

ECONOMIC VIEWPOINT



How High Will Bond Yields Go? Part I: Real Yields and the Neutral Rate

Now that monetary policy tightening has begun in Canada and the United States, the main question is: How much will interest rates rise? Their evolution will be heavily influenced by that of real rates, which currently remain extremely low. In this issue of *Economic Viewpoint*, we will address the issue of the neutral rate, which is where interest rates should be headed in the medium-term. If neutral rates seem to be lower than before the financial crisis, it look like that they are still at least at 2.50% in North America, in nominal term. The gradual tightening of monetary policy should thus continue in the coming quarters, this should push bond yields higher.

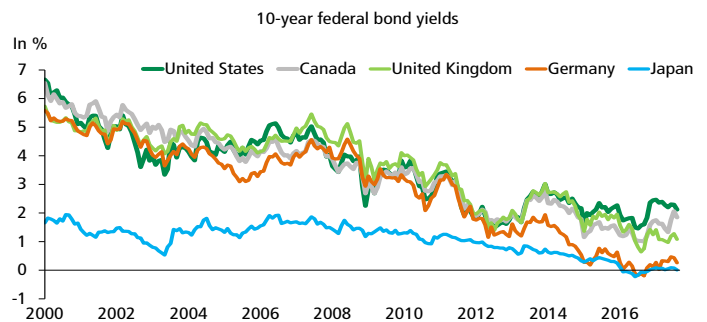
The Surprising Resilience of the Bond Market

Not so long ago, the main question on the bond market was how much interest rates would drop. At the start of 2016, the growing popularity of negative key rates and securities purchases by central banks and dropping inflation expectations appeared to be paving the way for increasingly lower rates in a global economic context that was heading towards stagnation. The situation has changed dramatically in a year with the global economy accelerating, inflation picking up somewhat, and the labour market performing well in several economies, painting a much rosier picture. Signs that extremely low interest rates were having worrisome consequences, particularly in economies where debt was already high, also helped shift central bankers' attitudes in the last year.

Other than the Bank of Japan, which may continue to implement stimulus measures for a long time, most central banks are now in a neutral or tightening mode. In North America, the Federal Reserve (Fed) has sped up its key rate hikes in the last few quarters and appears to be about to begin shedding its bond holdings. Given the Canadian economy's strong performance, the Bank of Canada (BoC) also recently started to rise its key rates with two consecutive hikes. The European Central Bank (ECB) has not yet reached the same point, but it should soon confirm its intention to slow down its securities purchases next year.

In spite of this, medium- and long-term bond yields remain extremely low in advanced countries (graph 1). Even in the United States, where the Fed raised its key rates by 1.00%, the

GRAPH 1
Bond yields remain lower than during the 2008 crisis



Sources: Datastream and Desjardins, Economic Studies

10-year yield is staying near 2.00%. Bond yields remain at levels one would expect at the worst point of a recession or financial crisis, not after more than eight years of economic growth when the economy nears a situation of full employment (graph 2 on page 2). Last year, these rates could still be justified by the significant amount of intervention by the central banks, but in this case, it's even more surprising to observe that the significant change in tone by several central banks has had little impact on the financial markets.

Real Yields Completely Ignore Monetary Tightening

To better understand bond yields, it's often useful to break them down into their various components. Graph 3 on page 2 breaks down the U.S. nominal 10-year yield into the real yield on 10-year TIPS (Treasury Inflation-Protected Securities) and

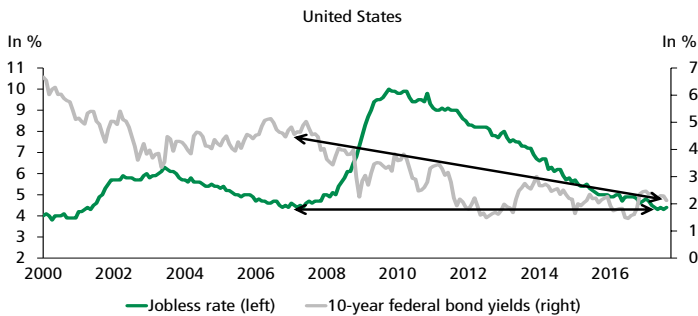
François Dupuis, Vice-President and Chief Economist • Mathieu D'Anjou, Senior Economist

Desjardins, Economic Studies: 514-281-2336 or 1 866-866-7000, ext. 5552336 • desjardins.economics@desjardins.com • desjardins.com/economics

NOTE TO READERS: The letters k, M and B are used in texts and tables to refer to thousands, millions and billions respectively.

