises the index. India VIX is calculated based on the bid-offer prices of the near and mid month Nifty 50 Index Options. Nifty 50 Index is an absolute number, e.g. 4500, 5000 etc., whereas India VIX is a percentage value (e.g. 20%, 30% etc.).

The factors which will be taken into account to calculate the index include the following
1) Time to expiry of the options contracts of Nifty that are selected to calculate the index.
2) Interest rate: The NSE MIBOR rate is being considered as risk-free interest rate for the respective expiry months of the NIFTY option contracts.
3) A methodology called the forward index level is being used to select the contracts which will be used to calculate the index.
4) From these selected contracts, the best bid and ask spreads will be chosen.
5) Weightage is given to each of the options contracts that are chosen, as per the method adopted by the Chicago Board of options exchange (CBOE). The weightage of a single options contract is directly proportional to the average of best bid-ask spread of that option contract and inversely proportional to the option contract's strike price.

Significance: Whereas Nifty 50 signifies how the markets have moved directionally, India VIX indicates the expected near term volatility and how the volatility is changing from time to time. India VIX is a premier barometer of investor consensus of market volatility expressed through option pricing.
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Nifty v/s VIX daily chart

Above is the chart of India VIX over the last 3 years. Notice how high VIX values lead to market bottoms and vice versa. It shows that, the spikes in VIX values (e.g. 85.13) generally create market bottoms in Nifty (2524), and vice versa.

"Understanding Investor Sentiment is by far the most powerful tool an investor can use to understand exactly where the stock market is, and where it is going. But it is often hard to digest, as it is counter intuitive to our human nature."

Interpretation

The exact number given by VIX is what a statistician would call the "forecasted annualized standard deviation of returns." But don't let that mouthful put you off — it's actually quite simple. A VIX reading of 50 means that options prices are suggesting that, over the next year, stock prices are expected to fluctuate within a range of plus or minus 50%. A VIX reading of 20 would mean expectations that the market will fluctuate less, staying within a range of plus or minus 20%.

In most cases, a high VIX reflects increased investor fear or uncertainty and a low VIX suggests complacency or less stressful times. Historically, this pattern in the relationship between the VIX and the behavior of the stock market has repeated itself in bull and bear cycles. During periods of market turmoil, the VIX spikes higher, largely reflecting the panic demand for puts as the hedge against further decline in stock portfolios. During bullish periods there is less fear and therefore less need for portfolio managers to purchase puts.

By measuring investor fear levels tick by tick and day by day, the VIX, like many emotional gauges (e.g. put/call ratio), can be used as a contrary opinion tool in attempting to pinpoint market tops and bottoms on a medium-term basis. There are two ways to use the VIX in this manner. The first is to look at the actual level of the VIX to determine its stock-market implications. Another approach involves looking at ratio comparing the current level to the long-term moving average of the VIX.

Bottom-line

The VIX is a contrarian indicator that not only helps investors look for tops, bottoms and lulls in the trend but allows them to get an idea of large market players' sentiment. This is not only helpful when preparing for trend changes but also when investors are determining which option hedging strategy is best for their portfolio. A point to remember is that, even though benchmarking the past is a solid way to determine the future, nothing is set in stone.

It's not important whether the VIX is an accurate forecast of future volatility. All that matters is that,
The VIX functions as a barometer of fear. And it does that with striking accuracy.

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