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Stock return volatility, operating performance and stock returns: International evidence on drivers of the 'low volatility' anomaly

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ABSTRACT

This study highlights the link between stock return volatility, operating performance, and stock returns. Prior studies suggest that there is a 'low volatility' anomaly, where firms with a low stock return volatility out-perform firms with a high stock return volatility. This paper confirms that low volatility stocks earn higher returns than high volatility stocks in emerging markets and developed markets outside of North America. We also show that low volatility stocks have higher operating returns and this might explain why low volatility stocks earn higher stock returns. These results provide a partial explanation for the 'low volatility effect' that is independent from the existence of market anomalies or per se inefficiencies that might otherwise drive a low volatility effect. We emphasize the importance of controlling for stock return volatility when analyzing operating performance and stock performance.

1. Introduction

Prior studies have documented that 'low volatility' stocks tend to outperform 'high volatility' stocks, particularly in the US. Thus, this paper tests two issues: (a) whether the 'low volatility anomaly' documented in holds outside of the US, and particularly in emerging markets, and (b) whether a driver of this effect might be the relationship between low volatility returns and operating performance. In so doing, we establish that low volatility indeed leads to stronger operating performance, the low volatility effect exists in both emerging markets and developed markets outside of North America, and strong operating performance might at least partially account for the low volatility effect. These findings are robust to addressing issues of thin trading and transactions costs.

Low volatility investing has become an important issue in portfolio management.[1] Baker et al. (2011) find that, for the US, stocks in the bottom volatility-quintile on average earn higher future returns than do stocks in the other volatility quintiles. Other papers have reported similar results for the US and for developed markets (Ang et al., 2006, 2009; Blitz and van Vliet, 2007).[2] Baker et al. (2011) argue that the low volatility effect arises because sophisticated investors must adhere to a benchmark; and thus, are unable to fully exploit an arbitrage opportunity whereby it might be possible to systematically earn higher returns while assuming lower risk. Supporting this theory, Chan et al. (2002) find that mutual funds tend to stick towards a broad market benchmark. Subsequently, anomalies, such as the low volatility anomaly, can persist because institutional investors cannot fully exploit the excess returns they could gain from investing in such stocks. Additionally, the evidence that 'style drift' away from such a benchmark tends to harm performance,[3] would further discourage funds from actively seeking to exploit such anomalies.

The 'limits to arbitrage' explanation is a very plausible explanation it need not be the only explanation for the low volatility effect. The 'limits to arbitrage' explanation is particularly strong for US markets. This is because the US SEC requires funds to disclose a relevant benchmark (see Form N-1A). This requirement does not exist in all non-US markets. Further, other markets have a higher proportion of retail investors (following Gao and Lin, 2012; Kuo and Lin, 2012), who would be less constrained to follow a benchmark. While we do believe that benchmarking is important for investors in non-US markets, its effect might be weaker outside of the US. Also, the 'limits to arbitrage' explanation may be less dominant

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[1] See for example: Blitz and van Vliet (2007), Clarke et al. (2006, 2011), Ang et al. (2006, 2009), Lee (2011), Pachamanova (2006), and Alexander and Barbosa (2007).

[2] Although, we note that the low volatility effect does not have universal support (see Bali et al., 2005; Bali and Cakici, 2008).

[3] Chan et al. (2002) find that poorly performing mutual funds tend to shift styles; Cumming et al. (2009) find a negative relationship between style drift and performance in the private equity industry.

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in 'global emerging markets' portfolios where any benchmarking may actually encourage institutional investors to invest in these low volatility stocks that comprise emerging markets benchmarks.[4]

It is ex ante unclear whether limits on arbitrage would produce a low volatility effect in emerging markets. This is for several reasons. First, most commonly followed emerging market equity index benchmarks tend to comprise fewer stocks and tend to comprise the most stable stocks. Thus, investors benchmarked to these indices should be more able to arbitrage-away any potential excess profits that could arise from mispricing of low volatility stocks. Thus, we would postulate that the low volatility anomaly, if it exists within emerging markets, may be weaker or may have a different explanation.

Second, foreign (i.e. US) investors interested in investing in emerging markets might focus on the 'cleanest' exposure to emerging market growth, with the lowest levels of information asymmetry/information opacity.[5] These are typically larger stocks that are less volatile. This focus on large stocks means that investors may be more able to arbitrage-away any low volatility anomaly that exists in emerging markets. Thus, if limits on arbitrage are the only explanation for the low volatility effect, it might again be weaker in emerging markets.

Further, different markets have different laws and different securities exchange regulations.[6] These regulations can influence factors such as stock market liquidity (Cumming et al., 2011c), and the location of trade of cross-listed stock (Halling et al., 2008). This suggests that it is important to verify that the low volatility effect exists in different regulatory environments.

This begs the questions: does the low volatility effect still hold in emerging markets or in markets outside the US, and if so, is there an additional explanation for the presence of the low volatility effect?

