

The future is flexible - why, when, whence?

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2014

Over the past few decades, fixed income investors have enjoyed strong capital gains, an attractive income and the benefits of diversification. However, with interest rates now at record lows, uncertainty about timing and the extent of future rate increases is posing challenges to traditional benchmark oriented bond strategies. This paper explores the key challenges investors face and identifies the options available in managing fixed income portfolios as we move into this brave new world.

"IT WAS THE BEST OF TIMES, IT WAS THE WORST OF TIMES"

Charles Dickens, *A Tale of Two Cities* (London: Chapman and Hall, 1859)

For bond investors, those times were good. Following the peak in bond yields in September 1981, the five to seven year US Treasury index has returned an annualised 8.65%, almost double the return from the three-month Treasury Bill index of 4.8%¹. Bond investors were assisted by the determination of central banks globally to conquer inflation. This was formalised in 1988 when the Reserve Bank of New Zealand pioneered the introduction of inflation targeting. Inflation targets forced central banks globally to drive inflation lower. In turn, this allowed interest rates to be set at increasingly lower levels and pushed government bond yields to generationally low levels. This focus on inflation targeting and the advent of cheap money also facilitated the build up of huge amounts of debt. This is of considerable consequence for today's debt investor.

This paper argues that the benchmark-relative approach to debt investing that has worked so well for fixed income investors since the early 1980s is unlikely to work going forward. The paper examines the fixed income landscape through three questions:

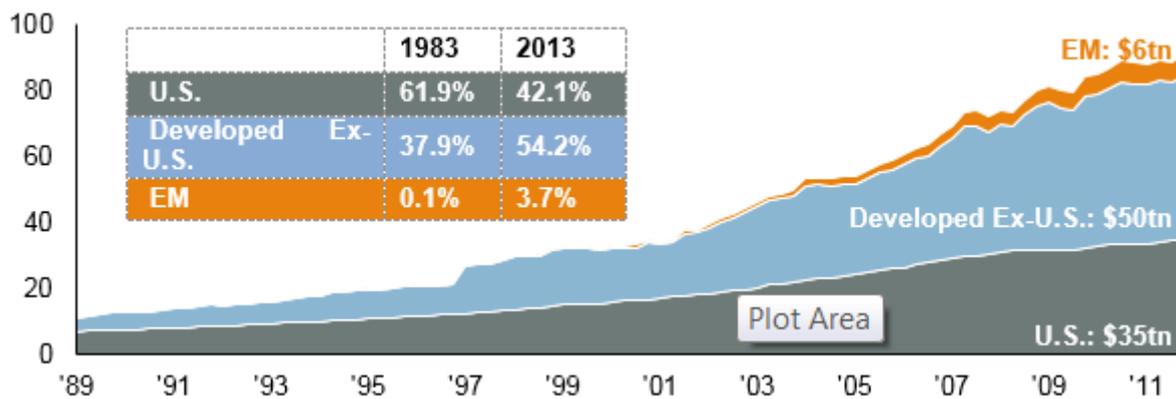
1. Why – What is the problem today?
2. When – Why is it a problem now?
3. Whence – What can investors do about it?

1. WHY?

Fixed income investors are money lenders. They take investors' savings and invest it in exchange for a regular coupon and the return of principal at a pre-arranged date. As part of the capitalist system, they provide an essential social function allowing individuals, companies and governments to access finance at a reasonable cost of capital that can then

be invested. However, economies do need to be balanced and arguably the current levels of debt are unacceptably high. For example, in the US economy in the early 1980s, levels of public and private debt as a percentage of GDP were around 164%, versus levels of 349% today². This has been true of almost all economies globally, resulting in an explosion of debt as evidenced in Figure 1.

Figure 1: Size of the Global Bond Market (US\$, trillions)



Sources: Barclays Capital, BIS, FactSet, JP Morgan Securities, JP Morgan Asset Management.
Data as of Sept 2013.

