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The Low Volatility Effect: Slow and Steady Wins The Race



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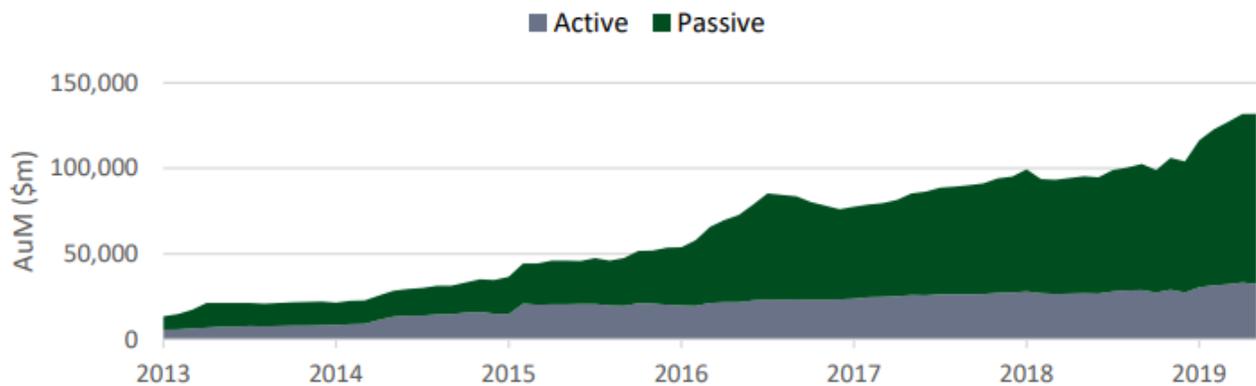
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“The Low Volatility Effect has persisted through time, across various market regimes and asset classes. This seems counterintuitive to financial theory, which is probably why some investors have shied away from this strategy. With recent market volatility we believe investors should consider Low Volatility products to complement their existing portfolios to enhance risk-adjusted returns.”

Low Volatility in High Demand

Over the past few years there has been a growing appetite for Low Volatility investment products. Since 2013 there has been a 10-fold increase in Low Volatility AUM, which now stands well over \$130 billion globally across active and passive strategies.¹ The Low Volatility Effect has persisted through time, across various market regimes and asset classes. This seems counterintuitive to financial theory, which is probably why some investors have shied away from this strategy. With recent market volatility we believe investors should consider Low Volatility products to complement their existing portfolios to enhance risk-adjusted returns. In this primer we discuss the Low Volatility Effect, present our newly launched product, the Brompton North American Low Volatility Dividend ETF (BLOV), and discuss how it differs from traditional Low Volatility strategies.

Total AuM invested in Low-Volatility Funds



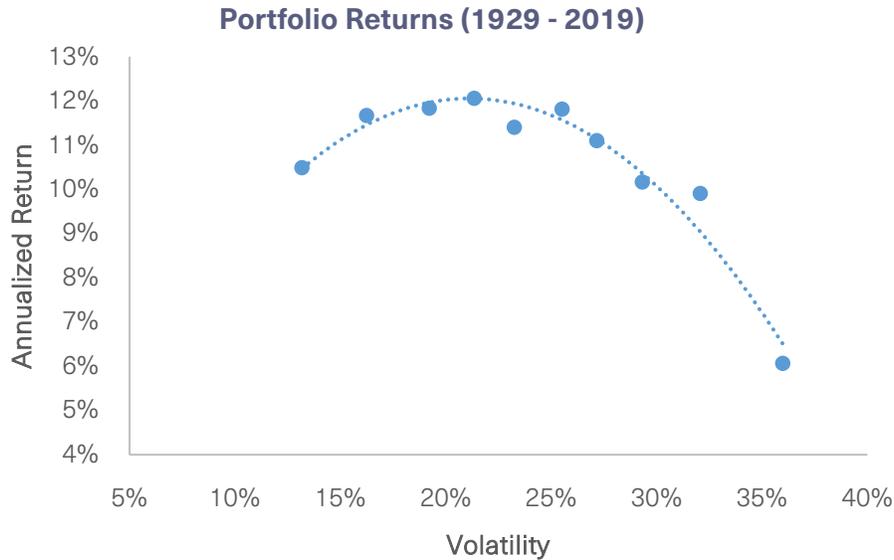
Low Volatility Offers Better Risk Adjusted Returns

