

Rocaton

INSIGHTS

Low Volatility Equity Investing

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EXECUTIVE SUMMARY

- * Low volatility strategies are expected to deliver lower volatility relative to the market while generating similar returns over time. Domestic and global strategies tend to exhibit 20-30% and 25-35% volatility reduction, respectively.
- * Empirical evidence suggests that the lowest quintile beta stocks have outperformed the highest quintile beta stocks, which contradicts the Capital Asset Pricing Model. Low volatility strategies exploit this anomaly and are thus able to attain an attractive risk/return profile.
- * There are distinct differences between the various active low volatility strategies. Rocatón has segmented the group into four different strategy objectives: lowest volatility, volatility target, outperformance, and maximize Sharpe ratio.
- * A low volatility mandate can be appropriate for investors seeking to lower their equity portfolio's overall volatility and decrease losses in down markets.
- * Low volatility strategies typically have unique portfolio characteristics: low beta, overweights to defensive sectors, and a small cap bias relative to the market. Tracking error can be high due to the benchmark agnostic approach.
- * Low volatility strategies are benchmark agnostic so traditional metrics such as excess performance, tracking error, and information ratio are not particularly relevant. Metrics such as downside market capture, volatility, and Sharpe ratio are more appropriate.
- * Recent performance, especially in 2011 and 2014, has exceeded expectations. Low volatility strategies are not expected to outperform the broad equity market in strong up markets due to their defensive characteristics. Investors should have a long-term investment horizon.
- * Increased attention to low volatility strategies has led to significant asset inflows over the past five years. In addition, low volatility strategies are currently trading at a P/E premium relative to the broad market. The low volatility anomaly has seemingly persisted, but Rocatón is aware that it may eventually be arbitrated away. This should be a monitoring point for investors in low volatility strategies.

Introduction

Low volatility equity investing, sometimes considered among the “smart beta” strategies, has garnered a lot of attention and interest in the investment community since the financial crisis of 2008-2009. Low volatility investing is an investment approach with broad applications. Many investors have been searching for ways to reduce the overall volatility of their entire portfolio without sacrificing returns. Low volatility strategies are constructed in order to achieve those goals with the additional benefit of lower fees than traditional active management. Investment managers are able to attain an attractive risk/return profile due to the low volatility anomaly that exists in the stock market. Research supporting this anomaly dates back to 1972 when Michael Jensen, Fischer Black, and Myron Scholes published “The Capital Asset Pricing Model (CAPM): Some Empirical Tests,” which concluded that the relationship

between beta and realized return was not as strong as CAPM would suggest¹. Empirical evidence suggests that the lowest quintile beta stocks have outperformed the highest quintile beta stocks over time. This paper will provide insight into the low volatility anomaly, objectives, expectations, and client fit of low volatility strategies; however, not all client considerations may be addressed in this paper as Rocaton takes a client-specific approach to implementation.²

The Anomaly and Portfolio Characteristics

The low volatility anomaly is a violation of CAPM, which suggests stocks with high betas are expected to outperform stocks with low betas over time. Essentially, higher risk leads to higher reward. However, numerous studies have shown this model may not be correct – these studies have shown that the lowest quintile of beta stocks have outperformed the highest quintile of beta stocks over time.

Investment managers developed low volatility strategies to exploit this market inefficiency by creating a diversified portfolio of low volatility stocks. The primary objective of these strategies is to deliver market-like returns, but with significantly lower volatility. These strategies are typically managed by quantitative investment firms that seek to maximize the expected excess return of a portfolio at a given level of volatility. Although these portfolios are diversified, there are numerous portfolio exposures that are necessary to attain the strategy's objective.

Low volatility strategies have unique portfolio characteristics that distinguish them from a traditional equity product. The most significant and obvious is a negative exposure to volatility. This comes from the portfolio's low beta and preference for high quality companies with minimal earnings variation. Focusing on lower volatility stocks will lead to a higher yield than the market as dividend paying stocks are typically more mature companies with a steady cash flow stream. This typically leads to overweights in defensive sectors such as utilities, health-care, consumer staples, and telecommunication services. Most low volatility strategies reduce the exposure to these sectors in a "naïve model portfolio" by limiting maximum sector weights and/or the strategy's exposure to interest rate sensitivity, but sector concentration can be a concern. Relative to the broad equity market, low volatility strategies also have a significantly lower average market capitalization. This may seem counterintuitive as large cap stocks are usually less volatile, but a material weight to small- and mid-capitalization stocks diversifies the portfolio and reduces the intra-correlation between portfolio holdings. The majority of volatility reduction in the portfolio comes from overweighting low beta stocks and not from an investment manager's underlying stock selection model. However, we believe a strong alpha model and a repeatable and transparent investment process are integral to achieving the best risk-adjusted returns for investors.

