WHITEPAPER

Safe Haven or Danger Zone?
Crowding Risk in Low-Volatility Investments

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HighVista Strategies

HighVista Strategies is a Boston-based investment firm established in 2004. Today, HighVista manages over $3 billion in assets on behalf of institutions and individuals, including systematic investment strategies focused on capturing risk premia to enhance returns. Equity strategies include US, International, and Emerging Markets that are constructed relative to desired benchmarks.

Executive Summary

Over the past decade, interest in low volatility strategies has surged with institutional and retail investors alike. With increasing popularity comes increased risk of crowding and the potential for lower returns in the future. Recent headlines discussing impending and violent underperformance of low volatility investing command further investigation into whether this investment approach has entered dangerous territory. After examining the state of low volatility investing through several lenses, we show that increased popularity has led to a more crowded trade, however we do not conclude that investors should immediately abandon these strategies. Instead, we believe avoiding this crowded trade can be achieved through more thoughtful approaches to implementation.

Safe Haven or Danger Zone?
Crowding Risk in Low-Volatility Investments

The last decade has been superb for low volatility investment strategies. These strategies gained prominence following the financial crisis of 2008-2009 as new and compelling research coincided with growing investor demand for “safer” equity strategies. The popular press heralded this new approach with its promise of competitive returns with less risk, and assets and performance followed.

Recent headlines, however, are singing a different tune, one that reminds us of the opening scenes of the 80’s movie Top Gun with its iconic rock anthem, *Danger Zone*. As these articles note, inflows to low-vol strategies have persisted even as markets have calmed and valuation levels of low-vol stocks have become elevated. Is it time to get out?

In what follows, we use several measures to explore just how close to the Danger Zone we may be. While we do find evidence that low-vol stocks have become more crowded, more correlated, and more expensive, we do not conclude that investors should immediately abandon these strategies. We, instead, advise proceeding with caution, and particularly re-evaluating the way in which these strategies are employed.

What Exactly is Low Volatility Investing?

“Low volatility” in quant investing is largely used interchangeably with “low risk” even though price volatility is just one, albeit the simplest and commonly used, measure of risk. Variants of this factor have been thoroughly documented in academic literature for decades, with the most explicit endorsements as a standalone investment strategy voiced in the last 15 years. The measurement of volatility/risk can encompass many types of risk and can be evaluated at the portfolio level (reflecting correlations among stocks) or more simply at the stock level using the standard deviations of trailing returns. Whatever the design, the underlying thesis appears to be similar: low-risk stocks outperform high-risk stocks, at least in part because high-risk stocks have been bid up by active investors seeking to capture the outsized returns these stocks offer. The perception is low-risk stocks are boring, high-risk stocks are exciting, and investors prefer exciting stocks, which creates a tailwind for unloved low-risk stocks. As the measures used to sort stocks into low- and high-risk buckets yield very similar results, for the rest of this paper we adopt a simple expression—the standard deviation of trailing 1-year daily returns, by sector—as our method for sorting portfolios.

Are Low Volatility Stocks Flying into the *Danger Zone*?

How would we know if we are entering the danger zone for low volatility strategies? While there is no perfect measure, in what follows we highlight a few of the warning signs present today. These include relative valuations, fund flow trends, within-group correlations, and co-movement with other factors. In preview, while we are skeptical of factor timing we do see some trends worth watching.

Measure 1: Relative Valuations

Perhaps the clearest warning light is the valuation of low volatility stocks. This has recently been emphasized in the media utilizing P/E ratios of low volatility indices. While P/E level is somewhat informative, it is more useful to look at the spread between valuation of low vol stocks and the rest of the market—especially as general market valuation levels have increased throughout the current 10-year bull

market. It is also helpful to avoid the use of index products as the unit of analysis, as we have seen commonly done in the popular press, as their specific construction methodologies bias the analysis in material ways. Instead, in our analysis we simply evaluate the 20% of the U.S. large cap universe with the lowest trailing 12-month return volatility compared with the median. As **Figure 1** illustrates, the valuation premium of these stocks has grown significantly in the last 10 years.

