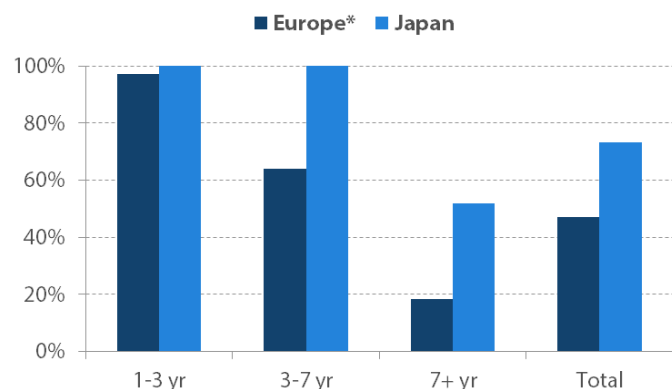


ONLY CENTRAL BANKS CAN BREAK THE CYCLE OF EVER-DECLINING BOND YIELDS

"Toto, I've a feeling we're not in Kansas anymore" - The Wizard of Oz, 1939

As we look around the fixed income landscape today, we can get some idea of how Dorothy felt. To say that bond yields are low is an understatement. In the JP Morgan Government Bond Index (GBI) Global, which encompasses the 13 largest government bond markets, an extraordinary 30% of sovereign debt, or USD 6.8 trillion, has a negative yield. Even more alarming within this universe is that 73% of Japanese government bonds (JGBs) and 47% of European Union (EU) government bonds are negative yielding. Chart 1 shows the percentage of negative yielding JGBs and EU government bonds as a percentage of total market value by maturity bucket. Both Japan and Germany (Europe's largest economy) have negative yields to maturities over 10 years. In fact, only four countries in the JP Morgan GBI Global—the US, Canada, Australia and the UK—have no negative yielding government bonds.

Chart 1: Negative yielding government bonds (% of market value)



Source: JP Morgan GBI Global Index, Nikko AM. As at 28 July 2016. *Europe includes Belgium, Denmark, Germany, Spain, France, Italy, The Netherlands and Sweden.

There are many reasons cited for why global interest rates are so low, including weak economic growth in the wake of the GFC, global disinflation and high debt levels. Of course, global economic recessions are not new but in the past, cash rates have remained positive, respecting the lower zero bound. The major difference this time is monetary policy intervention from the world's most prominent central banks. In our view, the collective pressure of quantitative easing (QE) policies from the US Federal Reserve (Fed), the European Central Bank (ECB) and the Bank of Japan (BoJ) has had a material impact on bond yields and their valuations. As a result, we believe that the evolution of QE policies will be more important than

fundamentals in indicating when bonds can break the cycle of ever-declining yields.

Assessing the impact of QE on the world's largest bond market

Since the monetary experiment of zero rates has been long-Central bankers are typically considered a conservative bunch, preferring to maintain a steady hand and promote stability. Severe recessions in many countries following the GFC have changed that reputation and central banks now conduct regular and substantial interventions in financial markets. The US Fed first opened the door to extraordinary policy measures in the immediate aftermath of the failure of Lehman Brothers and then kept it open with its first quantitative easing (QE1) policy in 2009, QE2 in 2010 and QE3 (starting with 'Operation Twist') in 2011. However, the Fed is not alone as the ECB, BoJ, Bank of England, Swiss National Bank and Swedish National Bank have also joined the QE frenzy.

Financial analysts and central bankers will be debating the efficacy of these large scale bond buying programmes in restoring economic growth and lifting inflation for years to come. However, we are primarily interested in their effect on global bond markets—in particular, the impact of QE on US Treasuries, the world's largest and deepest bond market.

Unsurprisingly, we are not the first to ponder this question. At a US Monetary Policy Forum in 2015, an ECB presentation summarised the results from around 14 studies into the effects of large-scale asset purchases on long-term Treasury yields. The results were scaled to estimate the impact of USD 1 trillion of purchases on long-term Treasury yields. The average finding was that US 10-year Treasury yields were 42 basis points (bps) lower than they would have been in the absence of QE. There was also a fair degree of disparity in the studies, with a few finding next to no effect on yields, while one study estimated an impact of over 150 bps.

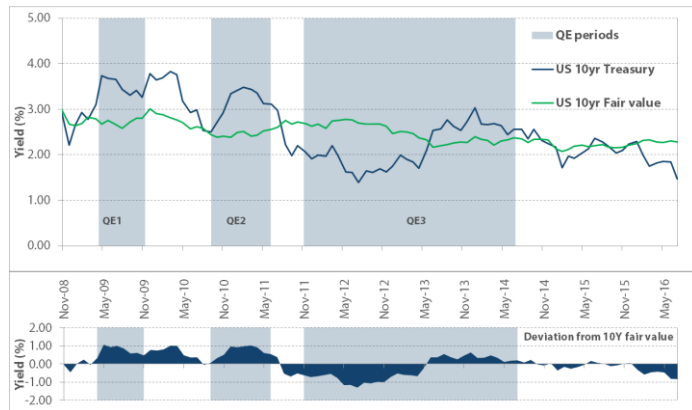
These studies used a wide variety of techniques and models to estimate the impact on long-term Treasury yields. However, we have taken a slightly different tack in our analysis by considering the impact of QE in the US (and also globally) on the 'fair value gap' between our model estimate of fair value for US 10-year Treasury yields and actual yields since 2008.