¹ Since then, numerous studies have come to similar conclusions. Notable authors include Robert Haugen (1972); Eugene Fama and Kenneth French (1992); and Malcom Baker, Brendan Bradley, and Jeffrey Wurgler (2011).

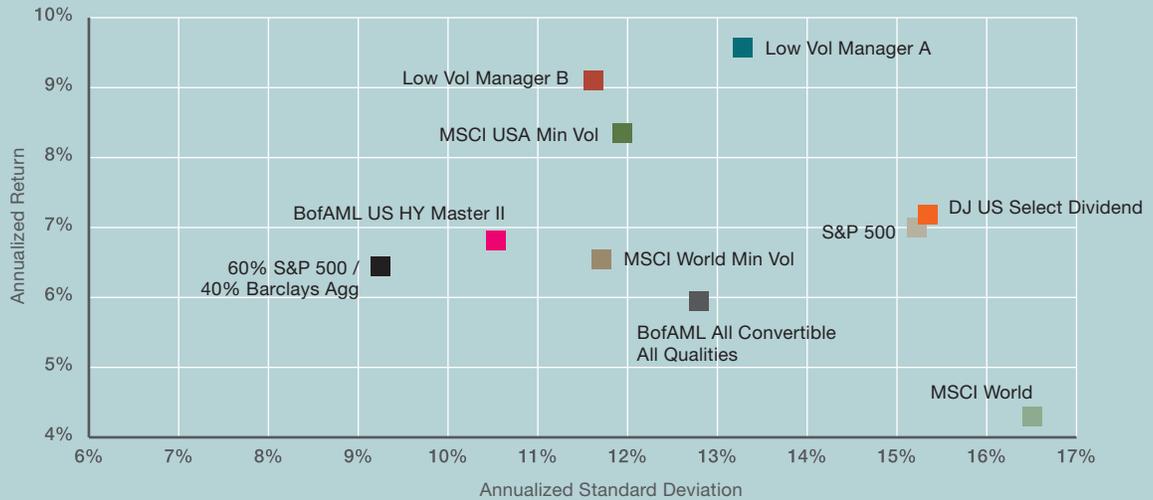
² Insight into the existence of the low volatility anomaly can be found in the Appendix.

Measuring Performance and Managing Expectations

When assessing the performance and risk level of low volatility equity strategies, one should not use traditional metrics such as excess performance, tracking error, and information ratio. Rocaton believes that these metrics do not properly measure the performance of low volatility strategies for several reasons. First, low volatility strategies are not designed to outperform their respective benchmarks over time; instead, these strategies are designed to match the return of the market over the long term with less volatility. Second, tracking error is generally only useful for strategies which are managed to a specific benchmark. Low volatility strategies are typically benchmark agnostic and are focused on absolute volatility, not relative volatility. For this reason, the strategies typically exhibit high tracking error. Third, when measuring performance per unit of risk for low volatility strategies, information ratio is not the proper metric to use as it measures excess return relative to a benchmark. Instead, investors should focus on a different set of risk metrics such as downside market capture, volatility, and Sharpe ratio. While low volatility benchmarks may be helpful from a performance comparison standpoint, Rocaton is hesitant to focus our analysis of low volatility strategies relative to a low volatility benchmark due to some concerns regarding benchmark construction processes. Most low volatility managers do not consider any benchmarks in their portfolio construction process.

The primary objective of low volatility strategies is to deliver lower volatility relative to the market while generating similar returns. Typically, U.S. low volatility strategies have exhibited a 20-30% volatility reduction while global strategies have exhibited a 25–35% reduction. These strategies should be expected to underperform the market in bull markets and outperform in bear markets. This should not come as a surprise given the focus on stocks with low volatility and strategy betas that are typically between 0.60 – 0.80. As previously stated, Rocaton believes downside market capture is a useful metric for these strategies as it measures a strategy's performance relative to a market benchmark in down markets. Many low volatility strategies optimize portfolios based on the expected Sharpe ratio of the portfolio. Managers typically seek to maximize the strategy's volatility reduction but, in order to achieve market-like returns, will create a portfolio with the most attractive return-to-risk ratios. The Sharpe ratio is beneficial as it measures absolute risk adjusted return rather than a benchmark relative risk adjusted measure (information ratio). Although the primary purpose of low volatility strategies is to decrease overall volatility, it is important to also consider the rate of return one is getting to ensure market-like performance.

