August 8, 2005

WILL WE SEE A RETURN TO HIGHER INTEREST RATES?

The process of “normalizing” American and Canadian interest rates: 
an economic, financial and econometric analysis

Summary

It is now just over a year since the U.S. Federal Reserve (Fed) began to raise its key rates again. The American Federal Fund rate is currently at 3.25%, 225 basis points higher than at the start of June 2004. Yet according to the latest statements from the Fed’s committee on monetary policy, rates are still accommodative. We must therefore conclude that a neutral level is higher than current rates, but where is that level? Our estimate puts a neutral interest rate on U.S. federal funds at just under 5%, with a lower limit at 4% and an upper limit at 5.5%. Current economic conditions and the short-term outlook do not require restrictive monetary policy, at least not for now. There is therefore no hurry to bring key rates up sharply. The Fed can afford to be patient and even keep rates under 4.5% for several quarters to come.

For its part, the U.S. bond market is continuing to post fairly low rates, that is, rates below historic averages. In a widely broadcast speech last February, Alan Greenspan appeared perplexed regarding the weakness of long-term rates. Yet an estimate of the equilibrium level for bond rates based on economic growth and the federal government’s budget balance, as well as on key rates shows that the current rate on 10-year federal bonds is not far from its fair valuation. In the last year, a slight slowdown in the economy and improvement in the federal government’s public finances counterbalanced a substantial part of the impact on the bond market of increases in federal fund rates. Yet these factors alone cannot explain the weakness of long-term rates. A number of other factors are causing fluctuation in supply and demand for medium- and, in particular, longer-term securities (see the table below).

In Canada, estimates show that, historically, the neutral rate is also close to 5%. Since the Bank of Canada is continuing to signal that our economy is expanding at very close to its potential, the Bank will want to gradually make its monetary policy less accommodative by the end of 2006. However, the Canadian dollar’s strength and its moderating effects on economic growth, as well as inflationary pressure could limit key rate increases. For the Canadian bond market, relatively low inflation, the sound budget situation and surplus in the current account in the balance of payments will help Canadian long-term rates to continue to perform well compared to their American counterparts, and will thus enable Canadian bond rates to remain close to or below U.S. rates.

The set of determinants influencing interest rates on the bond market will cause U.S. and Canadian yield curves to have a much “flatter” shape in the coming years than has been the case, on average, in previous economic cycles, particularly during expansion phases. The range forecasts for American and Canadian bond rates with maturities of 10 years are, in the short-term, 3.75% to 4.75% respectively and, in the medium term, from 3.25% to 5.25%, with a bias toward the upper part of these ranges. In spite of the expected increases, bond rates should all in all remain below their “theoretical” value, estimated at between 5.5% and 6.0% for 10-year securities for the next few years.

United States: Other facts influencing bond rates

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United States: Other facts influencing bond rates

U.S. federal funds, estimates, forecasts and neutral rate

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Introduction

Economic conditions have evolved substantially in recent years, and financial markets have gone through all kinds of episodes due to wildly disparate circumstances, such as the bursting of the tech bubble, the occurrence of major terrorist attacks in the west, the financial scandals uncovered, and the war in Iraq. One factor has remained constant, however: the role and weight of American monetary policy. In effect, investors have always kept one eye on the U.S. Federal Reserve (Fed) and, consequently, on its monetary policy.

Statements by Alan Greenspan, the Chairman of the Fed, and, to a lesser degree, statements by his colleagues are always points of interest on economic calendars, like the statements issued at Federal Open Market Committee (FOMC) meetings, the committee that conducts monetary policy in the United States. Nonetheless, it is fluctuations in the target for federal fund rates that is the central tool of monetary policy. Here, to better understand interest rate determinants, we need some ranges to work with. Among other things, we need to know what rate is required for monetary policy to stop being expansionist and become restrictive. Under these circumstances, do current conditions call for higher rates, or lower rates?

Clearly, the fixed-income securities market is not based on very short-term rates alone. We also need to look at the recent evolution of longer-term rates. Is it also possible that market rates are presently out of synch with current conditions? What are the factors influencing the evolution of bond rates, in the past and now? As with key rates, is there a “normal” level for longer-term rates?

This issue of the Economic Viewpoint attempts to answer these questions. First, we will look at the Fed’s monetary policy to judge whether current rates are approaching what is deemed to be a neutral level. Second, we will list the elements that can have an influence on American bond rates. Third, we will discuss the implications of our conclusions regarding the United States for the Canadian fixed-income securities market. Last, we will strive to highlight the conclusions we can draw from the analysis.

American key rates are still accommodative… in spite of the increases

The Fed’s current wave of key rate hikes started a little over a year ago. Since the end of June, 2004, the Fed’s leaders have increased rates by 25 basis points at each meeting—for nine consecutive increases. A total increase of 225 basis points to date should, under normal circumstances, have a substantially less accommodative—even slightly restrictive—effect on economic activity. Yet the latest statements from the FOMC continue to signal that monetary conditions remain flexible (that is, accommodative, in their terms). This tells us that, at 3.25%, the current target rate for federal funds is still below a specific neutral level. This neutral level represents the dividing line between an expansionist monetary policy and a restrictive policy.

