portfolio construction forum

# Spurn the supernova and fight the fear of fixed income

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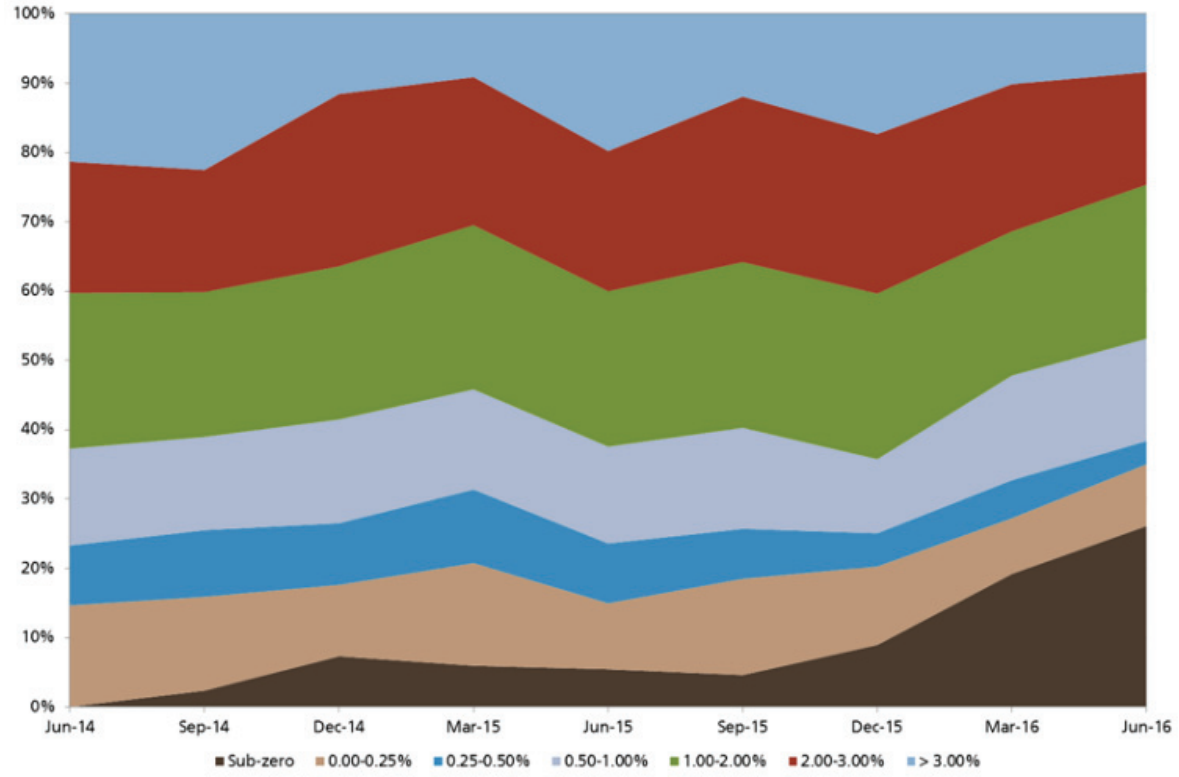
Fixed income has delivered positive absolute returns to investors for the past 25 years. With global yields at record lows, bond market Cassandras proclaim the formation of a supernova, warning of the investment perils. Such proclamations focus exclusively upon duration, and neglect the other sources of total return that are available within fixed income markets. Deeper analysis into each driver of total return reveals a far less ominous outlook, and one where positive outcomes are still more likely than negative ones. It's time to spurn the supernova talk, and stick with the core, defensive anchor provided by global fixed income.

## 1. INTRODUCTION

At the end of June 2016, over 26% of the securities in the Barclays Global Aggregate Index, one of the most widely followed benchmarks for fixed income markets globally, were valued with yields to maturity below 0% (Figure 1). This represented investment grade fixed income securities worth around USD12.4 trillion.

Figure 1: Yield to Maturity across the Barclays Global Aggregate Index

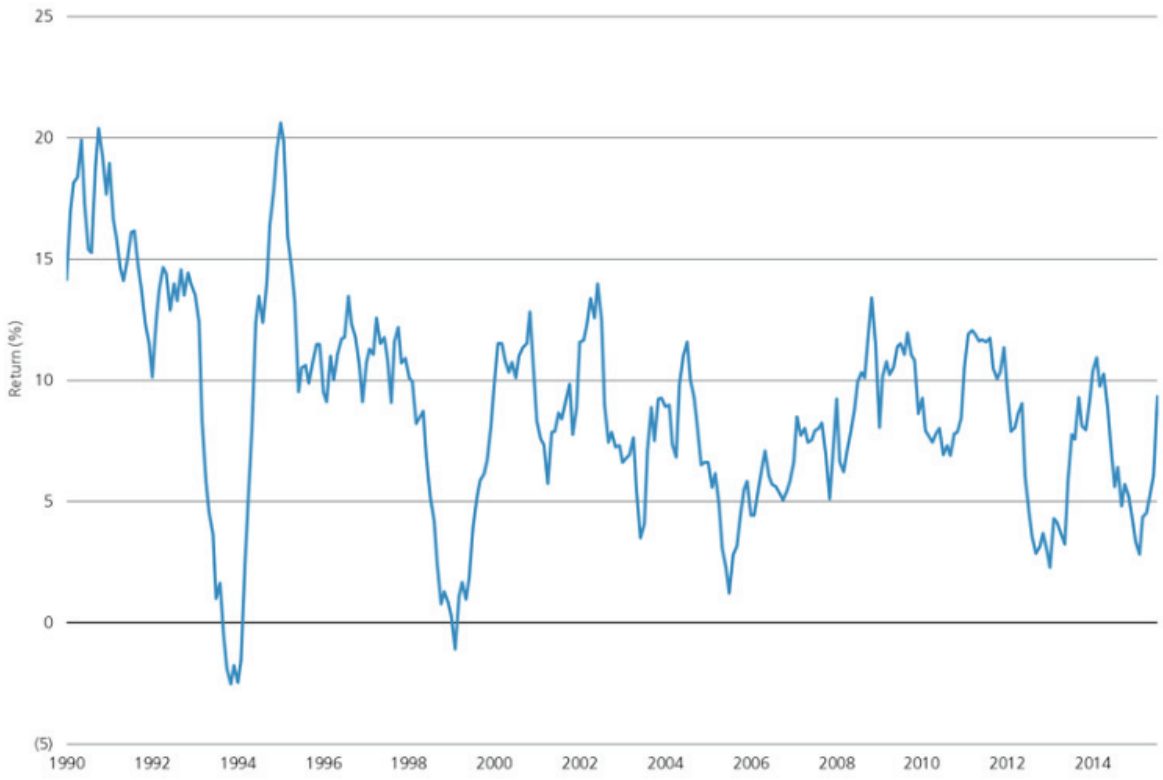



Sources: UBS; Barclays. Data as at 30 June 2016.

Until recently, negative interest rates were largely a small country phenomenon, confined to the likes of Switzerland and selected Nordic countries. The central banks of these countries have used negative interest rates, periodically, as part of their broader monetary armoury to combat exchange rate appreciation and unwanted capital inflows.[1] However, the introduction of a negative deposit rate by the European Central Bank (ECB) in June 2014 saw negative interest rate policies become viewed as the next likely extension to unconventional monetary policy tools, and the Bank of Japan's adoption of "Quantitative and Qualitative Monetary Easing (QQE) with a Negative Interest Rate" in January 2016 saw sub-zero cash rates take hold across markets representing more than 23% of world economic output.[2]

Global fixed income, as an asset class, has benefited handsomely from the wide-spread adoption of unconventional monetary policies, with the Barclays Global Aggregate Index returning 9.34% (in AUD-hedged terms) for the 12 months to June 2016 (Figure 2). The annualised return of global fixed income over the past five years has been 7.75% (again, hedged to AUD).[3]

**Figure 2: Rolling 12-month returns from the Barclays Global Aggregate Index (hedged to AUD)**




Sources: UBS; Barclays. Data as at 30 June 2016.

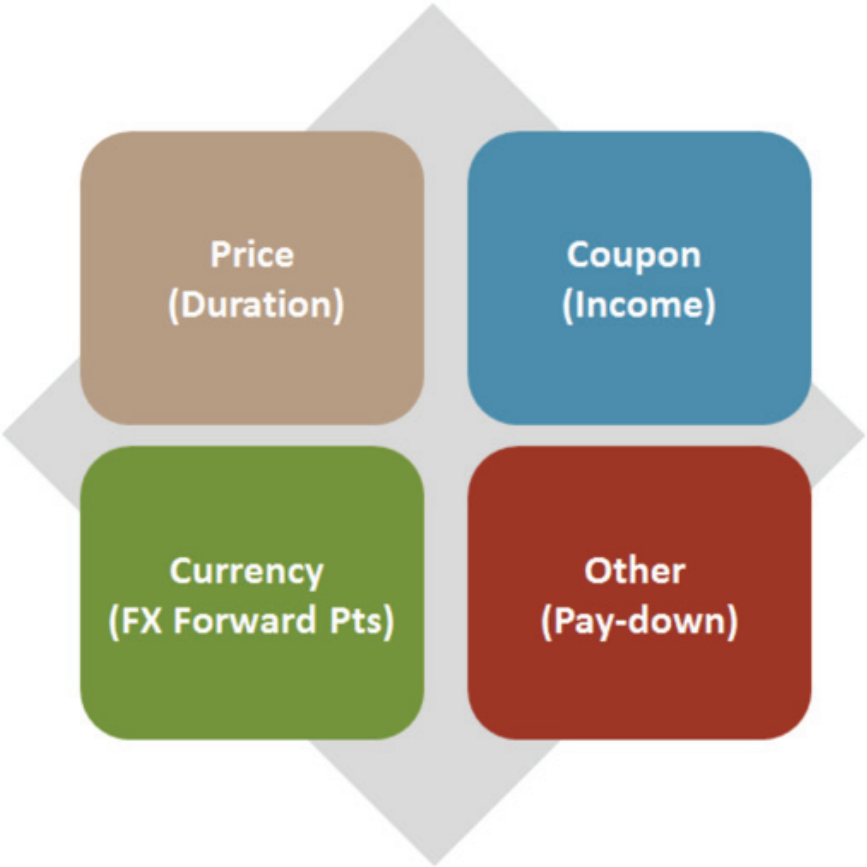
Global fixed income has been a rewarding place to invest, particularly in an increasingly uncertain and volatile world. However, with 26% of global investment grade bonds already yielding below 0%, and a further 12% of the Barclays Global Aggregate Index yielding less than 0.5 per cent (see Figure 1), what case can still be made for Australians to invest into global fixed income? Is there a bond market supernova forming on the horizon, or can investors still make positive absolute returns from global fixed income in an increasingly negative-rate world?

