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Low volatility: How low-risk can outperform high-risk

Low-risk equity investments focus not only on downside risk reduction while offering participation in the growth potential of the equity market – historically, they have also outperformed higher-volatility peers and the broad market.[1] We discuss this paradox and how to capture it via an alpha-enhanced optimised low-volatility approach.

Low-volatility investment in the current environment

With global economic uncertainties worsened by the unfamiliar threat of coronavirus, soaring global debt and a still more prolonged low interest rate environment, conservative investors in particular need to seek out reliable and meaningful returns carefully. In strategic allocation, the search for investments which deliver equity market participation and simultaneously protect the real value of wealth has become the chief focus in recent years. But many conservative equity strategies have failed to shield investors from severe losses in the COVID-19 market falls, the first big test since the global financial crisis.

Well-designed low-volatility strategies (LowVol) offer not only participation in market growth with reduced downside risk, but also outperformance historically in comparison to their higher-volatility peers and the broad market.[1] This turns conventional financial wisdom on its head, contradicting the long-held theory that higher risk must inevitably lead to higher returns. We therefore see LowVol strategies as a fundamental building block for investors.

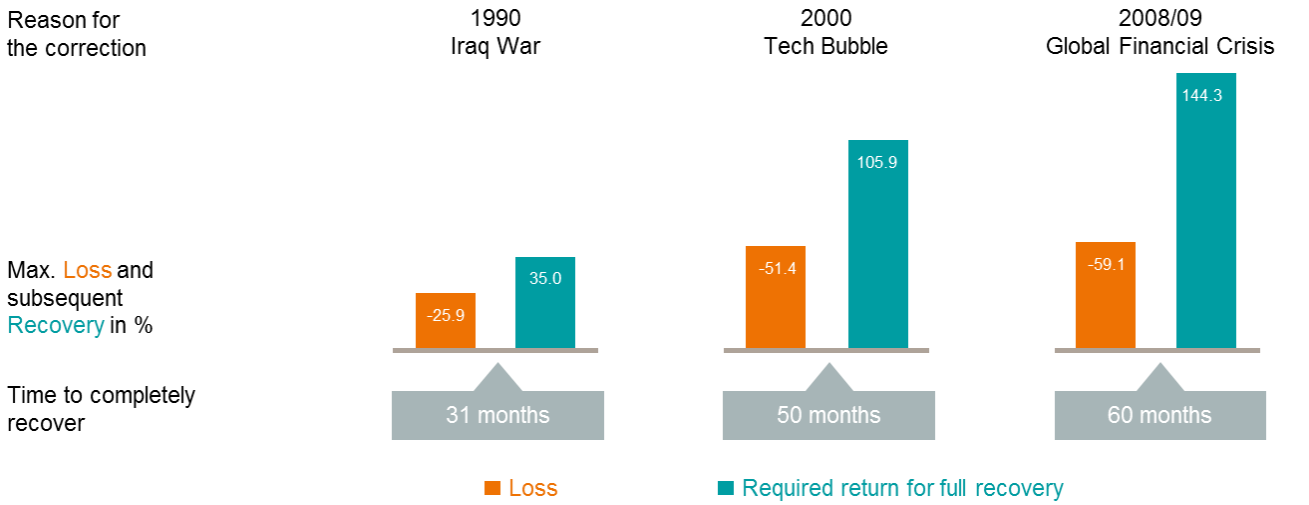
Equity growth with reduced downside risk

The first and most fundamental attraction of LowVol strategies lies in the undeniable appeal of reduced risk. The lower the portfolio risk, the less ground the portfolio needs to recover in the event of a market downturn. It can take a portfolio a long time to recover after its value has plummeted, as can be seen in the chart below.

After the unprecedented correction during the 2008/9 financial crisis, it took five years for the MSCI Europe Index to recover. A loss of 59.1% requires a return of 144.3% from bottom for full recovery. The extent of the recovery required and the long time it can take can be very painful for investors.