The Capital Asset Pricing Model (CAPM) predicts a linear relation between a security’s systematic risk (measured by its beta against the market portfolio) and its return. However various academic and industry empirical studies show that higher risk is not rewarded sufficiently by higher return. An analysis² conducted on a group of portfolios constructed by selecting the 1,000 largest US stocks at the end of each quarter from 1929-2019 and sorting these stocks into deciles based on their 36-month trailing volatility shows that increasing risk level does not improve returns in a linear fashion. In fact, the slope becomes inverted in the highest-risk spectrum. By taking on more risk, investors were not rewarded with adequate returns in the long run. In fact, portfolios with the lowest risk had better returns than the riskiest portfolios both on an absolute and risk adjusted basis.

		Increasing volatility (Decile Sort)								
1929-2019	Low Volatility	2	3	4	5	6	7	8	9	High Volatility
Return:	10.5%	11.7%	11.8%	12.1%	11.4%	11.8%	11.1%	10.2%	9.9%	6.1%
Volatility:	13.2%	16.2%	19.2%	21.3%	23.2%	25.5%	27.2%	29.3%	32.1%	36.0%
Return/Risk:	0.80	0.72	0.62	0.56	0.49	0.46	0.41	0.35	0.31	0.17

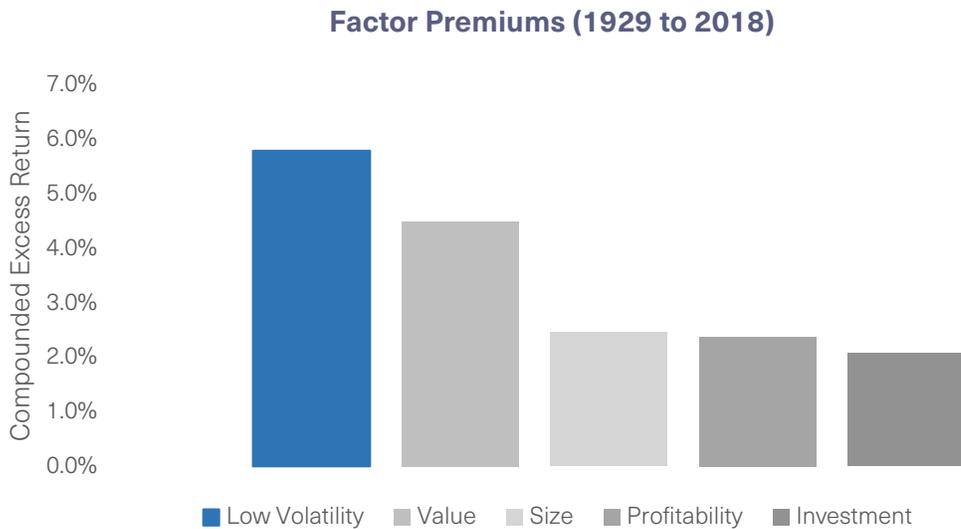
¹ The Global Evolution of Low Volatility Investment in Asset Management | Financial Intelligence

