Invesco White Paper Series on seeking better investment outcomes by managing volatility

This white paper was generated with the support of the Invesco Global Solutions Development and Implementation team.

Executive Summary

Seeking better investment outcomes by managing volatility

Contributors:

Duy Nguyen, CFA, CAIA
Senior Portfolio Manager
Chief Investment Officer

Jacob Borbidge, CFA, CAIA
Portfolio Manager
Head of Research

Michelle Shwarzman
Product Management Director

Supported by the Invesco Global Solutions Development and Implementation team

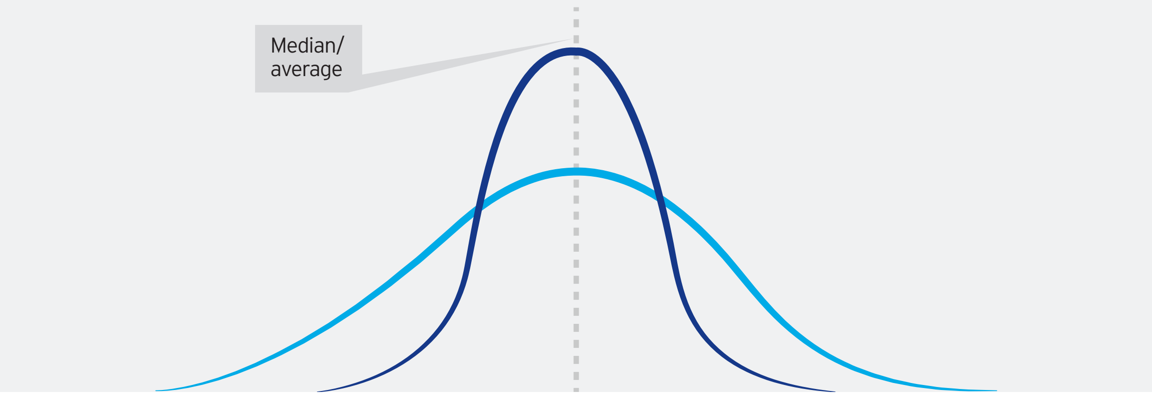
Volatility is a fundamental component of investing. It reflects uncertainty regarding investment returns, typically expressed as the amount of fluctuation in the returns of a financial instrument. Standard deviation is one commonly used statistical measure that expresses volatility by capturing the range of potential investment outcomes around the average investment return.

Volatility drag: What volatility means to returns

Typically, the higher the volatility, the higher the chance of experiencing higher- or lower-than-expected returns at any point in time (Figure 1).

Figure 1: Higher volatility investments have a higher tendency to surprise investors on the upside and the downside

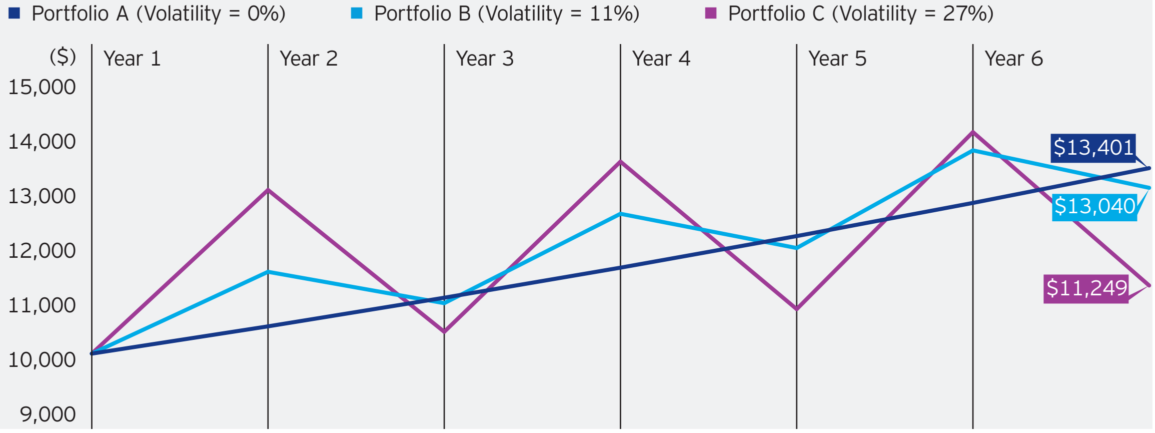
Two distributions with the same central tendency but differing in variability



