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Volatility effect and the role of firm quality factor in returns: Evidence from the Indian stock market

Asheesh Pandey [a,*], **Sanjay Sehgal** [b]

[a] *Fortune Institute of International Business, New Delhi, India*
[b] *Department of Financial Studies, Delhi University, New Delhi, India*

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Abstract In the study, we examine if there are any volatility patterns in stock returns for India. Data are employed for 493 companies that form part of BSE 500 index from March 2000 to November 2013. Unlike previous international evidence, no volatility anomaly is observed. Consistent with theory, high volatility stocks significantly outperform low volatility stocks. Alternative risk models fail to explain the volatility effect. Consistent with prior research, we confirm the role of firm quality factor in explaining these volatility patterns. Cash flow variability seems to be a more appropriate measure of firm quality compared to profitability.

Introduction

The efficient market hypothesis as propounded by Fama in the 1970s has been sufficiently challenged in the last few decades by researchers around the world. Academics have found various anomalies, popularly referred to as capital asset pricing model (CAPM) anomalies, to counter the efficient market hypothesis, such as the value effect (Stattman, 1980), size effect (Banz, 1981), momentum effect (Jegadeesh & Titman, 1993), liquidity effect (Amihud, 2002) and net stock issues effect (Loughran & Ritter, 1995) to name a few. On similar lines, one of the prominent inconsistencies persisting in the past few decades has been the volatility anomaly. The volatility anomaly suggests that low volatile stocks tend to provide significant positive abnormal returns over high volatility stocks, and a long–short strategy can be adopted by traders to make riskless profits out of it.

Prior studies, particularly in the U.S., have acknowledged that low volatility stocks tend to outperform high volatility stocks. Clarke, De Silva, and Thorley (2006) find that minimum variance portfolios, based on 1000 large capitalisation U.S. stocks, result in a 25% volatility reduction and provide higher returns than the market portfolio. Ang, Hodrick, Xing, and Zhang (2006) find that over the period

* Corresponding author.
E-mail address: asheeshpandey@rediffmail.com (A. Pandey).
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1963–2000, U.S. stocks with high volatility earned abnormally lower returns. They based their research on a short term of the 1 month volatility measure. Blitz and Vliet (2007) extend the work of Ang et al. (2006) beyond the U.S. to other developed markets covering Europe and Japan, and use short term (1 month) as well as long term (36 months) volatility measure to test volatility anomaly. They find annual premium of 12% per year on a trading strategy which involves buying low volatility and (short) selling high volatility stocks. Further, they observe that the volatility effect cannot be explained by popular risk based models. Similarly, Baker, Bradley, and Wurgler (2011) show that contrary to basic risk principles, low volatility stocks outperform high volatility stocks. They show that such an anomaly has been in existence in the U.S. for the past four decades and provide various behavioural explanations for the same. Dutt and Humphery-Jenner (2013) confirm the presence of low volatility anomaly in developed markets outside the U.S. as well as in some emerging markets. Walkshausl (2013) tried to associate low volatility anomaly with the quality of the firm and provided a trading strategy of going long on high quality firms and short on low quality firms. Wang and Ma (2014) document a significant positive relationship between excess volatility and cross section of stock returns over a sample period of 1963–2010. Further, they show that these returns cannot be explained either by risk models using size, value and momentum factors, or by liquidity, bid-ask bounce and risk aversion related inventory effects.

There have been various explanations given in the international literature for the low volatility anomaly. Blitz and Vliet (2007) provide three possible explanations for volatility effect. One reason could be that leverage restrictions in low volatility stocks may not allow investors to arbitrage away the opportunity presented by them. It has been argued that it is not possible for low volatile firms to borrow at a scale needed to exploit the opportunity offered by low volatile stocks. The second reason could be that the volatility effect may be the result of the inefficient decentralised investment approach. The approach suggests that in the institutional investment industry, an investment decision is taken in two stages: first, asset allocation decision, and second, to buy securities within an asset class. In order to beat the benchmark, and if CAPM holds, asset managers are better off buying more volatile companies which make them overpriced, and selling low volatile stocks which makes them underpriced. Further, managers tend to outperform the benchmarks during upturns rather than during downturns and thus are willing to pay more for high volatile stocks during market upturns. The third explanation could be the behavioural biases, as explained by Shefrin and Statman (2000). They argue that investors tend to overpay for risky stocks as they have a characteristic of lottery tickets and do not pay much attention to low volatile stocks. This results in overpayment for risky stocks which reduces their returns while keeping the upside potential of low volatile stocks intact.

Baker et al. (2011) provide certain behavioural explanations for the existence of low volatility anomaly. One reason that they quote is that of the irrational behaviour of market participants wherein their preference for lottery like securities leads to higher demand for high volatility securities and decreases their returns. This was called "loss aversion" by Kahneman and Tversky (1979). The second reason could be behavioural biases of representativeness[1] (Tversky & Kahneman, 1974) and overconfidence[2] (Alpert & Raffia, 1982; Fischhoff, Slovic, & Lichtenstein, 1977). They cite benchmarking as another reason for the persistence of low volatility anomaly. Herein, they argue that this anomaly has gained importance over the years as participation of institutional investors in portfolio management has doubled from 30% to 60%. In order to beat benchmarks, these institutional investors always follow high volatile stocks and pay little attention to less risky stocks which obstruct the arbitrage opportunity.

Dutt and Humphery-Jenner (2013) show that low volatile stocks have high operating performance, and this improves a firm's ability to access the capital market which can help it take long dated entrepreneurial projects. This investment in projects improves the firm's efficiency and returns in the long term. They further state that high operating performance could be unexpected, and when it happens, the firm will experience higher stock returns as suggested by Core, Guay, and Rusticus (2006). There could also be a situation wherein the operating performance is not a surprise, but is uncertain. It is possible that such performance could result in high stock prices. They provide three reasons for it. One could be the revelation of information over time to investors, and as and when information reaches them, they re-evaluate the company. The second reason could be risky information content of expansion options. Herein, due to increase in operating performance, firms make risky investments and thus increase their returns. The last factor, according to Dutt and Humphery-Jenner (2013), could be return persistence which has been found in emerging markets. Alti, Kaniel, and Yoeli (2012) argue that in emerging markets, quality of information flow is poor and investors tend to wait for subsequent confirmation news to set stock prices which leads to persistence in returns.

Walkshausl (2013) shows that the volatility effect is associated with the quality of firms. Quality is measured by profitability factor and cash flow variability factor. He adds a quality factor to the Fama French model to explain the return behaviour of volatility portfolios, and finds that the return behaviour of low volatility portfolios is partially explained. Rambhia, Joshipura, and Joshipura (2013) examine low risk anomaly in the Indian context and find the presence of low volatility anomaly using data from 2001 to 2011.

One can see that a large body of literature on volatility anomaly exists for developed markets. However, limited empirical work on the subject is available for emerging markets, including India. Most empirical work has defied theory as low volatility stocks seem to outperform high volatility stocks across different market settings. Several behavioural expla-

[1] Representativeness bias: It means that investors tend to take one or two successful examples of success as the representative of the entire lot and pay a high price for volatility. For example, looking at the success of Infosys in the era of the 1990s, investors may have thought it to be representative of the entire technology industry, and that the road to riches is to buy volatile new technology stocks and pay a high price for them.

[2] Overconfidence bias: It means that prices in the stock market are generally set by optimists, and stocks with a wider range of opinions will have more optimists among their shareholders. This will result in selling of such stocks at higher prices and hence lower future returns.

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