Investment Strategies 2015

# Practical De-Risking Solutions: Low Volatility Equity Strategies

With significant returns generated by equity markets over the past five years, institutional portfolios are generally much healthier than they were in the wake of the 2008 financial crisis. The funded status of pension plans has improved dramatically over the past two years, and despite a small deterioration at the end of 2014 driven by declines in long-term interest rates, many plans are now close to or even fully funded. Other types of institutions, such as foundations and endowments, find themselves with more assets than they have had in many years.

**Figure 1: Median Solvency Ratio of Canadian Pension Plans**


*In total, the S&P/TSX Composite Index fell 43.2% in the period from August 31, 2000, to September 30, 2002.
Source: Aon Hewitt

Against this backdrop, many investors are looking to secure some of these gains, and are turning their attention to reducing the risk in their portfolios. Broadly speaking, there are three types of strategies that address risk in institutional portfolios:

- ***Increasing Asset Duration.*** For pension plans the most common first step is to increase the duration (or interest rate sensitivity) of their portfolio by either increasing the size of their fixed income allocation, or extending its duration. This is a very logical step, as the mismatch in the interest rate sensitivity of a plan's assets and liabilities is a significant source of risk.

Indeed, for many investors, de-risking is synonymous with buying long bonds. Given today's low interest rates, however, many investors are reluctant to take this step at this time. (For a detailed discussion of this approach, and why investors should consider it despite current interest rates, please see our paper *Practical De-Risking Solutions: Pension Plans and Interest Rate Risk*.)

- ***Diversifying Equity Risk.*** The other major source of investment risk in a typical institutional portfolio is equity risk. Most institutional portfolios have large equity allocations – often 50% of the portfolio or more – and this asset class is generally uncorrelated with changes in pension liability values and can result in volatility of funded status. One way for investors to address this risk is by decreasing their equity allocation in favour of other return-seeking assets such as real estate, infrastructure, or liquid absolute return strategies, on the premise that there is potential to reduce surplus volatility risk or, at least, improve the expected risk/return profile of the assets.
- ***Restructuring the Equity Allocation.*** Another way for institutional investors to reduce their equity risk is through the use of a low volatility equity strategy. This approach aims to reduce risk without giving up the expected return (or at least not much of it) associated with equities, while also retaining the liquidity, simplicity, and comparatively low fees and expenses of equities as compared to other return-seeking investment alternatives.

## What are Low Volatility Equity Strategies?

Low volatility equity strategies are equity portfolios that aim to deliver a material reduction in risk – whether risk is defined as volatility (standard deviation of returns) or as "drawdown risk" (the risk of a loss) – while generating long-term returns that are comparable to traditional equity strategies. This label typically includes quantitatively managed minimum-variance portfolios with an explicit objective of minimizing return volatility. However it could also include equity income or dividend strategies, or other conventional strategies where a material reduction in volatility is either a primary objective or secondary outcome. While there can be substantial differences from one strategy to the next, low volatility strategies are generally expected to have 20–30% less risk than conventional equity strategies.

Research has shown that these strategies would have actually generated higher returns than traditional strategies in the past, and there are reasons to think they may do so going forward as well.[1] While this may be the case, what is abundantly clear is that the **risk is lower** and the **risk-adjusted returns are higher** for low volatility strategies than for conventional equity strategies, making them particularly attractive assets for use in institutional portfolios.[2]

[1] For additional research on the historical returns of low volatility portfolios, see Haugen and Baker, "The efficient market inefficiency of capitalization-weighted stock portfolios," *The Journal of Portfolio Management*, Spring 1991, or Blitz and Van Vliet, "The Volatility Effect: Lower Risk Without Lower Return," *The Journal of Portfolio Management*, Fall 2007.
[2] For a more detailed discussion of expected returns of low volatility equity strategies, please see our August 2013 paper, *Low Volatility Equities: Re-examining the contribution of equities to the risk and return of portfolios*.

