AXA Investment Managers

Core

Marketing communication. Capital at Risk

Cap Volatility Management Strategies

Introduction

Investors are concerned about swings in asset prices, especially those seeking high returns from equities but struggling with the risks of short-term market swings. To address this, some are turning to volatility-controlled strategies, known as Capped Volatility Strategies, which aim to reduce risks while preserving gains from volatile assets. These strategies aim to mitigate exposure to market volatility by setting caps* on the maximum level of volatility that a portfolio can experience, in an effort to protect portfolios from excessive market fluctuations. This document explores the details of Capped Volatility Strategies, including their benefits, considerations, and potential impact on portfolio management.

*There is no assurance that the portfolio's volatility will remain below the cap.

Capped Volatility Management can be applied to the equity subset of a multi-asset portfolio or to the entire multi-asset portfolio.

Benefits and Risks

Benefits[1]

Capped Volatility Strategies could potentially offer several benefits for investors:

- **Risk Mitigation:** By setting a cap on the volatility of the underlying of the strategy, investors can limit their exposure to market downturns, and potentially limit significant losses during periods of high volatility. This is especially relevant for multi-asset investors who are looking to gain exposure to stocks with limited volatility, offering a derisked and diversified strategy[2] to mitigate market turbulence and downside risk. **By mitigating the risk of significant investment fluctuations, Capped Volatility Strategies help to minimise losses during the most severe bear markets.**
- **Enhanced Stability:** These strategies aim to offer a more stable investment experience by seeking to prevent the portfolio from exceeding a specific level of volatility. This stability can be particularly appealing to liability-driven Investors, and cashflow matching investors who are looking for controlled downside risk and more stability to align the flows. Capped Volatility Strategies provide

[1] Developments of the past offer no guarantee and are no indicator for any future returns or trends.

[2] Diversification doesn't guarantee investment returns or eliminate risk of loss including in a declining market.

access to appealing asset classes typically perceived as too risky without any built-in mechanism

- **Long-Term growth potential:** Despite the cap, Capped Volatility Strategies can still offer the potential for long-term growth. While reducing the impact of extreme market fluctuations, investors can still benefit (partially or totally) from the overall upward trend of the market. Capped Volatility Strategies enhance the risk/return profile compared to higher risk assets

Risks for Capped Volatility Strategies:

- **Cap selection:** Choosing an appropriate cap level based on the key features of the underlying is crucial in Capped Volatility Strategies. Investors should assess their risk tolerance and investment goals to determine the optimal cap level.
- **Trade-offs:** Implementing a cap on a portfolio volatility may come with trade-offs. While it can reduce downside risk, it could also restrict the potential for increased returns during periods of strong market performance with high volatility.
- **No explicit downside protection:** Selecting Capped Volatility Strategy for investors seeking explicit downside risk protection is not recommended. It could potentially underperform when higher risk assets consistently and steadily decrease in value.
- **Transaction costs:** Capped Volatility Strategies may result in higher transactions costs compared to a pure portfolio.

How the Capped Volatility Strategies work[3]

- The de-risking strategy operates by combining a higher risk asset, such as equity, with a lower risk asset, typically cash or money market securities, and dynamically adjusting the allocation between the two based on prevailing market conditions and a predetermined volatility level. This is often known as a 'volatility cap' (or volcap) strategy.
- During periods of low market volatility (i.e., volatility below the predefined cap), the strategy is fully allocated (100%) to the higher risk asset. When market volatility increases, the strategy is designed to automatically reduce the allocation to the higher risk asset in favor of the lower risk asset. This limits the realised volatility of the equity investment while preserving part of the upside potential.
- It operates by monitoring the daily volatility of the portfolio and reducing exposure if it surpasses a predefined level (i.e., the cap). The exposure to the relevant asset is determined as the lower of 100% and the volatility cap level divided by the current portfolio volatility estimate. Hence, if an equity portfolio has a volatility cap of 15% and today's volatility estimate is below that at 12%, then tomorrow's portfolio will allocate 100% to equities. But if today's portfolio volatility exceeds the cap at 20%, tomorrow's allocation will be the cap level (15%) divided by 20%, resulting in 75%.
- An **extension** of Capped Volatility Strategies is Target Volatility Strategies, which aim to keep the portfolio's volatility constant. The mechanism is similar, but in cases where the market volatility is below the cap, the strategy is leveraged to try and meet the volatility target.
- There could also be some **additional feature** on the strategy. Stop Loss mechanism can be coupled with the Capped Volatility mechanism to provide a soft guarantee over a given time horizon.

The reduction of the drawdown is a corollary of the Capped Volatility mechanism without being its primary objective.

