

Choosing an Effective Low Volatility Strategy with Strategic Beta: Part 2 of 3

Strategic Beta allows investors to target exposures efficiently to generate specific results in their portfolios. As institutions move towards outcome-oriented benchmarks and more targeted risk exposures, Strategic Betas are likely to prove integral. In this series, we discuss how institutions are using Strategic Beta and point to key solutions that we believe enhance Canadian portfolio efficiency or generate specific useful outcomes. In our first article, we provided an overview of the current state of the market regarding Strategic Beta. We now turn our attention to enhancing the efficiency of stock portfolios using low volatility Strategic Beta, where volatility is defined as total risk or standard deviation.

Reducing Risk in Stock Portfolios

A majority of Canadian institutions already have exposure to low volatility stocks and the remainder are investigating whether/how they should get such exposure¹. Reducing volatility to enhance portfolio efficiency is a worthy objective for a number of reasons:

- A negative percentage return requires a proportionately larger positive return to recoup the losses in dollars. For example, a portfolio that has fallen by 10% requires a return of 11% to get back to its starting point; whereas a portfolio that has fallen by 5% requires a return of only 5.3% to achieve the same outcome.
- Limiting downside losses helps investors manage their own response to the markets.
- Lower volatility frees up risk budget that can be spent elsewhere in order to generate more returns.
- To the extent that liabilities are lower volatility, low volatility assets act to hedge against them.

Much of the research on low volatility exposures is focused on its potential to outperform broad markets, with varying opinions as to whether that is a reasonable expectation or not. *We believe that investors will fare better if they use low volatility beta to target a specific risk exposure for their portfolios, not because it might outperform broad benchmarks but because those portfolios will be more precisely positioned to deliver their desired outcomes.*

There are two common ways to reduce volatility at the total portfolio level.

- Combine different betas**, including Strategic Betas that are less than perfectly correlated. Strategic Betas usually focus on specific outcomes, behavioural anomalies or structural inefficiencies that can be captured in a transparent way, and may be found in stocks, bonds and other asset classes. Strategic Betas are available in a variety of rules-based and fundamental strategies accessible through vehicles such as ETFs and institutional pools. Studies have shown that factors such as value, small cap and momentum have low correlations among themselves and that these relationships change over time, so that combining them intelligently is likely to generate lower portfolio risk.⁶ As well, Strategic Betas tend to complement active stock selection that captures idiosyncratic risk in addition to market betas.⁷ Investors can capture low correlations among betas either by combining beta indices or by integrating the beta exposures at the stock level, the latter of which tends to generate better risk-adjusted results⁸.
- Invest in low volatility stocks** using either rules-based or active management. We focus the remainder of this article on this approach. In either case, investors need to understand the relevant portfolios and how they behave in different market conditions, and relative to other holdings in the portfolio.

Reduce Total Portfolio Volatility by up to 40% Using Rules-Based Strategies

Investors should start by prioritizing desired portfolio outcomes and deciding how to measure success. In reviewing the available solutions, consider the assets’ behaviours and correlations in normal and extreme markets and how the strategies’ exposures compare to the fund’s current gaps.

To illustrate the impact of different rules-based low-volatility strategies, we compare their effect in a portfolio using the average Canadian defined benefit pension plan’s allocations at December 31, 2014⁹. (We exclude small allocations to ‘Hedge Funds and Other’s that cannot be modelled.) We impose broad maximum and minimum constraints on those allocations to allow us to generate an efficient frontier and use BMO GAM’s estimates for the expected lower return and risk environment of the next five years. Using these assumptions and constraints, we generated the blue frontier in **Graph 1**. (For more information on our assumptions and constraints, please contact your relationship manager.)

Our objective is to see how much low volatility is preferred over broad market exposure in an efficient portfolio and its effect on the total portfolio risk. The average Canadian asset allocation has a standard deviation or risk of 4.9% shown as the vertical line on **Graph 1**, which corresponds to an expected return of 5.5%. Because the average mix is not efficient and falls below the blue frontier, our starting point for analysis shifts to the most efficient mix at the same risk level as the average (4.9%), or Mix A in **Table 1**.

Using the same regional constraints as in the blue frontier, we generated two additional frontiers in **Graph 1** that include rules-based low-volatility stock strategies as separate asset classes.