[1] Baker and Haugen (2012); Razzini and Pederson (2010); Blitz and van Vliet (2007)

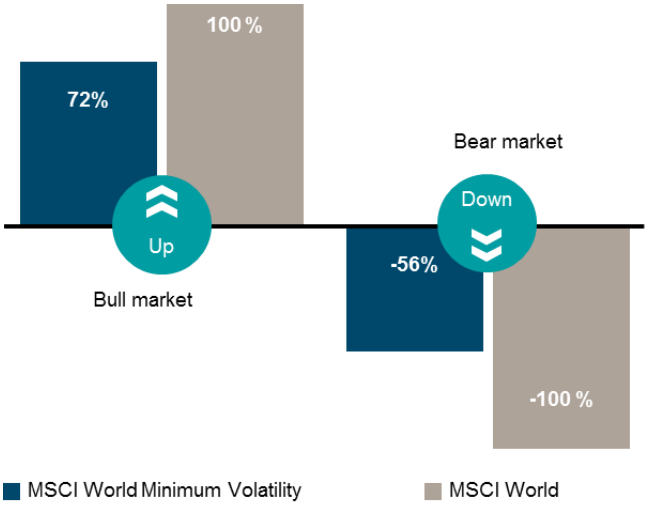
FIGURE 1. HISTORICAL LOSSES AND REQUIRED RETURN TO RECOVER FULLY (IN %)



Source: DWS International GmbH, Bloomberg, as of August 2019. Historical simulation for MSCI Europe Index (12/1999 to 08/2019) with monthly reweighted quantile portfolios based on stocks' historical volatilities. All figures before costs (gross) in EUR. For illustrative purposes only. Past performance is not a reliable indicator of future returns

Reducing downside risk is therefore highly beneficial to sustained asset growth. Low-volatility investments have demonstrated superior risk-adjusted performance thanks to their ability to perform asymmetrically, often capturing most of the upside in markets and typically suffering less of the downside than broad market indices. A representative low-volatility investment – MSCI World Minimum Volatility – has on average an upside capture of 72% of the growth in a bull market and 56% of the downside in a bear market, as shown in the chart below.

FIGURE 2. UPSIDE & DOWNSIDE CAPTURE OF LOWVOL STRATEGY



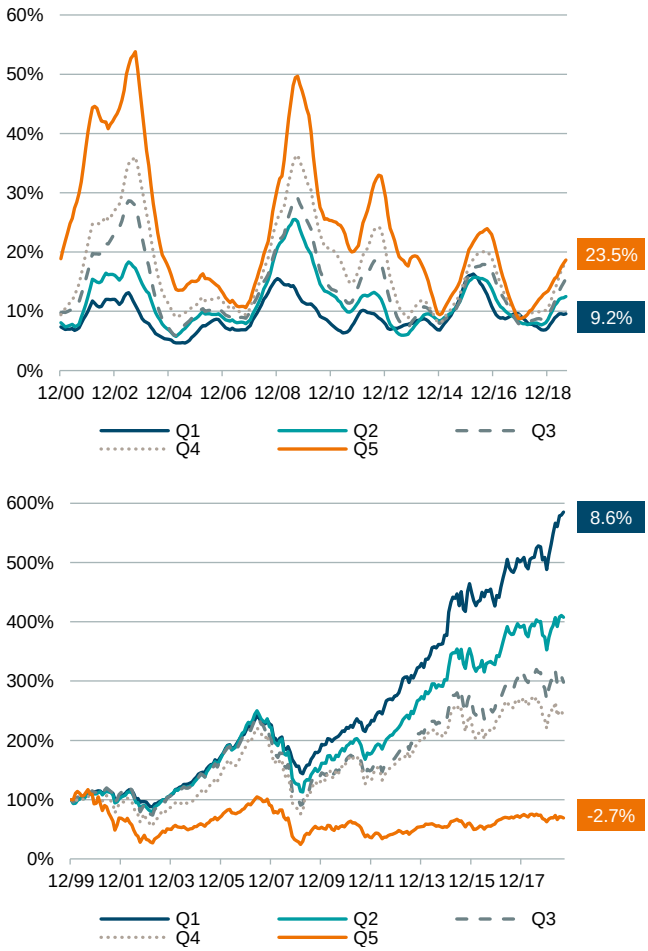
Source: DWS International GmbH, Bloomberg, based on monthly performance.
Time period: Dec. 31st, 1990 – Apr. 30th, 2020.
Past performance is not a reliable indicator of future returns