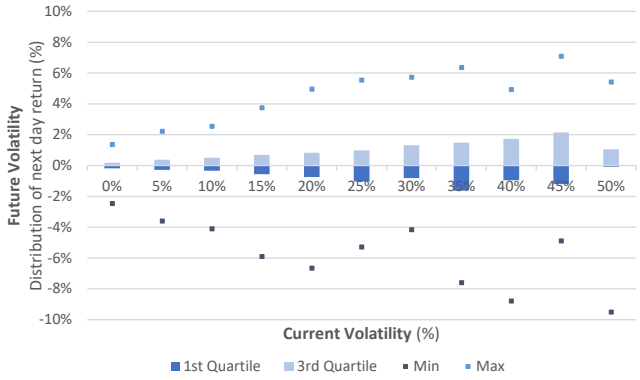
[3] Illustrative purposes only. No assurance can be given that the strategy will be successful or that investors will not lose some or all of their capital. AXA IM reserves the right to modify any of the investment process described herein at its discretion.

Examples and performance evaluation

Use of past volatility:
Can past volatility give information for the future?

We believe that past volatility may predict near-term returns. The effectiveness of this forecast is illustrated in Figure 1, where the relationship between current and future volatility is evident. As the current volatility increases, the dispersion of the next return also increases.

Figure 1: Future equity index volatility mapped against current equity index volatility



The data encompasses the period from December 29, 2000, to December 29, 2023, and the S&P 500 Net Total Return index was employed. This information was sourced from Bloomberg and AXA-IM. For illustrative purposes only. Performance results of the past are no indicator for any future returns or trends. The above represents our current market views only and does not constitute an investment advice. It is not possible to invest directly in an unmanaged index. Index performance is not illustrative of the strategy's performance.

Performance evaluation of Capped Volatility Strategies:
Evaluating the performance of Capped Volatility strategies involves analysing their risk management effectiveness, potential returns, and cost-efficiency. Comparisons with traditional investment approaches and active management strategies can provide insights into the strengths and limitations of Capped Volatility Strategies in different market environments. Understanding the dynamics of volatility forecasts and their impact on portfolio management is crucial in evaluating the overall performance of Capped Volatility strategies.

	Capped Volatility Backtested Strategy	S&P 500
Return (p.a.)	6,6%	7,2%
Volatility	13,2%	19,2%
Drawndown	-39,7%	-55,7%
Return/Volatility	0,37	0,28

Back tested returns are shown for illustrative purposes only as of December 29, 2023 and on the basis of the following:

- *Period from December 29, 2000, to December 29, 2023*
- *S&P 500 Net Total Return index was employed*
- *Results are net of a 0.25% management fee per annum*
- *Lower risk asset delivers the return of ICE LIBOR USD 1 Month*
- *The volatility cap has been set at 15%.*
- *Volatility is calculated using 21-day historical data.*
- *Rebalancing are implemented with a 1-day lag*
- *Daily Monitoring*
- *Source: Bloomberg, AXA IM.*

Back tested returns shown are based on a single index while the AXA IM Capped Volatility Strategies typically rely on a multi asset basket of indices or equity indices and follow specific investment objectives. For illustrative purposes only. No actual portfolio is managed with the same characteristics.

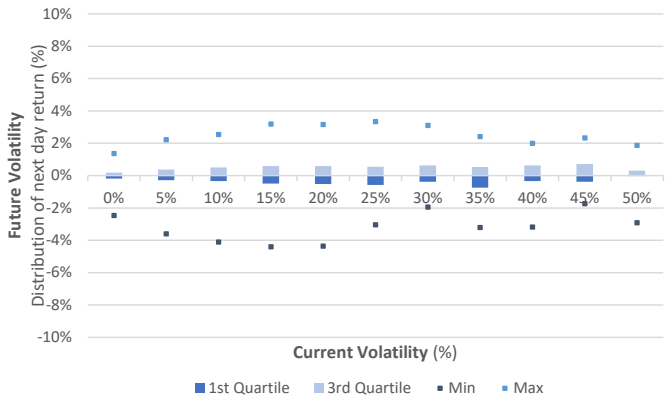
Simulated results have many inherent limitations. In particular, simulations are performed with a limited number of variables and are based on historical data or assumptions as trade execution and market impact cost that may be different of the actual data and could evolve in the future. Additionally, simulated returns are often prepared with the benefit of hindsight, meaning that models used in these simulations may have been developed explicitly with the benefit of data from the time period covered by these simulations.

There can be no assurance that the models will remain the same in the future or that an application of the current models in the future will produce similar results because the relevant market and economic conditions that prevailed during the hypothetical performance period will not necessarily recur. These simulated return should not be relied upon and no representation is being made that any strategy will or is likely to achieve profits or losses similar to those shown herein."