## 2. DECONSTRUCTING THE SOURCES OF RETURN FROM FIXED INCOME INVESTING

The total return that is generated by the fixed income asset class can be decomposed into four broad constituents:[4]

1. Price returns – which reflect changes in the bond's capital value, caused by movements in bond prices. Recall that bond prices move inversely to their yield to maturity, so if market yields decline, bond prices will rise, and vice versa.
2. Coupon returns – which reflect the amount of interest that is accrued by investors on a daily basis, and paid periodically by the issuers of bonds.
3. Currency returns – which reflect the amounts received or paid as a result of hedging out foreign exchange risk for a portfolio that invests in bonds denominated in foreign currencies.
4. Other returns – which reflect the effects of periodic repayments of capital before final maturity (e.g. amortising and sinking securities, or bonds with embedded callable features).

Sources of total return in global fixed income




Source: UBS Asset Management

In order to appreciate both the opportunities and the challenges presented by investing in the current ultra-low global interest rate environment, it is imperative to delve more deeply into each of these sources of fixed income returns. Once the individual constituents are fully understood, the pieces of the puzzle can then be put back together in order to properly assess the prospective total returns from global fixed income.

### 2.1 Price Returns from Global Fixed Income

Price returns are the easiest to understand in all markets, including for fixed income:

- If prices go up, capital values increase, and investors reap positive (nominal) returns from the asset class; or
- If prices drop, capital values decline, and investors are handed negative (nominal) returns from the asset class.

For fixed income investments, the prices of bonds are determined by movements in their yields to maturity. Bond yields, in turn, are influenced by many factors, including: central bank monetary policy; the level of inflation and other macroeconomic variables; government fiscal policy; a borrower's credit-worthiness; the regulatory and taxation regimes; as well as more micro factors that specifically influence either the demand for, or supply of, bonds in a given market.

At its simplest, if bond yields fall, the discounted net present value of all cashflows from a fixed income security (i.e. principal and coupons) will rise, making an investor willing to pay a higher price than hitherto to acquire that investment. Under these conditions, price returns from fixed income will be positive. Conversely, if bond yields rise, the discounted net present value of the fixed stream of cash flows from the bond will decline, and prompt investors to offer a lower price for acquiring that investment. Those kind of market conditions will produce negative price returns.

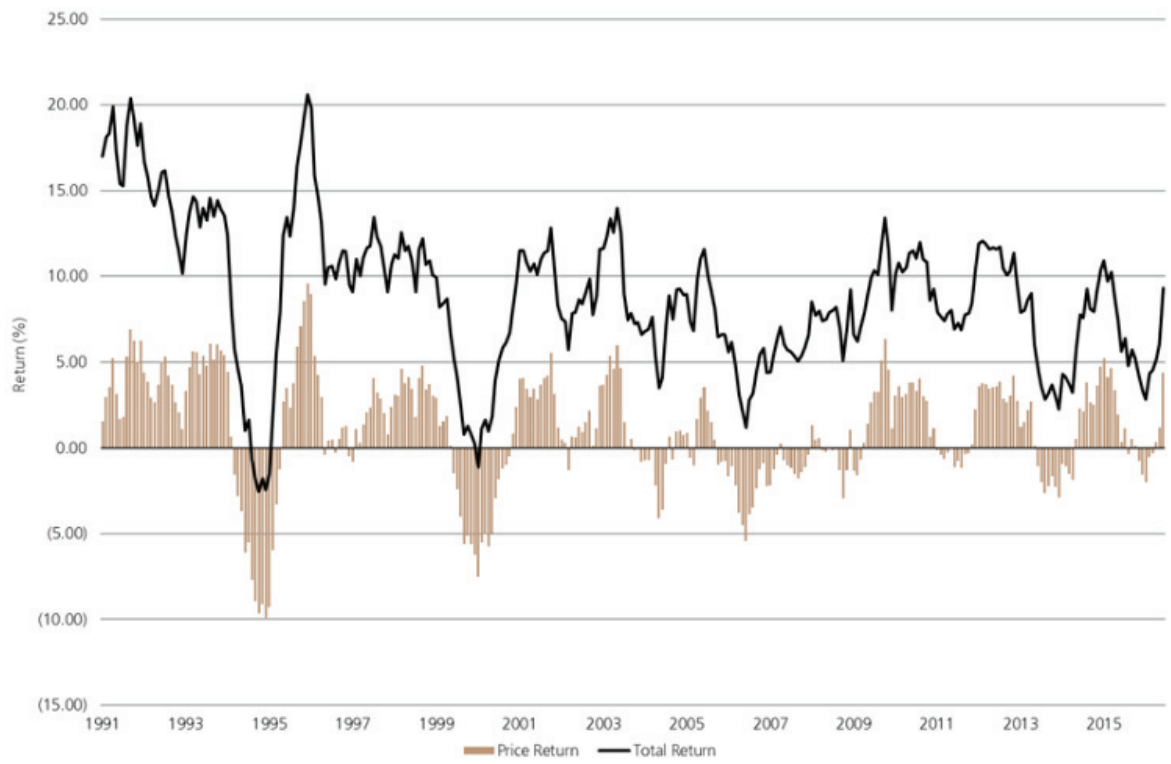
Price returns from global fixed income have been both positive and negative in recent years (see Figure 3).

- Positive price returns have been associated with the easing of monetary conditions by major central banks, through both conventional and unconventional means. The reduction in global inflation since the financial crisis has also provided a boost to the price returns of global fixed income over this time, as repeated doses of quantitative easing have yet to result in materially higher inflation.
- Negative price returns from global fixed income have been related to periods of tighter monetary conditions (e.g. 1994-1995; 1999-2001; 2004-2006), or the market's expectation of such tightening (e.g. the "Taper Tantrum" of 2013). Episodic bouts of market volatility – such as the so-called "VaR shock" in German Bunds

throughout Q2 2015 – have also produced negative price returns on a rolling 12-month basis.

- For Australian investors holding currency-hedged global fixed income portfolios, price returns have tended not to dominate total returns from the asset class in recent years. The interaction between price and non-price sources of total return will be examined later in this paper.

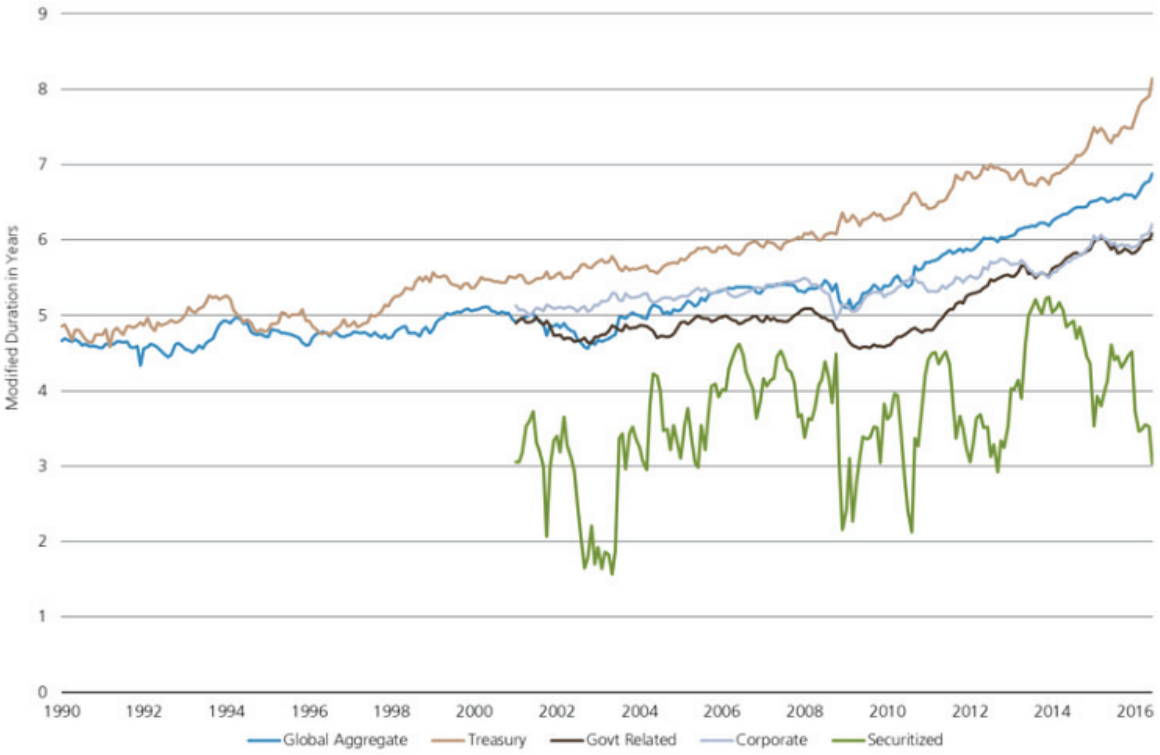
**Figure 3: Rolling Annual Price Returns from the Barclays Global Aggregate Index (hedged to AUD)**




Sources: UBS; Barclays. Data as at 30 June 2016.

The key metric of a bond's price sensitivity to changes in market yields – and hence its prospective "price return" – is, of course, its modified duration. This measure has been rising in all major markets over the past 20 years, and now stands at its highest level ever, as measured by the Barclays Global Aggregate Index (Figure 4).