The issues for traditional fixed income investing

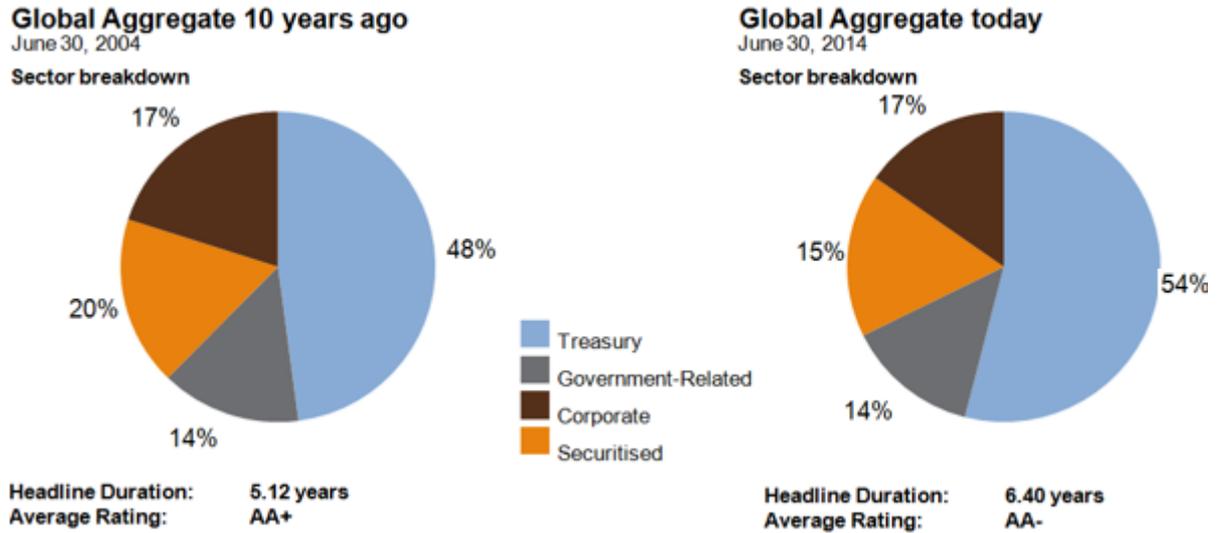
This causes a number of issues for benchmark–relative fixed income investor as argued below.

Sectoral concentration

Issue number one is sectoral concentration. Although there has been no deleveraging at the aggregate level, the private sector has deleveraged and debt has shifted from the private to public sectors (Figure 2). Exposure to government bonds has gone up, when the compensating yield on government bonds is close to, or at, all time lows.

Indeed, there is an associated issue with the degree of intellectual incoherence in the way that fixed income indices are constructed. Essentially, fixed income indices reward bad behaviour in that those entities that issue the most debt have the greatest weight in the index. Investors with portfolios benchmarked to indices see exposures to the most indebted, and least able to repay entities go up.

Figure 2: Sector weights in the global aggregate index

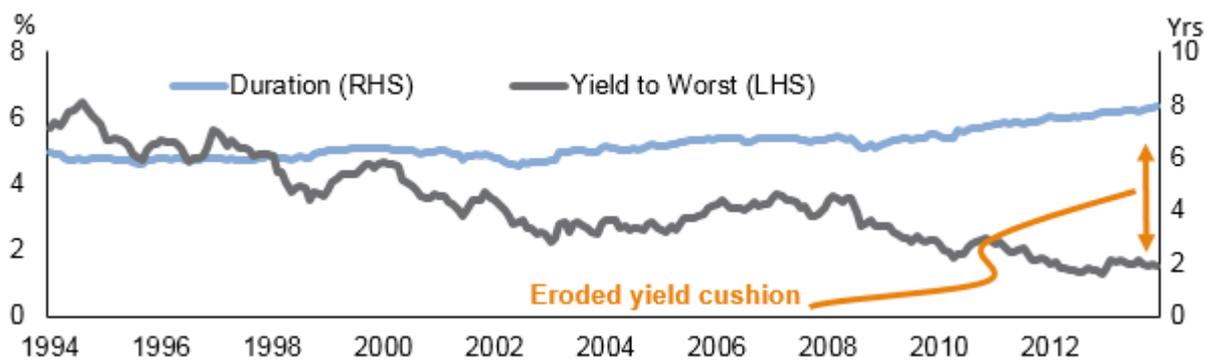


Sources: JP Morgan Asset Management, Bloomberg. Data as of June 2014.

