



Breaking Down Bonds in a Low Rate Environment

Over the past few years, we've heard a lot in the financial press about the possibility of rising interest rates and the negative consequences this would have on bond portfolios. Given the extent of recent yield increases and resultant decline in bond values, investors understandably feel uneasy about the prospect of further yield increases in the months ahead. However, as we will illustrate, *should* yields continue to rise – which is far from a certainty – the implications for fixed-income investments are more favourable than they appear.¹

Why is there so much in the news about “rising rates”?

In December 2008, in the midst of the global financial crisis, the U.S. Federal Reserve (Fed) took the unprecedented step of lowering its benchmark interest rate to a range of 0.00%-0.25% to help stimulate the economy. In the years since, there has been widespread speculation about what this extended period of low rates, and the eventual “lift-off” from these rates, would mean for financial markets and investors. Throughout the recovery, but particularly over the past several years, members of the Fed who vote on monetary policy changes repeatedly stressed that rate increases were likely to be gradual. Notwithstanding this rhetoric, when they finally voted to increase the policy rate by 0.25% in December 2015, it inflamed existing investor concerns that bond yields would begin to rise at a brisk pace.

Why was there so much volatility in government bond yields over the past seven years if the Fed kept its policy rate within such a narrow band?

The Fed's policy rate, known as the federal funds (fed funds) rate, directly impacts short-term bond yields.² However, longer-term bond yields – which are a stronger determinant of actual investor returns – are also influenced by market-based expectations for economic growth and inflation, as well as demand for certain bonds. This is highlighted in Chart 1, which shows that while short-term U.S. Treasury yields track the fed funds rate closely, long-term U.S. Treasury yields are only weakly correlated with this rate.

Chart 1: Fed funds rate and U.S. Treasury yields



Long-Term U.S. Treasury Yield represented by 10-year U.S. Treasury yield and Short-Term U.S. Treasury Yield represented by 3-month U.S. Treasury yield. As of January 31, 2017. Source: Bloomberg.

¹ Throughout this report, we will focus on the U.S. Treasury market given that it is the largest government bond market in the world, it tends to strongly influence the Canadian bond market, and there is greater availability of data for segments of the U.S. bond market.

² While a full explanation of the purpose of the fed funds rate is beyond the scope of this report, it is essentially a lever that the Fed uses to control economic output and inflation (it raises the rate when it is concerned about high inflation or wants to moderate economic activity, and vice versa). This rate determines very short-term borrowing costs for banks and forms the basis for other short-term interest rates and bond yields.

If the Fed doesn't directly control longer-term Treasury yields, then what does?

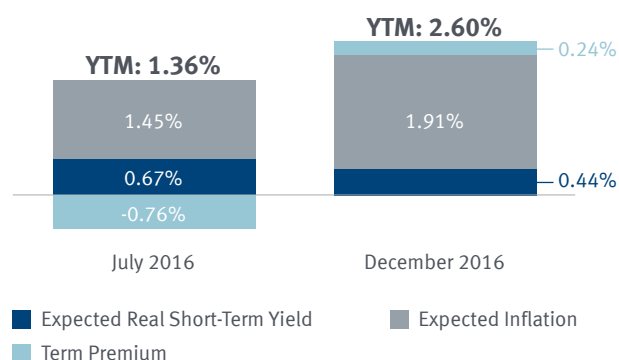
To understand the relationship between the fed funds rate and Treasury yields, it helps to recall that government bond yields consist of three components: expected real short-term yield, compensation for expected inflation, and the term premium. Each of these is explained in greater detail below.

- Expected real short-term yield:** This component reflects expectations for economic growth and inflation, and will tend to be higher when economic growth or inflation are expected to increase over the life of a bond. Unlike the other two components of government bond yields, this rate is directly influenced by the fed funds rate, as the fed funds rate effectively sets a minimum level for other short-term interest rates.
- Expected inflation:** Yield is also determined by investors' need to be compensated for anticipated price increases over the term of a bond, or expected inflation. This component will be higher if investors believe that inflation will increase in the future due to changes in government policies or a pick-up in economic activity. While inflation expectations are primarily driven by economic conditions, they can be indirectly influenced by the fed funds rate, insofar as the fed funds rate provides a signal about the outlook for the economy. For instance, if market participants believe the rate is too low and will lead to higher inflation in the future, expected inflation may increase.
- Term premium:** The final component is the term premium, which is the yield premium – or in rare cases, the yield discount – that investors demand as compensation for holding longer-term bonds. This component is determined by two factors: the perceived risk of “surprise” inflation in the future, and the demand for longer-term bonds relative to shorter-term bonds. For instance, if the market believes there is a high risk of surprise inflation, or if longer-term bonds are in lower demand than shorter-term bonds, the term premium will be higher. Like expected inflation, the fed funds rate can indirectly influence this component, as low short-term rates may push investors into longer-term bonds or lead investors to believe that the risk of surprise inflation in the future is higher.