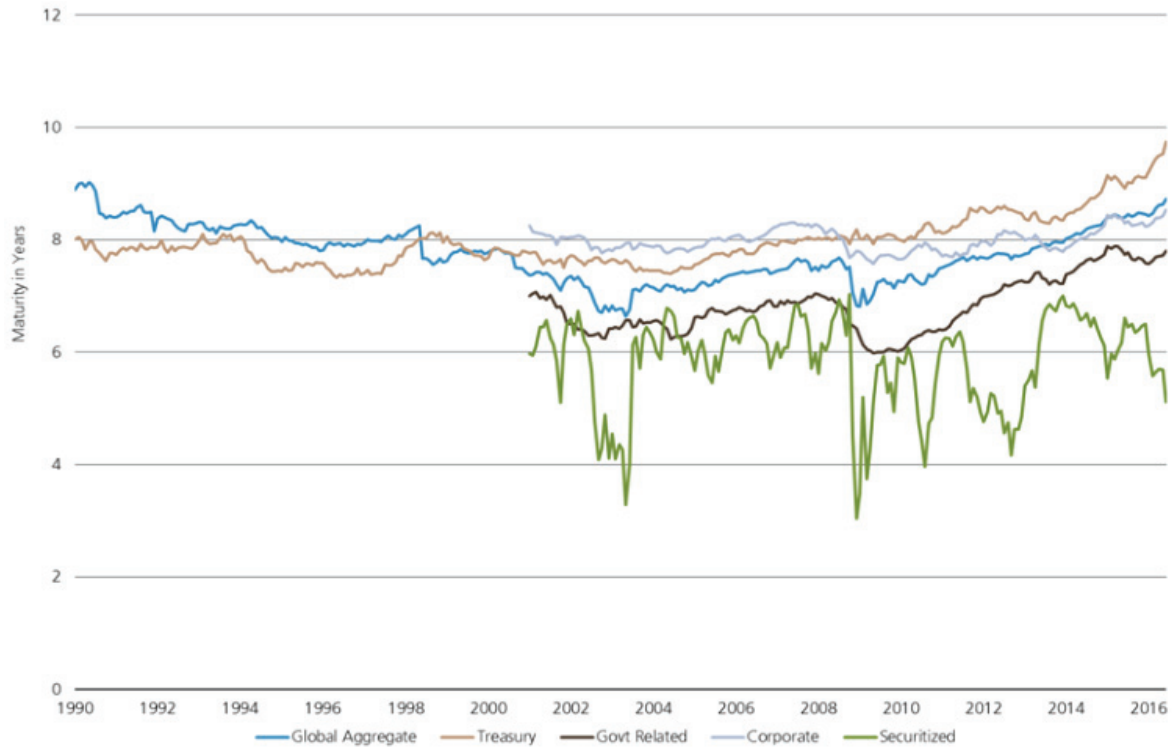
Figure 4: Barclays Global Aggregate Index – Modified Duration by Sector




Sources: UBS; Barclays. Data as at 30 June 2016.

The steady fall in bond yields is part of the story here, with the actions of largely price-insensitive central banks, pursuing quantitative-based monetary policies in the years since the global financial crisis, playing a large part in this. Bond issuers, particularly sovereign governments, have also taken advantage of steadily falling bond yields to progressively extend the maturity profiles of their debt (Figure 5). Hence, the steady lengthening in the duration of global fixed income markets over recent years has reflected both a price dimension (i.e. lower discount rates, or yields to maturity) and a time dimension (i.e. a longer average maturity profile across the investment grade universe).

Figure 5: Barclays Global Aggregate Index – Maturity by Sector




Sources: UBS; Barclays. Data as at 30 June 2016.

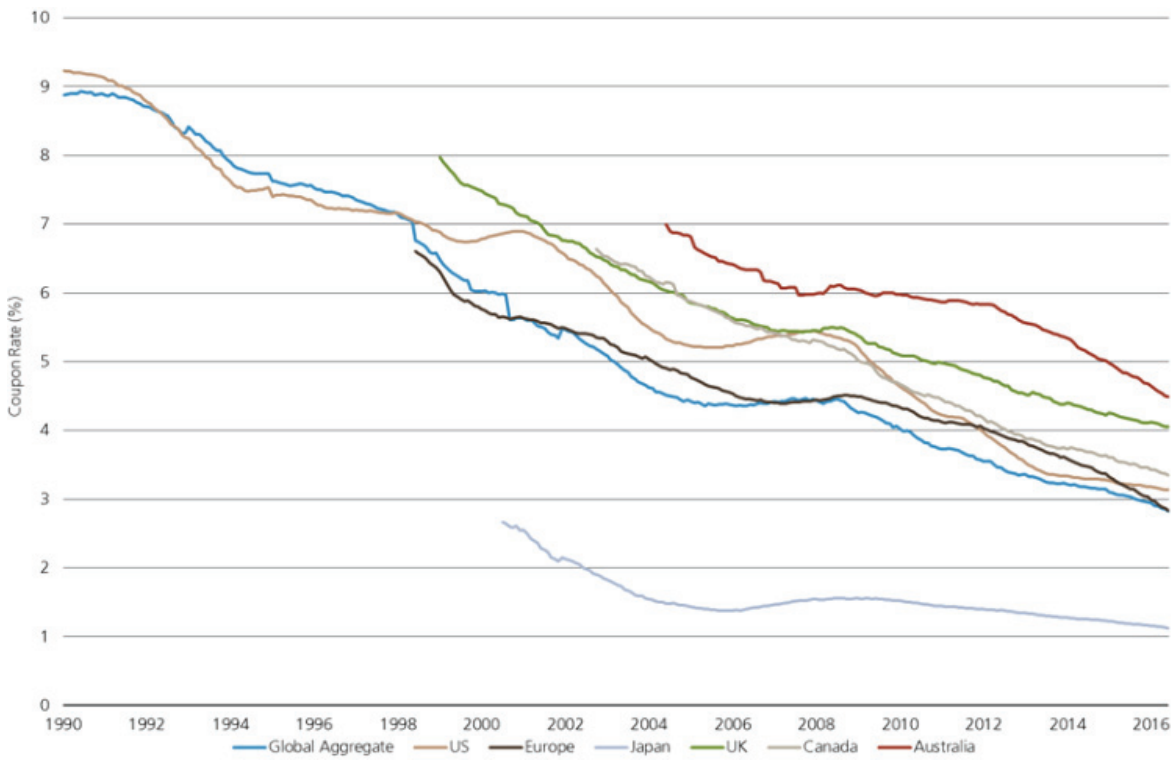
With interest rates near record lows, and duration at a record high, the prospective price returns from global fixed income have never been more sensitive to movements in bond yields than at the present time. That observation, however, has been true for every one of the past six years, during which time total returns have been uniformly positive, and price returns mostly positive as well. It was evident from Figure 3 earlier that total returns from global fixed income have been driven by more elements than just duration alone. The duration sensitivity of the market certainly needs to be taken into consideration, but the risks are not asymmetric: duration can still generate positive price returns as well as negative ones.

## 2.2 Coupon Returns from Global Fixed Income

Somewhat surprisingly, many investors can get so caught up with the current risk measures of fixed income markets, as exemplified by record global duration, that they often overlook the most basic source of return available from bonds (i.e. coupons). This may be a rare case where fears about the long term – based upon a cursory and partial analysis of the facts – may inappropriately trump the short-term focus on income generation. Even in the current

environment, where 26% of the global investment grade universe trades on a sub-zero yield to maturity, one cannot identify any primary market issuance of investment grade bonds that has come with a negative-rate coupon.[5] Hence, the income stream that is available from global fixed income remains positive (or, at worst, zero), and it continues to generate a positive contribution to total returns within the asset class. The evolution of coupon rates across key global markets is depicted in Figure 6.

Figure 6; Barclays Global Aggregate Index – Coupon Rate by Market




Sources: UBS; Barclays. Data as at 30 June 2016.

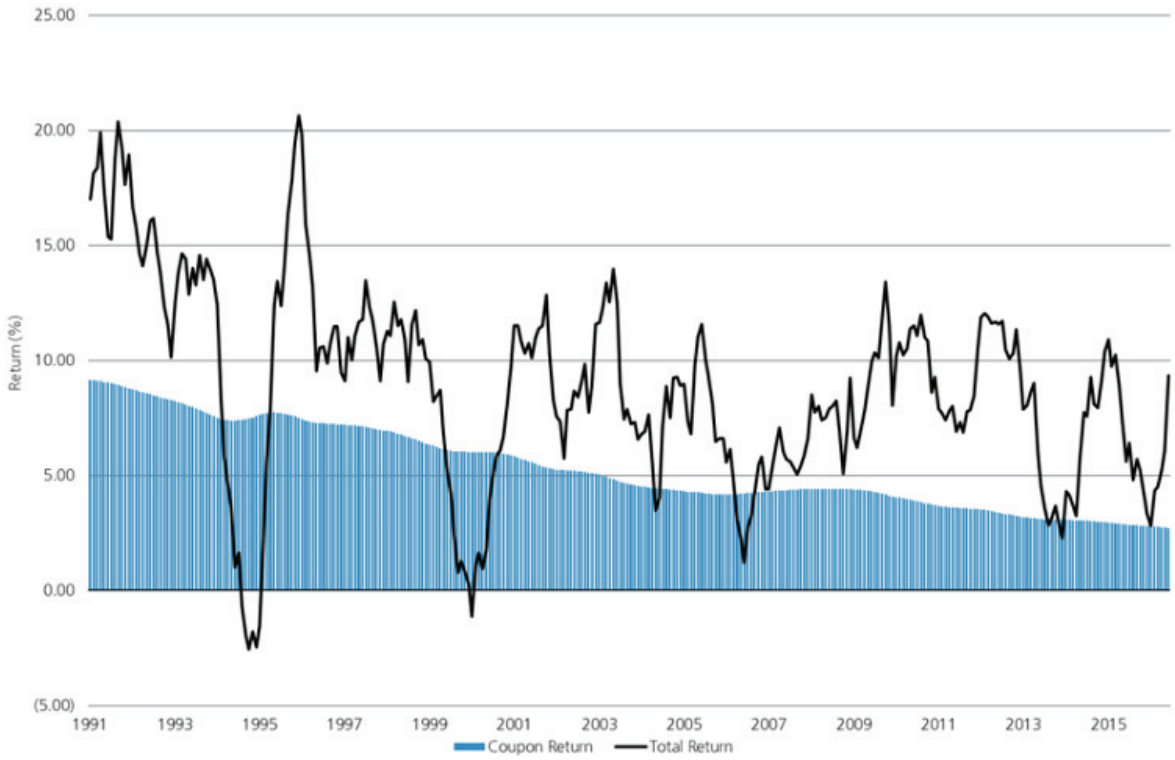
What may surprise many is that the average coupon rate – although now at a record low – is still quite positive across most major markets, and 2.82% for the Barclays Global Aggregate Index as a whole. This is despite the fact that market yields to maturity have plunged below 0% on prolonged quantitative easing and the recent introduction of negative cash rates. Of course, the pace of this decline in coupon rates merely represents the contra-entry to the lengthening average maturity profile that was observed earlier in Figure 5. That is, if the average global investment grade bond now has a longer maturity than before, it stands to reason that its weighted-average coupon rate will also now take a longer time to re-price to current market yields.