² Blitz, van Vliet and Baltussen (2019) - The Volatility Effect Revisited



Grounded in Research

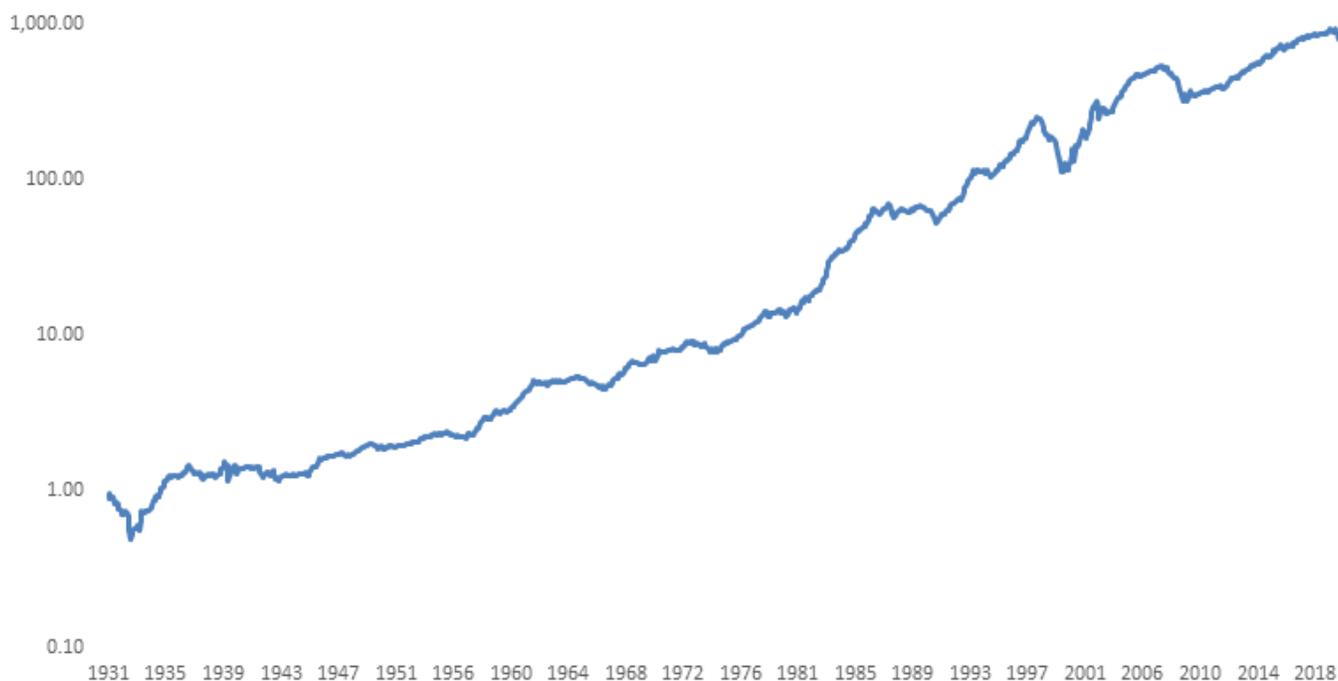
Research shows that Low Volatility is responsible for most of the excess returns of low-risk portfolios over the long term.² A Fama-French multifactor study assessed five different factors which contribute to excess returns over a 90 year period: Size, Value, Profitability, Investment, and Low Volatility. The research shows that the Low Volatility premium - the excess return of low volatility stocks over high volatility stocks - has averaged 5.8% per annum since 1929, a higher premium than that produced by the other factors. The Low Volatility factor has generated a positive premium in every decade, and is the strongest factor in the analysis, with a higher level of statistical significance than the other factors.



The Low Volatility Effect has persisted through time and across asset classes and market regimes. A 2010 academic paper³ jointly published by industry and Stern School of Business/NYU researchers proposed a strategy dubbed Betting Against Beta (BAB), which strongly illustrates the Low Volatility effect. BAB is structured to be long a leveraged portfolio of low-beta assets and short a portfolio of high-beta assets. BAB produces significant risk-adjusted returns across asset classes (US equities, 20 global equity markets, Treasury bonds, corporate bonds, and futures).