For illustrative purposes only

But while volatility can produce higher-than-expected returns during a moment in time, it's important to note that greater portfolio volatility lowers the potential return on the portfolio over time due the effect of compounding. Let's look at three hypothetical portfolios, each with a beginning balance of $10,000 and average returns of 5%, but with varying degrees of volatility: 0%, 11% and 27%, respectively (Figure 2).

Figure 2: Volatility drag hinders portfolios' ability to grow wealth over time



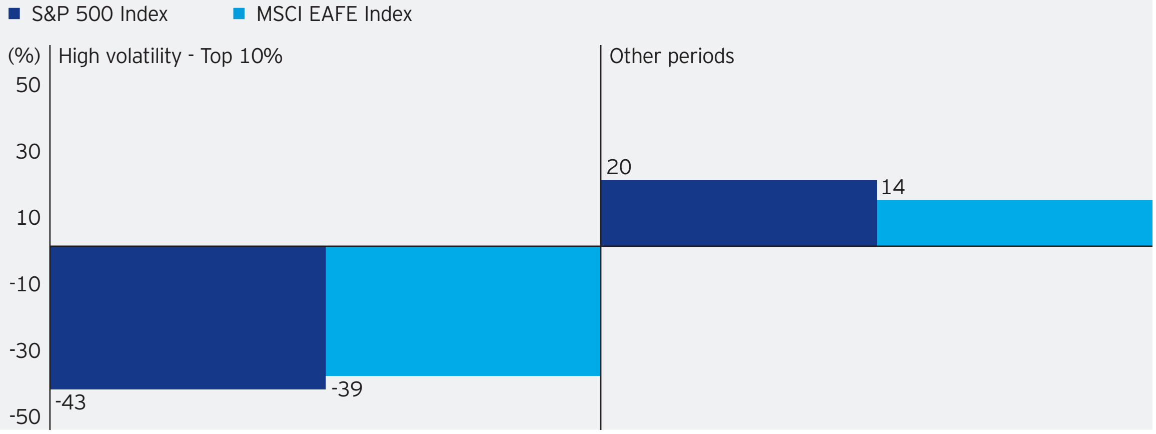
These are not actual portfolios but are mathematical examples and are for illustrative purposes only.

FOR INSTITUTIONAL INVESTOR USE ONLY – NOT FOR USE WITH THE PUBLIC

While the average rate of return is the same, at the end of Year 6 the ending values of the portfolios are different due to the large negative effect of volatility on portfolio performance, or compounding. This difference is commonly referred to as "volatility drag." Avoiding large losses or even lower-than-expected returns is therefore critical to wealth accumulation and preservation, especially for long-term, buy-and-hold investors.

In practice, looking at historical volatility and returns for the S&P 500 Index and the MSCI EAFE Index dating back to 1990 (Figure 3). The top 10% most volatile periods (as defined by the VIX Index), corresponded to losses of more than 30%, while in all other periods, both markets were up on average 20% and 14%, respectively.