- The brown frontier is based on the assumption that lower volatility stocks will underperform the broad market by 50 basis points; standard deviations and correlations remain consistent with historic relationships. At the same return as Mix A, Mix B shows that the model allocates 3% more to stocks if it can get access to the lower volatility betas, even assuming a return discount, with a reduction in total portfolio risk of 0.4%.
- The green frontier assumes a return premium for the low volatility stocks consistent with that generated in each market over the last ten years when lower volatility stocks outperformed the broad market. At the same return level as Mixes A and B, the model specifies a lower weight in alternatives for two reasons:

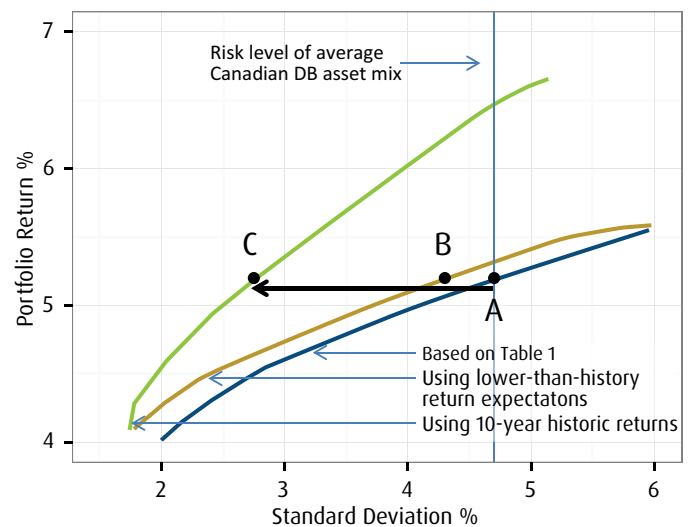
- The more favourable return/risk trade-off of the low volatility stocks to their broad market beta, and;
- The higher efficiency of the total combination allows more exposure to the lower return/risk bonds.

This generates a risk reduction of 1.9% (or 40% of Mix A’s).

In both cases, Canadian low volatility Strategic Beta is not chosen by the model because it is highly correlated to low volatility stocks in the other markets: to the extent that investors choose less low volatility in other global markets, the Canadian weight would be expected to rise.

GRAPH 1: REDUCE TOTAL FUND VOLATILITY BY UP TO 1.9% USING RULES-BASED STRATEGIC BETA

Efficient Frontiers Assuming Lower Future Returns Across All Markets



Source: BMO GAM

TABLE 1

Asset Mix Weights (%)			
Strategy / Asset Class	% Weight		
	Mix A	Mix B	Mix C
Total fixed income	33	30	40
S&P/TSX Capped Composite Index	10	10	13
BMO Low Volatility Canadian Equity ETF			
S&P 500 Index in CAD	8		
BMO Low Volatility US Equity ETF in CAD		8	8
MSCI EAFE Index in CAD	8		
BMO International Low Vol ETF in CAD		10	17
MSCI Emerging Markets Index in CAD	7	8	
Total stocks	33	36	38
Total alternative assets	35	35	22
Grand total	100	100	100
Expected Return	5.2	5.2	5.2
Expected Risk	4.7	4.3	2.8
Return/Risk	1.1	1.2	1.9

Source: BMO GAM Bloom erg



Low Volatility Performance Relative to the Broad Market

We do not believe it is constructive to invest in low volatility beta with the expectation of outperforming market beta. Normally, we expect that stocks with less downside also have less upside, resulting in a steadier return below the market over time because markets tend to go up more than they go down. Whether lower volatility strategies outperform the broad market depends on:

- a) Whether their upside capture is better than their downside capture and;
- b) Whether markets tend upwards or downwards over the holding period.

Low volatility may outperform at certain points in the cycle, but it is typically difficult to identify those points. While several studies identify a rationale for long-term outperformance, many indicators suggest that low volatility stocks are currently trading at high valuations. Nevertheless, we note below key research findings in support of low volatility outperforming the broad market:

- Low-volatility stocks provide fewer opportunities for managers to earn performance-based bonuses, making them less desirable.²
- Many investors shun stocks that are out of favour (value stocks) and overpay for prospective growth. The outcome is that low-priced stocks, which are less volatile, outperform the more volatile, high-priced stocks.³
- Many investors willingly accept lottery-like risk (standard deviation) in pursuit of strong returns: many investors are given to gambling.⁴
- Risky stocks offer an outlet for leverage-constrained or leverage-averse investors who seek high returns.⁵

Choose the Right Rules-Based Strategy!