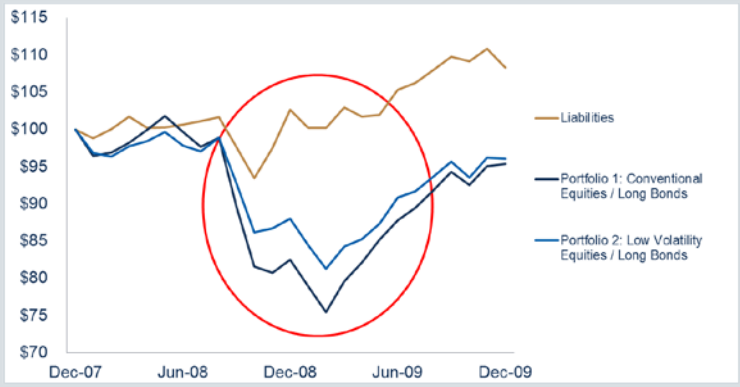
## De-Risking with Low Volatility Equity Strategies

To illustrate the potential reduction in total portfolio risk that a low volatility strategy offers, we examined the performance of hypothetical portfolios during two periods where equity markets and interest rates both fell, causing declines in both asset values and funded status for pension plans and other institutional investors – the financial crisis of 2008, and the equity market correction of 2014.

While these illustrations represent a pension plan with an objective of managing their assets relative to their liabilities, the principles and conclusions also apply to other investors with potentially varying objectives.

Figure 2 illustrates the period of 2008-2009, when the financial crisis led to a dramatic drop in global equity markets and precipitated a dramatic fall in interest rates. The gold line shows the estimated change in value of a plan's liabilities, using long bonds[3] as a proxy. As shown, pension plan liabilities grew during this period, driven by the fall in interest rates.

**Figure 2: Financial Crisis of 2008[4]**




Note: This example is for illustrative purposes only and is not intended to be representative of the performance of any actual or future investment.

The blue lines show the performance of two portfolios that were de-risked relative to a traditional starting point of conventional equities and Universe bonds. Portfolio 1 was de-risked by substituting long bonds in place of Universe bonds, extending the duration of the fixed income component from approximately 7 to approximately 14 years. Portfolio 2 took two de-risking steps, moving from conventional equities to low volatility equities and from Universe bonds to long bonds.

This chart clearly demonstrates that in periods when equity markets and interest rates are falling, any allocation to equities is going to lead to a deterioration in funded status, and an investment portfolio that is expected to retain the portfolio's funded status is one made up primarily of duration-matched bonds. If an investor owns equities, they are bearing risk. That being said, Portfolio 2 lost considerably less value during the downturn, as the low volatility equity strategies held their value much better than the broad market during the market downturn.

[3] We are using the FTSE TMX Canada Long Term Overall Bond Index as a proxy for the performance of a pension plan's liabilities.

[4] For simplicity, the illustrative portfolios are made up of 40% bonds, 30% Canadian equities, and 30% global equities. The bonds allocation is represented by the FTSE TMX Canada Long Term Overall Bond Index. The conventional equities are made up of the S&P/TSX Capped Composite Index and the MSCI World (net) Index, while the low volatility equities are made up of the MSCI World Minimum Volatility Index and the MSCI Canada Minimum Volatility Index. Similar analysis can be done using different asset mix and benchmark assumptions.

The same point can be illustrated with a more recent example – the equity market correction that occurred in the fall of 2014. After a period of strong gains, equity markets fell and bond yields dropped sharply, with the yield on a 30-year Canada bond dropping from 2.78% to 2.36% over the six months ended December 30th.

**Figure 3: Fall 2014 Equity Market Correction**[5]


Note: This example is for illustrative purposes only and is not intended to be representative of the performance of any actual or future investment.

As shown in Figure 3, the fall in interest rates caused the value of pension liabilities to rise sharply. Once again, while owning any equities at all hurt performance, the portfolio that was de-risked using a low volatility equity strategy (Portfolio 2) performed better on a relative basis.

## Long-Term Implications

We acknowledge that these are just two specific time periods when both equity markets and interest rates fell. The relative performance of these portfolios would be quite different in different sample periods, and would depend on the specifics of the different strategies (some low volatility strategies can perform quite differently than others). And of course it is long-term performance, and not just performance during periods of acute weakness, that matters to long-term investors.