Risk/reward – fallen out of sync

Issue number two is that the basic risk/reward equation has fallen out of sync (Figure 3). Governments have systematically lengthened the duration of their outstanding debts (and done a good job for taxpayers) at a time when the reward on offer, the yield, is close to a record low. What is a good deal for taxpayers may not be such a good deal for fixed income investors.

Figure 3: Barclays global aggregate index duration & yield



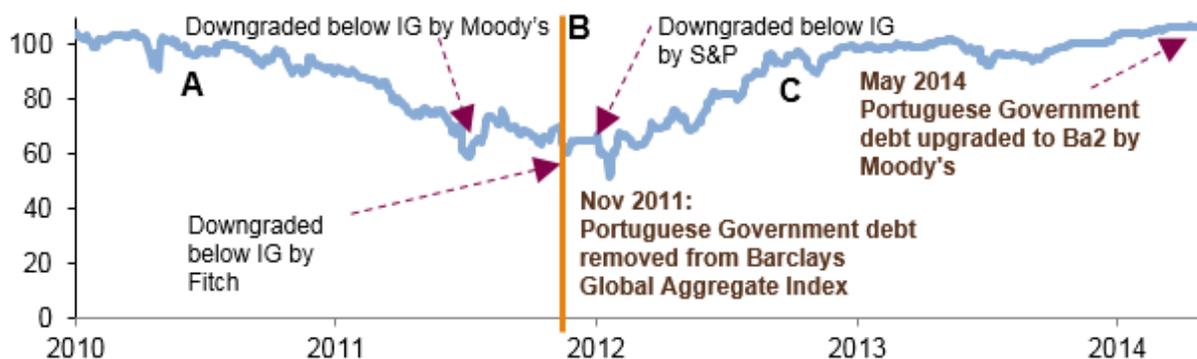
Sources: Barclays Capital. Data as of 30 April 2014. Duration is modified duration.

Index construction methodology

Issue number three is the construction methodology of determining which bonds can enter or leave an index. The rules for inclusion into an index are traditionally determined by the issuers credit rating, which in turn is decided by credit rating agencies. At times, credit rating agencies have not been timely in their pronouncements. This has resulted in investors who are benchmarked relative to indices owning bonds for which the credit dynamics and price have been declining, selling these bonds as they leave indices, and not buying back the bonds until credit rating agencies have upgraded them. Typically, by this stage, the price has already recovered to reflect an improved credit position.

The performance of Portuguese debt in the Eurozone crisis helps to illustrate this (Figure 4). At point A, when the debt dynamics for countries such as Portugal were already looking fragile, active investors were selling Portuguese government bonds. However, by the time rating agencies had downgraded Portuguese debt and it was removed from fixed income benchmarks – point B – the debt had already lost around 40% of its value. At point C, following the restructuring of Greek government debt (March 2012), active investors were buying Portuguese bonds again at prices around 70 to 80. At the point of writing, Portuguese debt is trading over 100 and has still not re-entered indices. By the time Portuguese debt is upgraded by rating agencies and re-enters bond indices, much of the upside will have passed. Fixed income investors benchmarked to indices may miss much of this upside.

