

Determining an appropriate benchmark for low volatility equity strategies



In recent years, there has been meaningful uptake in low volatility equity strategies by institutional investors globally. While the objective of the low volatility style – achieving equity-like returns with lower levels of volatility – may be well understood, the challenge of how to properly measure and evaluate their effectiveness using an appropriate performance benchmark has proven more difficult.

This paper examines different approaches to benchmarking low volatility equity strategies, including their use in the context of an investor’s total portfolio. While there is no one-size-fits-all solution to overcoming this challenge, we will discuss the common benefits and drawbacks of each potential performance benchmark. Importantly, we also emphasize that investors should clearly identify, discuss, and document their investment beliefs and performance expectations when allocating to a low volatility equity strategy to ensure that sound long-term strategic decisions are made for the total portfolio despite the existence of benchmarking challenges.

Introduction

While not all low volatility equity strategies are constructed in the same manner and investors’ reasons for implementing these strategies within their portfolios may differ, their general objective is to deliver strong risk-adjusted returns at a lower level of absolute risk (with risk defined as the volatility of returns). In support of this objective, low volatility equity strategies will typically aim to:

- Invest in “defensive” stocks of stable, mature businesses that generate reliable earnings and cash flow streams, while maintaining low exposure to stocks in higher-growth or more cyclical companies or sectors.
- Deliver “equity-like” returns over time despite exhibiting lower volatility than the broad market, due to the belief and evidence that suggests a low volatility premium exists.¹

- Provide strong downside protection, at a cost of participating to a lesser extent during strong market rallies, thereby achieving a smoother path of returns over time as compared to broad market indices.

Once an investor has determined that a low volatility equity strategy is well suited to their objectives and has decided to implement such a strategy, a new consideration arises: how should they go about measuring and evaluating its effectiveness in achieving its objectives?

Identifying a valid benchmark

A valid benchmark has been described as one that is unambiguous, investable, measurable, appropriate, reflective of current investment opinions, specified in advance, and accountable.² Specific definitions for these terms as they apply to a benchmark are described below:

- **Unambiguous:** The individual securities and their weights within the benchmark should be clearly identifiable.
- **Investable:** It must be possible to replicate and hold the benchmark to earn its return (at least gross of expenses).
- **Measurable:** It must be possible to measure the benchmark’s return on a reasonably frequent and timely basis.
- **Appropriate:** The benchmark must be aligned with the manager’s investment style or area of expertise.

¹See for example van Vliet, Pim and De Koning, Jan. *High Returns from Low Risk*. Wiley, 2017.

²As described by CFA Institute using the definitive list from Bailey and Tierney (1998).

- **Reflective of current investment opinions:** The manager should be familiar with the securities within the benchmark and their factor exposures, and should be able to develop an opinion regarding their attractiveness as investments. In other words, they should not be given a mandate of obscure securities.
- **Specified in advance:** The benchmark must be constructed prior to the evaluation period so that the manager is not judged against benchmarks created after the fact.
- **Accountable:** The manager should accept ownership of the benchmark and its securities and be willing to be held accountable to the benchmark.

While benchmarks that meet all of these criteria are generally available for most strategies that invest in equities and fixed income, investors have had to be flexible on some of these criteria when selecting benchmarks for other asset classes, such as private investments. In order to properly capture the objectives of a low volatility strategy and assess its success in delivering on performance expectations, we believe similar concessions and a little creativity may be required.