**Figure 4: Tracking Error of Portfolio Assets Relative to Liabilities**[6]

| % Stocks / % Bonds | Portfolio 1: Conventional Equities & Long Bonds | Portfolio 2: Low Volatility Equities & Long Bonds |
|---|---|---|
| 70% / 30% | 9.3% | 6.8% |
| 60% / 40% | 7.9% | 5.8% |
| 50% / 50% | 6.6% | 4.8% |
| 40% / 60% | 5.3% | 3.9% |
| 30% / 70% | 4.0% | 2.9% |
| 20% / 80% | 2.6% | 1.9% |

The period shown is from May 2001 through December 2014, based on the availability of data for the MSCI Minimum Volatility indices. Note: This example is for illustrative purposes only and is not intended to be representative of the performance of any actual or future investment.

That said, we can generalize and say that over the long term, low volatility strategies can lead to significantly less risk with comparable returns for portfolios. Figure 4 shows the volatility relative to a pension plan's liabilities for the two portfolios used in our previous illustrations. Over the period represented in the chart, the volatility (or tracking error relative to liabilities) of Portfolio 1 is markedly higher than that of Portfolio 2.

[5] For simplicity, the illustrative portfolios are made up of 40% bonds, 30% Canadian equities, and 30% global equities. The bonds allocation is represented by the FTSE TMX Canada Long Term Overall Bond Index. The conventional equities are made up of the S&P/TSX Capped Composite Index and the MSCI World (net) Index, while the low volatility equities are made up of the MSCI World Minimum Volatility Index and the MSCI Canada Minimum Volatility Index. Similar analysis can be done using different asset mix and benchmark assumptions.

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We have also shown the results of various allocations to equities and bonds. Notice, for example, that with a 50% long bond allocation and a 50% conventional equity allocation, Portfolio 1 would have had similar volatility as Portfolio 2 with 30% in long bonds and 70% in low volatility equities. While it is unlikely that any pension plan with a de-risking policy would make such an asset allocation shift, this illustration does suggest that low volatility equities free up enough room in the "risk budget" to explore other asset allocation and risk/return possibilities.

## Investor Considerations

Before incorporating a low volatility equity strategy into their portfolio, institutional investors will want to consider the following:

- ***Expected Returns.*** This question is similar to the one facing investors choosing between a traditional value or growth manager. What are the investor's return expectations of their current equity portfolio structure compared to that of a low volatility equity portfolio? Research has shown that low volatility strategies would have matched or outperformed broad markets historically, and that there are reasons to expect that they could continue to do so in the future. Nonetheless, investors should be compensated for taking on higher volatility in their equity portfolios. Accordingly, an investor should be willing to forego some return for a meaningful reduction in risk, but their investment beliefs and their priorities (return-seeking or risk-reducing) will influence the appeal of these strategies.
- ***Expected Impact on Total Portfolio Risk and Return.*** Low volatility equity strategies are expected to reduce both funded status volatility and drops in funded status during periods of very weak equity returns. Could the investor use the room in the "risk budget" that is freed up by low volatility equities to pursue higher returns in other parts of the portfolio (for example, global bonds or high yield within the fixed income allocation)?
- ***Allocation within the Equity Portfolio.*** Should low volatility equities completely replace traditional equities, or represent a portion of the equity portfolio in a multi-manager or multi-strategy structure?
- ***Governance.*** Low volatility strategies are more difficult to benchmark, and will likely go through periods of material outperformance and underperformance relative to traditional broad market benchmarks. Can the investor tolerate this volatile *relative* performance, and will their successors feel the same?
- ***Selecting a Low Volatility Strategy.*** As with any other investment strategy, low volatility strategies are not all the same. Understanding the investment process is critical to developing appropriate expectations of the various strategies in this group.

## Conclusion

As many pension plans near or surpass fully funded status, and various institutions find themselves with more assets than they've had in years, it has become increasingly important that these investors secure some of their gains to support long-term objectives. Accordingly, many investors are appropriately considering ways to reduce the risk in their portfolios.

Although interest rate risk typically receives the most attention, equity risk can be one of the biggest sources of risk for institutional portfolios, if not the biggest. Switching from a conventional equity strategy to a low volatility strategy can be an effective step to de-risking a portfolio, even for investors with long-duration liabilities that are best matched with long-duration bonds.

The advantage of low volatility strategies is that they maintain many of the benefits associated with traditional equity strategies – comparable long-term returns, liquidity, simplicity, and comparatively low fees and expenses – while delivering a material reduction in risk.

For additional details, please contact your PH&N institutional portfolio manager,
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