Fair value yield model

Our fair value yield model is based on a small handful of fundamental economic variables that we believe have proven to have explanatory power over the long term. For this

analysis, we have not attempted to add a 'QE factor' so the model is driven by traditional economic factors only. Chart 2 shows the US 10-year Treasury yield, our fair value model results and the difference or 'fair value gap' between them.

Chart 2: US 10-year Treasuries vs. our US 10-year 'fair value model'



Source: Bloomberg, Nikko AM.

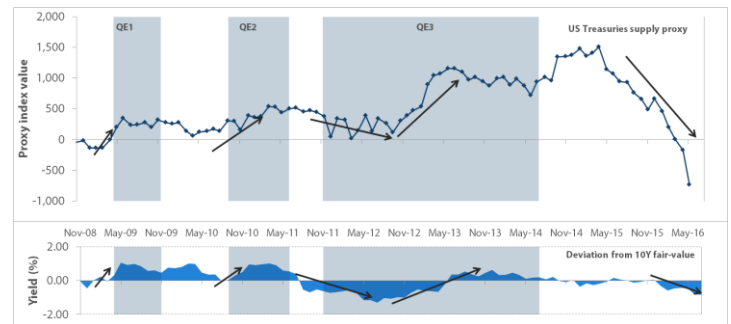
Over the period since the GFC, US Treasury yields have had a number of sharp moves in both directions, but have generally trended down. The fair value gap has also seen periods of over- and under-valuation. Somewhat surprisingly, US 10-year yields rose, and our fair value measure pushed into undervalued territory, at the start of both QE1 and QE2. With the Fed initiating large scale asset purchasing programmes, many were surprised at the time that bond yields rose against expectations.

Analysing the impact of QE on our fair value measure

In order to analyse the impact of the US and other QE programmes on our fair value measure, we have created a 'US Treasuries supply proxy' for changes in the supply of US Treasuries. Our measure monitors the total value of US Treasuries (1yr+) outstanding minus the Fed's holdings of US Treasuries (1yr+) and the changes in the balance sheets of both the ECB and the BoJ (converted to US dollars). This provides a broad proxy measure to monitor the changing supply/demand dynamics of the US Treasuries market. When the measure is rising, it means that the net availability of US Treasuries is increasing and vice versa when it is falling.

Chart 3 shows our US Treasuries supply proxy measure compared with the deviations of US 10-year yields from our fair value model.

Chart 3: US 10-year Treasuries supply proxy vs. deviation from fair value



Source: Bloomberg, US Department of the Treasury, Federal Reserve Bank of New York, Nikko AM

Looking at QE1 and QE2 using our proxy, we found that it was the net Treasury availability that mattered and that US Treasury issuance also surged at the beginning of these periods. Essentially, with the left hand the Fed was removing bonds from the market, while with the right hand the US Treasury was adding even more bonds to the market at the same time. This surge in the net amount of US Treasuries available actually led to a reduction in bond prices and higher yields and did not lower yields as expected.

When we consider QE3, our fair value measure moved from being undervalued at the conclusion of QE2 to being sharply overvalued. The difference this time was that large balance sheet changes at the ECB and the BoJ due to renewed QE policies combined with US QE3 to overwhelm the increasing supply of US Treasuries, causing our proxy to decline. This decrease in the availability of US Treasuries was again mirrored by our fair value measure in the other direction.

Central banks hold the key to future bond moves

There can be no doubt that the world's central banks have been proactive and inventive in attempting to lift economic growth and prevent a deflationary mindset from taking hold. From breaching the lower zero bound with negative interest rate policies, to the multitude of special lending and liquidity facilities, to the large scale asset purchases in government and non-government securities, central bank officials have thrown the proverbial kitchen sink at the problem.

Our analysis suggests that the collective pressure of QE policies from the US Fed, ECB and BoJ has had a material impact on bond yields and their valuations. However, given that this impact is merely a transmission mechanism for QE to drive its main objectives on growth and inflation, it remains an open question whether QE is making any headway towards its actual goals.

When we look ahead to consider when bond yields might finally turn higher, we believe that the future actions of central banks hold the key. Bond yields will remain low as long as large scale asset purchase programmes continue to hold back the available supply of US Treasuries. We are closely watching for any signs that central banks may be considering winding down QE policies as an indication that bonds can break the cycle of ever-declining yields.

Important Information

This document is prepared by Nikko Asset Management Co., Ltd. and/or its affiliates (**Nikko AM**) and is for distribution only under such circumstances as may be permitted by applicable laws. This document does not constitute investment advice or a personal recommendation and it does not consider in any way the suitability or appropriateness of the subject matter for the individual circumstances of any recipient.