³ Frazzini and Pedersen (2010) – Betting Against Beta

Excess Returns of Long/Short Equity Betting Against Beta (1931 to March 2020)



Low Volatility Effect Explained

There are two main explanations for the Low Volatility Effect:⁴

- Behavioural finance suggests that individuals' preferences for lotteries (i.e. chasing high returns by investing in high-risk equities), as well as overconfidence, lead to demand for equity risk that is not warranted by fundamentals. As a result, this irrational demand causes such high-risk stocks to be overpriced, which leads to lower future expected returns. During market corrections these high-risk stocks undergo significant drawdowns relative to low-risk stocks and, over the long-term, offer lower returns (all else constant). In addition, institutional investors typically have fixed-benchmark mandates, which discourage investments in low-beta stocks in certain cases and foster allocations to higher beta stocks that tend to exhibit lower tracking error.
- Strategies that benefit from pricing mismatches are usually arbitrated away in the marketplace. However, borrowing constraints for institutional investors limit the ability to arbitrage the Low Volatility effect. For example, if a low risk stock portfolio has a volatility that is two-thirds of the market's volatility, 50% leverage needs to be applied within the portfolio in order to obtain the same level of volatility as the market.

Low Volatility Implementation

The main approaches to Low Volatility investing are:

1. Heuristics: A simple approach that uses a risk measure (e.g., beta or volatility) to screen out volatile companies and assign weights to the remaining securities by either their market capitalizations or the inverse of the company-specific risk measure. As an example, the S&P 500 Low Volatility Index measures the performance of the 100 least volatile stocks in the S&P 500 weighted inversely to their corresponding volatility ("Simple Low-Vol").

⁴ Baker, Bradley and Wurgler (2011) - A Behavioral Finance Explanation for the Success of Low Volatility

2. Optimization: A common example is Minimum-Variance, which uses a numerical optimizer to develop a portfolio with the lowest total risk using an estimated security covariance matrix. Minimum-Variance portfolios can be constrained to reduce the tracking error relative to the underlying cap-weighted benchmark. As an example, the MSCI USA Minimum Volatility Index seeks to have the lowest absolute volatility based on the set of constraints (stock, country, sector, factor and turnover).

In the table below we highlight the results of a simulated performance of both Simple Low-Vol and Minimum-Variance portfolios from a universe of 1,000 large cap US stocks.⁵ The simulation was run for unconstrained as well as constrained portfolios (stock weights relative to the benchmark, sector and turnover). In both approaches the additional constraints result in lower tracking error, but also reduce returns and increase volatility, which results in lower risk-adjusted returns. The unconstrained minimum-variance portfolio had the lowest volatility and the best risk-adjusted returns.

1967-2014	Cap-Weighted Benchmark	Minimum Variance	Minimum Variance (Constrained)	Simple Low-Vol	Simple Low-Vol (Constrained)
Return:	10.3%	12.0%	11.6%	12.0%	11.7%
Volatility:	15.4%	12.1%	13.0%	12.5%	12.8%
Return/Risk:	0.67	0.99	0.89	0.96	0.91
Tracking Error		9.2%	5.5%	8.4%	6.7%

Brompton's Approach

Market participants today typically offer one of two Low Volatility strategies: buying the lowest volatility equities in an index or selecting securities with the objective of minimizing volatility at the portfolio level while keeping sector weights close to those of an underlying index.

Brompton North American Low Volatility Dividend ETF (BLOV) employs a more sophisticated process. By combining quantitative modelling with years of investment experience, we construct a portfolio with lower volatility than the market while also generating a reasonable dividend yield. Importantly, the portfolio's sector weights are not limited by a benchmark, as research shows that these types of constraints increase the risk and reduce the returns of Low Volatility portfolios. Instead, sector weightings are actively managed as a part of our portfolio construction process to ensure an appropriate amount of diversification.

Our Portfolio Managers also have discretion to write covered calls on the portfolio holdings. We use an active approach to call writing in order to enhance monthly income while further reducing portfolio volatility. Based on our portfolio modelling, we believe that this is a better risk-adjusted approach to investing in Low-Volatility equities.

⁵Chow, Rose and Li (2016) - *The Impact of Constraints on Minimum Variance Portfolios*.

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