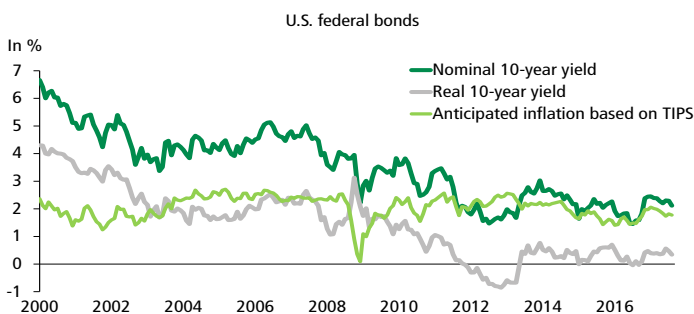
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GRAPH 2
The last time the U.S. jobless rate was so low, the 10-year yield was near 5%



Sources: Datastream and Desjardins, Economic Studies

GRAPH 3
Real yields remain approximately 2% below levels observed before the 2008 crisis



TIPS: Treasury Inflation Protected Securities
 Sources: Datastream and Desjardins, Economic Studies

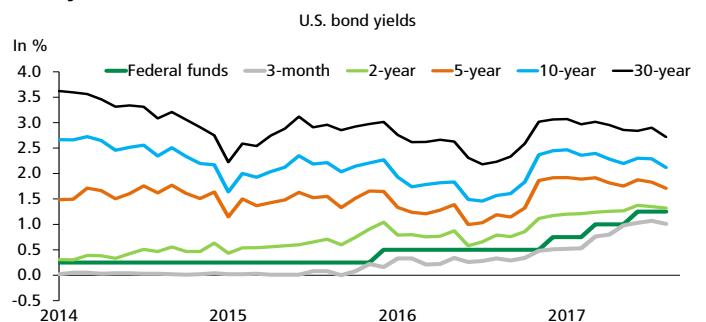
an inflation compensation, calculated as the yield difference between a nominal Treasury and a TIPS. While this breakdown isn't perfect, as other factors such as liquidity premium can influence the relative performance of both types of bonds, it is usually able to accurately identify the impact of inflation on long-term yields. The real yield can be seen as the true economic compensation received by lenders that agree to fix their resources for a period of several years.

Graph 3 shows that inflation compensation for the U.S. 10-year yield, which is currently around 1.80%, is still slightly below the Fed's 2.00% target and approximately 0.50% below levels observed before the 2008 crisis. However, low nominal yields are primarily due to real yields. The real 10-year yield is hovering at around 0.50%, which is a far cry from the yields of 2.00% or higher commonly seen in the early 2000s. It should also be noted that, after rebounding into positive territory in late 2013, real 10-year yields have not shown an upward trend since the Fed began its key rate hikes in December 2015.

This stability of long-term real yields despite a 1.00% increase in key rates is difficult to justify. By tightening its monetary policy,

the Fed is aiming to increase the cost of credit. This effect is clearly seen in short-term yields, with 3-month U.S. Treasury bill yields rising from around 0% to just over 1% (graph 4), which has generally spread to market rates, such as interbank rates and commercial paper rates. The cost of short-term credit and lender compensation has thus risen sharply since 2015, unlike the situation observed for longer terms. The fact that short-term real yields remain in negative territory for now and that long-term yields are much lower in Japan and Europe could be part of the explanation for this surprising phenomenon.

GRAPH 4
Unlike long-term yields, short-term yields have followed changes to key rates



Sources: Datastream and Desjardins, Economic Studies

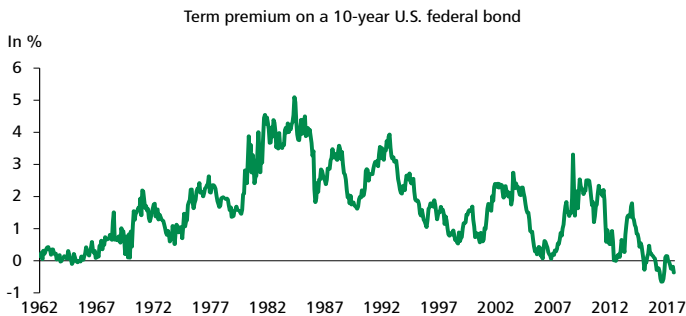
This upward trend for short-term yields cannot continue for long without influencing long-term yields. If monetary tightening continues at the pace signalled by Fed leaders, short-term yields may approach the current level of the U.S. 10-year yield towards the end of next year. It would not be logical for lenders to accept a lower real yield on 10-year bonds than on 1-year bonds, unless they are counting on an imminent recession.

