

Beauty and the beast of low-volatility investing

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NOT ALL LOW-VOLATILITY STOCKS ARE CREATED EQUAL

This note sets out to construct a very bad low-volatility strategy. Comparing good and bad low-volatility strategies finds a large and significant return difference of 6% per annum. Clearly, not all low-volatility stocks are created equal. The results highlight the importance of being selective when investing in low-volatility stocks.

Two types of low-volatility investment approaches

Low-volatility investing is based on the empirical finding that low-volatility stocks tend to perform in line with the market or even better, contrary to theory which predicts below average returns.¹ We can broadly distinguish between two types of low-volatility products available in the market space nowadays. Generic low-volatility strategies essentially buy a well-diversified basket of low-volatility stocks. Such generic factor strategies are popularly known as smart beta. More sophisticated low-volatility approaches are based on the premise that backward-looking statistical risk measures are not the only information that is relevant when making buy and sell decisions. For instance, investors may want to avoid low-volatility stocks which are unattractive based on other risk factors², or based on factors related to expected returns, such as value and momentum³.

The best versus the worst low-volatility strategy

Historical simulations show that it is indeed possible to create a low-volatility strategy that is superior to a generic approach. Is it possible to also construct an inferior low-volatility strategy? In other words, a low-volatility strategy that is designed not to outperform, but to underperform a generic approach. This started out as a kind of joke, but the results turned out to be quite interesting. Comparing “good low-vol” with “bad low-vol” is relevant for various reasons. For instance, the bigger the gap between good and bad low-vol, the more important it is to be selective when investing in low-volatility stocks. Also, the analysis helps to better understand what differentiates a successful low-volatility approach from an unsuccessful one. Finally, distinguishing between good and bad low-vol stocks may shed new light on the performance of generic low-volatility strategies. These basically contain both types of stocks, although not necessarily in the same, constant proportion.

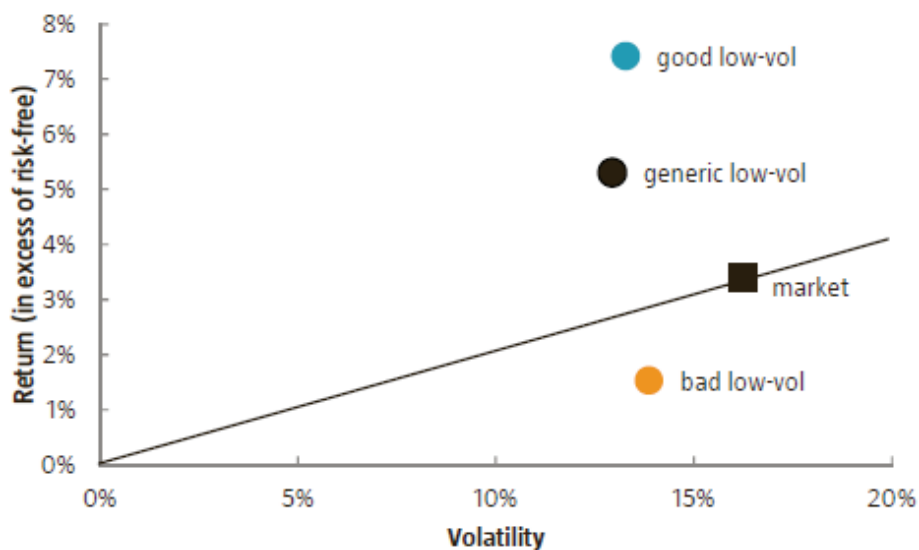
GOOD AND BAD LOW-VOLATILITY

Generic good and bad low-volatility strategies are simulated. The generic low-volatility strategy simply rank stocks in the FTSE World Developed index on past three-year volatility. For the good low-volatility strategy, a multi-dimensional view of risk is taken, using a wide range of statistical risk measures as well as proprietary distress risk factors, and additionally, account valuation and momentum factors. The aim is to avoid low-volatility stocks that are expensive in terms of valuation or have weak recent performance and instead, prefers low-volatility stocks that are cheap and have strong recent performance. The analysis also considers off-benchmark stocks that meet liquidity criteria. For the bad low-volatility strategy, the same approach is used as for the good low-volatility strategy, but with opposite weights given to the value and momentum factors.⁴ In other words, low-volatility stocks that are expensive and have weak recent performance are preferred. For all three approaches, similar buy-sell rules are applied and concentration limits on individual stocks, countries and sectors are included. The sample period is from January 1986 until December 2013.