TABLE 2: COMPARISON OF CANADIAN STOCK LOW VOLATILITY STRATEGIES
August 2012 to December 2015

	Strategy A	Strategy B	Strategy C	S&P TSX Composite Index
% Up/Down Market Capture	93 / -19	89 / 60	75 / 32	
% Select Sector Weights*	REITs: 9 Energy: 8	REITs: 28 Energy: 0	REITs: 6 Energy: 16	REITs: 2 Energy: 18
% Annualized Returns	16.5	8.5	8.9	6.5

Source: Bloomberg * As of December 31, 2015

There is a surprising variation in the low volatility Strategic Betas. As a result, investors need clarity on the trade-offs they can tolerate with respect to their own objectives. Examples of portfolio objectives include reducing stock volatility, enhancing diversification and generating above-market returns. *Prioritizing these objectives helps lead to the strategy that best meets our needs.* Let's take a closer look at each.

Because the strategies have widely varying construction methodology, **Table 2** provides more on their characteristics and outcomes. The differences in construction methodology range from sector allocation rules to a focus on reducing standard deviation versus market beta. *These variations have a material impact on the outcomes.*

- Reduced stock volatility: We examined three Canadian stock low volatility Strategic Betas and found that over their common return history (August 2012 to December 2015), they all had similar annualized standard deviations, ranging from 6.7% to 6.8%.
- Enhanced diversification: Whether the strategy in question enhances portfolio diversification depends on investors' current holdings and how they fit together. There is a wide dispersion in sector exposures across the three strategies, particularly in the REITs and Energy sectors.
- All three offered strong upside/downside market capture, but Strategy A's are particularly strong, going up when markets were going down. To the extent that investors' Canadian stock portfolios are correlated with the broad market, Strategy A is the best candidate to enhance diversification.
- Higher returns: While Strategy B and C had similar returns, Strategy A's were significantly higher.

Following this type of analysis leads to better decisions regarding the choice and use of Strategic Beta.

Similar Reduction in Total Portfolio Volatility with Actively Managed Low Volatility

We did a similar analysis using actively managed strategies that generate lower volatility outcomes. Using the constraints employed in **Graph 1**, we created an efficient frontier allowing a choice between passive broad market betas and active strategies that have low volatility characteristics in those markets. These active strategies do not specifically target low volatility stocks, but have low volatility characteristics or betas as demonstrated in **Table 3**. They also have the potential to generate value added.

Return and risk assumptions were based on their historic relationships to the markets adapted for our forward-looking lower return environment. Results are shown in **Table 4**: the model prefers the active strategies to some extent in all the stock markets. In total, this brings the portfolio risk down to 2.8% at a return of 5.2%.

What's Next

Reducing total volatility as a key objective can be achieved either through diversification of broad market and Strategic Betas or by directly accessing lower volatility exposures. Both rules-based and actively managed strategies present opportunities for significant risk reduction.

The next and final article in this series addresses Strategic Beta strategies that enhance total fund efficiency.

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Table 3: Active BMO GAM Strategies¹⁰ with Low Volatility BETA

Low Volatility Betas Inherent in Active Strategies		
Benchmarks	Strategy	Low Volatility Beta Exposure
S&P/TSX Capped Composite	BMO AM Canadian Smart Alpha Fund	0.7
MSCI World in CAD	BMO Global Dividend Strategy	0.8
MSCI Emerging Markets in CAD	BMO Emerging Markets Fund	0.9

Source BMO GAM, Bloomberg Low-volatility beta exposures shown are generated from a regression of each strategy against its market's low volatility benchmark over the past ten years.

Table 4: Lower Volatility Active Strategies Significantly Enhance Portfolio Efficiency

Strategy / Asset Class	Asset Mix Weights (%)	
	Mix A	Mix B
Total bonds	32	41
BMO AM Canadian Smart Alpha Fund		10
S&P/TSX Capped Composite Index	10	
BMO AM Global Dividend Strategy		15
S&P 500 Index in CAD	8	
MSCI EAFE Index in CAD	8	
BMO Emerging Markets Fund in CAD		4
MSCI Emerging Markets Index in CAD	7	6
Total stocks	33	35
Total alternative assets	35	24
Grand total	100	100
Expected Return	5.2	5.2
Expected Risk	4.8	2.8
Return/Risk	1.1	1.9

Source: BMO GAM, Bloomberg

Footnotes

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- PIAC website; bands and benchmarks imposed by BMO GAM
- All historic data begins July 1, 2005 and runs to June 30, 2015 based on actual returns except the following periods of simulated data: BMO Low Volatility Canadian Equity ETF: July 1, 2005 to October 31, 2011 / BMO Low Volatility US Equity ETF: July 1, 2005 to January 31, 2013 / BMO Low Volatility International Equity ETF: January 1, 2006 to September 30, 2015 / Global Dividend Strategy: July 1, 2005 to May 30, 2012 / Canadian Smart Alpha: July 1, 2005 to June 30, 2011

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