

## Volatility Index, Fear Sentiment and Cross-Section of Stock Returns: Indian Evidence

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**Abstract :** The traditional finance theory neglects the role of sentiment factor in asset pricing. However, the behavioral approach to asset-pricing based on noise trader model and limit to arbitrage includes investor sentiment as a priced risk factor in the asset pricing model. Investor sentiment affects stock more than are vulnerable to speculation, hard to value and risky to arbitrage. It includes small stocks, high volatility stocks, growth stocks, distressed stocks, young stocks and non-dividend-paying stocks. Since the introduction of Chicago Board Options Exchange (CBOE) volatility index (VIX) in 1993, it is used as a measure of future volatility in the stock market and also as a measure of investor sentiment. CBOE VIX index, in particular, is often referred to as the 'investors' fear gauge' by public media and prior literature. The upward spikes in the volatility index are associated with bouts of market turmoil and uncertainty. High levels of the volatility index indicate fear, anxiety and pessimistic expectations of investors about the stock market. On the contrary, low levels of the volatility index reflect confident and optimistic attitude of investors. Based on the above discussions, we investigate whether market-wide fear levels measured volatility index is priced factor in the standard asset pricing model for the Indian stock market. First, we investigate the performance and validity of Fama and French three-factor model and Carhart four-factor model in the Indian stock market. Second, we explore whether India volatility index as a proxy for fearful market-based sentiment indicators affect the cross section of stock returns after controlling for well-established risk factors such as market excess return, size, book-to-market, and momentum. Asset pricing tests are performed using monthly data on CNX 500 index constituent stocks listed on the National stock exchange of India Limited (NSE) over the sample period that extends from January 2008 to March 2017. To examine whether India volatility index, as an indicator of fear sentiment, is a priced risk factor, changes in India VIX is included as an explanatory variable in the Fama-French three-factor model as well as Carhart four-factor model. For the empirical testing, we use three different sets of test portfolios used as the dependent variable in the in asset pricing regressions. The first portfolio set is the 4x4 sorts on the size and B/M ratio. The second portfolio set is the 4x4 sort on the size and sensitivity beta of change in IVIX. The third portfolio set is the 2x3x2 independent triple-sorting on size, B/M and sensitivity beta of change in IVIX. We find evidence that size, value and momentum factors continue to exist in Indian stock market. However, VIX index does not constitute a priced risk factor in the cross-section of returns. The inseparability of volatility and jump risk in the VIX is a possible explanation of the current findings in the study.

**Keywords :** India VIX, Fama-French model, Carhart four-factor model, asset pricing

**Conference Title :** ICEFR 2017 : International Conference on Economics and Finance Research

**Conference Location :** Paris, France

**Conference Dates :** October 19-20, 2017