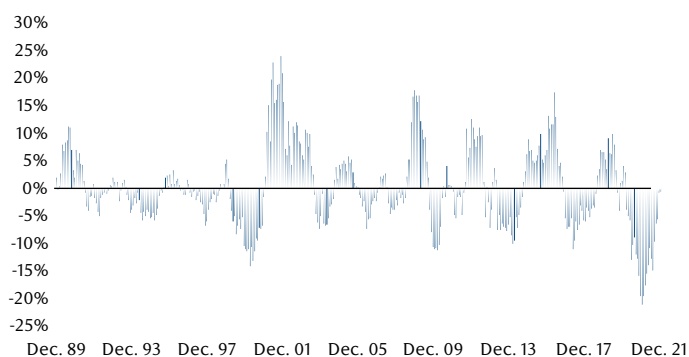
The challenge with using the returns of a broad capitalization-weighted index as a benchmark

As described above, the objective of low volatility equity strategies is to deliver strong-risk adjusted returns at a lower level of absolute risk. To achieve this objective, these strategies typically do not apply positioning constraints relative to broad market indices in their construction process, and do not explicitly aim to outperform broad market indices purely from a returns-based perspective. As a result, these portfolios can differ meaningfully from broad market indices when it comes to positioning and key characteristics, and can display considerable tracking error in the short term. Thus, while a traditional broad market index is easily understood, widely used as a benchmark for many equity strategies, and an investor can seamlessly group performance into top-level multi-asset portfolio reporting, the misalignments referred to above can provide the wrong signal to investors as to whether or not the low volatility strategy is meeting its objectives.

To illustrate the effects of this challenge over time, Figure 1 shows the historical one-year relative return of the MSCI World Minimum Volatility Index (chosen as an imperfect proxy to represent the low volatility equity style) vs. the MSCI World Index. It is evident that the two have deviated substantially, both positively and negatively, over the more than thirty years illustrated. To put it another way, these are high tracking error strategies relative to cap-weighted

indices. We would argue that during the periods where the MSCI World Minimum Volatility Index has lagged the MSCI World Index, this relative underperformance does not provide any insight into whether low volatility equity strategies succeeded or failed to meet their objective. Likewise, during the periods of strong outperformance, returns alone cannot establish that these strategies delivered what they set out to. Given the strong tendency of low volatility performance to mean-revert relative to cap-weighted indices, these false signals can be quite dangerous, as they could potentially cause an investor to throw in the towel at what, in hindsight, is exactly the wrong time.

Figure 1: Rolling 1-Year Relative Performance
MSCI World Minimum Volatility Index vs. MSCI World Index (C\$)



Source: RBC GAM, MSCI. March 31, 1989—March 31, 2022.

In an attempt to more accurately represent the risk and return profile of low volatility equity strategies, the following sections highlight three potential benchmarks to consider in lieu of or in addition to benchmarking to the returns of a broad cap-weighted index.

Other potential benchmarks to consider

Minimum volatility index (return-based):

One common approach is to compare the returns of low volatility equity strategies to a benchmark more representative of the low volatility style, such as the MSCI Minimum Volatility Indices referenced above. These minimum volatility indices have several qualities that make them an appropriate benchmark and can at times also be a helpful proxy of how the low volatility equity style or asset class behaves in different market environments. Most notably, the returns of these indices can fit seamlessly into a composite benchmark to measure the top-line relative performance of a multi-asset portfolio. Additionally, these

indices have a shared purpose of lowering or minimizing volatility, which results in a similar reduction in volatility as low volatility equity strategies and lower tracking error than when comparing performance to broad cap-weighted indices. Finally, similar to a traditional broad cap-weighted index which rebalances quarterly, these minimum volatility indices are rebalanced semi-annually, and this profile of low turnover fits the notion of a passive index.

However, there are some disadvantages to acknowledge. Although their low turnover profile approximates a passive index, the construction of minimum volatility indices requires active decisions by the index provider, which makes them akin to active strategies themselves, as opposed to truly passive portfolios. Also, minimum volatility indices may be bound by specific constraints relative to their broad cap-weighted counterparts, and have subjective assumptions and modelling built into their construction, which may make them less comparable to a given low volatility equity strategy. For example, the sector weights of the MSCI Minimum Volatility Indices are restricted to not deviate more than +/- 5% from the sector weights of the parent index, meaning that sectors with particularly high volatility can't be significantly underweighted or completely excluded, and sectors with particularly low volatility have an upper limit by which they can be overweighted. Investors should pay careful attention to the construction of their chosen low volatility equity strategy and determine whether or not the constraints and assumptions of a minimum volatility index are aligned with their strategy's approach. For strategies where these constraints and assumptions aren't aligned, we would caution that the minimum volatility indices might not provide the representative and appropriate comparison required in order to qualify as an appropriate benchmark.