Figure 1: Valuation Spread of Low Volatility vs. Market Median Forward P/E - U.S. Large Cap[1],[2]

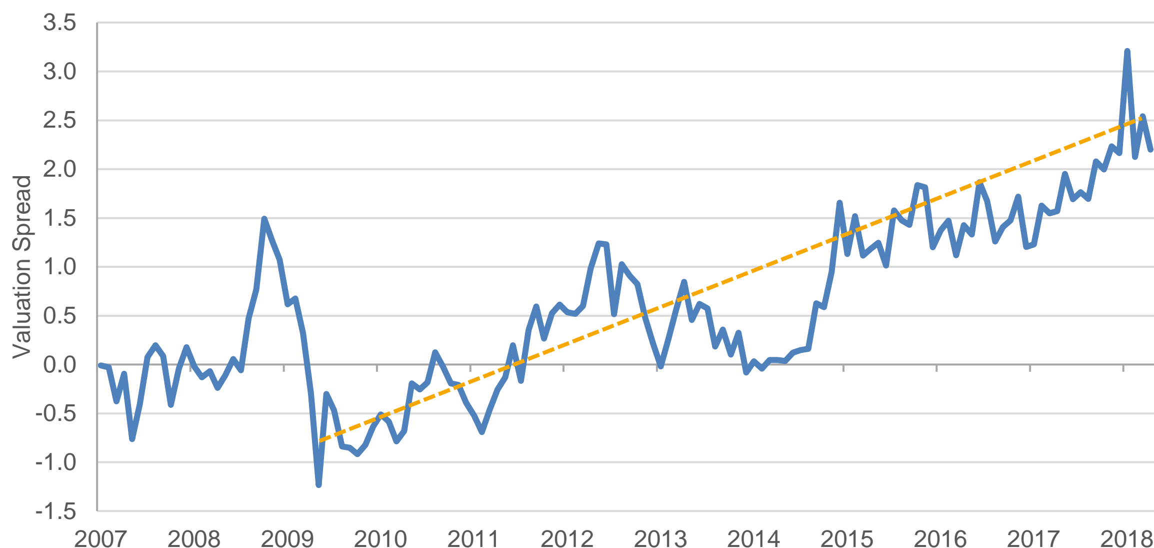

Figure 1 illustrates both temporary and long-term effects in the relative valuation of low-vol stocks. Note first that the valuation premium of low-vol stocks tends to spike during negative market inflections. This is visible in the figure above during the financial crisis, the European debt crisis and the recent market downturn. This supports the idea that low-vol stocks are more valued as market risks increase and investors seek safer securities. Note however that this increase in relative valuation quickly reverses immediately following these downturns as risk appetite returns.

More worrisome in **Figure 1** is the long-term trend in valuation since the GFC. After the tumult of the financial crisis many investors naturally sought safer alternatives and low-vol investing gained prominence. Based on at least this simple measure this attention has remained and appears to have caused these stocks to trade at a higher relative multiple than they did previously.

Measure 2: Fund Flows

To corroborate our thesis we consult another potential warning light—fund flows into low-vol products. Anecdotally, many institutional as well as retail investors discovered low-vol investing in the aftermath of the financial crisis; we have heard some large pension plans have even declared low-volatility as a new asset class unto itself. As **Figure 2** shows this interest has translated into growth in AUM of low-volatility strategies:

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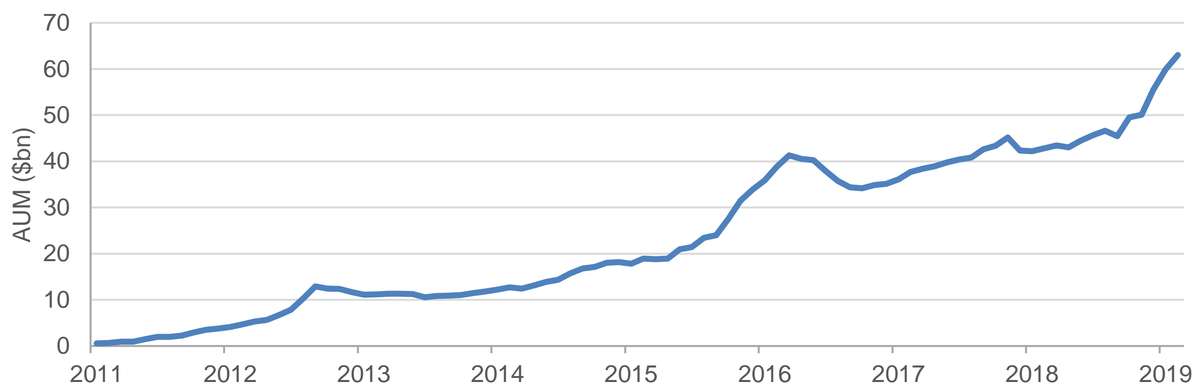
[1] Source: Thomson Reuters and HighVista Strategies LLC.