If we look at a basic illustration of the target rate for federal funds since Alan Greenspan’s appointment as Chair of the Fed, it is obvious that rates are at historically low levels at this point in time. In nominal terms, the average for the target has been 4.77% since 1988, while the average inflation rate for this period as a whole is just above 3%. The current federal fund rate is thus 152 basis points below this average, with inflation closer to 2.5% recently.

Negative real short-term interest rates!

In the long-term, it is important to take into account the change in inflation conditions. We must therefore look at inflation-adjusted key rates. To do that, there are four useful price measurements: the total consumer expenditure deflator, the consumer expenditure deflator...
excluding food and energy, the total consumer price index (CPI) and the CPI excluding food and energy. Yet, no matter what price index is used, the results are essentially the same: real rates are low, and, in fact, are very close to 0%, in spite of the Fed’s monetary tightening.

To determine a neutral rate, it would thus be more efficient to focus on the measures in real terms, because it is fairly clear that their trend is much more stable than the trend for nominal rates, particularly in the case of rates corrected by core CPI (which excludes food and energy). In fact, Federal funds deflated by the core CPI have the lowest measure of dispersion.

**What is the United States’ inflation target?**

First, the U.S. Federal Reserve has no explicit inflation target. Unlike the Bank of Canada, the European Central Bank, the Bank of England and other central banks, the Fed maintains some manoeuvring room with respect to

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**Target rate on U.S. federal funds in real terms**

![Graph showing the target rate on U.S. federal funds in real terms from 1988 to 2004.](source)

**Inflation expectations in the United States**

![Graph showing inflation expectations in the United States from 1988 to 2004.](source)

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**What is a neutral rate?**

How can we describe the neutral rate for federal funds in the United States? It would be a rate that is compatible with a balanced economy. That is, the risks of overly strong inflationary pressure and overly weak economic growth are minimized. Since inflation that accelerates too quickly is primarily associated with an overheating economy, the Fed must walk the line between overly strong and overly weak expansion in the American economy.

Another question then arises: What rate of economic growth would be neither too weak nor too strong? This is where the measures for calculating economic growth potential are useful. At its potential level, the economy uses just enough resources to keep inflation under control. Above this, aggregate demand exceeds aggregate supply, and resources become scarcer. The cost of these resources (material and human) tends to increase, increasing inflation risks. When the economy is operating below its potential, resources are underused, and there is excess output capacity, leading to a deceleration in the progression of costs and prices.

A simple definition of a neutral interest rate for federal funds is thus a rate that is compatible with an economy that is developing at its potential and, consequently, features stable inflation. That is the formula used in a 2003 document by the San Francisco Federal Reserve; it is represented in this graph.
the evolution of prices and can thus focus on both the evolution of economic growth and inflation. As there is no explicit target, an implicit target must be assumed. Longterm market expectations for the inflation rate appear to be a very good approximation of what an annual inflation rate targeted by Fed leaders could be. For many years now, the projected average over 10 years for the total annual inflation rate has been about 2.5%.

The Taylor Rule

The connection between key rates and economic potential is also at the heart of the celebrated Taylor rule. John B. Taylor, a professor at Stanford University in California and, until very recently, the U.S. Treasury’s Under Secretary for International Affairs, stated a formula. In nominal terms, the formula states that the federal fund rate must be equal to a real equilibrium rate (the equivalent of our neutral rate), to which are added the projected annual inflation rate and the relative differences between, on one hand, forecast inflation and the inflation targeted by the central bank and, on the other hand, the economy’s potential and actual levels. To simplify the use of the relations he puts forward, Taylor uses set parameters to connect all these variables. This lack of flexibility often leads to a major discrepancy between the rate the Fed applies in conducting monetary policy, and the measure estimated using the Taylor rule. However, Taylor points out that the real equilibrium interest rate that must be used is 2%. In other words, a real target rate for federal funds of 2% would be compatible with stable inflation and an economy developing at potential. Using the Taylor rule, this is what we consider the neutral rate.

**A neutral rate is a natural rate**

A neutral interest rate is also sometimes called the “natural rate”. This is an indirect reference to the natural unemployment rate. That is, a “theoretical” unemployment rate where labour market supply and demand converge at a level of employment such that only frictional unemployment remains, and the level is also compatible with stable inflation. We also refer to this natural unemployment rate as non-inflationary. The theory has it that economic activity is at its potential when unemployment is at its natural rate. Consequently, stable inflation, an economy that is sailing along at a speed compatible with optimal use of its resources, a labour market that minimizes cyclical unemployment and a neutral interest rate would all be part of a single concept to show that the economy is, in a way, at long-term equilibrium.