Are Key Rate Hikes Nearing an End?

It's clear that bond yields cannot continue to ignore short-term rate increases for much longer. The yield curve has already flattened significantly in the last year and this trend shouldn't go much further, particularly in a context in which the supply of U.S. bonds is abundant. In addition, the Fed's estimates show that the term premium on a 10-year bond, which reflects the part of the bond yield that cannot be explained by anticipations over short-term rates, is already negative and an additional drop would be surprising (graph 5 on page 3).

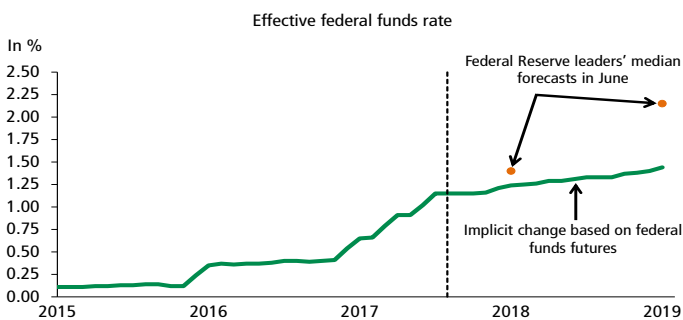
Current bond yields can thus only be justified in a scenario in which the Fed were to stop raising its key rates shortly. Futures on federal funds confirm that investors expect key rates to increase just 30 points between now and the end of 2018, whereas Fed leaders are signalling an increase of about 100 points over the same period (graph 6 on page 3). Of course, the sudden arrival of a recession or financial crisis could lead

GRAPH 5
The term premium is currently negative



Sources: Federal Reserve and Desjardins, Economic Studies

GRAPH 6
Investors anticipate very little further monetary tightening in the United States



Sources: Datastream, Bloomberg and Desjardins, Economic Studies

the Fed to end its monetary tightening and even begin to lower its key rates. However, the strong performances of the stock markets and low risk premiums confirm that investors are not poised for an imminent catastrophe scenario.

Rather, the current positioning of the markets appears to assume a scenario in which economic growth will continue in advanced economies, but that the central banks will decide to end their monetary tightening. Such a scenario could be justified by an increase of the disinflationary pressures recently observed in several countries. As the Fed and BoC are closely monitoring the inflation situation, there is no doubt that inflation will be a determining factor for monetary policies and the bond markets in the next few quarters. However, our analyses¹ suggest that inflation should gradually climb towards the levels targeted by the central banks in the coming quarters, as temporary factors will diminish and excess production capacities of North American economies will soon be depleted.

¹ *Will Inflation Eventually Pick Up in Canada?*, Desjardins, Economic Studies, *Economic Viewpoint*, August 8, 2017, 4 p.

The Importance of the Neutral Rate

The most likely scenario is that global economic growth will continue for a few more years and inflation will gradually climb towards the levels targeted by central banks. In such a scenario, monetary policies should continue to normalize, particularly as central banks appear increasingly aware of the dangers to financial stability of maintaining extremely stimulative policies. However, given the lack of strong inflationary pressure and the high debt levels observed in several countries, it would be surprising if the central banks needed to implement truly restrictive monetary policies. In this context, the concept of the neutral rate becomes very important as it indicates the level at which the central banks will need to end their monetary tightening.

The neutral rate can be defined as the interest rate maintaining an economy operating at its full capacity and inflation at the level targeted by the central bank once all cyclical influences have dissipated. The neutral rate is therefore a theoretical medium- or long-term concept that can never actually be observed. Economists have used the concept of the neutral rate for more than 100 years, but it has gained particular importance since the 1980s as short-term interest rates have become the main tools driving monetary policies. In this regard, a monetary policy is deemed to be stimulative if the key rate is lower than the neutral rate, and restrictive if it is higher. Based on experience and the trend growth for the U.S. economy, the famous Taylor rule assumed a real neutral rate of 2%.² With an inflation target of 2%, such a rate would assume that a normalization of the monetary policy could lead to an additional increase of about 3% for U.S. key rates in the next few years.

Did the Neutral Rate Drop to 0%?