Less risk can mean more return

There is considerable evidence to show that low-volatility strategies can deliver promising returns over the medium term and beyond. Historically, low-volatility strategies' long-term returns have even been superior to those generated by higher-risk investment approaches for most markets. This phenomenon is often referred to as the low-risk paradox or the low-risk effect. We are well aware that past performance is no guarantee for the paradox to hold up in the future, yet its durability over time and across regions, validates its efficacy. At present the evidence suggests that low-volatility strategies can be a valuable core portfolio building block, and not utilising those carries the risk of missing out on an opportunity.

The following chart illustrates the low-risk paradox in equity markets as shown by the returns on stocks ranked by volatility in the past two decades. The least volatile quantile group of stocks (Q1) has shown superior performance, especially since the global financial crisis. In contrast, high volatility stocks (Q5) have underperformed other stocks by a considerable extent.

FIGURE 3. PERFORMANCE OF STOCKS OF VARIOUS VOLATILITY WITHIN MSCI EUROPE
Rolling 12 month volatility (left, in % p.a.) vs. cumulative performance (right, in % p.a., indexed)



Source: DWS International GmbH, from Jan. 2000 – Aug. 2019, based on MSCI Europe stocks equally weighted within the quantiles, resorted monthly. Q1 (Q5) represents the portfolio with the lowest (highest) historical volatility. Past performance is not a reliable indicator of future returns.

This observation is especially interesting, considering the unprecedented bull market over the last decade – before COVID-19 kicked in. It is likely that the low interest rate environment and squeezed yields in fixed income markets pushed investors into allocating more to equities – particularly conservative equities – in order to manage downside risks while gaining higher returns versus fixed income markets. Going forward, this trend seems likely to continue given that:

_Despite the recent stock market recovery from the pandemic shock in March 2020, volatility is expected to stay high given current uncertainty in economic growth and corporate earnings.

_With central banks globally adopting extensive monetary easing measures and interest rates expected to remain at historically low levels for the foreseeable future, it appears that there are at present very few adequate alternatives to equities.

The low-risk paradox in academic literature

Mainstream economic theories have rarely predicted the paradox of low risk and high returns. The Capital Asset Pricing Model (CAPM), which, since the 1960s, has been used to describe the correlation between risk and expected return, is completely turned on its head by the phenomenon. But the low-risk paradox, which contradicts Modern Portfolio Theory, is underpinned by a wealth of empirical evidence and has been the subject of a fast-growing body of research for more than a decade.

The assertion can be found at its firmest in Baker and Haugen, 2012 who declare: “The basic pillar of finance – that greater risk can be expected to produce greater reward – has fallen.” Their examination of stocks in 21 developed and 12 emerging countries over a 21-year period underlines two attributes of the low-risk paradox: persistence and comprehensiveness. It is persistent because the observation holds over an extensive historical period. It is comprehensive because it is present in almost all of the world’s equity markets.

More detailed evidence can be found in Baker, Bradley and Wurgler’s 2012 study of US stock returns in 1968-2008, which finds the high-beta investor – that is, investing in higher volatility, riskier stocks – underperformed his “conservative” rival by 964% during the study period. The phenomenon is also underscored by studies such as those conducted by Frazzini and Pederson (2010) and Blitz and van Vliet (2007). Over time, the theory that lower risk produces higher returns has found increasing support. Numerous studies have confirmed the results or uncovered parallels in other markets.

There are multiple explanations for the durability of the paradox. One underpinning logic is that the sheer demand for high-volatility stocks results in overpricing and hence inferior future returns. A key consideration must therefore be what drives the demand for high-volatility stocks and why it persists.