**Short-term equilibrium rates in the United States**

It should be said that the concepts of equilibrium are medium- and long-term concepts. Yet these equilibrium levels can change over time. For instance, the non-inflationary jobless rate for 2005 is not the same as the rate for 1975, 1985 or 1995. The same goes for the neutral interest rate and the rate at which economic potential expands. Similarly, the U.S. Federal Reserve’s implicit inflation target is not the same as it was 20 years ago. The Fed also appears to have more credibility now than in the 1980s. However, in the short term, and if the targets and methods for conducting monetary policy remain the same, we can consider both the growth of potential and the neutral interest rate as nearly constant.

**Estimating a neutral rate in the United States**

Although there seems to be broad acceptance for Taylor’s estimate of 2% as a real neutral interest rate, it would be interesting to do our own analysis. To do this, we will use a statistical analysis focused on the monetary policy since Alan Greenspan took over the helm at the Federal Reserve. Although he was appointed by Ronald Reagan in the summer of 1987, we will start our analysis in January 1988. During this period, the U.S. economy saw two small recessions (1990-1991 and 2001), and a few short periods of slowdown.

We will use the following formula; it is, in fact, Taylor’s rule in real terms:

\[
FFR = FFR^* + a (y – y^*) + \beta (P – P^*) + \epsilon
\]

where

- \(FFR\) = Target observed for federal funds in real terms,
- \(FFR^*\) = Real neutral rate for federal funds,
- \(Y\) = Real GDP observed,
- \(Y^*\) = Potential real GDP,
- \(P\) = Inflation rate observed,
- \(P^*\) = Target inflation rate and
- \(\epsilon\) = Statistical error.

To find the neutral rate, we must be able to isolate it in the equation. In other words, we must find the interest rate where GDP is at potential (\(Y = Y^*\)) and inflation is on target (\(P = P^*\)).

Since both real GDP and inflation are obviously known, what we must then do is find the historic values for potential GDP (\(Y^*\)) and targeted inflation (\(P^*\)).
Measurements of potential GDP:

There are several ways to estimate the economy’s potential. The first is based on a very simple assumption: in the long run, the economy operates at its potential. This type of estimation thus simply seeks to calculate a long-term trend for the real GDP figures submitted by the Bureau of Economic Analysis each quarter. Since a simple average seems a little too static, statistical filters (HodrickPrescott or Kalman) are often used.

There are other ways to estimate the economy’s potential. They rely on more complex models that are based on the long-term interrelationships between various productive functions in the economy (population growth, growth in multifactor productivity, etc.). The Congressional Budget Office (CBO) uses this type of model. This non-partisan Congressional body creates the budget and economic outlooks used during debates in the House of Representatives and the Senate. The estimate of the U.S. economy’s potential, calculated by the CBO twice a year, is widely used, and its method is well documented. We will therefore use the CBO’s figures as the estimate for potential American GDP.

Target inflation:

As we stated earlier, the Fed, unlike the Bank of Canada, has no explicit target for the inflation rate. However, as the Federal Reserve is fairly transparent in establishing its monetary policy and frequently refers to economic agents’ longterm inflation expectations, we will use a measure of these as an estimate of target inflation. Twice a year, the Philadelphia Federal Reserve performs a survey of inflation projections for the next 10 years. We will thus use this data as an estimate of target inflation.

Results of the estimate:

The result of a regression performed using Taylor’s model is, in real terms, slightly higher than our initial expectations, that is, an estimated neutral level for real federal funds of 2.4%. With expected inflation of 2.5%, it appears that the neutral rate for federal funds would currently be about 4.9%.
As we mentioned, the neutral rate is a long-term measurement that balances inflation and economic growth. Yet, in the short term, prices and activity fluctuate outside these analytical yardsticks. The results of our equation are, for each quarter of the period used, therefore also equal to a type of short-term equilibrium level. This short-term equilibrium rate thus allows us to see whether the rate established by the Fed is too high or too low, given current conditions.

In this way, we can see that the Fed was right to bring the rate on federal funds down to 1% in 2003, just as it had to raise rates to 6.50% in 2000, under the prevailing circumstances.

Note that the statistics used to calculate the neutral level, such as growth potential and inflation expectations, are sometimes imprecise. The model used to calculate the estimate parameters has, since 1988, only explained 79% of the fluctuations in the federal funds target. The Fed can and must respond to all kinds of events, signs and factors that our analysis does not necessarily consider, such as the current abrupt surge in house prices in the United States. In fact, rather than maintaining a dogmatic approach, in which it would always have to stay close to a “theoretical” neutral level for federal funds, the U.S. Federal Reserve appears to favour a risk management approach, in which it always tries to maintain some upward as well as downward leeway. Since there are still a number of risks on the medium-term economic horizon (prolonged rise in energy costs, dependency on imports, anemic core inflation caused by international competition, and current credit-based growth), we can conclude that the shortterm equilibrium rate and rates seen on the money market could still stay below the long-term neutral rate (estimated at 4.9%) for some time.

To maintain this manoeuvring room, Greenspan also avoids formal discussion of what a neutral rate would be for the Federal Reserve, which would box him in somewhat. Testifying before Congress’ Joint Economic Committee recently, in response to a question from a Senator, he in fact indicated that it is very difficult to know where a neutral rate for monetary policy is, and, in any event, that we will probably only know it when monetary policy gets there.

