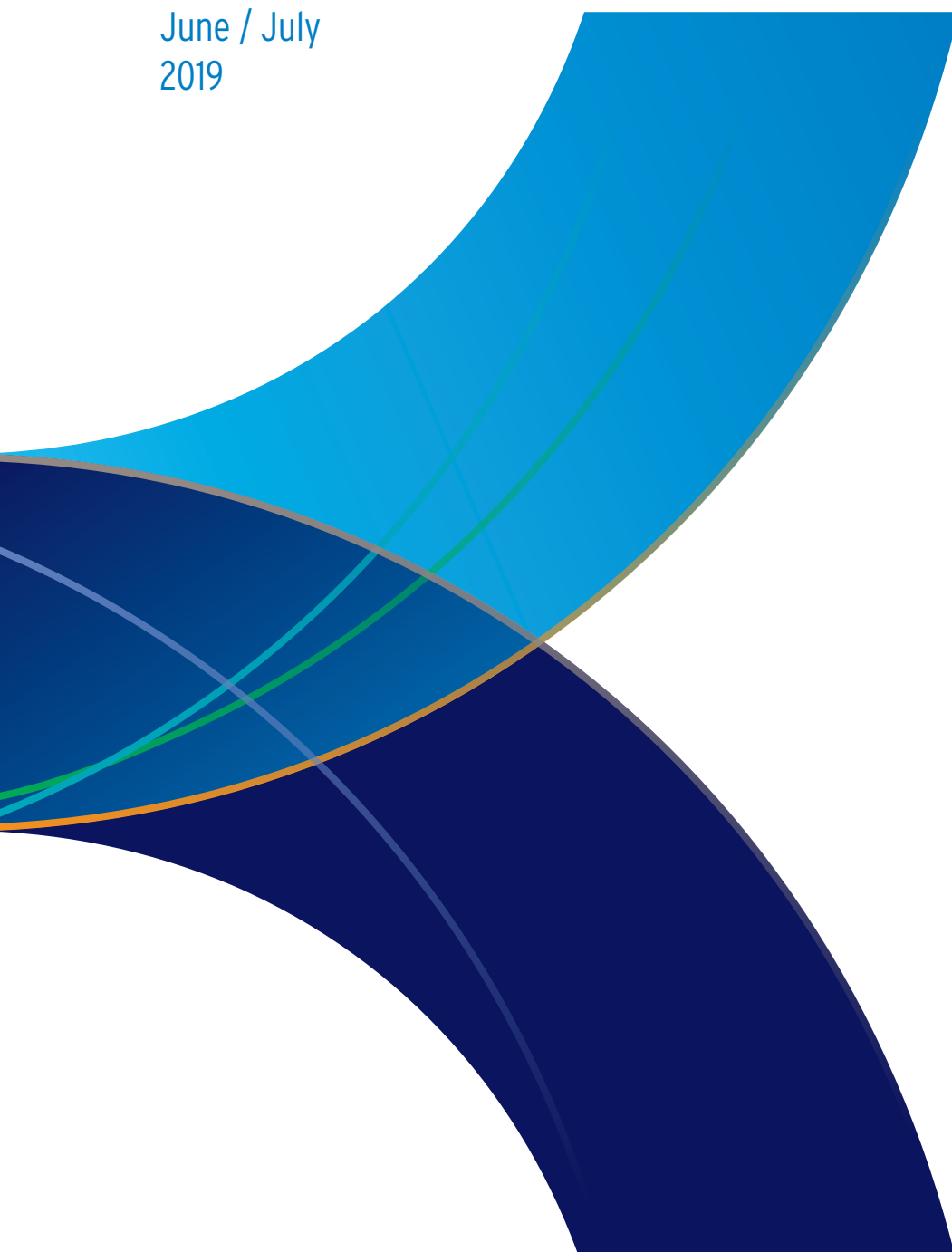




## MARKET INSIGHT

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# THE APPEAL OF LOW VOLATILITY STRATEGIES



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*“It is a well-known mathematical fact that in order to outperform in the long term, damage limitation during bear markets is more important than profit maximisation during bull markets.”*

Looking back, we realise that the bull market that began in 2009 in the wake of the global financial crisis is now nearer its end than the beginning. This has reawakened an appetite for defensive equity strategies after more than 10 years of an almost uninterrupted run in prices. People have offered many definitions of a defensive equity strategy, but we prefer to focus on what these strategies are designed to achieve, namely a reduction in volatility and maximum drawdown with risk-adjusted outperformance. This is precisely the goal of low volatility, or Low Vol, strategies.