[2] To compute aggregate P/E value, we aggregate the E/P first and then invert.

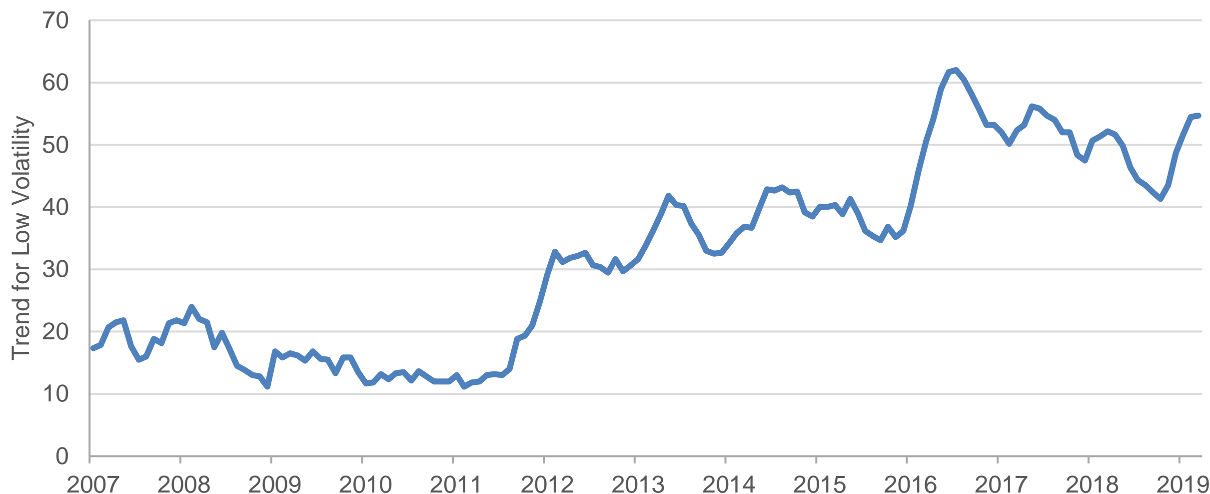
Figure 2: AUM in U.S. Low-Volatility ETFs[3]



At the same time, the recent prevalence of low-vol in the media and academic literature has led to a shift by some asset managers to embed low-volatility aspects into their stock selection or portfolio construction processes. Barra- or Axioma-style equity risk factor models are increasingly utilized to minimize risk, thus favoring lower-volatility securities. While fund flows to low vol products can be measured, the effect of these more subtle trends is less observable.

Stylistically, however, interest in low-vol investing has risen significantly as shown by a simple Google trend line in **Figure 3** below. The overlap in fund flows and investor interest is of course expected, though likely underestimates the many ways low-vol investing has become more accepted in recent years.

Figure 3: Google trend for Low Volatility over time (trailing 6-month average)[4]