What drove the recent increase in Treasury yields?

As shown in Chart 2, the recent increase in the 10-year U.S. Treasury yield was driven by a combination of increasing inflation expectations and a rising term premium. Higher inflation expectations were the result of a more optimistic outlook for economic growth that began in the summer of 2016, and accelerated after the U.S. presidential election due to market expectations of tax cuts and increased fiscal spending. By contrast, the higher term premium primarily reflects uncertainty about levels of inflation over the longer-term, but also reflects the return of this metric to positive levels (it was abnormally negative throughout most of 2016 due to high demand for longer-term bonds, largely from the Fed and other central banks).

Chart 2: Breakdown of 10-year U.S. Treasury yields



YTM = Yield to Maturity. Based on components of the 10-year U.S. Treasury yield as of July 8, 2016 (July 2016) and December 15, 2016 (December 2016). Components may not add exactly to total yield due to rounding. Source: RBC GAM

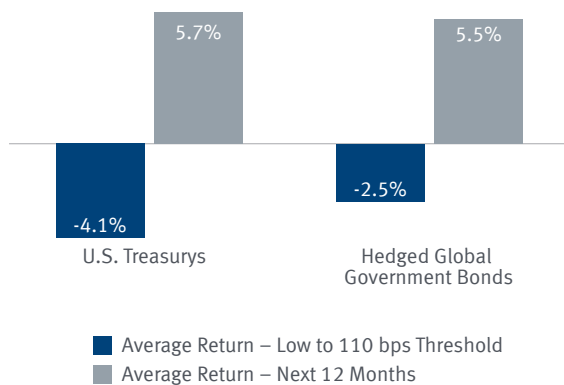
Are yields going to continue rising?

Interest rates are notoriously difficult to forecast – a *Wall Street Journal* study found that professional economists are not only unable to consistently predict the magnitude of interest rate movements, but that they failed to correctly forecast the *direction* of interest rate movements in two-thirds of the quarters over the past 30 years. Although RBC Global Asset Management (RBC GAM) forecasts a value of 2.50% for the 10-year U.S. Treasury yield in February 2018 (it was 2.31% as of February 24, 2017), we acknowledge that yields could conceivably move in either direction from current levels as economic conditions and market expectations change.

While we cannot say with certainty by how much, or even in which direction, rates will move next, we do know that government bonds have historically tended to fare relatively well in the year following large increases in yields.

Since 1994, there have been nine periods in which the 10-year U.S. Treasury yield has increased by at least 110 basis points (bps) (1.10%).³ As illustrated in Chart 3, while U.S. Treasuries declined in the periods in which rates increased, they generated an average return of 5.7% in the year subsequent to the increase. Although global government bonds are influenced by factors other than U.S. Treasury yields, the results were similar – after initial declines, they returned an average of 5.5% in the year following a 110 bps increase in the 10-year U.S. Treasury yield. To put recent moves into context, the 10-year U.S. Treasury yield increased by 124 bps from its low of 1.36% on July 8 to its high of 2.60% on December 15, 2016.

Chart 3: Government bond performance in periods of rising rates



U.S. Treasuries represented by BofAML U.S. Treasury Master Index (US\$) and Hedged Global Government Bonds represented by Citi WGBI Index (C\$ Hedged). Average returns calculated for periods between January 1994 and January 2017 in which the 10-year U.S. Treasury yield increased by 110 bps from previous low within a one year window. Source: RBC GAM

What will happen to my fixed-income investments if yields continue to rise?

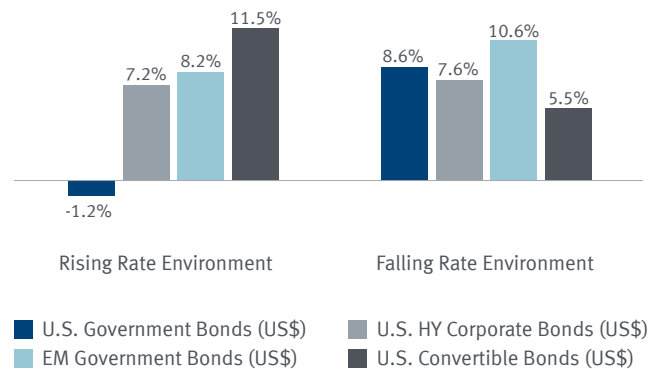
Increasing yields are decidedly negative for fixed-income investments in the short term, as higher yields lower the market value of existing bonds. Although this can be painful for investors, the good news is that there’s a longer term silver lining. This is because any short term capital losses on fixed-income investments due to rising yields set the stage for higher future returns, as investors will be able to reinvest their coupons and purchase new bonds at higher yields.