### THE LOW VOL FACTOR

There is nothing new about low volatility strategies, which are based on the statistical behaviour of stocks and a ranking algorithm. Furthermore, as a factor (also called a risk premium or market anomaly), Low Vol has been particularly well documented and studied by practitioners and academics alongside the factors of size, value and momentum. Nevertheless, it has a particularly eventful history as this market anomaly goes against the fundamental principle of finance, i.e. that risk and return go hand in hand. Less risky equity should therefore, in theory, perform less well. Unfortunately for this neat little theory, a wealth of empirical evidence has been gathering over recent decades showing quite the opposite, that the risk-adjusted return of low volatility stocks is higher than the market, consistently across regions, market segments and periods.

US economists Robert Haugen and James Heins were the first to set the cat amongst the pigeons in 1972 with their evidence of the better risk-return ratio offered by low volatility equity. At a time dominated by modern portfolio theory (MPT) and the capital asset pricing model (CAPM), their work went down like a lead balloon. The fact that risk could come without a “premium” was quite simply unimaginable for experts back then. It would take a long time, and

a new millennium, for this anomaly to finally be recognised and supported by several prominent studies.

Investors in high volatility equity are, in theory, aware of the higher risk, but the possibility of greater gains fuels their demand. This lottery effect is a psychological phenomenon that has been widely documented by financial behaviourists. Another explanation is that fund managers benchmarked against a reference index are encouraged to invest in high beta stock, prompting their overvaluation.

### WIN MORE BY LOSING LESS

To test the behaviour of the low volatility factor, we created an unconstrained (“naive”) strategy investing each month in an equal-weight portfolio of the 100 least volatile stocks of the S&P 500. The results over the past 20 years are impressive, with the portfolio outperforming the benchmark by almost 9% per annum with a reduction in volatility of over 20% and a significant improvement in risk/return metrics. Even though low volatility equity moves in tandem with the market, the magnitude of its movement is mitigated by its lower sensitivity ( $\beta < 1$ ). However, the entire appeal of Low Vol comes from the fact that this strategy is affected less by losses and more by gains, giving it a positive asymmetry in its profile. Empirical observations of the successive bull and bear periods of the S&P 500 since 2000 confirm that cumulative outperformance during bear markets is greater than the underperformance suffered during bull markets, meaning a better risk/return overall.

In finance, it is a well-known mathematical fact that in order to outperform in the long term, damage limitation during bear markets is more important than profit maximisation during bull markets. A 5% loss can be offset with a 5.3% gain, but if you lose 50% you need to make a 100% profit to break even. This base effect advocates

low volatility stocks because they are statistically less likely to suffer from market corrections. Few asset managers focus on minimising drawdowns simply because they do not have the luxury of waiting for significant market corrections, instead needing to rapidly generate outperformance in order to maintain or attract assets under management.

### SECTOR CONCENTRATION

As incredible as the historical results of Low Vol may be, this strategy still has many detractors and the risks of a generic approach are high, starting with sector concentration. Normally a stock has a lower volatility if there is a high degree of certainty over the company's prospects, based on certain fundamentals such as revenue and cash flows stability, and a healthy balance sheet. From this viewpoint, certain sectors stand out and companies within a same sector will usually have very similar levels of volatility. This encourages sector bets, as shown by our basic Low Vol portfolio which was on average overweigh in utilities and consumer staples, whilst being underexposed to technology stocks over the past 20 years. These sector biases pose a concentration risk by subjecting a large portion of the portfolio to the same risk factors (e.g. macroeconomic or regulatory factors). Although it is highly tempting to reduce this sector skewing, studies have shown that sector exposure is responsible for over half the reduction in volatility. The sector-neutral version of our Low Vol strategy did have a lower tracking error, but at the cost of higher volatility and maximum drawdown than the unconstrained strategy.