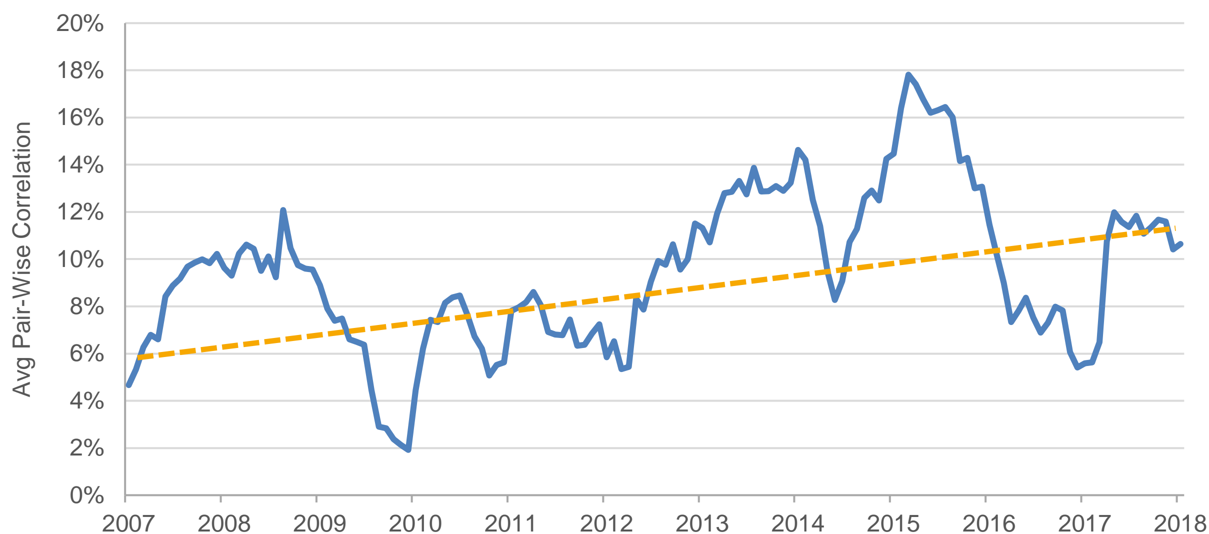
Measure 3: Pairwise correlations

As more and more investors pile into a trade, or factor in this case, its price gets pushed up and future long-term expected returns are reduced, at least theoretically. Perhaps equally worrying is the potentially violent periods of volatility and underperformance caused by feedback loops that may quickly swing a factor or asset class from in-favor to out-of-favor.

[3] Source: HighVista Strategies LLC and Bloomberg.
[4] Source: Google trends.

One measure of the susceptibility of a factor to these upheavals is the correlation among its constituent stocks. If all low-vol stocks become highly correlated to one another that can indicate their price movements are driven more by factor-level sentiment than by idiosyncratic causes—and this strong co-movement can just as easily move sharply negative! As the correlation among all stocks rises and falls for many reasons, the comparison of interest is the correlation among low-vol stocks versus that among all stocks. **Figure 4** plots this difference in correlation over time.

Figure 4: Avg pair-wise correlation Low Vol quintile vs market[5]



While modest, the correlation among low-vol stocks has risen relative to the correlation among stocks generally, consistent with evidence of crowding.

Warning Lights – Time to Get Out?

The measures presented above all point in the same direction. Low-vol stocks have become more expensive, more crowded, more correlated and more susceptible to reversals. Does this mean low-vol strategies should be abandoned immediately? We think the answer is no for several reasons.

First, the strength of the evidence presented should not be overestimated. While directionally troublesome, the level of overvaluation and size of flows is not necessarily dramatic. Other factors have experienced substantially larger relative valuation changes (the value factor over the last 20 years for example) without a consistent near-term relationship to future performance. Factor timing of any kind is a challenging game and we are skeptical that anyone can play it successfully. At this time, it is not clear to us that avoiding low-vol today is the best course of action. However, we would call it a trend worth watching.

Second, some indicators that in the past have given cause for concern are not yet present. One of our favorites is the alignment of low volatility and momentum strategies. This metric is illustrated in **Figure 5** below, which overlays periods of strong underperformance for low volatility with its cross-sectional exposure correlation with momentum.

[5] Source: Thomson Reuters and HighVista Strategies LLC.

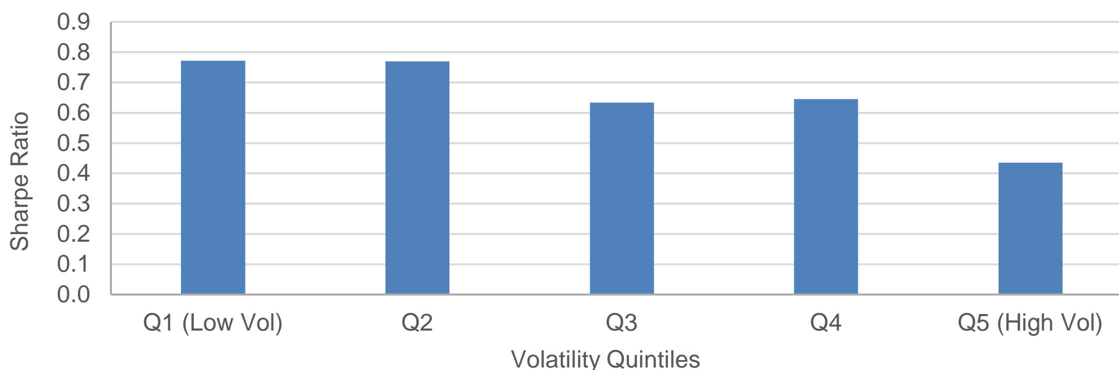
Figure 5: Momentum & Low Volatility exposure correlation[6]

Periods of higher correlation of momentum and low-volatility are usually driven by market risk-aversion pushing investors toward lower-risk securities. When risk-appetites return after a shock, investors often jump for beaten down, riskier assets to the detriment of safer assets that kept them afloat during the storm. Based on this chart, the market correction at the end of 2018 showed a relatively modest uptick in correlation and may indicate a lower risk of inflection in the very near term.