Blended cash and broad cap-weighted index (return-based):

Another potential approach is to use a blended benchmark that includes a percentage weight of the return of a broad cap-weighted index and the remaining percentage weight of the return of cash. This approach draws on the simplicity and ease of comparing to a broad cap-weighted index, while also attempting to approximate (using cash) the lower level of absolute risk that low volatility equity strategies seek. For example, if a global low volatility equity strategy expects to capture approximately 70% of the risk of the broad market, then the manager might decide a blended benchmark of 70% MSCI World Index, 30% cash could be appropriate.

In addition to its simplicity, there are a number of benefits associated with using this return-based benchmark. Most notably, it's well aligned with the objective of a low volatility equity strategy and with most investors' goal of reducing risk in their portfolio: to achieve a smoother path of returns over time by protecting capital during market sell-offs and accepting the potential of less-than-full participation during up-markets. An investor allocating to a low volatility strategy may have a higher long-term return expectation for their low volatility equity strategy than a benchmark that contains a significant amount of cash. However, assuming an investor will accept this as a benchmark for their strategy, this approach meets all valid benchmark criteria and can be easily incorporated into the top-level benchmark of a multi-asset portfolio.

Broad cap weighted index (risk-adjusted returns):

While returns relative to a broader benchmark have garnered much of the focus historically, given that reduced risk is part of the goal of a low volatility strategy, assessing the risk aspect of their performance is equally as important for assessing performance. Risk-adjusted returns (as measured by the Sharpe Ratio³) are well aligned with the objective of most investors allocating to a low volatility equity strategy: to maximize risk-adjusted returns while simultaneously minimizing absolute levels of risk (volatility of returns). Since both risk and return components are assessed using this approach, investors can accurately track whether or not a low volatility equity strategy is delivering on its intended goal. Moreover, when a low volatility equity strategy is used in place of or in addition to traditional equity strategies to improve the efficiency of the total portfolio's overall risk budget, risk should be the key metric scrutinized rather than whether or not outperformance is achieved from a purely returns-based perspective.

That said, using a risk-adjusted returns benchmark presents its own challenges. For one, this metric can be more difficult to measure and interpret than a traditional returns-based benchmark, particularly over shorter periods of time. Additionally, unlike a returns-based benchmark, a risk-adjusted return framework can't be incorporated into a composite benchmark to measure the top-line relative performance of a multi-asset portfolio.

³Sharpe Ratio = (Return – "Risk-Free" Rate of Return) / Standard Deviation

In Figure 2 below, we summarize the benefits and drawbacks of each potential benchmark. It's important to note that portfolio construction varies across low volatility equity strategies, and the appropriateness of these options may differ by strategy.

Figure 2: Criteria for a valid benchmark

		Unambiguous	Investable	Measurable	Appropriate	Reflective	Specified in advance	Accountable
Benchmark	Broad cap weighted index (Return-based)	✓	✓	✓	?	✓	✓	?
	Minimum volatility index (Return-based)	✓	✓	✓	?	✓	✓	?
	Blended cash and broad cap weight index (Return-based)	✓	✓	✓	✓	✓	✓	?
	Broad cap weighted index (Risk-adjusted returns)	✓	✓	✓	✓	✓	✓	?

Assessing low volatility equity strategies in the context of a multi-asset portfolio

Often times, low volatility equity strategies are used to add value to a multi-asset portfolio by facilitating a reallocation of the risk budget, rather than simply by outperforming their benchmark. For example, an investor might use a low volatility equity strategy to:

- Allocate more capital to equities to enhance returns without assuming the increased risk associated with a traditional equity strategy.
- Allocate the same amount of capital to equities but reduce overall portfolio risk to achieve better alignment with an investor's objectives.
- Allocate the same amount of capital to equities but redistribute and diversify the overall portfolio's risk, by reducing equity market risk in favour of increasing the risk within the fixed income or alternatives allocations of the portfolio.