We believe that Capped Volatility Strategies offer an improvement in risk-adjusted return compared to a buy-and-hold benchmark, with a robust reduction in tail risk. These return normalisation features are inherently linked to the nature of the volatility stabilisation mechanism. By adjusting exposure inversely to the conditional expectation of volatility, Capped Volatility Strategies effectively normalise the overall return distribution, reducing tail risk and increasing the compound return. However, leverage may be necessary to achieve return normalisation without degrading the long-term risk-adjusted return. These enhancements are economically meaningful for various time horizons and holding period combinations, and they remain even after

transaction costs are included, suggesting a durable and tangible value of managed volatility strategies.

Figure 2: A Capped Volatility Strategy could provide a stabilised return profile



The data encompasses the period from December 29, 2000, to December 29, 2023, and the S&P 500 Net Total Return index was employed. The results are derived from a backtest, and it should be noted that certain assumptions were made. This information was sourced from Bloomberg and AXA IM.

AXA IM Capped Volatility Strategies, in a nutshell:

19 Capped Volatility portfolios for ~€3.5bn as of end of 2023

Multi asset or equity underlying in EUR, GBP, JPY, CHF and USD*

*AXA IM has in the past managed a Capped Volatility strategy denominated in USD

Is the Capped Volatility strategy considered contrarian?[4]

The Capped Volatility strategy can appear contradictory to the value-conscious, somewhat contrarian nature of many institutional investors. Equities tend to be cheaper when volatility is high. Market valuation signals and Capped Volatility Strategies are shown to be complementary. Valuations are most effective at forecasting returns for very long-time horizons, while Capped Volatility Strategies tend to react dynamically to shorter-term trends in volatility. When gains from attractive valuations are realised in the long term rather than immediately following an attractive valuation observation, Capped Volatility Strategies do not lose much expected return by lowering exposure immediately after a sell-off. During low-volatility periods, the use of leverage allows Target Volatility Strategies to potentially obtain excess returns over the benchmark if the underlying market returns are positive.

[4] The information has been established on the basis of data, projections, forecasts, anticipations and hypothesis which are subjective. This analysis and conclusions are the expression of an opinion, based on available data at a specific date. Due to the subjective aspect of these analyses, the effective evolution of the economic variables and values of the financial markets could be significantly different for the projections, forecast, anticipations and hypothesis which are communicated in this material.

Why AXA IM?

- The team at AXA IM has a long tenure of managing risked controlled solutions for their clients for the past 15 year, with a demonstrated history of crafting tailored solutions for large institutional investors and retail clients across multi-asset portfolios embedded in our insurance heritage DNA
- Our experienced team utilises a well-established approach supported by proprietary quantitative tools and substantial resources in Quant Solutions, Trading, Risk Management, Responsible Investing, and other cross-functional resources to effectively structure and optimize solutions to meet specific client outcomes
- We offer flexibility in the product design throughout its lifespan, allowing for adjustments as clients' needs evolve. We maintain a collaborative mindset, ensuring customised reporting to cater to client needs.

What makes AXA-IM unique?

At AXA IM, the volatility is computed not based on the historical return of the strategy, but rather on the historical return of each constituent of the strategy and the real-time allocation.

The potential benefits of this approach include:

- a better reflection of the actual risk exposure within the strategy, allowing for more precise risk mitigation measures.
- a more granular and dynamic assessment of risk, potentially leading to more accurate risk management and allocation decisions.

Additionally, it may enable investors to adapt their risk management strategies more effectively to changing market conditions.

There are several methods for calculating realised volatility, such as considering the depth of historical data and choosing between methodologies that assign equal weights to each return or utilise a time-weighted approach that gives more weight to recent events.

At AXA IM, we aim to offer guidance to our clients on calculating volatility and seek the most suitable approach based on their specific needs.

Conclusion

Capped Volatility Strategies could offer a valuable tool for managing risk in investment portfolios. By setting a cap on the portfolio volatility, investors may limit significant losses while still participating in the market's long-term growth potential. However, it is important for investors to carefully consider their risk tolerance, investment goals, and the trade-offs associated with implementing a cap. By understanding these considerations and comparing different options, investors can make informed decisions when incorporating Capped Volatility Strategies into their investment approach.

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*For a definitions of investment terms please click **here** to refer to the glossary.*

Important information

No assurance can be given that our investment strategies will be successful. Investors can lose some or all of their capital invested. Our strategies are subject to risks including, but not limited to: equity; emerging markets; global investments; investments in small and micro capitalisation universe; investments in specific sectors or asset classes specific risks, liquidity risk, credit risk, counterparty risk, legal risk, valuation risk, operational risk and risks related to the underlying assets.

Disclaimer

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