Figure 3: High volatility has historically led to large market losses



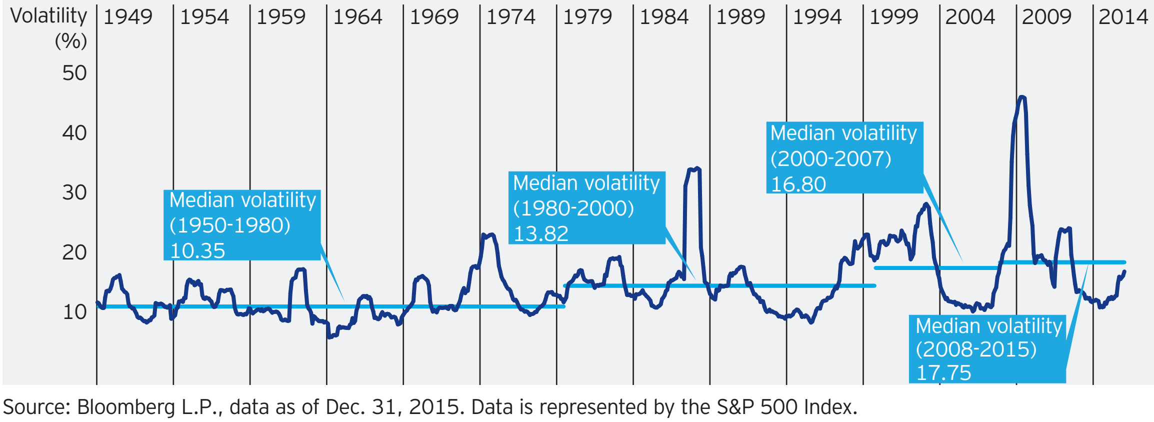
Source: Bloomberg L.P., data as of Dec. 31, 2015. Data range from 1990-2015

Volatility is dynamic

Since 1950, volatility, as measured by the standard deviation of rolling one-year S&P 500 Index returns, has averaged 12%.[1] And severe market swings, defined as volatility that exceeded one standard deviation above average volatility (18.4%), have occurred roughly once every six to seven years or so.

On the surface, this average level of volatility and frequency of high volatility events might be acceptable to most investors. However, underpinning investment decisions with the assumption that volatility is constant over time could undermine long-term financial goals, as the magnitude, duration and frequency of volatility have increased over time (Figures 4 and 5).

Figure 4: Magnitude of volatility has increased over time



Median volatility (1950-1980) 10.35

Median volatility (1980-2000) 13.82

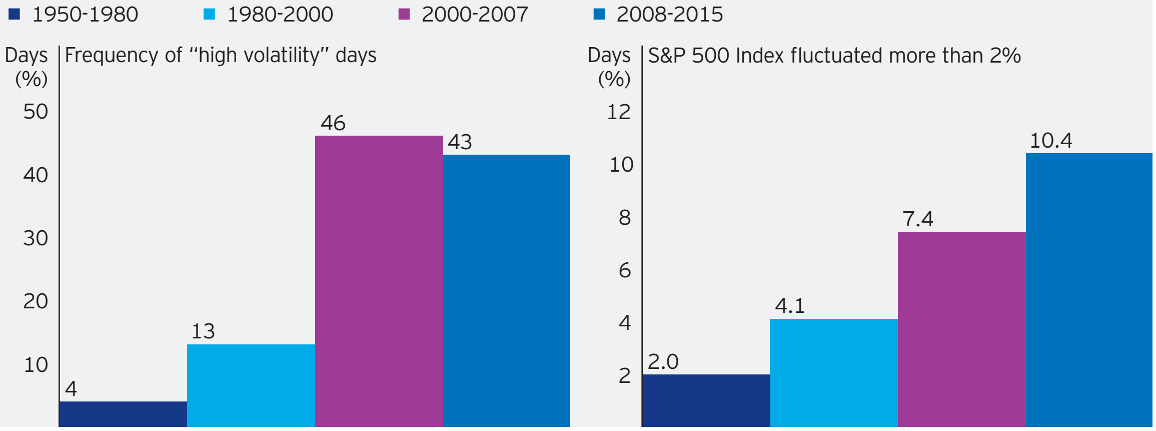
Median volatility (2000-2007) 16.80

Median volatility (2008-2015) 17.75

Source: Bloomberg L.P., data as of Dec. 31, 2015. Data is represented by the S&P 500 Index.

[1] Median volatility between 1950 and 2015 was used, as we feel it was a better representation and gave appropriate weights to extreme volatility events.

Figure 5: The frequency of volatility has increased over time



Source: Bloomberg L.P., data as of Dec. 31, 2015. Data is represented by the S&P 500 Index.

What is a managed volatility strategy?

Against a market backdrop of potentially modest returns and high volatility going forward, what options are available to investors who are sensitive to the impact of higher volatility on the consistency of their portfolio returns?