### SENSITIVITY TO INTEREST RATES, VALUATION AND UNDERPERFORMANCE IN BULL MARKETS

Low Vol strategies have also been criticized for their alleged interest rate sensitivity. Detractors argue that the historical outperformance of Low Vol

is due to the concentration in sectors that have benefited from the structural decline in interest rates for over three decades. In theory, this super-cycle of declining rates has come to an end, thus jeopardising the ability of Low Vol strategies to continue outperforming. Our simple regression analysis of the quarterly excess return on our generic strategy against the quarterly variation in the 10-year US yield, actually showed an inverse correlation with a coefficient of -0.5. Admittedly this analysis fails to take account of absolute rate levels, but we still believe that the excess return from Low Vol depends much more on market trends than on interest rate changes. The flight-to-quality into US treasury bonds puts pressure on yields precisely during times of market turbulence whilst Low Vol is outperforming.

With an explosion of low volatility strategies AuM (estimated at over \$300 billion), some experts believe that the strategy is becoming overcrowded and overvalued. Their criticism seems to be justified, as shown by the relative valuation of our low volatility portfolio which is at its highest in 10 years (forward PE). However, studies have shown that high valuation is not correlated to future relative performance .

For asset managers, the real challenge of Low Vol lies in its poorer performance during bull markets due to a reduced sensitivity to market movements. Low volatility strategies only perform better than their benchmark if their cumulative outperformance during times of market turmoil exceeds the cumulative underperformance during times of market buoyancy. Stock market cycles therefore need to be extreme enough for Low Vol strategies to deliver. Few professional investors are willing to take a career risk by remaining exposed to a strategy that performs poorly for several years in the hope of subsequently “recouping” their losses once the market has corrected enough.

#### BEYOND A GENERIC STRATEGY

Sector concentration and under-performance in bull phases are two risks of a generic Low Vol strategy that most asset managers are unwilling to swallow, given the competitive nature of the industry. Nevertheless, research shows that Low Vol can be adapted to reduce these inherent biases whilst still significantly improving the risk-adjusted return compared to the market. Although these changes do, to a certain extent, dilute the volatility-reducing effect and slightly reduce the risk/return profile compared to a basic strategy, they make it more viable and realistic for professional investors. A degree of compromise is therefore needed, but it's still worth it in the end to achieve a better risk/return than the benchmark.

In fact, our work shows very promising benefits of applying sequential valuation and quality filters, and incorporating other factors such as dividend yield and alternative risk measures. One alternative solution is to combine an unconstrained Low Vol strategy with a dynamic beta adjustment model using positions in equity index Futures. This strategy uses synthetic leverage to increase exposure until a neutral beta of 1 is reached during times of market advances, and unlocks these positions during market declines. It thus requires an overlay model to identify long-term market trends. Although this type of market timing is often criticised for being virtually impossible, our research suggests that it is feasible, albeit to a highly imperfect degree, to identify key market phases using certain techniques.

#### WHAT ABOUT LOW VOL IN PORTFOLIOS?

Low Vol harbours excellent potential for diversification in a multifactorial quantitative strategy, thanks to its low correlation with other more cyclical factors. Combining Low Vol with momentum, which performs well in bull runs markets but badly during market corrections, is a particularly appealing

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approach and often underlies numerous quantitative strategies (including our own).

Within multi-asset class portfolios, exposure to low volatility equity also holds a strong appeal. Strategically allocating part of the equity bucket to a Low Vol strategy can reduce the contribution to portfolio risk of equities, which are typically the asset class with the highest risk contribution. Alternatively, the proportion of equity can be increased without affecting overall risk. The same logic applies within an equity geographic allocation. Due to the higher volatility of emerging market stocks, we believe that implementing a core exposure to this region via a low volatility strategy is a particularly attractive option.

<sup>1</sup> Understanding Defensive Equity, NBER Working Paper, Robert Novy-Marx, 2014

<sup>2</sup> On the Evidence Supporting the Existence of Risk Premiums in the Capital Markets, Robert A. Haugen and A. James Heins, 1972

<sup>3</sup> The Valuation of Low Volatility, S&P Dow Jones Indices, Fei Mei Chan and Craig J. Lazzara, November 2016



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