One additional possible explanation for the 'low volatility effect' relates to operating performance and investment. Low volatility stocks would likely have strong operating performance as low volatility improves the firm's access to capital. In an efficient market, there should be an association between stock returns and (positive) earnings surprises, but not merely between stock returns and earnings per se (following Core et al., 2006). However, strong operating performance could increase returns for several reasons that we document in Section 3. These include the fact that strong low volatility facilitates access to capital, which can assist long-dated and entrepreneurial projects. Such projects might have distant cash flows, which the market will rationally discount (Martin, 2012). Subsequently, there will be an increase in stock price over time as information about the success of these projects becomes available.

We investigate the two issues: (a) does the low volatility anomaly exist outside of the US, and (b) could it have another explanation, such as higher stock returns reflecting consistently higher operating returns and earnings surprises? Any additional explanation would not be inconsistent with the explanation offered in Baker et al. (2011), instead, there can be multiple consistent and complementary explanations for any low volatility anomaly.

The results allow us to make two key findings. First, we find that the low volatility effect does exist in non-US markets and in emerging markets, and that the low volatility effect may partially reflect a firm's strong operating performance.[7] We find that firms in the lowest volatility quintile outperform those in other quintiles both in emerging markets and in developed markets outside of North America. Low volatility stocks also out-perform high volatility stocks in the across the major emerging regions: emerging Asia, Latin America, and EMEA (Europe Middle, East, and Africa). We find evidence largely consistent with a low-volatility effect in non-US/Canadian developed markets. This holds whether we examine value-weighted or equal-weighted portfolios.

Second, we show a significant relationship between low volatility and strong operating performance and that this can account for at least part of the low volatility effect. Part of the out-performance of low volatility stocks relates to operating performance. Specifically, the spread between 'strong' and 'weak' operations companies partially explains the monthly stock return spread between 'stable' and 'volatile' companies.

Further, we find that low volatility firms have significantly higher operating returns in addition to higher stock returns, and that firms with higher operating returns are likely to be in lower volatility quintiles. We also find a statistically significant reduction in the impact of 'volatility' on stock returns after controlling for operating performance.[8] This implies that there is a relationship between strong operating performance and low volatility.

There are several potential explanations for the relationship between operating performance, volatility, and returns. The results could reflect the possibility that low volatility firms are able to outperform market expectations, thereby generating positive unexpected news. Alternatively, the result may arise where the market expects low volatility stocks to outperform, but the uncertainty associated with this out-performance means that the market does not immediately impound its expectations into prices, causing the market to re-evaluate stock prices over time as information becomes more certain. Additionally, in emerging markets, the result is consistent with the theory of return-persistence in Alti et al. (2012). The theory is that if the information environment is poor and investors feel positively about a stock, then investors might interpret subsequent strong operating figures as confirmation of their beliefs. This perceived conformation can cause investors to over-estimate the precision of their information and upwardly value the stock.

We ensure that the results are robust to the main criticism of the low volatility effect: its economic tractability in the presence of transactions costs. Li et al. (forthcoming) argue that the low volatility effect is not beneficial after controlling for the presence of low liquidity and high trading costs. Similarly Liang and Wei (2012) show that low liquidity stocks command a risk premium. However, we find that low volatility stocks still earn higher stock

[4] The fact that portfolio managers tend not to disclose their portfolio holdings makes it difficult to present direct evidence of this effect. However, Alti et al. (2012) highlight that emerging-market portfolio managers are sensitive to information asymmetries, and prefer to invest in companies with better information disclosures (which are typically larger, more stable stocks). Further, to the extent that portfolio managers (partially) disclose their portfolio holdings, there is evidence that some emerging market portfolio managers prefer to invest in large, highly capitalized, companies (see e.g. the investments of Colonial First state (2012); it is also implied in the approach of Schroders (2011), who purport to derive 50% of their value from country selection (i.e. country beta) and have an investible universe of only 700 stocks across 25 countries, implying that they focus on larger, more stable, companies).

[5] See for example the results documented in: Grinblatt and Keloharju (1999) document a home-language bias in investments. Coval and Moskowitz (1999) find a home bias in US funds. Brennan et al. (2005) find that foreign investors have an informational disadvantage.

[6] Myriad papers document differences in securities laws and regulations between markets, and document that these influence the way in which traders behave and influence the efficiency and liquidity of financial markets (e.g. La Porta et al., 1997, 1998; Cumming and Johan, 2008; Djankov et al., 2008; Spamann, 2010; Cumming et al., 2011c; Humphery-Jenner, 2011a, 2012).

[7] The results focus on 'absolute volatility' rather than on idiosyncratic volatility. This is for two main reasons: First, the goal is to directly examine the implications of the Baker et al. (2011) model. Second, focusing on absolute volatility avoids the need to determine an appropriate market benchmark from which to compute idiosyncratic volatility. This avoids complications that might arise due to the documented home asset bias in investment.

[8] We identify this by examining the impact on the volatility/return relationship after controlling for operating performance in a Fama and French (1993) type framework.