The delay in this re-pricing of the average global coupon rate means that coupons still provide investors with a regular, positive source of return (income), and this income will

continue to cushion total portfolio returns from any adverse movements in the capital value (price return) of the underlying bonds. This is another instance where the longer-term price return risks associated with duration need to be counter-balanced against the longer-term benefits of a secure income stream. Even in countries like Japan, where zero interest rate policies have been in place for most of the past two decades, there is still a positive coupon rate across the investment grade, JPY-denominated universe. To be fair, the average Japanese coupon rate now sits just above 1%, but it still makes a positive contribution towards total returns from JPY fixed income, even after years of QQE and the recent introduction of a negative interest rate policy by the Bank of Japan.

While clearly much lower than they were in the past, coupons still provide a key, long-term reason for allocating to global fixed income, particular for those investors that are reliant upon a regular income stream. The market currently generates a weighted average coupon of 2.82% from investing in a Global Aggregate style strategy, which remains well ahead of the 0.80% annual inflation rate recorded across the OECD countries.[6]

**Figure 7: Rolling Annual Coupon Returns from the Barclays Global Aggregate Index (hedged to AUD)**




Sources: UBS; Barclays. Data as at 30 June 2016.

Having now examined both capital and income returns from global fixed income, it may be tempting to try and combine the price and coupon return analysis, in order to extract a

running yield calculation across a global fixed income portfolio. However, that would be missing another key element of the total return equation for Australian investors in global fixed income: the forward FX points from hedging out the currency risk. This is a particularly useful, and subtle, source of total return for Australian investors, and one that will now be explored in more detail.

### 2.3 Returns from Currency Hedging Global Fixed Income

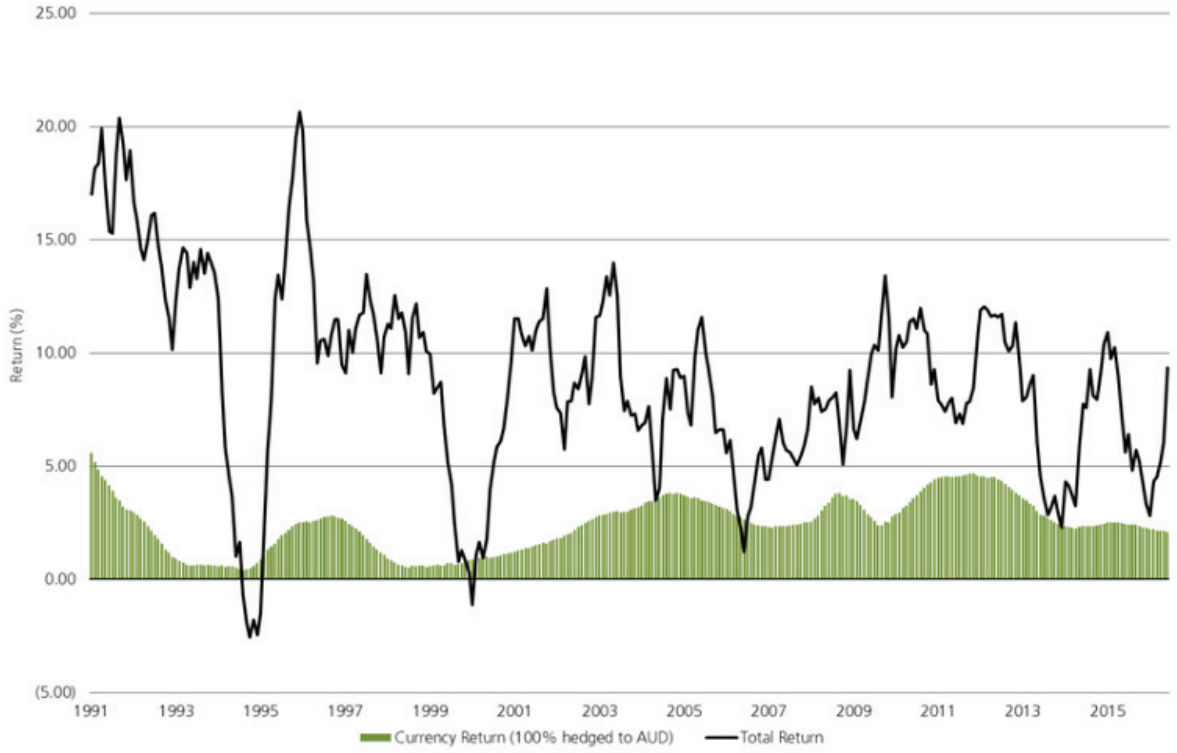
An investment in global fixed income, by Australian investors, should ideally be undertaken purely from an asset allocation perspective, and viewed through a prism that contemplates the need for both a duration anchor and income, as discussed earlier. The level of the exchange rate, or its likely direction over the investment horizon, is a quite separate issue from the decision to allocate capital to global fixed income, and any embrace of active currency risk should be considered independently, as part of a robust investment process.

Active currency management can certainly be an additional source of excess returns for global fixed income portfolios, but this is not a subject that shall be addressed in this paper. Rather, greater attention needs to be drawn to the income-like properties that FX hedging plays for Australian investors holding assets that are denominated in foreign currencies. This aspect of portfolio management is not particularly well understood, but it is a real gem in terms of the consistently positive contribution that it makes to the total returns on Australian investors' global fixed income portfolios.

To be clear, the following discussion on "currency returns" relates to the difference in short-term interest rates between Australia and the rest of the world, and not to the exchange rate itself. The level of the AUD is irrelevant to a fixed income portfolio that fully hedges against currency fluctuations. As shown in Figure 8 (overpage), the quantum of this so-called "currency return" can be quite significant at times – up to a 5% compensation for the opportunity cost of investing offshore (fully-hedged) rather than locally.

From an implementation perspective, this hedging can be achieved via rolling forward foreign exchange contracts or through cross-currency basis swaps. The economic effect of these two portfolio strategies is similar over the investment horizon and this paper will not dwell here on the technicalities of differences in approach between the two.[7] Suffice it to say, however, that as long as Australian short-term interest rates are higher than those prevailing in the rest of the world, there is a clear income-like benefit to hedging out AUD currency risk in global fixed income portfolios. This is a long-term benefit, and one that needs due consideration in the portfolio construction process. At present, fully hedging out AUD currency risk will boost portfolio returns for Australian investors by over 2%, which is quite a significant uplift in the overall context of still-declining coupon rates and ultra-low absolute yield levels.

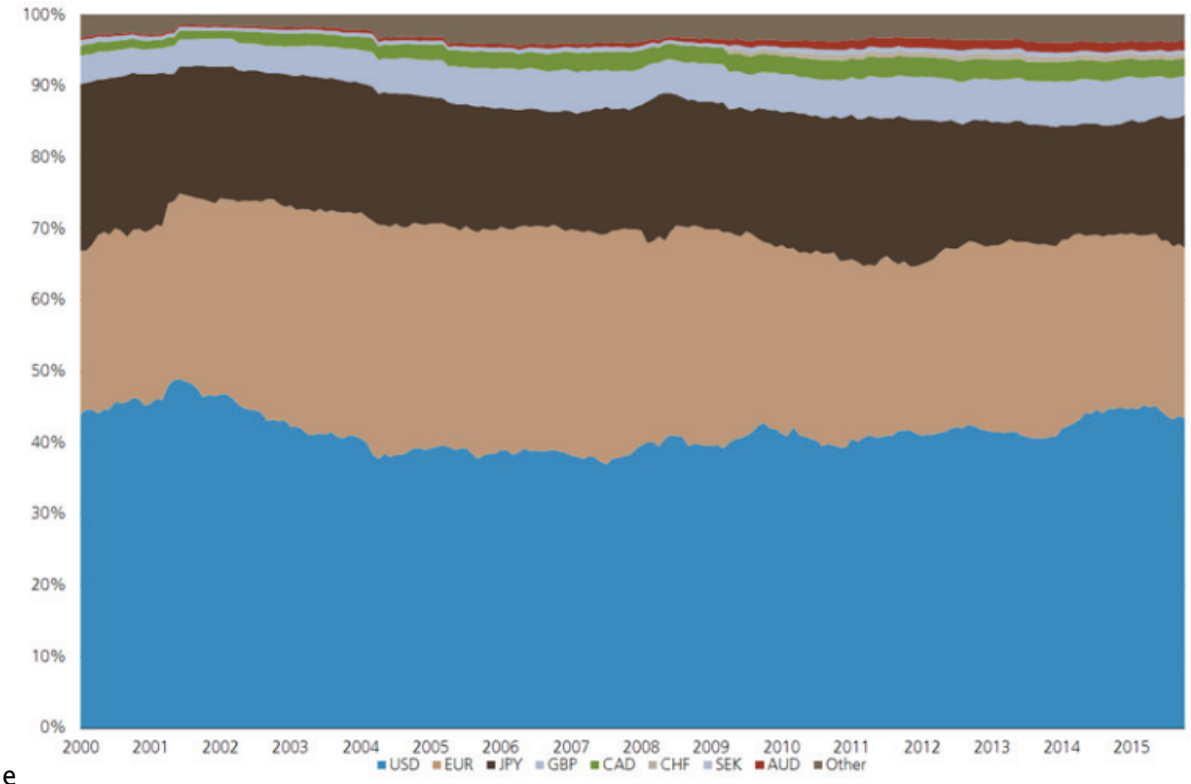
Figure 8: Rolling Annual Currency Returns from the Barclays Global Aggregate Index (hedged to AUD)




Sources: UBS; Barclays. Data as at 30 June 2016.