The Taylor rule's assumption of a constant real neutral rate of 2% was quickly criticized. In particular, if the neutral rate is linked to the trend growth of an economy, as the vast majority of economists believe, a change in long-term growth potential should also lead to changes in the neutral rate. Other structural factors, such as the preferences of economic agents regarding savings and investment, could also have an impact on the neutral rate.

Economists have therefore developed several methods for estimating the neutral rate. These have generally confirmed that the neutral rate has shown a downward trend in the United States since the 1960s, similarly to economic growth potential. The most well-known method was developed by Laubach and Williams; it jointly estimates the neutral rate, potential GDP and trend growth of potential GDP using a

² John B. TAYLOR, *Discretion versus policy rules in practice*, Stanford University, *Carnegie-Rochester Conference Series on Public Policy* 39, 1993, 20 p.

Kalman filter.³ Before the crisis, this method estimated that the real neutral rate was close to the 2% level assumed by the Taylor rule. However, these estimates have tumbled since the 2008 financial crisis and now suggest a real neutral rate of close to 0%. This result has led some Fed leaders to say that the neutral rate is currently very low and, therefore, U.S. monetary policy hasn't been very stimulative.

However, in our opinion, there are several problems with attempts to estimate the neutral rate since the crisis. First, we must remember that the neutral rate is a medium-term concept that supposes that the economy is back in equilibrium. We believe that the last decade has been a long, difficult period marked by persistent headwinds resulting from the financial crisis. It becomes extremely difficult to statistically estimate long-term equilibrium values during such a period. One sign of a problem is that Laubach and William's method also estimates that the U.S. economy has exceeded its full capacity since 2014 (graph 7), which doesn't appear to align with reality. Lastly, it should be pointed out that statistical methods may confuse a drop in the neutral rate with a decrease in the effectiveness of monetary policies, which could also characterize the current situation.

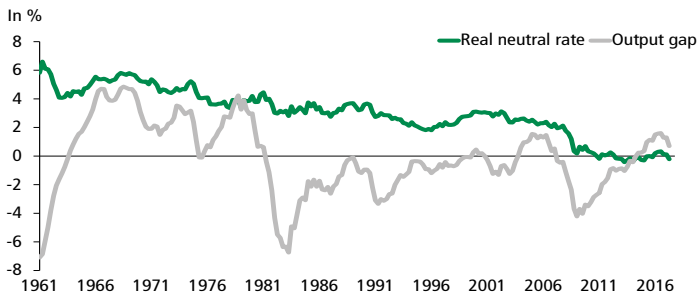
No Obstacles to Continued Monetary Tightening

As the headwinds blowing on the global economy appear to be gradually dissipating, there is little reason to believe that real rates near zero are the new normal. It's very difficult to determine the exact level of neutral rates in North America, but the weight of evidence suggests that they are at least 2.5% in nominal terms. If economic growth and inflation behave in an acceptable fashion, the Fed and BoC will thus be able to continue to gradually raise their key rates in the coming quarters without worrying about implementing a contractionary monetary policy. However, the significant amount of uncertainty surrounding the neutral rate is a strong argument in favour of continuing to very gradually raising rates rather than returning to a quicker pace, as in the past. The gradual normalization of monetary policy in the United States, contrary to what many investors are anticipating, suggests a significant increase in long-term bond yields in the next few quarters. Other factors will impact the scope and speed of the rise in North American bond yields, which we will discuss in an upcoming issue of *Economic Viewpoint*.

Mathieu D'Anjou, CFA, Senior Economist

GRAPH 7 It's hard to believe the U.S. economy has been operating at full capacity since 2014

Estimates for the United States by Laubach and Williams



Sources: Datastream and Desjardins, Economic Studies

An [interesting paper](#) on the topic by the Brookings Institution concluded that it is difficult to estimate the neutral rate but there is little reason to believe that the real neutral rate had sustainably fallen to 0%. Generally speaking, it seems reasonable to estimate that the neutral rate has diminished a bit in North America but everything indicates that it remains at above 0.5% in real terms and 2.5% in nominal terms in Canada and the United States.⁴

³ Thomas LAUBACH and John C. WILLIAMS, "Measuring the Natural Rate of Interest," *Review of Economics and Statistics*, Volume 85, Issue 4, November 2003, p. 1063-1070.

⁴ Rhys R. MENDES, *The Neutral Rate of Interest in Canada*, Bank of Canada, Bank of Canada Discussion Paper 2014-5, September 2014, 25 p.