Figure 4: Portugal 3.85% April 2021

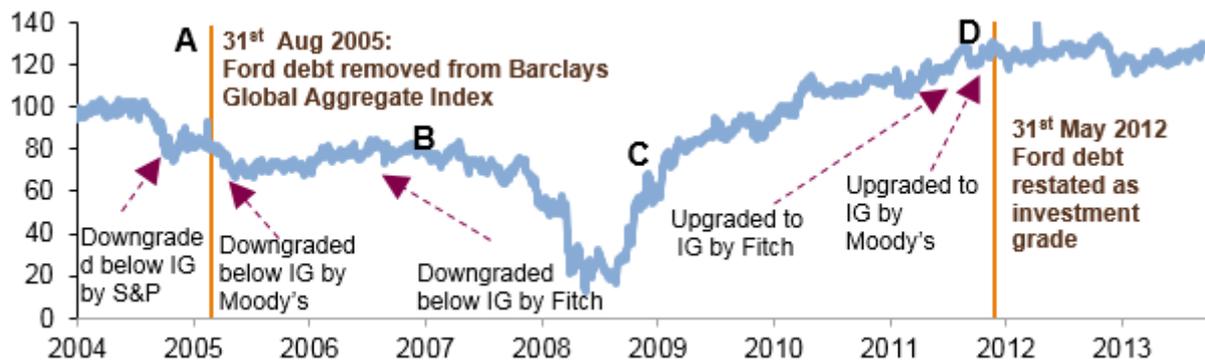


Sources: JP Morgan Asset Management, Bloomberg. Data as of May 2014.

There is also a similar issue for index inclusion with corporate bonds which we can illustrate with Ford (Figure 5). Ford left fixed income indices at point A, at a price of around 80. Ford debt then traded around these levels for a further three years, providing active fixed income investors with generous coupon income. At point C, many active and benchmark-unaware fixed income investors were researching Ford debt and had the option to buy bonds at low prices. Ford debt then rallied for the next three years and, by the time it re-entered indices

at point D, the price had rallied from 20 to 120. At this point, benchmark-aware investors were buying Ford bonds but much of the upside had already transpired.

Figure 5: Ford 7.45% July 2031



Sources: JP Morgan Asset Management, Bloomberg. Data as of 31 Dec 2014.

Fixed income benchmarks – limit opportunity set

Issue number four is that fixed income benchmarks, as well as concentrating risk in the form of duration and sector risk, do not capture the full extent of the global fixed income opportunity set.

Most investors are benchmarked against aggregate indices (a blend of government, corporate, securitized and other investment grade bonds) either in their domestic markets or on a global basis. The size of the global aggregate opportunity set is around US\$44 billion (Figure 6) and, in the case of Australia, the size of the market is relatively small compared to global peers, constituting around 1.4% of the global aggregate index. The growth of fixed income markets is also not captured in the global aggregate index.

Non-aggregate markets including high yield, emerging market debt and non-USD high yield corporates are over US\$ 11 billion, similar in size to the entire Eurozone debt markets. This is important for investors as it increases the global opportunity set by over 25% and allows for diversification within a bond portfolio. The emerging market debt (EMD) opportunity set is a good example of the increased opportunity set available. EMD is issued in US dollars and local currency by sovereigns, quasi-governmental institutions and corporates. The investible universe is around US\$6.5 billion and allows access to debt issued by over 60 countries. These newer sectors have the benefit of a low correlation to traditional aggregate indices and, in turn, offer the potential for greater reward, albeit with potentially greater risk.

Figure 6: Global Aggregate and Non- Aggregate Indices

| | Size (US\$bn) | Duration (Yrs) | Correlation to 10 Yr UST | Current Yield | Q1 2014 Return | 2013 Return |
|--------------------------------|------------------|-------------------|--------------------------------|----------------------|--------------------|--------------------|
| Aggregate Sectors | | | | | | |
| Global | 44,356 | 6.3 | 0.50 | 2.49% | 2.40% | -2.60% |
| US | 15,345 | 5.7 | 0.83 | 2.37% | 1.84% | -2.02% |
| Eurozone | 11,010 | 6.4 | 0.25 | 1.82%* | 3.10% | 0.46% |
| Japan | 7,323 | 8.0 | 0.54 | 0.57% | 2.82% | -15.87% |
| UK | 2,751 | 8.6 | 0.18 | 2.56% | 2.74% | -0.58% |
| Other | 7,437 | 5.4 | 0.11 | 2.07% | 5.16% | 15.25% |
| Non – aggregate Sectors | | | | | | |
| Total | 11,500 | | | | | |
| US HY | 1,400 | 4.0 | -0.24 | 5.23% ¹ | 2.98% | 7.44% |
| Euro HY | 300 | 3.9 | -0.41 | 4.62% | 3.28% | 9.90% |
| EMD (USD) | 1,000 | 7.1 | 0.19 | 5.86% | 3.48% | -6.58% |
| EMD (LCL) | 5,500 | 4.6 | 0.05 | 6.88% | 1.90% | -8.98% |
| Euro Corp | 1,350 | 4.5 | 0.10 | 1.77% | 2.36% | 2.37% |
| MBS (below IG) | 1,000 | 0.0 ² | -0.08 ² | 4.00% ^{1 2} | 1.23% ² | 1.78% ² |
| CMBS (below IG) | 300 | 2.5 ² | 0.14 ² | 5.52% ^{1 2} | 4.45% ² | 4.40% ² |
| ABS (below IG) | 650 | 0 ² | -0.21 ² | 4.54% ^{1 2} | 0.93% ² | 2.94% ² |