FIGURE 4. 2019-2030 CAPITAL EXPENDITURE FOR OIL AND GAS PROJECTS COMPLIANT WITH DIFFERENT SCENARIOS

Jan. 1990 to Dec. 2011		Lowest decile risk								Highest decile risk	
Country	Statistic	1	2	3	4	5	6	7	8	9	10
All DM-countries	Annualised return in %	7.7%	7.5%	7.1%	6.2%	3.7%	2.8%	3.8%	2.1%	-0.9%	-11.7%
All Emerging-Market-countries	Annualised return in %	16.7%	20.3%	17.8%	17.3%	9.8%	10.5%	15.8%	15.4%	12.7%	1.1%

Source: Baker and Haugen, 2012

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A wealth of research in the field of behavioural science offers interpretations arguing that individual investors are affected by a number of biases that help to preserve the "irrational preference" for high-volatility stocks:

_Preference for lotteries: many people find the small chance of winning huge rewards irresistible – and highly volatile stocks can thus seem far more appealing than their low-volatility counterparts, even if this might be irrational.

_Overconfidence: as optimists are more likely to invest in high-volatility stocks with uncertain outcomes, they drive their price higher (Diether, Malloy and Scherbina, 2002).

_Representativeness: Investors remember and infer from the success of one representative company but overlook the fact that many other speculative investments failed.

Capturing the low-risk effect

How can investors benefit from the low-risk effect and what should be considered when selecting a low-volatility strategy?

There is no single approach to low-volatility investing. There are several, and the devil is in the detail. What they all have in common though is that they represent a conservative, low-risk equity strategy which aims to deliver an improved risk-return profile compared to the broad market over the medium to long term.

Generally, the current approaches can be divided into the following groups:

(1) **Stock filtering or ranking approach:** These approaches select stocks in the lower risk bracket, with their risk ranking defined in terms of historical risk measures such as volatility or beta. They aim to create a low-volatility investment by investing in less risky stocks. Such approaches typically use heuristic weighting methods: each stock exhibits historically low risk measures; the correlations between individual stocks and the combined portfolio risk are not taken into account.

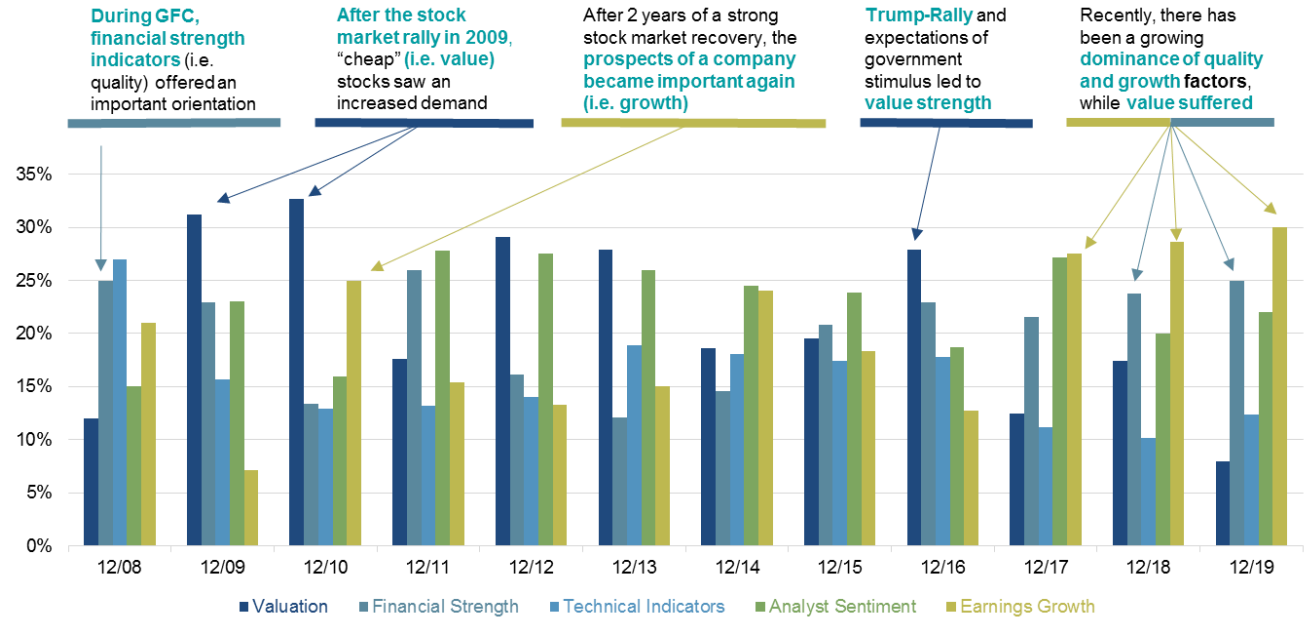
(2) **Portfolio optimisation approach:** These approaches typically aim to identify the least volatile combination of stocks (so-called MinVol). Therefore a portfolio constructed under this approach might contain individual stocks with higher risk than in the ranking approach described above, although the overall combined portfolio risk would be low. Volatility and correlations are taken into consideration, which demands an active portfolio construction process. These methods are more sensitive to changes in risk measures and are often concentrated in conservative sectors. As a result, they are the most conservative low-volatility ap-