Volatility management employs a "risk first" mentality, which typically contains some form of risk parity, low volatility, managed volatility (targets and ceilings), or tactical positioning. These strategies manage risk in absolute terms (i.e., total portfolio volatility or variance) rather than in relative terms (i.e., tracking error, R-squared, or beta), and can be implemented in various ways.

By limiting the amount of market risk, low or managed volatility strategies could outperform traditional equity investments during a market drawdown. By "not losing" – or losing less – in this environment, a low volatility investor seeks to achieve a similar level of return over an extended investment horizon, but with fewer significant drawdowns along the way. One approach to managed volatility is to maintain portfolio volatility under a certain level (i.e., ceiling or cap).

Managed volatility strategies typically keep volatility under a set ceiling by dynamically shifting the allocation of the portfolio across stocks and bonds as market conditions change. Essentially, the approach "takes the edge off" volatility, in that the investor is mitigating the impact of the lowest market troughs and the highest market peaks.

By introducing downside protection and limiting total volatility, managed volatility strategies seek to provide higher risk-adjusted returns, although managed volatility strategies tend to lag in highly volatile, sideways markets. In short, managed volatility strategies may help create a smoother ride during the accumulation phase and a longer-lasting income stream during retirement.

Invesco's approach to managed volatility

In contrast to the stochastic or random nature of asset price returns, a robust body of academic research exists exploring the statistical properties – also known as stylized facts – of volatility. These following properties lend themselves to the enhanced ability to model and forecast, and consequently manage volatility: persistence, mean reversion, and asymmetry.

The Invesco Global Solutions Development and Implementation team has extensive experience in designing and implementing managed volatility strategies that can either be applied to existing portfolios or can serve as stand-alone products, with the aim of mitigating portfolio volatility by dynamically adjusting asset allocations in response to shifts in the market environment.

These strategies seek to manage portfolio volatility by using hedge assets such as equity index futures to keep overall volatility below a predetermined ceiling or cap. Specifically, the approach seeks to maintain a higher exposure to equities in low volatility markets and to defend against portfolio losses by lowering exposures to equities or other risk assets during periods of extreme market volatility by selling equity market futures.

The team's unique approach to managing volatility is predicated on the following tenets:

- Modeling more stable signals.
- Incorporating more realistic simulations of risk by reflecting realistic lags and frictions, rather than best-case scenarios.
- Focusing our research and simulations on results that seek to reliably control risk rather than produce the greatest total return.
- Selecting instruments with ample excess liquidity, as well as the hedging alternatives necessary for trading in volatile markets.
- Using proprietary models, we hedge and rebalance the portfolio in response to volatility spikes as they occur, seeking to reduce trading costs and improve our hedging ability relative to competitors.

About risk

In general, stock values fluctuate, sometimes widely, in response to activities specific to the company as well as general market, economic and political conditions.

The Adviser may not be able to effectively manage the strategy's volatility or may be unable to trade certain derivatives effectively or in a timely manner. There can be no guarantee that the strategy will maintain its target volatility level, nor that maintenance of the target volatility level will ensure competitive returns.

The risks of investing in securities of foreign issuers can include fluctuations in foreign currencies, political and economic instability, and foreign taxation issues.

Fixed-income investments are subject to credit risk of the issuer and the effects of changing interest rates. Due to anticipated Federal Reserve Board policy changes, there is a risk that interest rates will rise in the near future.

FOR INSTITUTIONAL INVESTOR USE ONLY – NOT FOR USE WITH THE PUBLIC

NOT FDIC INSURED | MAY LOSE VALUE | NO BANK GUARANTEE

All material presented is compiled from sources believed to be reliable and current, but accuracy cannot be guaranteed. This is not to be construed as an offer to buy or sell any financial instruments and should not be relied upon as the sole factor in an investment making decision. As with all investments there are associated inherent risks. Please obtain and review all financial material carefully before investing.

Diversification does not a guarantee a profit or eliminate the risk of loss.

Invesco Advisers, Inc. is an investment adviser; it provides investment advisory services to individual and institutional clients and does not sell securities.

Invesco Distributors, Inc. is the US distributor for Invesco Ltd.'s retail products. Each entity is a wholly owned, indirect subsidiary of Invesco Ltd.