Source: Barclays Capital, BIS, FactSet, JP Morgan Asset Management, Bloomberg.

Fixed income sectors shown above are provided by Barclays Capital and are represented by the global aggregate for each country except where noted. US HY represented by Barclays US Corporate High Yield. EMD sectors are represented by the JP Morgan EMBIG Index (USD) and the JP Morgan GBI EM Global Diversified Index (LCL). European Corporates are represented by the Barclays Euro Aggregate Credit – Corporate Index and the Barclays Pan-European High Yield Index. Sector yields reflect yield to worst. Duration is modified duration. Correlations are based on seven year of monthly returns for all the sectors. Current data are as of 31/3/2014 unless otherwise noted. 1.Yield to worst. 2. Example security used as proxy for the market.

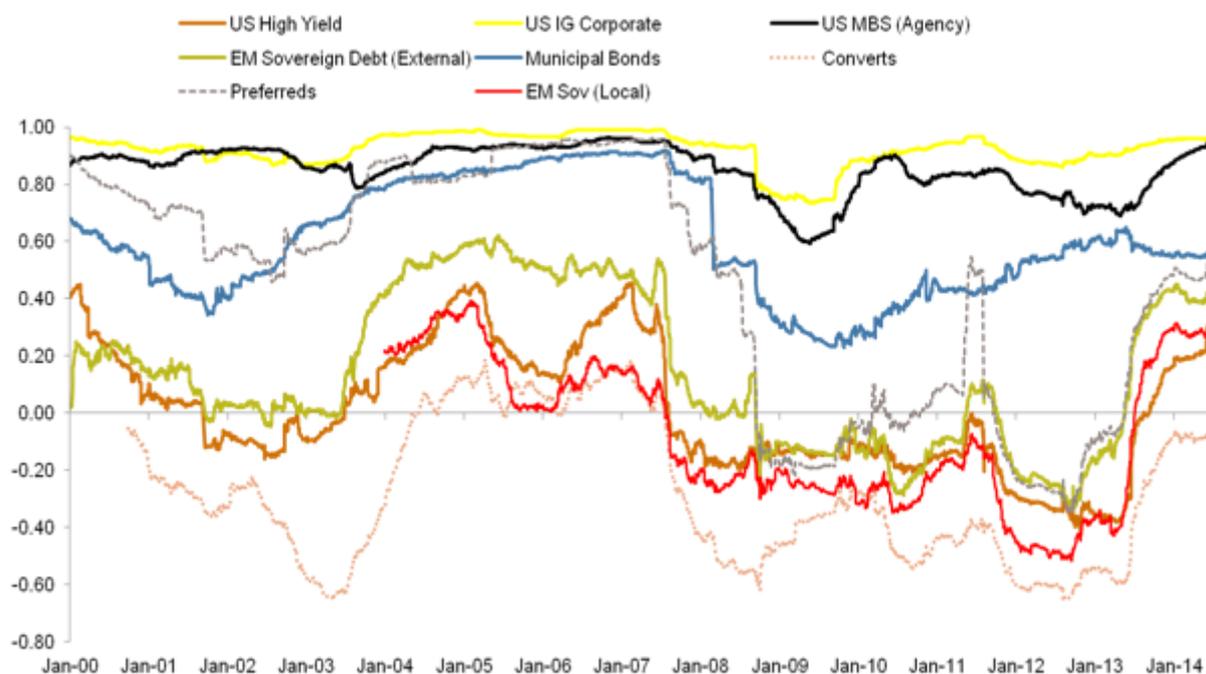
Not all duration is created equal – effective verses empirical duration