³110 basis points was used as the threshold for this analysis because it represents a meaningful increase in the 10-year Treasury yield and provides a sufficient number of observations – nine in total – within the sample period.

It’s also important to consider the implications of changes in the market value of a bond: while the price can rise or fall over time, an investor is guaranteed to earn the yield to maturity at the time of purchase if the investor holds the bond to maturity and the issuer doesn’t default. For this reason, a good rule of thumb for investors is to invest in individual bonds or bond funds that have an average maturity equal to or shorter than their investment time horizon.

Finally, as highlighted in Chart 4, certain segments of the fixed-income market – emerging market (EM), high-yield (HY), and convertible bonds, for instance – have historically generated positive returns during periods of rising yields. In the event that yields continue to increase, exposure to these areas of the market may help to cushion the blow of any losses in the core fixed-income segment of an investor’s portfolio.

Chart 4: Fixed-income segment performance in rising and falling rate environments



Based on monthly data from January 1, 1994 through January 31, 2017. Rising and falling rate periods based on trend of the 10-year U.S. Treasury yield. U.S. Government Bonds represented by BofAML U.S. Treasury Master Index (US\$), U.S. HY Corporate Bonds represented by BofAML U.S. High Yield Master II Index (US\$), EM Government Bonds represented by JPM EMBI Global Diversified Index (US\$), and U.S. Convertible Bonds represented by BofAML All Investment Grade U.S. Convertible Bonds Index (US\$). Source: Morningstar Direct, Bloomberg

What are we doing in our fixed-income funds to limit downside risk if yields continue to rise?

At RBC GAM, we are strong proponents of diversifying fixed-income investments across geographies and market segments and using scenario analysis to help mitigate the impact of adverse market outcomes.

- **Geographic diversification:** In addition to expanding the investment opportunity set for our portfolio managers, a globally diversified fixed-income fund minimizes the impact of changes in monetary policy in any individual country on investment performance. For example, even if U.S. Treasury yields continue to increase, the impact on the performance of RBC Global Bond Fund may be mitigated by its holdings of government bonds issued in countries where rates may be stable or even declining.
- **Asset class diversification:** While we have globally diversified within a number of our fixed-income funds for many years, we have also gradually diversified across a wider range of segments of the fixed-income market to help mitigate exposure to interest rate movements. For instance, prior to 2010, we held only HY bonds and EM government bonds in RBC Global Bond Fund to diversify our exposure to developed market government bonds. However, in the years since, we have also added exposures to investment grade corporate bonds, EM corporate bonds, and EM currencies. We have similarly broadened our exposures to different segments of the fixed-income market within RBC Bond Fund and RBC Global Corporate Bond Fund.
- **Scenario analysis:** One of the cornerstones of the RBC GAM Global Fixed Income & Currencies team's investment process is the use of scenario analysis, which is a process of considering investment outcomes under a range of future conditions, or "scenarios". Because future conditions are unknown, the team strives to construct portfolios that will

perform well in the most likely scenarios, but that will limit downside risk in less likely scenarios. By considering the potential impact of a variety of economic outcomes on the performance of the portfolios that they manage, the team is able to mitigate the performance impact of adverse market environments without significantly sacrificing return potential in more favourable environments.

If I'm worried about losses, should I liquidate my fixed-income investments and hold cash?

There are some scenarios in which it might be advisable for investors to hold cash, particularly in cases where the investor has a short investment horizon. However, cash can do a disservice to long-term investors for several reasons, most notably because it does not provide the downside protection that bonds do during equity market downturns (not to mention that it loses purchasing power over time due to inflation).

While we acknowledge that the return potential of bonds is more limited than it has been historically, bonds continue to play an important role in a balanced portfolio due to their ability to preserve value in periods in which equity markets decline. As such, we believe that investors should continue to maintain a dedicated, well-diversified bond allocation in their portfolios, regardless of how they feel about the level of yields currently available in the market or the potential for yields to increase in the future.

For more investment insights, please visit www.rbcgam.com or talk to your financial advisor.

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