As a result, low volatility equity strategies likely only make up one portion of an overall portfolio, and measuring total portfolio performance purely from a returns perspective may not properly capture the effectiveness of the manager's strategic asset mix policy. Conversely, blending a risk-based benchmark with a returns-based benchmark is not possible, meaning the components of the portfolio may need to be evaluated independently if an investor decides to use a risk-based benchmark such as the Sharpe Ratio to monitor the performance of their low volatility equity strategies. Regardless of the benchmark chosen, we recommend that investors include formal documentation within their investment policy statement to record their expectations and rationale for incorporating low volatility equities into their

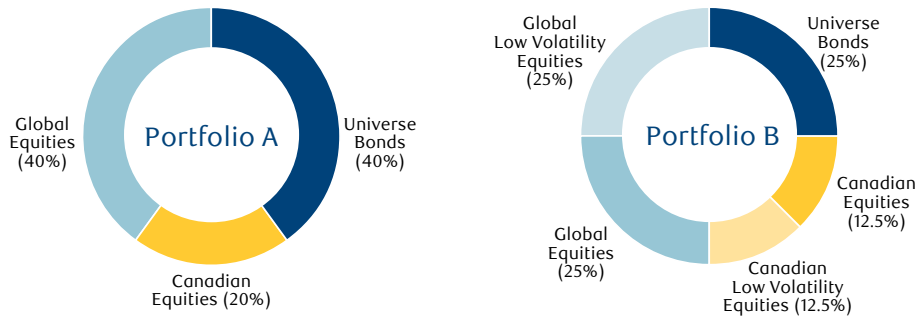
portfolio. The following items are some of the most important considerations in this regard:

- What is the specific purpose of including a low volatility equity strategy in the portfolio?
- What are the performance expectations for the low volatility equity strategy, including when and why the strategy may do better or worse than the broad cap-weight index over shorter time frames?
- Is the time horizon of the investment long enough that the compounding effects of low volatility's "winning by not losing" properties during down markets can be observed?

Figure 3 illustrates a hypothetical example of how an investor could use low volatility equities in place of traditional equities to reallocate their risk budget. In this example, the investor begins with a traditional 60/40 portfolio – Portfolio A. By partially replacing traditional equity strategies with low volatility equity strategies in Portfolio B, the investor is able to increase their allocation to equities to enhance expected returns without unduly increasing expected risk.

While it's important to evaluate this type of decision over a full market cycle, if one was to examine how these portfolios performed over just the two-year period from March 2020-March 2022 (which captures one of the most challenging time periods for the low volatility style from a relative return perspective versus traditional equities) they would reach different conclusions depending on which benchmark was selected. For example, Portfolio B experienced slightly higher returns with similar levels of volatility compared to Portfolio A, resulting in slightly better risk-adjusted returns. From this standpoint, the decision to add low volatility equities to the portfolio was beneficial.

Figure 3: Risk and return comparison, with and without low volatility equities



	Portfolio A	Portfolio B
Total Fixed Income	40%	25%
Total Equities	60%	75%
Annualized Return	13.94%	14.07%
Annualized Volatility	8.08%	8.14%
Sharpe Ratio	0.53	0.56