Diversification will become more important as interest rates globally begin to rise. When fixed income managers report the duration of a portfolio, they typically reference effective duration.³ While this measure of duration is generally accurate for government or corporate bonds, challenges arise when a portfolio has exposure to a variety of spread sectors and different types of risk premiums. Typically, rates and spreads have an inverse relationship (as rates rise, indicating an improving economy, spreads generally tighten)

This challenge of accurately measuring a portfolio's sensitivity to changes in yields is increasingly important with the proliferation of flexible or benchmark unconstrained strategies. In these types of portfolios, managers tend to have an absolute return or total return objective and do not invest in line with a traditional fixed income benchmark such as the Barclays Global Aggregate Index.

The question to ask is: how will the value of the portfolio actually change over time as interest rates rise and fall? In order to address this question, it makes sense to use empirical duration. It is a portfolio's observed sensitivity, based on historical data, to changing interest rates. Despite the traditional negative correlation between rates and spreads, Figure 7 depicts that the relationship is actually very dynamic. In fact, spread sectors such as emerging market debts can even trade with a positive correlation to US Treasury rates.

Figure 7: Historical correlations to 10-year US Treasury



Sources: Barclays Capital, BIS, FactSet, J.P. Morgan Asset Management, Bloomberg.

Fixed income sectors shown above are provided by Barclays Capital and are represented by the global

aggregate for each country except where noted. US HY represented by Barclays US Corporate High Yield. EMD sectors are represented by the J.P. Morgan EMBIG Index (USD) and the J.P. Morgan GBI EM Global Diversified Index (LCL). European Corporates are represented by the Barclays Euro Aggregate Credit – Corporate Index and the Barclays Pan-European High Yield Index. Sector yields reflect yield to worst. Duration is modified duration. Correlations are based on 7-years of monthly returns for all the sectors. Current data are as of 3/31/2014 unless otherwise noted. 1. Yield to worst. 2. Example security used as proxy for the market. Source: J.P. Morgan Asset Management, Barclays Live, Bloomberg. Shown for illustrative purposes only. As of 30 June 2014. Correlations calculated using rolling one-year daily data over prior 13 years.

When calculating empirical duration, a purist might try to choose the interest rate most closely associated with an individual security and map the changes in that rate with the changes in the value of the security. While this approach is theoretically more accurate, the complexity of performing this exercise across an entire portfolio of several hundred securities is challenging. Instead, a simpler alternative is to map individual securities to related indices and then determine the beta of the yield of each index to the yield of an on-the-run 10-year Treasury as a proxy for interest rates. Once the beta is determined, the empirical duration of the portfolio can be calculated as follows:

$$\text{Empirical duration} \approx \text{weighted effective duration} \times \text{yield beta}$$

However, because of the shifting relationship between rates and spreads as well as changing market volatility, it is important to monitor a portfolio's empirical duration over different time periods and frequencies (such as three months, six months, one year and three years, and daily or weekly data). For instance, if a significant market dislocation occurred a year ago, the 3-month or 6-month empirical duration number may be a more accurate representation of the portfolio's current sensitivity to changes in interest rates than the one-year number, which would include data from this unusual market environment. While the portfolio's effective duration will remain consistent over all of the different data sets, its empirical duration will fluctuate depending on the time frame used to evaluate the relationship.

Not surprisingly, due to the changing relationship between rates and spreads, portfolios will more closely track different duration calculations at different times. By matching the changes in a portfolio's valuation as rates change to different types of duration measures, it is possible to determine which duration is truly the best measure of the portfolio's sensitivity to changing interest rates.

2. WHEN?

When will interest rates rise? This is the question at the top of any bond investor's concerns, and rightly so. During the Global Financial Crisis (GFC), central banks around the world adopted policies to fight the crisis and the twin threats of depression and deflation.

Investors are right to ask today whether crisis policies are suitable for today's environment when the underlying economic environment and outlook is radically different (Figure 8).