Comparing different low-volatility

Figure 1 shows the long-term performance characteristics of the three approaches. The results for generic low-volatility strategy are consistent with those of many previous studies – compared with the capitalisation-weighted market portfolio, we see significantly lower volatility, but a return that is higher instead of lower. This is another confirmation of the low-volatility anomaly.

Figure 1: Long-term performance of different low-volatility strategies



Source: Robeco Quantitative Research. Historical simulations, January 1986 – December 2013.

Figure 1 also shows that the good low-volatility strategy achieves about the same volatility reduction as the generic approach, but manages to add over 2% to the average annual return. Interestingly, generic low-volatility is a bit closer to good low-volatility than to bad low-volatility. This is consistent with the finding that, in the long run, low-volatility stocks have been value-like more often than growth-like.⁵

Bad low-vol appears to be a bit more risky

The main new insight offered by Figure 1 is the performance of the hypothetical bad low-volatility strategy. Comparing its volatility with that of the market, note that bad low-vol still clearly classifies as a low-volatility strategy. Interestingly though, it exhibits a slightly higher volatility than both the generic and the good low-volatility strategy. This suggests that low-volatility stocks with unattractive valuation and momentum characteristics tend to be more risky than low-volatility stocks with attractive valuation and momentum characteristics. This result is consistent with the recent finding that value and momentum contain information for future volatility above and beyond the information that is already contained in measures such as past volatility.⁶

Bad low-vol has a very disappointing return

The most striking observation though is the poor return of the bad low-volatility strategy. Figure 1 shows that it underperforms the generic strategy by about 4% per annum, and the good low-volatility strategy by 6% per annum. The fact that the bad low-vol strategy is below the black line in Figure 1 implies that its return is so low that even on a risk-adjusted basis, it underperforms the market. The associated alpha is -1.1%.

Based on these results, we conclude that low-volatility stocks are highly heterogeneous. Different groups of stocks within the low-volatility segment of the market can have very different returns, not only in the short run, but also in the long run.

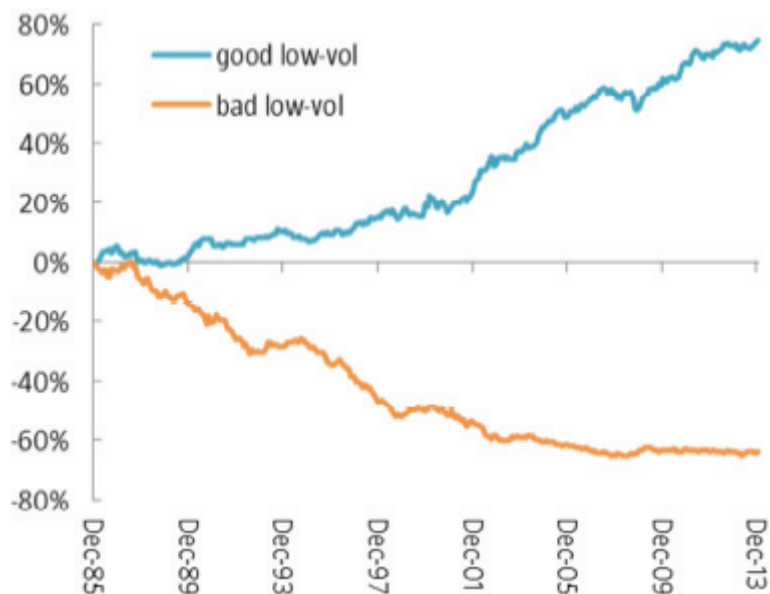
The bad low-volatility strategy discussed here represents the first attempt at constructing an inferior low-volatility strategy, so it is quite conceivable that there are other low-volatility strategies which are even worse.⁷ However, the return difference is so large that it is immediately clear that the selection of a good low-volatility manager can be as important as the decision to invest in low-volatility in the first place. The good news is that, in the long run, the average low-volatility stock is closer to the beauty than to the beast.

BEAUTY CONTEST OVER TIME

Figure 2 shows the cumulative performance of the good and bad low-vol strategies relative to the generic low-vol strategy. Observe that both the outperformance of good low-vol and the underperformance of bad low-vol are consistent over time. The outperformance is statistically significant at the 1% level with an information ratio of more than 1.

However, zooming in on individual calendar years, bad low-vol sometimes manages to outperform generic low-vol as well as good low-vol. This happens in 1994 (interest rate hike) and 2008 (credit crisis). The improved downside protection in these periods is not a general feature of bad low-vol, though. In some other tough equity years – for example, 1990 (first Gulf war) and 2002 (burst of the tech bubble), good low-vol outperforms generic low-vol, while bad low-vol significantly lags generic low-vol.