Deeper examination of the currency composition of the Barclays Global Aggregate Index (Figure 9 overpage) indicates that attention needs to focus principally on hedging the AUD's exchange rate risk against the currencies of the Group of Ten nations.[8]

Figure 9: Currency Composition of the Barclays Global Aggregate Index

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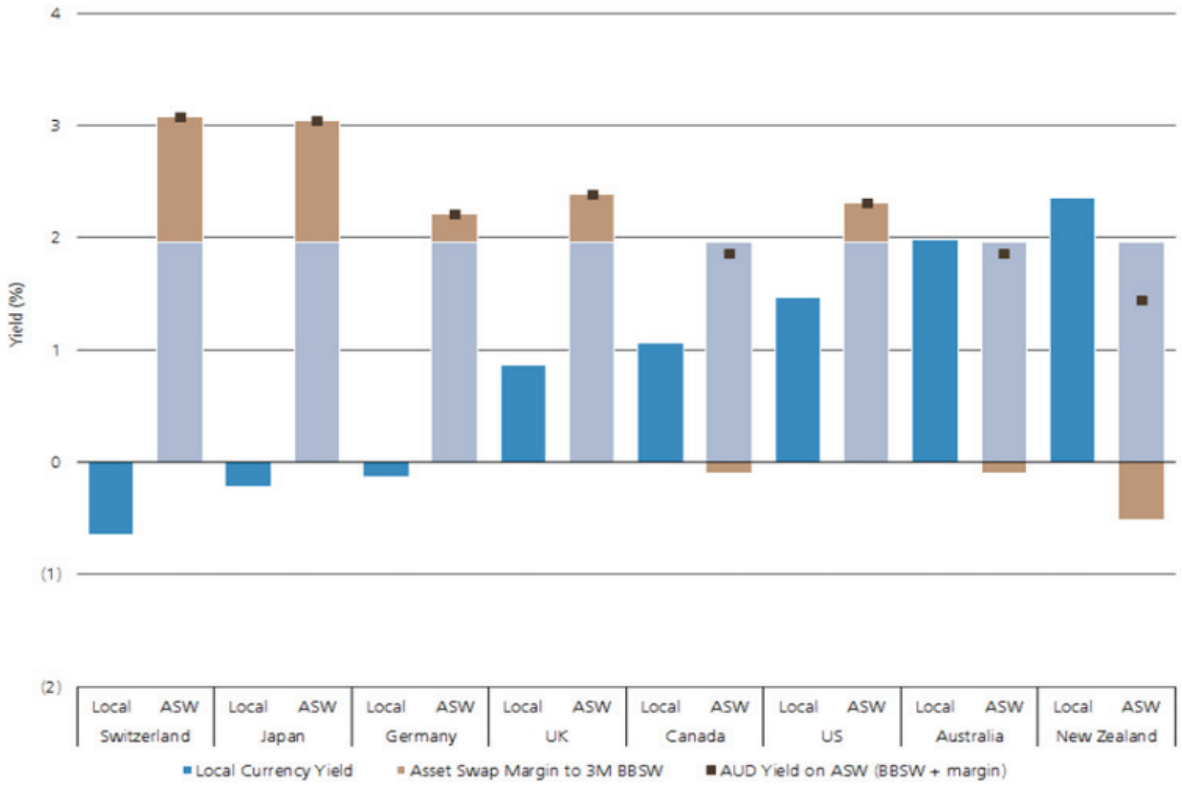
Sources: UBS, Barclays. Data as at 30 June 2016

This is not to say that smaller markets do not present good opportunities – indeed, any country with negative policy rates should look optically attractive in AUD-hedged terms – but that the majority of hedged returns, and investment opportunities, will naturally lie with the larger, and deeper, developed markets. When the Group of Ten sovereign bonds are fully hedged back into AUD, any negative local currency yields to maturity are transformed into positive, synthetic AUD yields (Figure 10 overpage).

Indeed, the most unattractive looking bonds in local currency terms – Switzerland and Japan – actually yield more, in AUD-hedged terms, than the Commonwealth itself. This is no short-term trick of financial alchemy – the catch, of course, is the underlying market beta. For this synthetic yield premium over the Commonwealth Government, Australian investors must be willing to accept exposure to Swiss or Japanese duration, both of which are considerably longer than for the Australian market.

Figure 10: Comparison of Ten Year Sovereign Bond Yields in Local Currency and AUD-hedged terms

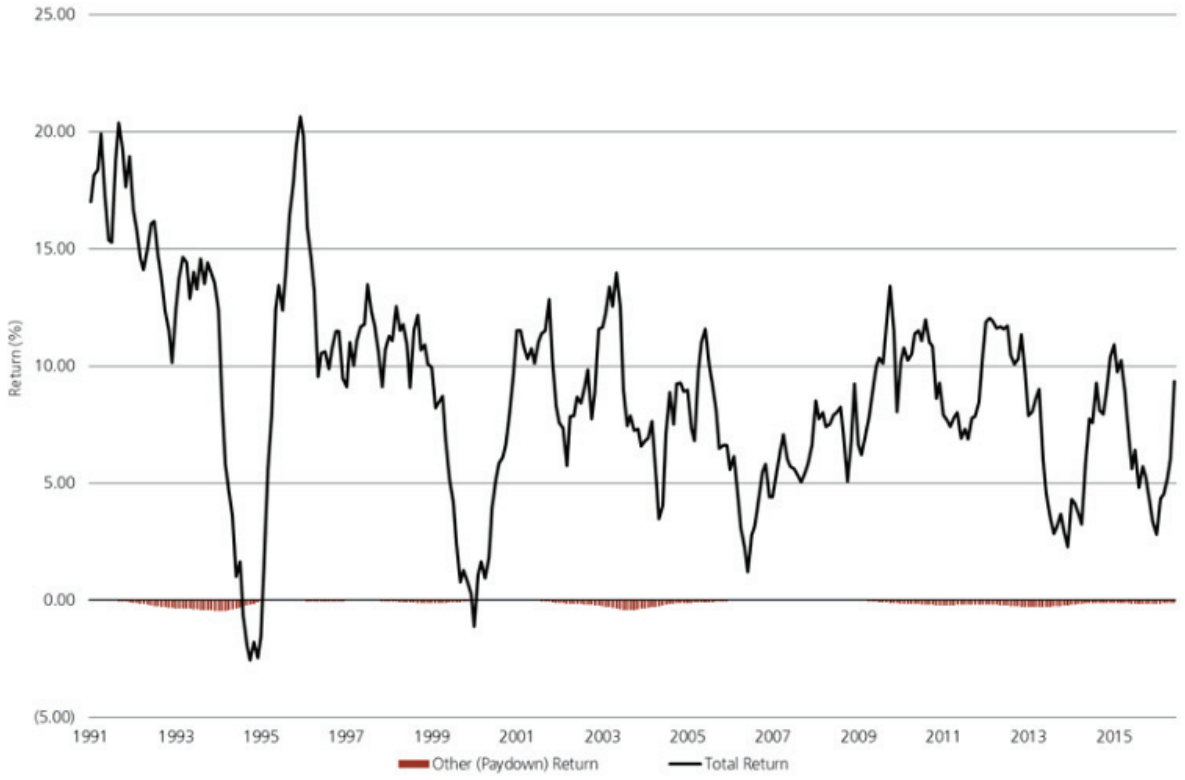



Sources: UBS; Bloomberg. Data as at 30 June 2016, when 3-month BBSW was 1.96%.

## 2.4 Other Returns in Global Fixed Income

Having already analysed the price, coupon, and currency-hedged sources of return for global fixed income, it is acknowledged that there are also some incremental returns to be made in selected markets from so-called "pay-down" sources, such as from bonds with scheduled amortisations or callable features. These aspects relate principally to the securitized markets of the US, where capital can be returned to investors ahead of the scheduled maturity date. The pay-down returns on the Barclays Global Aggregate Index are presented in Figure 11 (overpage), for completeness of analysis, but this paper will not dwell further upon these "other returns", as they do not make a regular, nor significant, contribution to the overall total returns that can be expected from investing in global fixed income.

Figure 11: Rolling Annual Other Returns from the Barclays Global Aggregate Index (hedged to AUD)




Sources: UBS; Barclays. Data as at 30 June 2016.

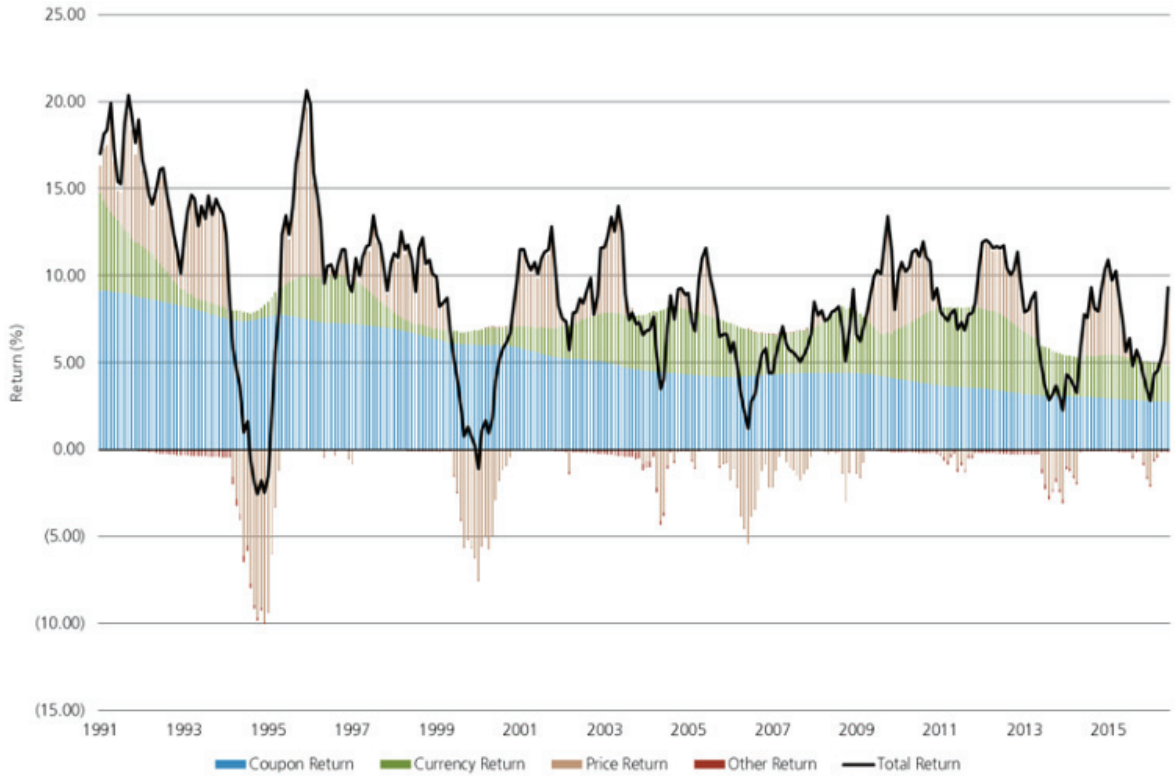
## 3. TOTAL RETURN REDUX

After the various sources of return from global fixed income markets have been deconstructed and understood, they can be reintegrated to better comprehend the role that global fixed income continues to play in an Australian investor's portfolio. Taking this longer-term perspective means that emotional references to "bond bubbles", "supernova", and the like, can be put to one side, and the facts can be analysed in a more rational and impartial manner.