“...very difficult to know where that so-called neutral rate is, but we probably will know it when we are there...”

Alan Greenspan
June 9, 2005

In the next few sections, we will analyze the American bond market, and then its repercussions for Canada’s interest rate curve.
American bond rates

We now have a yardstick that allows us to locate key rates in relation to a longer term equilibrium and to the level dictated by current conditions. But what about longer-term interest rates? Are there "normal" rates for the bond market? And if so, how close are we to them?

Historically speaking, current bond rates are fairly low. Since 1800, the nominal interest rate on federal 10-year bonds in the United States has been 4.93% (4.77% since 1900) compared to the current level of about 4.20%. Nonetheless, the current weakness is not extraordinary. However, the period after the Civil War, and the decades before and after the Great Depression and Second World War saw interest rates that were even lower than those currently seen in the United States, though apparently for very different reasons.

Therefore, to understand the evolution of bond rates, we must try to understand what, besides inflation, could have triggered such variations in bond rates.

Bond rates in real terms

To be able to analyze the evolution of bond rates, we first need to know what the contribution of inflation expectations has been to rate movements. We must therefore separate the inflation effect from real rates themselves:

\[ B = BR + P^* \]

where

- \( B \) = Interest rate seen on the bond market,
- \( BR \) = Bond market’s real rate and
- \( P^* \) = Expected long-term inflation rate

Some theories argue that real rates are constant, and that inflation expectations alone cause variation in nominal bond rates. Yet, since long-term inflation expectations have changed very little in several years, it is hard to associate the current weakness of bond interest rates with much lower expected inflation. We must therefore conclude that the decline in bond rates seen in the last year is due to a decrease in real rates. The question then is: what explains the fluctuation in rates on the bond market, in real terms?

Change factors for the real rate on bonds

A priori, we believe that three factors usually have a major impact on the evolution of real rates. These are the evolution of key rates, economic growth, and the American government’s need for financing. Thus:

\[ BR = C + \beta_1(FFR) + \beta_2(\Delta Y) + \beta_3(DEF) + \epsilon \]

where

- \( BR \) = Rates on federal securities with a term of ten years in real terms,
- \( C \) = Constant,
- \( FFR \) = Rate on federal funds in real terms,
- \( \Delta Y \) = Annual variation in real GDP,
- \( DEF \) = U.S. federal deficit as a % of GDP and
- \( \epsilon \) = Statistical error.

The results of the regression are quite meaningful, allowing us to explain a little more than 70% of the evolution in real rates over a 50-year horizon (since 1955).
The graph below shows the evolution in 10-year rates in real terms throughout the period studied, along with the results estimated. Of course, it is clear that a number of the surprises or shocks that have hit the American economy and financial markets in half a century create major discrepancies between the model and fact. It is hard, for example, for our estimate to take into account the two oil shocks of the 1970s. The aftermath of September 11, 2001 also introduces a substantial gap between the estimate and the rates seen on the bond market. It should also be noted that our calculation of real rates (bond rates and federal funds) in the last equation is deflated based on the actual yearly inflation rate, not on inflation expectations. This difference can also explain some of the statistical discrepancies noted.

Fortunately, these variances are not too large, and they always clear up fairly quickly. Also, each of the variables used is statistically significant and, by implication, provides relevant information on the evolution of 10-year bond rates in the United States, in spite of the simplicity of the model and method of analysis.

A neutral bond rate?

Interestingly, if we combine the model used to estimate the equilibrium level for federal funds with the model that gives us the impact of the key factors on the evolution of bond rates in the United States, we can obtain a “normal” value for the latter. Thus, based on the same assumptions as used for the neutral level for key rates (an economy operating at potential and expanding at the same rate; perfectly targeted inflation; federal funds at neutral, and a deficit that is a stable percentage of GDP), the rate for 10-year bonds should be about 3.5% in real terms. If we add expected long-term inflation, the nominal “normal” 10-year rate would therefore be 6%. With an absorbed deficit, these results would be 2.5% and 5% respectively.

The Greenspan conundrum

To understand the recent variation in interest rates, let us look at how each of the variables chosen has behaved within the estimate. Since 2003, it can be seen that, in real terms, our estimate of bond rates (see the graph below) is usually below the rates observed. It also appears that factors other than those used have been adverse for the American bond market. The trends of both curves are still quite similar in 2003. An increase in rates seems to be caused by the resurgence in the public deficit and economic growth rebounding following the war in Iraq. Since the start of 2004, we see a decline in the rates observed and estimated. The deficit’s smaller size in relation to GDP and a slight deceleration in economic growth are counterbalancing the less and less negative impact of key rates.

It therefore seems that the conundrum mentioned by Greenspan in his speech to Congress in February 2005 will finally be explained. Last February, the Chairman of the Federal Reserve seemed perplexed faced with a
bond market that continued to appreciate (rate decrease) in spite of higher key rates (increase of 150 points at that time). True, the relationship between the increases in federal fund rates and bond rates is, in our view, positive for the whole of the 1955–2005 period, that is, bond rates rise when the Federal Reserve raises its key interest rates. However, the other components of our model can invert the monetary policy contribution. Instinctively, markets thus do not only consider the evolution of key rates; they also look at the size of the public deficit and the strength or weakness of economic growth.