Figure 1:
10 Year Risk
Reward Chart – As
of March 31, 2016



Source: Bloomberg, eVestment

Figure 1 depicts return and risk (standard deviation) of numerous benchmarks that investors may consider when seeking to reduce volatility, as well as two low volatility managers. Defensive equity is comprised of a diverse set of strategies, each with unique characteristics, such as managed volatility, long/short, and dividend strategies. Strategies such as convertibles, high yield, and balanced have sometimes been considered given the exposures and performance characteristics of these strategies. Low Vol Managers A and B are U.S.-focused strategies that have two of the longest track records in the peer group. Manager A has more of a return focus than Manager B, whose primary goal is risk reduction. The 10-year Sharpe ratios of Manager A (0.67) and Manager B (0.71) are higher than any benchmark considered, including the S&P 500 Index (0.45). The MSCI USA Minimum Volatility Index (0.64) and MSCI World Minimum Volatility Index (0.51) have achieved a Sharpe ratio in excess of their geographical benchmarks.

Figure 2:
Annual Benchmark
Performance

	2015	2014	2013	2011	2009	2008
MSCI World Min Vol	5.82	11.37	18.61	7.29	16.43	-29.68*
MSCI World	-0.87	4.94	26.68	-5.54	29.99	-40.71
MSCI USA Min Vol	4.92	15.76	24.37	11.94	17.47	-26.20*
S&P 500	1.38	13.69	32.39	2.11	26.46	-37.00

*Inception dates for the MSCI World Minimum Volatility Index and the MSCI USA Minimum Volatility Index are April 14, 2008 and June 2, 2008, respectively. Therefore, 2008 returns includes some back-tested performance.

Source: MSCI and eVestment Alliance

Figure 2 depicts annual returns for the passive minimum volatility indices relative to their respective broad market for select calendar years. Low volatility performance in 2008 and 2009 is in line with expectations as the low volatility proxies provided significant downside protection in 2008 but failed to keep up in the 2009 rally. In 2011, a year marked by significant volatility because of the Japanese tsunami, U.S. debt ceiling concerns, and sovereign debt crisis in Europe, the strategies performed well again. Similar to 2009, low volatility lagged in the strong up market of 2013. In 2014, when the U.S. and global markets delivered double digit returns, low volatility exceeded expectations. In the U.S., defensive sectors such as healthcare

(25.4%), consumer staples (17.0%), and utilities (16.3%) outperformed the benchmark while cyclical sectors such as materials and processing (4.5%) and energy (-10.2%) lagged. Low volatility strategies tend to be overweight defensive sectors. Materials and processing (-8.5%) and energy (-23.1%) continued to underperform the market in 2015, as defensive sectors such as consumer staples (8.0%) and healthcare (7.1%) led the market yet again. The calendar year of 2015 was a good example of a market environment that should benefit low volatility strategies – minimal or negative market returns led investors to decrease beta risk due to market volatility and uncertainty.

Fit in Investor Portfolios

So what type of investor should be interested in such a strategy? The most straightforward answer is investors who are looking to lower their equity portfolio's overall volatility and decrease losses in down markets. However, investors might want to consider offsetting an allocation to low volatility equity by reallocating their risk budget to another asset class that may offer more attractive return potential than large cap equities. Doing so can potentially lead to more attractive risk-adjusted returns at the total portfolio level. There are, however, many considerations that an investor should contemplate when implementing a low volatility strategy.

First, there are four types of active strategies which Rocatón has identified, each with their own nuance:

Lowest volatility – These strategies are the “purest” types of low volatility strategies. Managers that implement these strategies are less concerned about outperformance, and primarily focused on maximizing volatility reduction (while still maintaining market-like performance).

Volatility target – These strategies are very similar to the one previously mentioned except the strategies are optimized to a specific level of volatility reduction, and many times they can be customized for investors who want a specific level of volatility reduction. These strategies tend to have a slightly higher focus on performance than “lowest volatility.”

Outperformance – Some low volatility strategies target a certain level of outperformance relative to the market while also providing low volatility characteristics. Up market capture for these strategies tends to be higher than that of other low volatility strategies. Consequently, down market capture also tends to be higher for strategies which seek to outperform the market. For investors looking to combine more than one low volatility strategy, it may be beneficial to diversify among the approaches.