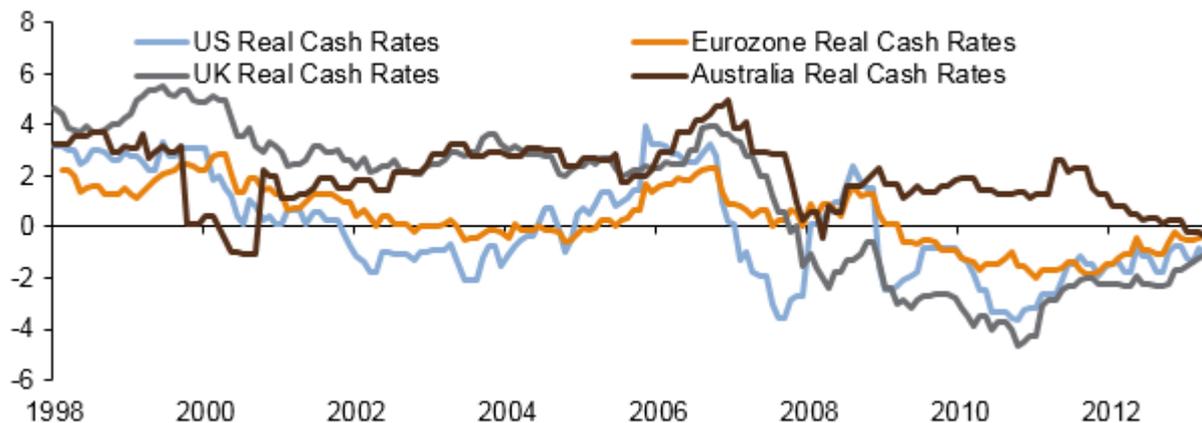
Figure 8: Global economic data

| | | 2009 | 2015–2019 |
|-----------|-----|--------|-----------|
| US | GDP | -2.80% | 2.74% |
| | CPI | -0.30% | 1.88% |
| Australia | GDP | 1.50% | 2.92% |
| | CPI | 1.80% | 2.48% |
| World | GDP | -0.40% | 3.90% |
| | CPI | 2.50% | 3.46% |
| Advanced | GDP | -3.40% | 2.30% |
| | CPI | 0.10% | 1.84% |

Source: IMF – 2009 actual data, 2015–18 forecasts

The risk is that central banks move policy from emergency low levels to still accommodative levels. One way to think of this is by the real, or inflation-adjusted interest rate. Historically, as seen below, zero real interest rates are very accommodative (Figure 9).

Figure 9: Global Real interest rates

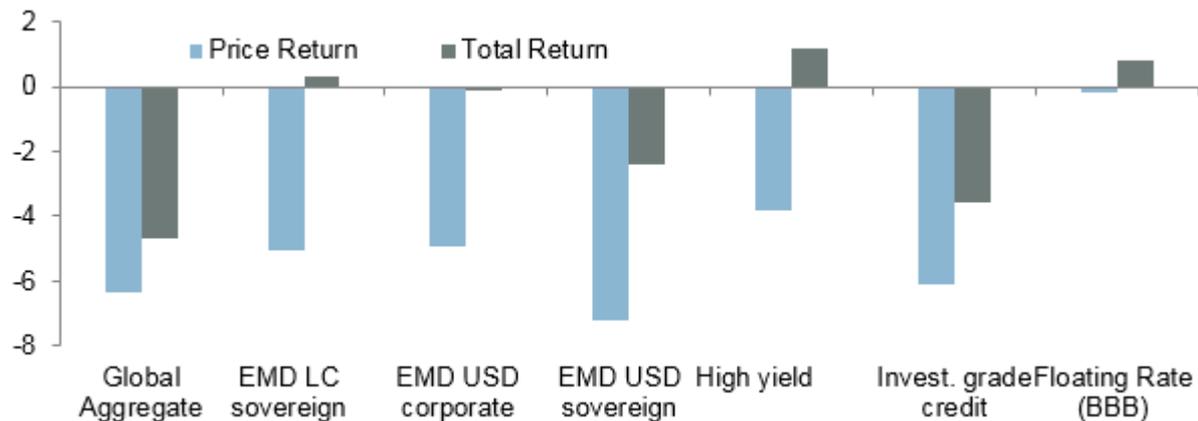


Source: Bloomberg, CPI and cash rates. Data as of 31 March 2014.