In this case, if we use these other elements, the interest rate expectation theory does not always work. It is under this theory that Greenspan maintains there is a conundrum, and it is this theory\(^\text{13}\) that shows that long-term rates are simply a geometric average of expectations for short-term rates over the same horizon plus a risk premium. However, while investors are still anticipating increases in short-term rates for the coming months and quarters, more stable expectations with respect to new Federal fund hikes over a longer horizon, combined with a marked decline in the risk premium associated with holding long-term bonds and increased demand for long-term rates for reasons that are less cyclical, could explain the divergence between these two visions of bond rate fluctuation.

**Where are American bond rates heading?**

Let us look at recent changes and what we can expect in the short term for each of these factors so as to gain an idea of the overall trend for the American bond market for the quarters to come.

Firstly, the Fed should, as we suggested in our discussion of key rates, continue to close in on a neutral monetary policy rate, which we estimate is between 4% and 5.5%. Two to four further increases are likely in the months to come, with the rates on federal funds nearing 4% to 4.5%. This increase will help raise the 10-year rate by approximately 50 basis points in the coming quarters. As the Fed brings its key interest rates closer to neutral, it will reassure the markets about the behaviour of inflation in the quarters to come. Therefore, during the deflationary period that has now lasted for two decades in the United States, it would not be out of the question for the Fed’s monetary policy credibility to cause increases in key rates to have less upward impact on long-term rates than previously. The Fed’s credibility reassures and even comforts investors about their own medium- and long-term inflation projections.

Secondly, economic growth should once again show some deceleration in the second quarter of 2005. In terms of annual variation, real GDP progression was 5.0% at the start of 2004, and dropped to 3.7% at the start of this year. This variation could decrease to 3.5% during the summer and fall. We should then see a slight acceleration in the pace of annual growth. Therefore, by the end of 2005, the slight slowdown could cause American bond rates to decrease by just over 10 points, in our estimates.

Thirdly, after years of deterioration, the federal government’s deficit appears to be turning around somewhat. Whereas the 12-month fiscal deficit totalled over US$450B a year ago, April’s figures show a surprising shortfall of “only” US$366B. The improvement can also be seen in the federal budget balance figures for the national accounts (the measurement used in the model). In the short term, the deficit should remain fairly stable. But the Congressional Budget Office believes that the deficit as a percentage of GDP could close in on 2% of GDP, which would make a negative contribution of just under 50 basis points to bond rates.
If these three hypotheses come true, ruling out any of the surprises that could arise, then bond rates should in real terms stay very close to current levels during the year. In fact, if we use the difference between the bond rates seen and those obtained according to the evolution of federal funds, economic growth and budget deficit, we can see that current rates are not substantially underestimated in relation to the “normal” level. Frequently, it is possible to see a much greater difference and much larger degrees of under- or overvaluation than those we are seeing now. Since the standard deviation is quite large in relation to a fair market assessment, the implication is therefore that many other factors have a substantial impact on the bond market’s evolution.

Elements supporting lower bond rates in the United States

- **American securities as a safe haven**

  In spite of the imbalances and uncertainties specific to the U.S. economy, the U.S. dollar remains the main safe haven for international financial markets. As the safest securities denominated in American dollars are still federal government securities, the American bond market is benefiting from vagaries that could disrupt the international economy and markets.

- **International savings surplus**

  While the size of the budget deficit and very low rates of savings by American households are triggering a shortfall in the United States, a savings surplus overseas, particularly in Asia, is compensating for this phenomenon. Outside of the United States, all the major economic zones have a positive balance of payment current account, and this surplus is currently being channelled toward the American economy. As long as there is a savings surplus outside the United States, it should be fairly easy for Americans to finance their own deficit and thus keep domestic interest rates fairly low.
Foreign purchases, particularly by Asian central banks

In recent years, investors and foreigners have been major net purchasers of American federal bonds. According to the Federal Reserve’s statistics, in fact, in 2004, foreigners bought over US$357B in federal government securities, whereas it issued US$361.9B on the primary market. From this perspective, it is hard to believe that foreign purchases had no impact on the evolution of the prices and rates seen on the American bond market. In fact, we might think that foreign enthusiasm offset a large part of the impact that the deterioration in public finances could have had on interest rates. At the centre of foreign buyers are the central banks of Asia, which are trying to contain the rise of their currencies against the American dollar. This is certainly the case with the Bank of Japan, which purchased almost US$170B in federal government bonds in 2004. Note, however—we will come back to this later—that Asia’s central banks are now more discreet, and appear to be buying fewer American federal government bonds.