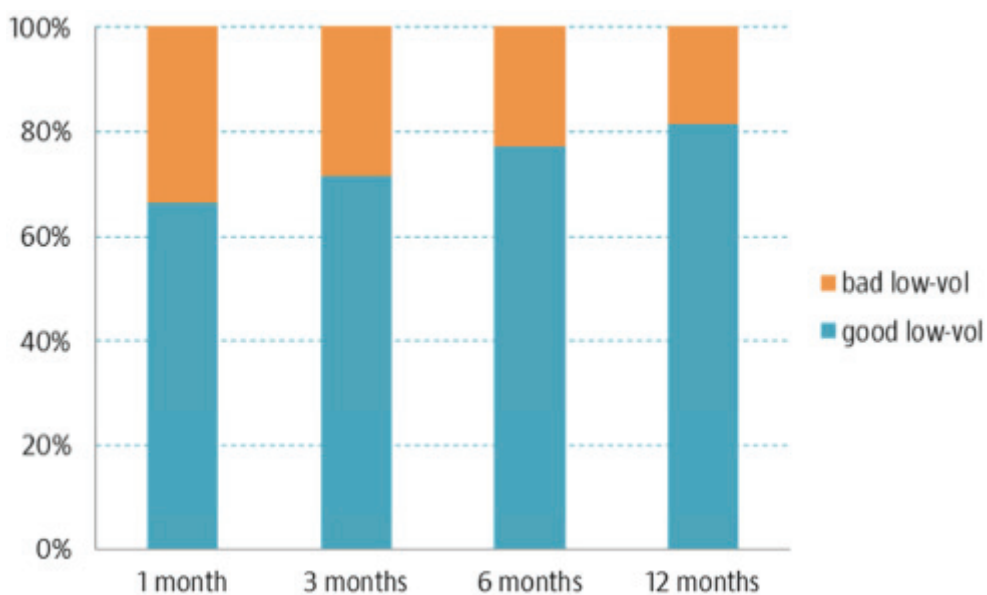
Figure 2: Cumulative performance of good and bad low-vol relative to generic low-vol



Source: Robeco Quantitative Research. Historical simulations, January 1986 – December 2013.

Figure 3 shows that good low-vol outperforms bad low-vol in two-thirds of all months. On a 12-month rolling basis, the odds of good low-vol outperforming bad low-vol improve to over 80%. However, although the return gap and the probability of outperformance are high, investors should be prepared for the unexpected⁸ – the beast sometimes beats the beauty.

Figure 3: Probability of good low-vol outperforming bad low-vol over different horizons

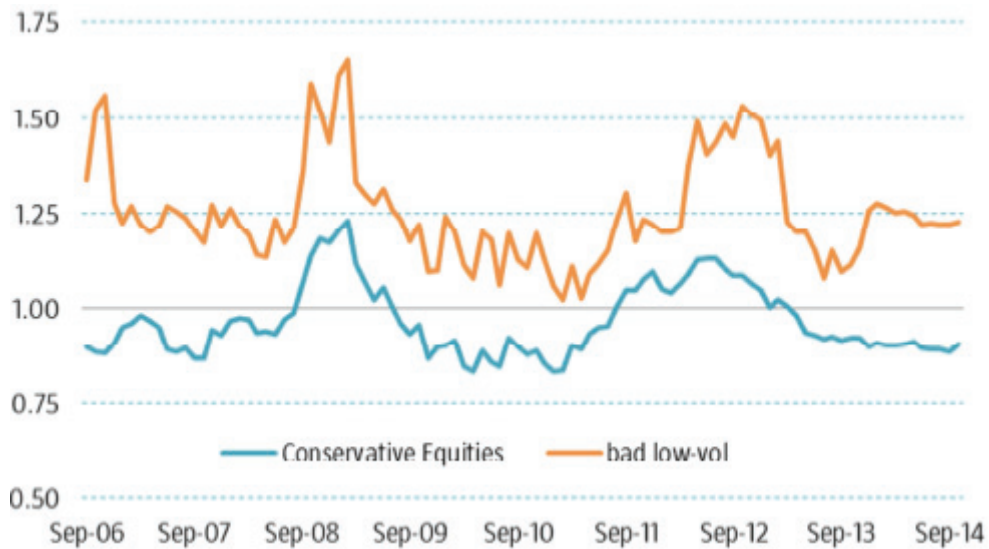


Source: Robeco Quantitative Research. Historical simulations, January 1986 – December 2013.