Against a backdrop where interest rates and bond yields start to normalise, traditional,

benchmark-aware strategies, dominated by a high sensitivity to moves in interest rates will suffer poor returns (Figure 10).

Figure 10: Estimated impact of a 1% rise in local interest rates over one year on selected indices



Source: Barclays Capital, JP Morgan Asset Management

Fixed income sectors shown are provided by Barclays Capital and are represented by – Global Aggregate: Barclays Global Aggregate Index; Floating Rate – Barclays US Floating Rate Notes (BBB); IG credit: Barclays Global Aggregate – Corporates Index; High yield: Barclays Global High Yield Index; EMD sovereign (\$): Barclays Emerging Markets – Sovereigns index; EMD corporate (\$): Barclays Emerging Markets – Corporates Index; EMD sovereign (LC): Barclays Emerging Market Local Currency Government Index. Data as of 30 Jun 2014.

3. WHENCE – WHAT CAN INVESTORS DO ABOUT IT?

If investors remain in US Treasury securities or bonds with a high correlation to US Treasuries, they will likely suffer negative real returns if the yields rise in the future. The so-called taper tantrum sell off from May until August 2013 saw 10-year US Treasury yield spike by 111 basis points, resulting in a drawdown of over 3% for the US Treasury index. Investors need to ensure they have a sufficiently diversified portfolio of global bonds to take advantage of the lower historic correlations available within the global opportunity set. Investors will likely also need to be nimble to take advantage of sectors which offer value (Figure 11).

Figure 11: Greater opportunity set provides more flexibility

| Rising Rates Periods | Change in 10-Yr US Treasury Yld (bps) | US Treasury Index (%) | US Agg (%) | US IG Corp (%) | US High Yld (%) | Barclays Global Agg Hedged US\$ (%) | UBS Composite Bond Index AU\$ (%) |
|----------------------|---------------------------------------|-----------------------|------------|----------------|-----------------|-------------------------------------|-----------------------------------|
| Aug 2010 – Mar 2011 | 100 | -0.80 | 0.50 | 1.91 | 10.44 | -0.42 | 0.92 |
| Jan 2012 – Mar 2012 | 41 | -1.29 | 0.30 | 2.08 | 5.35 | 1.21 | 0.65 |
| Jul 2012 – Jan 2013 | 52 | -0.47 | 1.09 | 4.00 | 9.41 | 2.34 | 1.59 |
| Apr 2013 – Aug 2013 | 111 | -3.07 | -2.69 | -3.19 | -0.18 | -1.72 | -0.59 |
| Oct 2013 – Dec 2013 | 47 | -0.77 | -0.14 | 1.11 | 3.58 | 0.22 | 0.43 |

Sources: Source JP Morgan Asset Management, Bloomberg, Bank of America Merrill Lynch.

CONCLUSION

Looking back thirty years, bond indices have served investors well. When modern fixed income indices were created in the mid 1980s, debt levels were low and indices captured the move by central banks to control inflation. As central banks adopted inflation targets, this helped to drive both inflation and interest rates to low levels providing a duration windfall for fixed income benchmarks. This is now likely to be over.

Holding traditional fixed income only in periods of rising yields may expose investors to unnecessary downside risk, particularly if these fixed income sectors have a high correlation with each other. If interest rates rise in the future, investors will need to take a different approach to their fixed income allocations. The ability to broaden the opportunity set to include the whole fixed income universe on a global basis will be critical. An unconstrained approach to selecting fixed income markets based on their intrinsic merits, and allocating capital irrespective of geography and sector to those parts of the fixed income markets expected to appreciate will be important in the future. This type of approach should help protect downside risk, while providing an optimal asset allocation to suit market conditions.

ENDNOTES

1. Data from Bank of America Merrill Lynch, returns between 30 September 1981 to 1 August 2014.
2. Federal Reserve, total public and private debt as of Q4 1981 and Q1 2014.
3. Effective duration takes into account the way in which changes in yield will affect the expected cash flows. It takes into account both the discounting that occurs at different yield levels as well as changes in cash flows. This is a more appropriate measure for any bond with an option embedded in it.

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