As shown in Figure 12 (overpage), global fixed income has delivered positive total returns to an Australian dollar-hedged investor, on a rolling 12-month basis, for the past 16 years. Each component that was identified in Section 2 has played a part over different economic cycles, and will do so again. The presence of negative interest rates does not affect the basic mechanics of investing in global fixed income, or these diverse sources of total return. Particular attention needs to focus on the often unheralded contributions that the "non-price" sources of return – coupon income and FX hedging – consistently play, over the long

term, in providing Australian investors with positive absolute returns. Even in today's sub-zero world, these two components provide a foundation of around 5% for expected returns on a fully-hedged global fixed income portfolio, before taking duration considerations into account (Figure 12). In terms of the debate, it's time to put the "income" back into any conversation about fixed income investing, and actually get the horse back in front of the cart.

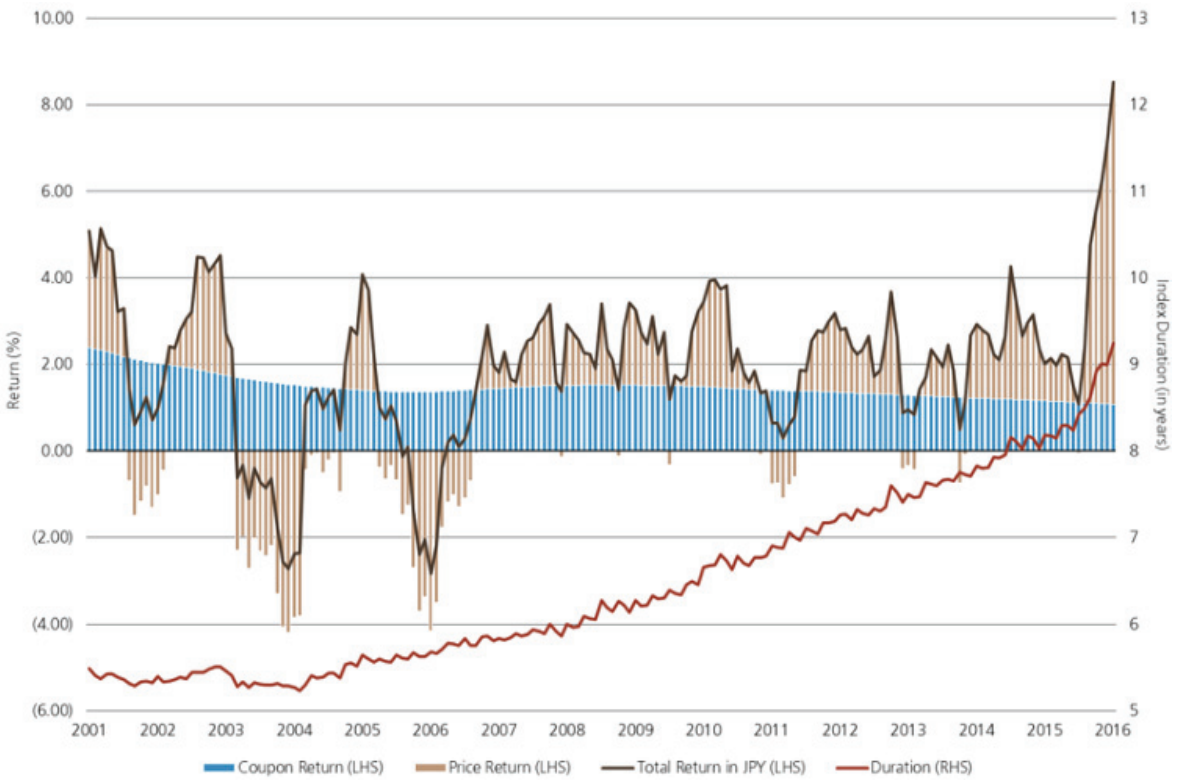
**Figure 12: Rolling Annual Returns from the Barclays Global Aggregate Index (hedged to AUD) by Source**




Sources: UBS; Barclays. Data as at 30 June 2016.

Japan provides the best, and longest, example from the negative-rate countries of this metaphorical horse at work, steadily pulling the JPY fixed income cart throughout those lost decades, and delivering positive absolute returns for most of the past 15 years.[9] Coupon income has played a notable role here, and one that may have been overlooked by anyone with just a partial focus on rising duration or the presence of negative interest rates.

Figure 13: Rolling Annual Returns from the Barclays Asia Pacific Japan Aggregate Index (hedged to JPY)




Sources: UBS; Barclays. Data as at 30 June 2016.

## 4. STARING INTO THE SUPERNOVA

This paper has demonstrated that the total returns from investing in global fixed income are comprised of the following elements:

1. Duration-based returns, that depend upon movements in bond prices (or yields to maturity);
2. Income-based returns, that depend upon both the level, and evolution, of fixed-rate coupons;
3. Currency-based returns, that depend upon the spread in benchmark short-term interest rates between Australia and the Group of Ten economies; and
4. Pay-down returns from the early return of capital, at par value, on a selected universe of investment grade securities.

Focusing upon any one of these four elements, in isolation, will give just a partial, and a very misleading, picture as to the true nature of expected returns (and volatility) over a projected investment horizon. The current obsession with duration risk is a perfect example of this short term perspective: duration has been at "record levels" ever since the GFC, yet rolling annual total returns have been uniformly positive over this time. The non-price elements of total return – coupon income and FX forward hedging – have been shown to possess stable, positive qualities in the long term that can cushion or offset all but the worst draw-downs from duration over time. Duration itself has been shown to possess its core, defensive characteristics even under a low, zero, or negative yield environment, and can still amplify those positive returns from non-price sources. Total return is generated by the interaction of these price and non-price elements, and while that dynamic will change over time, this very interaction is what preserves the core, defensive characteristics of fixed income as an asset class.

Past performance is no prediction of future performance, of course, but rigorous analysis of each of these building blocks demonstrates that the case for global fixed income as an asset class is far from being lost, despite the ever-increasing shadow of negative bond yields across Europe and Japan. Let's now stare directly into the heart of the so-called supernova of negative bond yields,[10] and see whether it blinds, or actually inspires us.

### 4.1 The quest for Absolute Zero

The biggest question occupying the minds of global fixed income investors is "where is the low point for bond yields?" This is followed ever so quickly by "when will rates hit rock bottom?"

Theory used to suggest that the effective lower bound of monetary policy was at zero nominal rates. The existence of physical banknotes and coins guarantees a zero nominal return to every economic agent, and nominal interest rates could not be forced below 0% without generating large substitution effects, as agents effectively switched from financial assets into cash. The advent of negative interest rate policies by central banks has dispelled the notion that the effective lower boundary of monetary policy cuts in at 0%.[11] Financial markets are now searching for the monetary equivalent of "Absolute Zero" in physical science – the coldest possible temperature, where all motion ceases and no further energy is created. That level of interest rate is clearly somewhere below 0%, but nobody knows quite where, not even the central bank governors that are experimenting with these unconventional monetary policies.

### 4.2 Duration and Price Returns

When forming their prospective price return expectations for global fixed income, investors remain clearly uncomfortable with the record levels of duration, as well as the ever-increasing percentage of the investment grade universe that possesses a negative yield to

maturity. Risk – or more correctly, just the "price risk" – is considered to be highly asymmetric, with the base case always seemingly looking for a sell-off in global bonds, whether that is mild or aspiring towards supernova-like qualities.

It is relatively easy to quantify these fears – the modified duration of the Barclays Global Aggregate index was 6.89 years at the end of June 2016. Hence, simply applying some stress to this duration metric generates an expected price return from global fixed income. Suppose that interest rates were to rise by 100 basis points – the Barclays Global Aggregate Index would then lose approximately 6.89% of its value. That would be its price return. What about a 200 basis point sell-off? Do the maths. The price return is expected to be around -13.78%. A 300 basis point sell-off – a scenario that is broadly equivalent to the FOMC rapidly normalising policy to their long-term projections for the Federal Funds rate[12] – would generate a duration draw-down of more than 20%, in the short term.

These scenarios are very simplistic, of course, and presuppose not only a parallel shift upward in yield curves, but also a uniform movement across all countries of the globe, and all sectors of the index. A more robust way to test these price return expectations is to apply the stress per country, and then see if it is possible to back-solve for fundamental, or technical, reasons to justify a simultaneous sell-off in each major bond market.

Figure 14 summarises the key inputs for such a scenario.

**Figure 14: Stressing Price Returns across the Barclays Global Aggregate Index**

| | USD | EUR | JPY | GBP | CAD | AUD | CHF |
|---|---|---|---|---|---|---|---|
| Index weight | 43.4% | 23.9% | 18.7% | 5.4% | 2.5% | 1.3% | 0.7% |
| Modified duration (in years) | 5.47 | 6.75 | 9.25 | 10.47 | 8.14 | 5.21 | 7.50 |
| Price return from +100bp increase | -5.47% | -6.75% | -9.25% | -10.47% | -8.14% | -5.21% | -7.50% |
| Contribution to Index Price Return | -2.38% | -1.61% | -1.73% | -0.56% | -0.20% | -0.07% | -0.05% |

Sources: UBS; Barclays. Data as at 30 June 2016.

A rapid pace of Fed tightening that pushed up US rates by 100 basis points across the curve would, in isolation, inflict a price return of -2.38% to the Barclays Global Aggregate Index. However, if US rates were to rise by that extent, the value of the USD would also surely increase, representing a considerable tightening of US financial conditions. Would policy tighten as much in other large regions (Europe, Japan, and the UK) simultaneously? If not, the price impact on a global fixed income portfolio would be confined to the US (or perhaps to the extended dollar bloc), and fall well short of the simplistic, bearish expectation of a 6.89% draw-down (price return) from duration. It is perhaps worthwhile noting that the current 2.82% coupon of the Barclays Global Aggregate Index could absorb such a US-

inspired draw-down, protecting the total return from global fixed income over a one-year horizon. The forward FX points would still provide Australian investors with some further additional cushioning for total returns, albeit reduced, and principally relative to the Eurozone and Japan, rather than against the now higher-yielding US market.

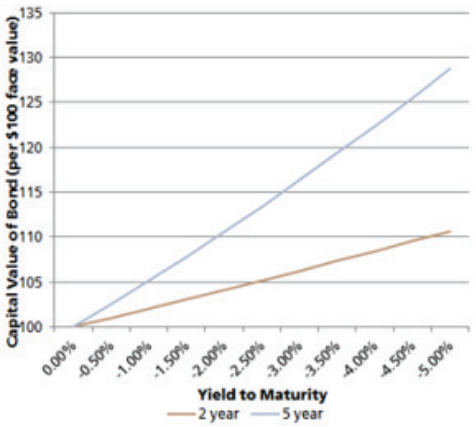
In the current climate, where the ECB and the Bank of Japan have committed to hold cash rates below 0% for many years, and to absorb an ever greater share of their respective bond markets via their asset purchase programmes, it is just not tenable to expect a sustained, global sell-off in bond yields. Even for the US, the Federal Reserve remains extremely cautious about raising interest rates, and the bearish scenarios painted above do not seem plausible. At worst, a 100 basis point rise in dollar bloc yields (USD, CAD, AUD) would generate a price return of -2.65%, provided that European and Japanese markets remained immune. Again, the coupon income generated from a globally diversified portfolio could cushion the price impact on a rolling 12 month basis.