Decrease in long-term issues

As the United States began to post budget surpluses at the end of the 90s, the U.S. Treasury substantially reduced issues of some securities. Among them, 10 year bonds have been offered to a much lesser degree, and 30-year securities have not been issued since 2001, in spite of the renewed public deficit in the United States. The decision to eliminate new issues of 30-year bonds was highly unpopular among a number of categories of investor. Since these securities are now rarer, the strength of demand and limited supply mean that the price of these bonds remains high and, as a result, the yield rate remains low.

The speculative role of the Hedge Funds

Hedge funds are winning an increasingly important place on the international financial chessboard, becoming very important players that could have an influence on fluctuations in the prices of the financial assets traded around the world on a daily basis. However, it appears they have bought federal bonds widely in recent months, from the perspective that the global and American economies were entering a slowdown period. The hedge funds’ movement of funds between the various asset categories thus exacerbated fluctuations on the financial markets, and the bond markets in particular. In recent months, the net result of these fluctuations was in favour of a decrease in long-term interest rates. We can see the enthusiasm for American bond assets by glancing at foreign purchases of securities that stem from the Caribbean. They went from US$23B for 2004 as a whole to US$60B for the five first months of 2005 alone.

The Federal Reserve’s heightened credibility

As we stated earlier, the Federal Reserve’s credibility may be an important factor in the effect key rates have on rates for longer-term securities. Greenspan’s years of service and the results achieved by the Federal Reserve under Greenspan’s leadership have firmly established this credibility for the financial markets. Investors therefore have a great deal of confidence in the Federal Reserve’s policy on controlling inflation. Investors know the Fed will not tolerate any unhealthy inflationary pressures that could emerge. The Fed’s credibility allows financial market players to bank on stable inflation, requiring a smaller risk premium for inflation expectations. Since key rates began to rise in June of 2004, the implicit and effective volatility in fixed-rate contracts, already very low, continued to diminish, which may be a sign of investor confidence in the Fed’s current policy. Key rate hikes, as long as they are moderate so as to limit the risk of surprises, could thus lead to lower rates for longer maturities.
Moderating trend for inflation expectations

Although it seems that long-term inflation expectations have been fairly stable for many years, it would not be out of the question for the international economic environment to drive investors to eventually reduce these expectations. Competition from countries such as China, India, Mexico and the countries in Eastern Europe has led to a downward trend for the prices of many goods used by American households and businesses. As trade with these countries does not seem to be slowing down, and a real exchange rate realignment has not yet occurred, it appears that the deflationary trend that has lasted since the start of the 80s will continue in the medium term. New inventory management methods, the growing influence of superstores, the frantic drive for productivity gains and heightened efficiency in corporate operations, and deregulation policies are also major deflationary factors. If there is a real decrease in inflation expectations, downward pressures on bond interest rates, expressed in nominal terms, will continue to be felt.

Demographic change and the reallocation of portfolios to fixed income securities

Because of the risks associated with the stock market, many American and foreign investors are losing interest in it. The greater aversion to risk, palpable since the stock market fiasco in 2000, is helping the fixed income securities market and, consequently, the U.S. market. In addition, the aging of the population, with the baby boomers getting closer and closer to retirement (they want to protect capital, and there is an imperative need for income), and pension fund and insurance company enthusiasm for fixed income securities, particularly long-term fixed-income securities (so as to match assets with long-term liabilities), are helping the American bond market keep medium- and long-term interest rates fairly low.

Promised reforms to pension funds and accounting principles

According to stakeholders (quoted by the Bank for International Settlements (BIS)), planned reforms to pension funds and accounting principles would support demand for long-term securities. These reforms would trigger an increase in volatility in the duration of pension fund portfolios and an increase in the risk premiums associated with the public pension fund guarantee program. Also according to the BIS, the net impact of these measures will heighten demand for long-term assets from U.S. pension funds. Heightened demand will doubtless have a downward impact on interest rates.

Change in the inflation expectations associated with energy costs

Although the long-term inflationary tendency is clearly for moderation of the growth of price indexes for the last 25 years, there are still risks associated with a resurgence of total inflation. These risks are, of course, associated with energy, particularly oil. The price of oil per barrel went up 17% in 2003 and 33% in 2004, and has risen 29% to date in 2005. These consecutive increases naturally had an upward impact on consumer prices but, fortunately, low core inflation and the latter’s relative resistance to pressure from energy costs are keeping inflation under control. However, if oil prices continue to rise, and the price of crude closes in on US$75/barrel, it would not be out of the question for another inflationary push to emerge south of the border. The adjustment of expectations and premiums associated with the increase in prices could make the bond market less attractive, and consequently bring interest rates up.

Diversifying currency reserves

We have considered foreign enthusiasm for U.S. assets and the channelling of international savings towards them as factors supporting a decrease in rates. There is, however, a flip side to this coin. If foreigners, in particular the central banks that have supported the greenback to counter pressure on their own currencies, seek to diversify their reserves, interest rates could rise quickly as soon as demand for American assets drops. We are already seeing central banks buy many fewer U.S. federal government securities compared to the start of last year. For the five first months of 2004, net purchases were US$109B. In 2005, net purchases are only at US$25B. To date, these official purchases have been counterbalanced.
by a substantial increase in purchases by the private sector. However, if they are concerned by economic conditions in the United States and persisting trade imbalances, foreigners could want to decrease the weight of U.S. assets in their portfolios. Upward pressure would then doubtless be felt on interest rates on American bonds, as well as on the U.S. dollar, in the opposite direction, however.