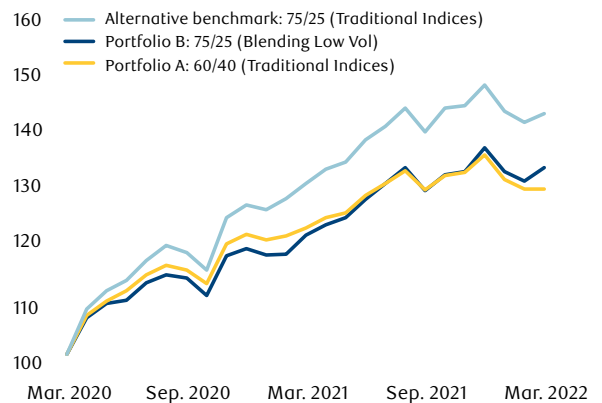
Source: RBC GAM. March 2020-March 2022. Representative data series as follows: Global Equities: MSCI World Index, Universe Bonds: FTSE Canada Universe Bond Index, Canadian Equities: S&P/TSX Capped Composite Index, Global Low Volatility Equities: MSCI World Minimum Volatility Index, Canadian Low Volatility Equities: MSCI Canada Minimum Volatility Index. Simulated performance data is for illustrative purposes only and not indicative of actual results. Please see the important disclosures at the end of this presentation regarding the use of simulated performance history.

However, depending on how the new portfolio was benchmarked, an investor might reach a different conclusion. If this investor had simply benchmarked their low volatility strategies against cap-weighted indices, the new portfolio would have experienced meaningful underperformance over the period. From this standpoint, an investor might feel differently about the decision to add low volatility equities to the asset mix – despite having achieved superior risk-adjusted returns relative to the original portfolio.

Given that the original motivation for moving from Portfolio A to Portfolio B was to create a more efficient portfolio, one could argue that the new 75/25 benchmark isn't relevant. Conversely, keeping the old benchmark of 60/40 also mischaracterizes the portfolio's exposures. This example demonstrates the challenge of selecting an appropriate benchmark for a low volatility equity strategy, especially in the context of a multi-asset portfolio, further reinforcing the importance of assessing performance from multiple angles and clearly defining and documenting expectations within the investment policy statement.

Figure 4: Path of relative performance, with and without low volatility equities

Hypothetical performance – Indexed to 100



Source: RBC GAM. March 2020 –March 2022. Portfolio A and B as outlined above. Alternative benchmark consists of 25% FTSE Canada Universe Bond Index, 25% S&P/TSX Capped Composite Index, 50% MSCI World Index. Simulated performance data is for illustrative purposes only and not indicative of actual results. Please see the important disclosures at the end of this presentation regarding the use of simulated performance history.

Investors seeking to determine their formal objectives and expectations for a low volatility strategy, and the best approach to benchmarking that strategy, might start by asking themselves the following questions:

- **What is the purpose of the low volatility allocation?** If it is to reduce or re-allocate risk, then a benchmark that incorporates a measure of risk may be appropriate.
- **What is their tolerance for periods of relative underperformance?** Greater sensitivity to relative performance may argue for a minimum volatility benchmark.
- **What is the size of the low volatility allocation?** A smaller allocation makes relative performance at the strategy level less important at the total portfolio level.
- **How closely does their chosen strategy resemble the benchmark?** If the low volatility portfolio is constructed quite differently than the minimum volatility index, then the latter may be an inappropriate comparison.

Conclusion

With many investors turning to low volatility equity strategies as a means to enhance risk-adjusted returns, traditional returns-based benchmarks should be expanded on in order to properly evaluate the performance of these strategies relative to their objectives, and less emphasis should be placed on short-term swings vs. broad market indices due to the high degree of style bias that exists between low volatility equity strategies and these indices.

Investors who have allocated capital to low volatility equity strategies and are deciding on an appropriate approach for evaluating investment performance should start by considering the explicit objectives of these strategies and the role they play in the broader portfolio context. From there, best practices include being aware of the inherent benefits and drawbacks of the various potential benchmarks, properly documenting investment beliefs and strategic asset mix decisions within a portfolio's investment policy statement, and using multiple lenses to measure and evaluate the effectiveness of low volatility equity strategies. Benchmarking of low volatility equity strategies is a multi-dimensional equation for which there appears to be no perfect solution, but with these practices in place, it is possible to more accurately determine whether they are delivering on their stated objectives.

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