That represents the bear case for bond prices. On the other side of the ledger, the mere existence of bonds trading at sub-zero yields to maturity confirms that there is nothing from a conceptual perspective to prevent a further decline in bond yields, and a further increase in global duration. Capital gains can still be made in a negative-rate world, up to that fabled point of “Absolute Zero”. The Swiss example – where the entire sovereign curve has traded below a 0% yield to maturity – indicates that markets have not yet reached that inflexion point.

Figure 15 (overpage) explores the mathematics behind bond pricing, assuming that "Absolute Zero" lies somewhere between -1% and -5%. Using 0% as the starting point for both coupons and yield to maturity, note that prospective price returns from here will be more modest for shorter-dated bonds than for longer tenors. The Swiss bond market again serves as a good example. Two-year sovereign bonds yielded -1.19% as at 30 June 2016, whereas 30-year bonds were priced at -0.11%. With the Swiss National Bank (SNB) currently targeting a range of -1.25% to -0.25% for 3-month CHF LIBOR, upside price returns in Switzerland are clearly skewed towards the longer tenors of the Swiss Government curve, absent any further moves into negative territory by the SNB.

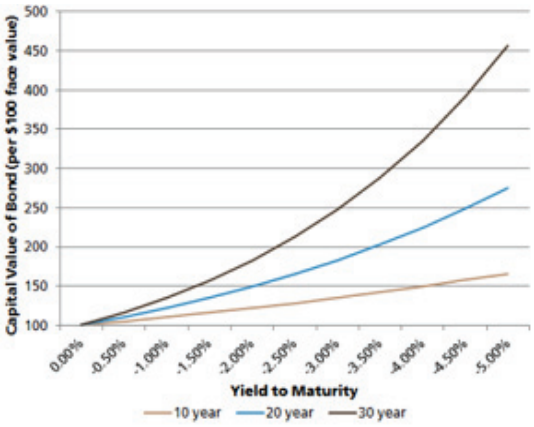
Figure 15: Capital Upside for Fixed Income in a Negative Rate World

Shorter dated zero-coupon bonds




Sources: UBS; Bloomberg.

Longer dated zero-coupon bonds




Sources: UBS; Bloomberg.

Across the investment grade universe as a whole, the so-called "Yield to Worst" on the Barclays Global Aggregate Index was 1.15% at the end of June 2016. If this index yield collapsed to zero, for example, then global fixed income could generate further positive price returns (capital gains) of around 7.92% (i.e. 1.15% multiplied by 6.89 years of modified duration). Again, this represents an extreme scenario – the entire global universe of investment grade fixed income yielding, on average, 0% – but it highlights the continued power of duration, and that price return expectations cannot just focus on the downside outcomes.

For price returns, the contrasting outlooks can be summarised thus:

- Bond bulls might pencil in positive price returns (capital gains) of up to 8% from here. This would be based upon continued QE, deeper negative policy rates, flatter yield curves, and a global compression of cash rates and bond yields down towards the lowest common denominator.
- Bond bears will pencil in negative price returns from here, potentially in the order of -20%. This presupposes a sharp improvement in macro conditions across the world, and an abrupt end to the existing policy framework of QE and negative interest rates across the Group of Ten countries.

As demonstrated earlier, duration is but one facet of the total return equation in fixed income. A short-term, myopic, focus here will fail to capture the expected contribution to total returns from the non-price elements, and result in sub-optimal portfolio construction outcomes.

### 4.2 Income and Coupon Returns

Unless markets accept the concept of borrowers being paid by lenders to take and invest their capital, it is unlikely that negative-rate coupons will emerge. At worst, the persistence of this low-rate environment will drive coupon rates on primary bond issuance down to 0%, which will eventually drag down the average coupon return as well.[13] This dynamic will take some time to play out, however, given that the average maturity of a global investment grade bond is now 8.73 years.

For coupon returns, the outlook is relatively uncontroversial:

- Coupon rates will continue to fall, but at a glacial pace.
- Over the past five years of declining bond yields and increased adoption of unconventional monetary policies, the average coupon rate across the Barclays Global Aggregate Index fell by 90 basis points, from 3.72% to 2.82%. Over the five years prior to that (2006 until 2011), the average coupon rate fell by 66 basis points.
- Using recent history as an approximation, the average coupon rate could be expected to decline to just under 2.00% within the next five years. While this decline will further reduce prospective income returns, coupons would still make a positive, and consistent, contribution to total returns over this investment horizon.

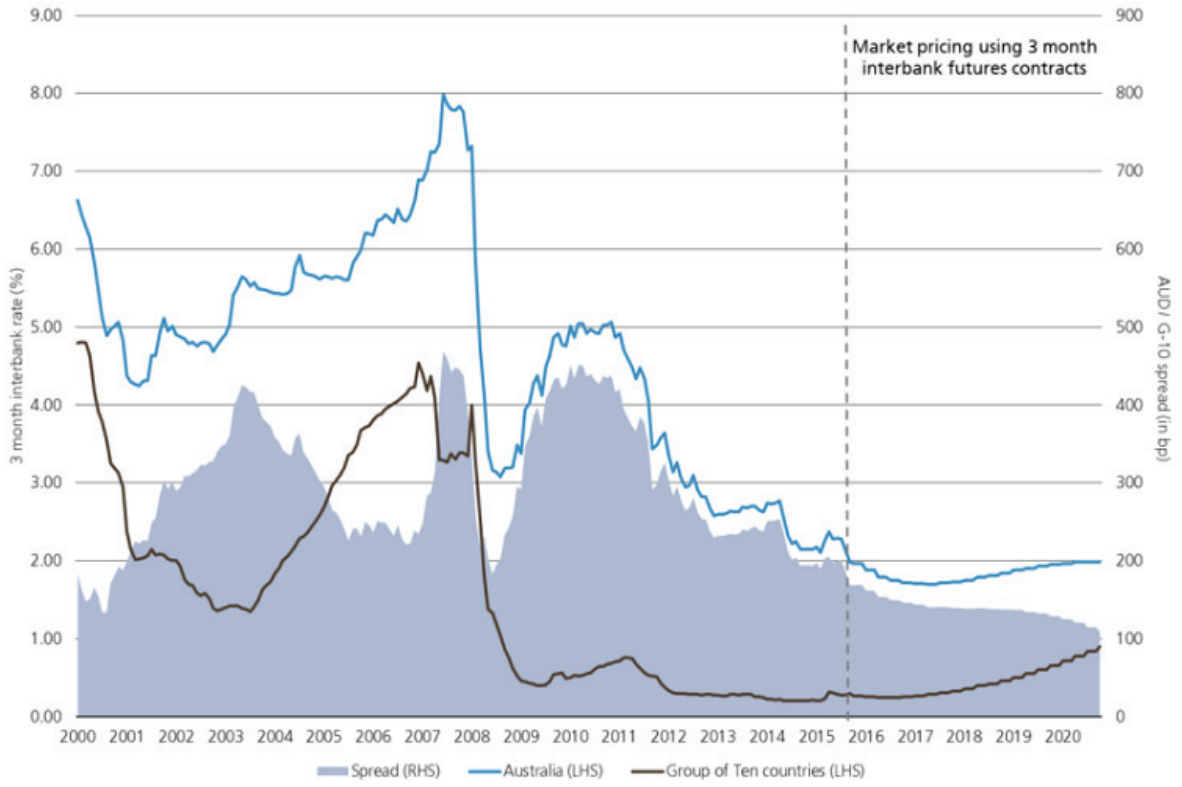
### 4.3 Currency Returns from Hedging AUD

Australia's cash rate premium over the rest of the world provides a valuable source of income-like returns for Australians investing in global fixed income, as investors effectively lend the world Australian dollars in exchange for global coupons and global duration.

By hedging out the AUD currency risk, investors are paid an implicit Australian cash rate via the FX forwards market, and in turn, they implicitly pay global short-term interest rates. For markets where these short-term interest rates are negative (i.e. Japan, Eurozone, Switzerland, Sweden, and Denmark), Australian investors are essentially paid twice – once in AUD (at a still-positive cash rate) and again from being short in the negative-rate foreign markets.

The 3-month interest rate spread between Australia and the Group of Ten countries is expected to contract over the next few years, but it will still remain positive. From a level of 170 basis points at the end of June 2016, market pricing implies a decline in that spread to around 110 basis points over the next five years (Figure 16). This positive spread will underpin the expected returns from hedging out the AUD currency risk in a global fixed income portfolio.

Figure 16: Monthly 3-month interbank lending rates for Australia and the Group of Ten countries




Sources: UBS; Barclays; Bloomberg. Data as at 30 June 2016. The Group of Ten countries have had their 3-month interbank lending rates weighted by their currency's importance in the Barclays Global Aggregate Index on a monthly basis. The Australian interbank lending rate depicted above is represented by 3-month BBSW.

For currency returns, the key take-aways are as follows:

- Forward FX points should contract, as the RBA cuts the Australian cash rate further, and the Group of Ten central banks find themselves somewhat more constrained at current ultra-low (or negative) policy rates.
- Notwithstanding this, returns from hedging out the AUD currency risk should remain positive, as the RBA is unlikely take the AUD cash rate down to the Group of Ten average.
- Conversely, continued hesitation from the US Federal Reserve, or further moves deeper into negative territory by central banks in Europe or Japan, would be beneficial to Australian investors, and would hold up the AUD's yield spread vs the weighted average interest rate for the Group of Ten countries.

- Market pricing implies expected currency returns in the order of 1%-2% per annum over the next few years.

### 4.4 Profiling Total Returns from Global Fixed Income

Using the building block approach developed earlier in this paper, it is clear that it is necessary to deeply understand and consider each of the individual sources of return before jumping to any ill-informed or short-term conclusions about the prospective total returns from global fixed income. It's not enough to just spot what might be a supernova in the sky - it is necessary to look right across the heavens to draw inspiration from the entire cosmos.