proaches, since they explicitly target portfolio risk. Examples include maximum-diversification and minimum-variance portfolios. Most indices and respective Exchange Traded Funds (ETFs) follow this second approach. Minimum-variance portfolios are popular with many investors since they provide cost-efficient, systematic risk reduction. Yet, those portfolios do not focus on alpha generation.

(3) **Alpha-enhanced optimised low-volatility approach:** This approach aims at a portfolio with reduced risk but with returns taken into consideration too. It adds value for investors seeking to capture the upside in markets with reduced downside risk. For a strategy of this kind the ability to generate a stable return (or alpha) in a changing market is key. Estimating and forecasting the relative returns of stocks in dynamic markets is difficult. A robust and dynamic methodology is needed to generate stable results in the long run. The benefit of such an approach lies not only in its superior risk-adjusted returns, but also in the fact that it avoids the crowding caused by passive index-led solutions due to its active stock selection. In other words, alpha enhancement leads to a portfolio that differs structurally from traditional conservative portfolios and comparable indices. In our opinion, a good low volatility strategy would contain around 60% or more active share.

At DWS we utilise an alpha-enhanced optimised low-volatility approach by combining factor-based stock evaluation, capable of stable alpha generation, with a minimum-variance portfolio construction process. We believe a dynamic multi-factor model to select stocks is the key to stable alpha enhancement. A range of factors are evaluated to provide a diversified perspective on the drivers of stock performance. This dynamic feature enables the portfolio to reflect the changing importance of certain factors, such as value, or quality, over time by adapting to differing economic and market environments.

FIGURE 5. END-OF-YEAR FACTOR CLUSTER WEIGHTINGS OF DWS'S SOLUTION



Source: DWS International GmbH, as of end of December 2019, European research universe. For illustrative purposes only. Past performance is not a reliable indicator of future returns.

Conclusion

With central banks continuously providing monetary stimulus at a time of major economic, environmental and political uncertainties, the “new normal” may be a sustained period of the following:

_Low, possibly negative, real bond yields

_High expected volatility.

Given the high levels of uncertainty and low yield environment, we consider low-volatility strategies a promising means to obtain equity market exposure while partially shielding oneself from downside risk. An effective LowVol strategy can provide diversification and risk mitigation benefits when added to existing portfolios and outperform higher risk strategies on an absolute return basis. To achieve this, robust implementation and a well thought out approach are essential, in order to deliver on the promise of reduced downside risk in periods of severe market stress. Lastly, low-volatility strategies tend to correlate positively with environmental, social and governmental (ESG) considerations, which makes them the most natural way to incorporate sustainability criteria within the equity space.

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