Maximize Sharpe – Lastly, some strategies solely focus on maximizing the Sharpe ratio of a portfolio. While volatility reduction often occurs from this approach, it is generally not the primary focus of the investment manager. This style of investing typically gravitates towards lower volatility stocks that have asymmetric payoffs in their model. The level of volatility reduction can change meaningfully over time so clients should not expect a relatively stable risk reduction.

Second, clients can choose from strategies across different regions, including U.S., global, international, and emerging markets. There are even low volatility small cap and 130/30 strategies. U.S. and global offerings have the largest number of stocks for managers to consider, which typically leads to a higher level of volatility reduction. Therefore, global strategies offer a higher level of risk reduction (25-35%) while domestic strategies generally deliver 20-30% reductions.

Implementation Considerations

- * The long only equity low volatility universe is relatively small, and most strategies only have a five- to ten-year track record.
- * Low volatility strategies may be difficult to implement for investors seeking a relative return strategy. Although low volatility strategies expect to provide market-like performance, very few low volatility managers consider a benchmark during the portfolio construction process.
- * Tracking error can be high in low volatility strategies due to its benchmark agnostic approach. For example, over the past ten years, Manager A and Manager B had a tracking error of 5.4% and 7.4%, respectively, relative to the S&P 500 Index.
- * Low volatility strategies are not expected to outperform the broad equity market in strong up markets due to its defensive characteristics. Investors should have a long-term investment horizon.
- * The largest driver of returns for low volatility strategies is the beta exposure of the portfolio. Sector allocation and the small cap bias are also meaningful drivers as low volatility strategies tend to overweight defensive sectors and small capitalization stocks, as well as underweight more volatile, cyclical sectors.
- * Due to recent strong performance driven by a flight to quality and yield, low volatility equities are trading at a premium relative to the broad market. For example, as of March 31, 2016, the MSCI USA Minimum Volatility's P/E ratio (22.5x) traded at a premium relative to the S&P 500 Index (19.1x). However, we should note that most active low volatility managers incorporate valuation metrics into their process so the resulting portfolio may have a P/E ratio similar to or perhaps even lower than the broad market.
- * Over the past five years, low volatility assets have approximately quadrupled according to data extracted from eVestment Alliance. Despite the increased attention to the low volatility investing, the anomaly has seemingly persisted. Rocaton is aware that this anomaly may eventually be arbitrated away and will continue to be a monitoring point.
- * Fees are lower than those of traditional active managers. Active low volatility managers typically charge between 30–40 basis points (bps) on a \$100 million account. For comparison, the median U.S. large cap core manager charges 50 bps and the median global large cap core manager charges 60 bps. In addition, passive low volatility options cost roughly 15–25 bps and passive equity options cost approximately 5–10 bps.

Conclusion

Low volatility investing seeks to exploit a market inefficiency by creating a portfolio that should provide market-like returns with less volatility over the long term. This is an attractive proposition that allows investors to either reduce the volatility of their portfolio without sacrificing return, or allows investors to enhance overall portfolio returns without increasing risk by also increasing allocations to asset classes with higher expected returns than long only equity. Potential investors should be aware that low volatility strategy performance has exceeded Rocaton's expectations during the recent bull market. As previously mentioned, these strategies are expected to outperform in down markets but lag in strong up markets. Investors should not be investing in low volatility strategies based on historical performance, and instead should be basing this decision on a desire for volatility reduction. Proper manager and/or benchmark selection is integral to meet these needs as all strategies are managed differently.

Appendix

Explanations for the Low Volatility Anomaly

The many theories for the low volatility anomaly tend to be rooted in behavioral finance. One explanation is tied to the combined result of the “certainty effect” and the “longshot bias.” People have poor judgement on valuing probabilities, especially very low and very high probability events. Longshots and certainty are overvalued, which is why people participate in the lottery and buy warranties on reliable household appliances. In the financial market, this may lead to higher interest and investment in poor quality stocks with very high betas and a wide range of outcomes (“longshots”). In addition, low volatility stocks are not viewed as “guarantees” because of the stock specific risk, so they are typically undervalued by the market (bonds are viewed as the “certain” option). The anomaly can also be explained by mutual fund flows and portfolio manager incentives and behavior. Jason Karceski (2002) found that the largest inflows into equity mutual funds occur after a strong up market and the least amount of inflows occur during and after a down market. Investors favor recent performance, which provides an incentive for portfolio managers to invest in high beta stocks so they outperform in up markets, when most equity inflows occur. This behavior increases the demand for high beta stocks, which raises valuations on these stocks and lowers future expected returns.

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Low Volatility Equity Investing

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