AVOID EXPENSIVE LOSERS

The bad low-vol strategy is identical to the good low-vol strategy except for the sign given to the value and momentum factors. By definition, therefore, the 6% difference in historical average annualised returns is entirely driven by different exposures to value and momentum. The figures below show the P/E and 12–1 month price momentum of good and bad low-vol, both measured relative to the market. For good low-vol (Conservative Equities), the figures start in September 2006. For the market index, the MSCI World index is used.

Figure 4: P/E ratio of good and bad low-vol, relative to the market



Sources: Robeco Quantitative Research, Factset.

Figure 4 shows that bad low-volatility is consistently more expensive than the market. Typically, its P/E is about 25% above the market. The P/E of Conservative Equities, on the other hand, is most of the time below the market. Compared with bad low-vol, it is consistently a lot cheaper. For this specific time period, generic low-volatility is somewhat more expensive than in longer-sample periods, which makes inclusion of value factors more important now than in other periods.⁹

Although the momentum characteristics of a strategy are usually not considered, they are just as important as valuation metrics. Figure 5 (over page) shows that bad low-vol has weaker price momentum than the market most of the time. Conservative Equities, on the other hand, exhibits better momentum than the market most of the time. However, there are also periods when even bad low-vol has good momentum, and there are also periods when even good low-vol has poor momentum. This can happen when practically all low-vol stocks do relatively well, as in 2008, or when practically all low-vol stocks lag the market, as in 2009. Relative to each other, however, good low-vol exhibits consistently better momentum than bad low-vol.

Figure 5: Momentum of good and bad low-vol, relative to the market



Sources: Robeco Quantitative Research, Factset.

Generic \approx Good + Bad

The good and bad low-volatility approaches represent two extremes of the low-volatility spectrum. The generic low-volatility strategy can also be interpreted as the approach that simply selects both types of stocks – that is, good ones as well as bad ones. Importantly though, the proportion of good versus bad low-volatility stocks is not constant over time. At some points in time, the majority of low-volatility stocks may have favorable value and momentum characteristics but, at other moments, the majority of low-volatility stocks may have unfavorable characteristics.

In the long-run, low-volatility stocks tend to be cheaper than the market and have somewhat better momentum, but the past five years have been particularly challenging for a generic low-volatility approach with higher valuation and weak momentum. For instance, at the end of 2014, the MSCI World Minimum Volatility index was more expensive than the market, in terms of P/E, and also had weaker momentum. The S&P Low Volatility index (SPLV) had a similar P/E ratio as the US market with weaker momentum. At the same time, the global and US Conservative Equities strategies had a lower P/E than the market as well as a better momentum.

BE SELECTIVE

This note has shown that different types of low-volatility stocks exhibit very different performance characteristics. A low-volatility approach which incorporates some value and momentum considerations tends to outperform a generic approach, but a low-volatility approach which intentionally goes against these factors significantly underperforms. Over

the past decades, the return gap between the two approaches would have amounted to an astounding 6% per annum.

Based on these results, it is clear that investors should not buy stocks merely based on their volatility (or other risk) characteristics, but also take into account factors that are known to have a large impact on returns, such as valuation and momentum. Generic low-volatility approaches tend to contain a mix of stocks that are attractive and stocks that are unattractive on such factors. On balance, the exposures of a generic low-volatility approach to other factors are not necessarily neutral, but can also be unattractive.

ENDNOTES

1. Blitz and van Vliet, "The Volatility Effect: Lower Risk Without Lower Return", Journal of Portfolio Management, 2007.
2. Blitz, Hanauer and van Vliet, "Predicting volatility", Robeco research paper, December 2014.
3. See for example Van Vliet, "Enhancing a low-volatility strategy is particularly helpful when generic low volatility is expensive", Robeco research paper, June 2012 and Blitz, van der Grient and van Vliet, "When factors disagree", Robeco research paper, October 2014.
4. For the bad low-volatility strategy we use the same risk factors as for the good low-volatility strategy, because we only aim for it to be bad in terms of return, so not in terms of volatility reduction.
5. See Van Vliet, "Enhancing a low-volatility strategy is particularly helpful when generic low volatility is expensive", Robeco research paper, June 2012.
6. Blitz, Hanauer and van Vliet, "Predicting volatility", Robeco research paper, December 2014.
7. For instance, for bad low-volatility we still use the same sophisticated multi-dimensional risk basket as for good low-volatility.
8. See Blitz and van Vliet, "Low-volatility investing: Expect the unexpected", Robeco research paper, October 2014.
9. See 'Enhancing a low-volatility strategy is particularly helpful when low-volatility is expensive', Robeco client paper, Pim van Vliet, June 2012.

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