Winning by Not Losing

Finally, we remain convinced that much of the benefit of the low-volatility anomaly can be captured without exposing a portfolio to this crowding risk. Recall that our focus in this paper has been the 20% of stocks with the lowest volatility. Is there anything of interest in the other 80% that relates to the principle of low-vol investing? We think the answer is clearly yes! Low volatility strategies are built on the empirically sound principle that, historically, lower risk securities have outperformed higher risk securities.[7] To capture this, many products and practitioners focus almost myopically on the lowest volatility stocks. This principle however holds strongly in the opposite tail as well—high volatility stocks do poorly in the same way that low volatility stocks do well. In fact, the relationship with return seems if anything stronger with high-vol stocks than with low-vol stocks. One illustration of this result is shown in **Figure 6** below.

Figure 6: Sharpe Ratio of Vol Quintiles[8]



[6] Source: Thomson Reuters and HighVista Strategies LLC.
[7] Past performance is not necessarily indicative of future results.
[8] Source: Bloomberg.

The bar to the far right represents the 20% of stocks with the highest volatility, which over this period underperformed substantially as measured by Sharpe Ratio. Given this result and the potential for crowding in low-vol stocks perhaps a more-sound strategy would be to simply avoid high-vol stocks rather than load up on low-vol?

To further test this idea, we measure the valuation of these high-vol stocks in the same way that we evaluated the current valuation of low-vol stocks. If they are very cheap (perhaps due to the same low-vol crowding phenomenon) then avoiding them may be a poor strategy today—they may be "uncrowded" and therefore attractive. **Figure 7** below shows the result for the 20% of stocks with the highest volatility, comparing their trend in P/E valuation to that of the median stock, using the same method and time-period as **Figure 1**:

Figure 7: Valuation Spread of High Volatility vs. Market Median Forward P/E - U.S. Large Cap[9]

High-vol stocks have not cheapened over the same period that low-vol stocks have become more expensive. Given the historical underperformance shown in Figure 6, avoiding high-vol stocks may allow for capturing the low-vol effect without piling into the far end where flows, valuations and correlations have risen.

We call this approach "Winning by not losing". It essentially focuses on avoiding negative factors rather than loading up on positive ones. This is a key principle of our multi-factor approach. It seeks to both to capture factor excess returns systematically and to avoid crowded securities with their concomitant risk of correlated drawdowns.

In addition to avoiding negative factors, there are a multitude of other approaches that can be used to improve the risk profile of the portfolio, many of which we also employ. Combining with a valuation screen, for example, is a simple way to exclude stocks which have extremely high valuation. Including measures of quality or momentum could also reduce crowding effects, as would using less conventional measures and definitions of risk. Each of these are examples of the subtle yet powerful details that we view as essential to the pursuit of harnessing excess returns from factors in a systematically and risk-controlled way.

[9] Source: Bloomberg and HighVista Strategies LLC.

Conclusion

A dollar saved is a dollar earned – As the saying goes, avoiding losses is a critical part of investing. Factor crowding has increasingly become a core risk in factor investing, but one which we believe can be managed. Today, measures such as flows, valuation, and correlations indicate an increase in crowding risk for the low-vol factor. While there is a clear trend, we view the magnitude as neither extreme nor warranting a tactical factor tilt entirely away from low-vol.

We do urge vigilance and a thoughtful consideration of sensible methods to reduce exposure to the potential risks of crowding. We are skeptical of factor timing, but prudent managers can attempt to craft their approach to mitigate the exposure to the ill effects of this factor crowding. Principles include monitoring a variety of metrics and data sources to understand the changing factor landscape, positioning toward a "winning by not losing" strategy, and combining factors to naturally guard against overvalued factors. Often the most difficult yet critical principle of investment management is carefully preparing well before reaching the *Danger Zone*.

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