It should also be noted that, while not wanting to get out of the United States as an investment location, foreign investors could still want to get out of the bond market. By doing that, they would be trying to diversify their portfolio with other types of financial assets or with more tangible investments, such as direct investment in business acquisitions. We are seeing it now with the Chinese interest in an American company operating in the oil sector.

**Possible re-issue of very long-term bonds**

Unlike the rate decrease factor, in which we were emphasizing the effect of the limited issues of securities with terms of 10 or more years, and the end to issues of 30-year securities in 2001, the possibility of reissuing the latter could lead to a rate increase. The U.S. Treasury is currently considering putting these securities on the market starting in early 2006. If 30-year bonds are brought back, an increase in the securities supply, with the same level of demand, would bring on a decrease in prices and thus a rate increase. Note, however, that the presumed rate increase could be quite small, since demand for this type of investment is so strong. For example, some European countries recently launched successful issues of bonds with terms of 50 years: France and the United Kingdom have done so already, and Germany could soon follow suit.

**Medium- and long-term deterioration in the budget deficit, and investor myopia**

While the budget situation seems to be improving quite quickly in the United States, Americans could be grappling with deficits for quite a long time, in spite of everything. The current good news should not be used to obscure the challenges the federal government will have to deal with in the decades to come. In the short term, there are, of course, the costs of the war in Iraq and homeland security. But there is also the White House’s desire to extend the tax cuts granted in 2001 even beyond their 2011 expiry date. As well, the costs associated with social programs (Medicare, Medicaid and Social Security) are going to grow substantially as the population ages. The budget situation could thus deteriorate again in the medium term, creating a larger and larger need for funds on the part of the American government. An oversupply of bonds could trigger an increase in the interest rates on these securities.

**Uncertainty about Alan Greenspan’s successor**

To a great extent, the Federal Reserve’s credibility on American monetary policy and its positive influence on the bond market’s evolution rest on Alan Greenspan’s shoulders. Over his 18 years in office, Greenspan has consistently focused on fighting both inflationary pressure and recessions. Price pressures have been low and well-controlled during his reign, and the two recessions (1990-1991 and 2001) were short-term and small in historical terms. He has also had a very substantial influence on public policy in the United States, particularly in terms of achieving surpluses during the Clinton era. His mandate will soon be ending, however, and George W. Bush and his advisors are probably already thinking about potential successors. Yet we could wonder whether another Fed leader will have Greenspan’s positive influence on the markets. The main candidates seem to be Martin Feldstein, a professor at Harvard and a close advisor to Bush during his first election campaign; Ben Bernanke, a former Fed Governor and now Chairman of the Council of Economic Advisors (CEA) under the Bush administration; Robert Glenn Hubbard, who was also Chairman of the CEA during George W. Bush’s first mandate and is now at Columbia University; and finally John B. Taylor, former U.S. Treasury Under Secretary for International Affairs and Stanford professor. Whether the next Chair is one of these men, or someone else, Greenspan’s return to private life could concern some investors and have some upward influence on rates until the next Chair really proves himself and wins the confidence of the markets.
Implications for Canada’s yield curve

The U.S. Federal Reserve’s desire to bring American short-term interest rates back toward a level seen as more neutral over the next few months and the determinants affecting bond rates in the United States have many implications for short-, medium- and long-term Canadian interest rates.

Firstly, like the Fed, the Bank of Canada will want to make its monetary policy less accommodative by the end of 2006. The economic recovery in the United States, following the war in Iraq in April 2003, makes it less necessary to maintain such expansionist monetary policies in North America in the medium term. In the months to come, the Bank of Canada will thus also have to proceed to raising the cost of credit. In Canada, nonetheless, interest rate increases will be very gradual and should not go beyond the current increase in the United States. Estimates show that, historically, Canada’s neutral rate is close to 5%, that is, a real short-term interest rate of 3% plus an inflation premium of 2%. This estimate also matches the more “theoretical” neutral rate made up of growth in the Canadian economy’s output potential and in the Bank of Canada’s target inflation rate, 3% and 2% respectively. For the United States, as mentioned earlier, we should expect a neutral rate just slightly lower than Canada’s due to the larger size of the financial markets and, in turn, because short-term American securities are more liquid and traded in high volumes on the world market. All in all, the Bank of Canada should gradually increase its key interest rates, bringing them to about 4% by the end of next year or the start of 2007. This projection considers a Canadian dollar that is, on average, evolving at close to US$0.8250. If the loonie were to appreciate too quickly and sharply, this would, of course, limit the Bank of Canada’s monetary tightening. In fact, the Canadian dollar’s strength and its moderating impacts on Canadian economic growth and inflationary pressure, via a drop in import prices, could slow down these new key rate increases.

