

## A guide to fixed income for pension funds – Part 3

In this series we have seen that a well constructed, properly diversified fixed income portfolio can help pension funds diversify exposure to the equity market, reduce the volatility of the funding level, as well as provide alternative sources of returns. We have considered a number of fixed income asset classes as well as the use of derivatives to hedge risks or specifically target desired sources of return.

This time we will consider how to build such a diversified fixed income portfolio, spanning the full spectrum of fixed income assets and derivatives, and how we should go about setting guideline limits and restrictions.

We believe that there are three general principles to building a diversified fixed income portfolio for a pension fund: (1) maximise diversification (search for multiple uncorrelated positions); (2) capture the illiquidity premium (the additional yield available on less liquid assets like credit, ABS, Loans, etc); and (3) exploit symmetry (ensuring both upside and downside is captured). Such a portfolio can target strong information ratios (i.e. enhance the returns of a bond portfolio without necessarily a commensurate increase in risk).

However, when setting guidelines for a mandate to build a diversified fixed income portfolio, there are several key differences between bonds and other asset classes that trustees should take into account.

First, fixed income securities overall are less volatile than equities and portfolios often contain more than one sub asset class such as government and corporate bonds. As a result, the concept of 'market exposure/beta', or the risk and return produced by the market index or asset class, is not as straightforward as for equities. For example, the fixed income equivalent of beta is duration, the sensitivity of a bond or bond portfolio to a change in interest rates.

Secondly bonds hold more downside risk than upside, if a bond defaults the holder will usually be left with nothing, yet prices can't rise limitlessly (as opposed to equities which can go up or down more symmetrically).

In addition, trustees should be aware of the main risks that a bond portfolio is typically exposed to in setting limits and restrictions to control risk. These include:

- Default risk – the risk that the bond issuer defaults on its payments. In the extreme case, the market value of the defaulted bond could be close to zero.
- Interest rate risk – fluctuations in the value of a fixed income security resulting from changes in the general level of interest rates. When rates rises, the prices of most fixed income securities goes down and visa versa. In general, the market values of bonds with a longer term to maturity exhibit a higher sensitivity to interest rates.
- Market risk – changes in credit risk, emerging markets and foreign exchange will have an impact on the value of the bond portfolio.

It is therefore vital to have a comprehensive suite of risk control measures which have been designed to complement each other. These can include:

- Statistical limits which encompass all elements of risk but which underestimate negative events. They rely on assumptions about future volatility and correlation.
- Additional specific concentration limits which help reduce exposure to negative specific security events such as mis-estimated return distributions.
- Limits on notional (aggregate and individual market) exposure which mitigate the impact of underestimating future volatility.
- Limits on economic (aggregate and individual market) exposure which act to restrict exposure to market risk and the impact of overestimating future correlation.

In these three articles we have discussed the building blocks needed to assemble a fixed income portfolio that can deliver higher returns for the risk taken than traditional portfolios, and seen that diversification, illiquidity premium and symmetry are the foundations. However fixed income is not like equities and pension fund trustees must be aware of the risks and take steps when drafting investment guidelines to ensure these risks are addressed and controlled effectively without overly constraining the generation of return.

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