This document is for information purposes only and is not intended to be an offer, or a solicitation of an offer, to buy or sell any investments or participate in any trading strategy. Moreover, the information in this material will not affect Nikko AM's investment strategy in any way. The information and opinions in this document have been derived from or reached from sources believed in good faith to be reliable but have not been independently verified. Nikko AM makes no guarantee, representation or warranty, express or implied, and accepts no responsibility or liability for the accuracy or completeness of this document. No reliance should be placed on any assumptions, forecasts, projections, estimates or prospects contained within this document. This document should not be regarded by recipients as a substitute for the exercise of their own judgment. Opinions stated in this document may change without notice.

In any investment, past performance is neither an indication nor a guarantee of future performance and a loss of capital may occur. Estimates of future performance are based on assumptions that may not be realised. Investors should be able to withstand the loss of any principal investment. The mention of individual stocks, sectors, regions or countries within this document does not imply a recommendation to buy or sell.

Nikko AM accepts no liability whatsoever for any loss or damage of any kind arising out of the use of all or any part of this document, provided that nothing herein excludes or restricts any liability of Nikko AM under applicable regulatory rules or requirements.

All information contained in this document is solely for the attention and use of the intended recipients. Any use beyond that intended by Nikko AM is strictly prohibited.

Japan: The information contained in this document pertaining specifically to the investment products is not directed at persons in Japan nor is it intended for distribution to persons in Japan. Registration Number: Director of the Kanto Local Finance Bureau (Financial Instruments firms) No. 368 Member Associations: The Investment Trusts Association, Japan/Japan Investment Advisers Association/Japan Securities Dealers Association.

United Kingdom and rest of Europe: This document constitutes a financial promotion for the purposes of the Financial Services and Markets Act 2000 (as amended) (FSMA) and the rules of the Financial Conduct Authority (the FCA) in the United Kingdom (the FCA Rules).

This document is communicated by Nikko Asset Management Europe Ltd, which is authorised and regulated in the United Kingdom by the FCA (122084). It is directed only at (a) investment professionals falling within article 19 of the Financial Services and Markets Act 2000 (Financial Promotions) Order 2005, (as amended) (the Order) (b) certain high net worth entities within the meaning of article 49 of the Order and (c) persons to whom this document may otherwise lawfully be communicated (all such persons being referred to as relevant persons) and is only available to such persons and any investment activity to which it relates will only be engaged in with such persons.

United States: This document is for information purposes only and is not intended to be an offer, or a solicitation of an offer, to buy or sell any investments. This document should not be regarded as investment advice. This document may not be duplicated, quoted, discussed or otherwise shared without prior consent. Any offering or distribution of a Fund in the United States may only be conducted via a licensed and registered broker-dealer or a duly qualified entity.

Singapore: This document is for information only with no consideration given to the specific investment objective, financial situation and particular needs of any specific person. You should seek advice from a financial adviser before making any investment. In the event that you choose not to do so, you should consider whether the investment selected is suitable for you.

Hong Kong: This document is for information only with no consideration given to the specific investment objective, financial situation and particular needs of any specific person. You should seek advice from a financial adviser before making any investment. In the event that you choose not to do so, you

should consider whether the investment selected is suitable for you. The contents of this document have not been reviewed by the Securities and Futures Commission or any regulatory authority in Hong Kong.

Australia: Nikko AM Limited ABN 99 003 376 252 (**Nikko AM Australia**) is responsible for the distribution of this information in Australia. **Nikko AM Australia** holds Australian Financial Services Licence No. 237563 and is part of the Nikko AM Group. This material and any offer to provide financial services are for information purposes only. This material does not take into account the objectives, financial situation or needs of any individual and is not intended to constitute personal advice, nor can it be relied upon as such. This material is intended for, and can only be provided and made available to, persons who are regarded as Wholesale Clients for the purposes of section 761G of the Corporations Act 2001 (Cth) and must not be made available or passed on to persons who are regarded as Retail Clients for the purposes of this Act. If you are in any doubt about any of the contents, you should obtain independent professional advice.

New Zealand: Nikko Asset Management New Zealand Limited (Company No. 606057, FSP22562) is the licensed Investment Manager of Nikko AM NZ Investment Scheme and the Nikko AM NZ Wholesale Investment Scheme.

This material is for the use of researchers, financial advisers and wholesale investors (in accordance with Schedule 1, Clause 3 of the Financial Markets Conduct Act 2013 in New Zealand). This material has been prepared without taking into account a potential investor's objectives, financial situation or needs and is not intended to constitute personal financial advice, and must not be relied on as such. Recipients of this material, who are not wholesale investors, or the named client, or their duly appointed agent, should consult an Authorised Financial Adviser and the relevant Product Disclosure Statement or Fund Fact Sheet (available on our website www.nikkoam.co.nz).