Figure 17 brings together the earlier analysis to contrast the bull and bear cases for expected total returns from global fixed income over the next five years. Looking at the asset class from this medium-term perspective, it is noted that the outcomes are not nearly as startling as some of the more sensationalist commentary about global fixed income returns might otherwise suggest.

Figure 17: Expected Return from Global Fixed Income By Source

| Contribution to annualised return | Bull Case (Global Rally of 115bp) | Bear Case (Global Sell-off of 300bp) |
|---|---|---|
| Coupon Return | 2.00% | 1.90% |
| Currency Return | 2.00% | 1.00% |
| Non-Price Returns | 4.00% | 2.90% |
| Price Return | 1.53% | (4.52)% |
| Expected Annual Total Return | 5.53% | (1.62)% |

Sources: UBS calculations.

#### 4.4.1 Bull Market Total Returns

- The bull case for global fixed income might see a collapse in global investment grade yields to an average of 0%, which would deliver an immediate price return of around 7.92%, as global duration delivered what might be considered as its final capital gain.[14]
- Bond bulls with a short-term focus might point to this as a way to deliver up to a 12% total return in the next 12-18 months (i.e. around 8.00% capital gains, plus 2.00%

coupon income, plus 2.00% FX forward points). However, over a five-year period, this 7.92% price return would annualise to around 1.53% per annum.

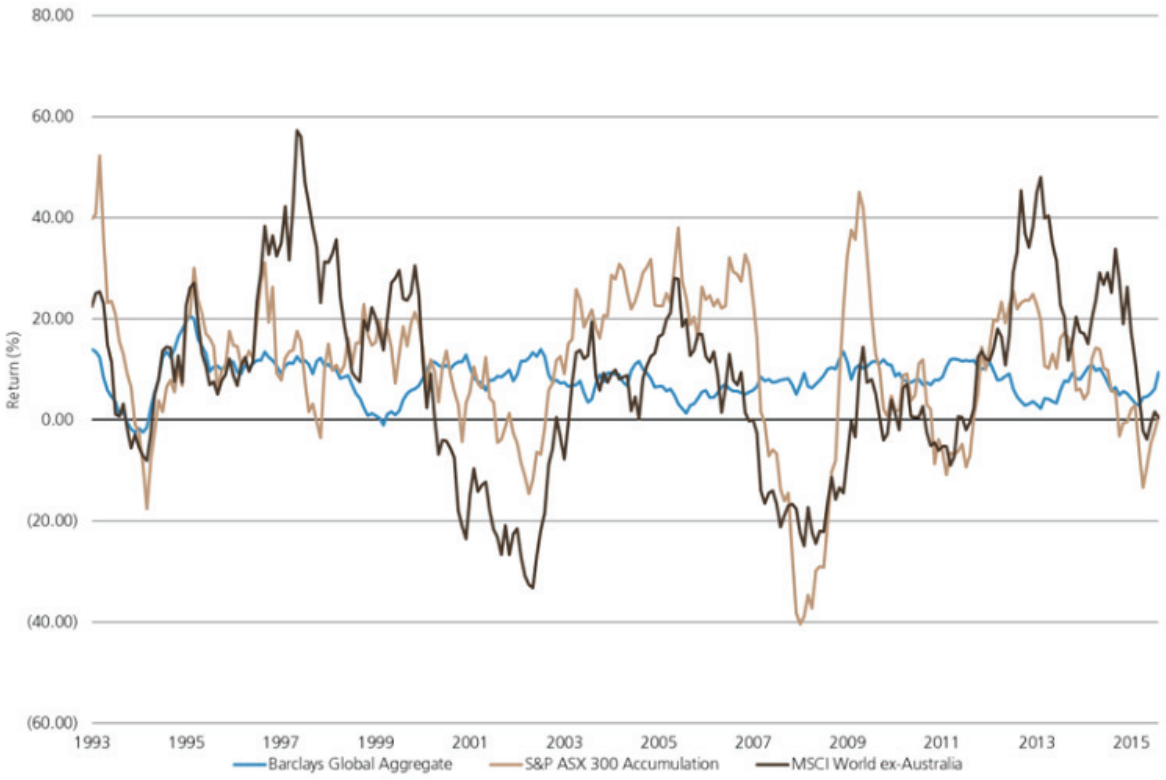
- Coupons and forward FX points could collectively deliver around 4.00% per annum over the next five years, based on existing market conditions.
- Combining the price and non-price returns would generate an annualised expected total return of over 5.50% from global fixed income over a five-year investment horizon. Most of this return would come from the non-price sources, and so not be dependent upon a further decline in yields, or additional financial repression.
- In a world where every global bond suddenly yielded 0%, on average, an outcome that generated 5.53% per annum, over five years, would be quite compelling, and a core reason for continuing to maintain an allocation to fixed income. Even absent such a rally, the supernova doesn't necessarily need to burn any brighter to make global fixed income work for bond bulls that hedge their currency risk and clip their coupons.

### 4.4.2 Bear Market Total Returns

- The bear case assumes an immediate 300 basis point rise in global yields that delivered a price return of -20.67%. This is far worse than the experience of 1994; double the worst impact, in fact.
- The short-term effects of such a move would be devastating for the bond market, as well as for other asset classes (as discount rates would need to be revised sharply higher).
- However, a 300 basis point sell-off in global bond yields could not continue, ad infinitum, and the annualised effect over a longer term (five year) investment horizon would be a draw-down of -4.52%, per annum, from price returns. The supernova would have well and truly exploded by then.
- Such a draw-down would be cushioned, though not totally offset, by the non-price sources of return from global fixed income. Coupons and FX hedges could be expected to continue contributing around 2.9% per annum to total returns under the bear case (assuming that AUD cash rates also rose by 300 basis points, preserving Australia's spread premium over the Group of Ten nations)
- Total returns for the bearish scenario approximate -1.62% per annum, over the five year period. This would not be pleasant, but it falls far short of the Dooms-Day predictions generated by those who believe in a near-and-present bond market supernova. The short-term pain inflicted from duration would be ameliorated from the non-price sources of return, as well as from the passage of time, as markets adjusted to the now-higher levels of interest rates.

- The portfolio construction implications for other asset classes from the bearish bond scenario should also not be ignored. An outcome that delivered total returns of -1.62% per annum from global fixed income over five consecutive years would need to be placed in the context of relative cross-market returns. Figure 18 below depicts the rolling annual returns for global fixed income relative to both Australian and international equities. A bad five years from the global bond market would probably pale into insignificance when compared with the implied outlook for either Australian or international equities under that kind of scenario. Fixed income would still play its role as one of the more defensive asset classes, in the longer term.

**Figure 18: Rolling Annual Returns from Bonds and Equities (all hedged into AUD)**




Sources: UBS; Bloomberg. Data as at 30 June 2016.

## CONCLUSION

The case for an allocation to global fixed income by Australian investors remains as strong as ever, notwithstanding the prevalence of negative interest rates across most of Europe and Japan. While negative interest rates will not disappear in the short term, the core, defensive characteristics of fixed income – a duration anchor; a predictable and regular income stream; inverse correlations with riskier asset classes – have not changed, and will not change. The various drivers of total return within global fixed income need to be better understood by Australian investors and advisors alike, with each element being given its due consideration in the portfolio construction process, rather than having total return expectations be shaped unduly, and inappropriately, by duration considerations alone.

For Australian investors that choose to hedge out all currency risk, the increasing preponderance of negative policy rates across the northern hemisphere should be viewed as an opportunity, rather than as a threat, as it provides an additional cushion to their total returns. With the Australian bond market representing less than 2% of the Barclays Global Aggregate Index, the diversity that exists offshore represents a much deeper opportunity set for Australian investors, and one that ill-informed, headline-grabbing comments about negative bond yields should not unduly tarnish.

Some commentators may see a supernova out there on the investment horizon. This paper argues the case for global fixed income remaining true-to-label over the long term, and continuing to play its core role in the traditional portfolio construction process.

## ENDNOTES

1. For further details, see Bech, M.L. and Malkhozov, A. (2016), "How have central banks implemented negative policy rates?", BIS Quarterly Review, March 2016.

2. International Monetary Fund, World Economic Outlook, April 2016

3. Barclays Risk Analytics and Index Solutions Ltd (Barclays Live); data as at 30 June 2016

4. Adapted from the original methodology proposed by Lehman Brothers (2008), "A Guide to the Lehman Brothers Global Family of Indices" page 13, March 2008.

5. A search of Bloomberg's database in July 2016 revealed just 29 private-sector securities that currently have negative-rate coupons. All of these bonds were issued more than five years ago, are small size euro-Medium Term Notes, and possess floating-rate coupons that are linked to EURIBOR. Most are also structured securities, with puttable or extendible features, and are not at all representative of the broader global fixed income universe that is encapsulated by the Barclays Global Aggregate Index.

6. OECD (2016), https://data.oecd.org/price/inflation-cpi.htm . Latest CPI data as at May 2016.

7. For a more detailed discussion, refer to Baba, N; Packer, F; and Nagano (2008), "The spillover of money market turbulence to FX swap and cross-currency swap markets", Bank for International Settlements Quarterly Review, March 2008.

8. The Group of Ten is made up of eleven industrial countries (Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States) which consult and co-operate on economic, monetary and financial matters. (See: https://www.bis.org/list/g10publications/index.htm).

9. Unfortunately, Barclays does not isolate the currency returns for its Asia Pacific Japan Aggregate Index when hedged into Australian Dollars; index returns in Figure 13 are displayed in the JPY base currency instead. This is actually a cleaner representation of the total returns that might be expected by domestic Japanese investors in a market that is now subject to a negative interest rate policy.

10. Janus Capital Group Inc., (@JanusCapital), 9 June 2016.

11. Partly, this is a function of the overall cost of switching to the widespread use of currency, both for transactional purposes (the medium of exchange function) and as a store of value. Cash handling, storage, security, insurance, etc., are not costless in practice.

12. The median "longer-run" projection from FOMC participants for the Fed Funds rate was 3.00% as at the June 2016 meeting. See: http://www.federalreserve.gov/monetarypolicy/fomcprojtabl20160615.htm.

13. This phenomenon was exemplified in July 2016, when Deutsche Bahn became the first non-sovereign to issue a bond into the primary market at a negative yield to maturity. The coupon on the five-year note was set at 0%, and the issue price was over par value, at EUR 100.03. Several days later, the German sovereign issued its first 10-year Bund at a negative yield to maturity, also with a coupon rate of 0%.

14. Of course, there is nothing to prevent the Yield to Worst on the Barclays Global Aggregate Index falling below 0%, but a global investment grade universe that yielded 0%, on average, is an extreme enough scenario.

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