Secondly, the new determinants that will limit increases in medium- and long-term interest rates in the United States will once again put the brakes on major increases in Canadian bond rates, particularly since a number of the factors in the weakness of American bond rates are already present here in Canada. Just think of the aging of the population and the search for long-term yield in fixed-income securities, the effects of price competition by superstores, or the impacts of corporate restructuring so as to get costs as low as possible.

Thirdly, three major macroeconomic variables will help Canadian long-term interest rates perform well compared to their American equivalents, thus allowing Canadian bond rates to remain close to but below American rates. The first variable is the inflation rate. The Bank of Canada will stay focused on its 2% mean inflation target over the next few years. In the United States, the Fed seems more inclined to strive for a total inflation rate that is closer to 2.5%. This spread will continue to have a more favourable impact on expected inflation rates in the medium and long term here compared to south of the border. The second variable favouring Canadian fixed-income securities is the difference between the federal government’s budget surplus and the deficit of its American counterpart. This difference in Canada’s favour should persist for the years to come, though we will probably see it shrink slightly. Lastly, the final variable that will once again have a positive impact on Canada’s bond rates is the sizeable difference between the Canadian balance of payment current account surplus and that in the United States. This difference will continue, and should help bond interest rates increase less when, if applicable, upward pressure on rates emerges in the United States.
Lastly, the final implication involves the yield curve itself. The rise in short-term rates, which, to all appearances, should be faster than the rise in long-term rates, will favour a flattening of the yield curve. Canada's yield curve could be still flatter in coming quarters if the Bank of Canada were to in fact decide to bring up its key interest rates. Key rates could also go up less than expected if the inflation rate were to remain low and under control. In this scenario, the yield curve slope would stay close to where it is now. In conclusion, it is hard to picture the yield curve slope becoming very steep again and even staying close to its historic average over the next few years, as was the case when the Canadian and American economies were, in the past, expanding.
Conclusion

A number of new, primarily structural determinants have brought all interest rates to historically low levels in recent years. While we will know more about how long the phenomenon will last in time, it looks like it will still be present for a while.

For short-term rates, central banks are not fully convinced about the value of calculating a neutral rate in conducting their monetary policy. It also remains difficult to estimate it precisely. In fact, estimates of a so-called neutral rate are based on historical real-rate averages when there is no reason to believe that these historic averages will continue, particularly in a context in which new forces can have an influence, as is the case now. Many even believe this rate will not be stationary over time. In any case, it is an estimate with a fairly large estimation range, thus enabling an assessment of whether a monetary policy is in fact nearing or moving away from this neutral level.

The monetary policy’s short-term equilibrium rate should vary based on the evolution of savings and investment, at a global rather than national level. When observers speak of short-term interest rates returning to more “normal” levels, or levels closer to historic averages, they mean that the historically low level of current rates is a reflection of a cyclical or temporary weakness in investment spending worldwide. The return of interest rates to more “normal” levels thus presupposes a recovery in capital spending, as has been the case in the United States and Canada in the last few quarters. This is why the U.S. Federal Reserve has increased its key rates by 225 basis points since June 2004, and the Bank of Canada recently announced it intended to begin a new phase of monetary tightening soon.

In both the United States and Canada, a neutral rate for the monetary policy would be in the neighbourhood of 5%. It would therefore be almost identical for the two countries. A wise estimation range for the United States and Canada would involve establishing that the neutral rate could vary between 4% and 5.5%. These central banks would thus seek to close in on this level in the months to come. However, the way it is constituted appears to be different. For the United States, it is made up of a real rate of around 2.5%, compared to 3% for Canada, and an implicit inflation target of 2.5%, compared to an explicit target of 2% for Canada.

For the bond market, the new structural forces will limit substantial increases in rates in this market for the next few years. These new determinants, which influence interest rates on the bond market, particularly in the United States, will give the Canadian and American yield curves a much “flatter” shape in the next few years than has been the case, on average, in previous economic cycles, and particularly in economic expansion phases. Moreover, as the Fed’s Chairman recently pointed out, a very flat yield curve is no longer synonymous with a sharp economic slowdown, just like an inverted curve no longer necessarily means there is a recession. We will have to get used to it.

The “theoretical” 10-year rates on the American and Canadian bond markets are estimated at between 5.5% and 6.0%. For example, at this point in the United States, we can say that the real long-term rate is 2.5% with expected long-term inflation of 2.5%, and a 1.0% premium for the American government’s budget situation, for a grand total of 6.0%. In Canada, performing this calculation yields 5.5% (3% for real rates, 2% for long-term inflation and 0.5% as the premium for the Canadian federal government’s budget situation, due to our excellent performance there). In all, there is a 0.5% difference to Canada’s advantage. We are also seeing that interest rates on Canadian bonds are trading at below their American equivalents.

There is no doubt that new determinants have pushed the equilibrium rates for bonds downward. However, it also appears that cyclical forces have brought rates below their new short-term equilibrium levels (estimated at approximately 4.35% for 10-year bonds). This phenomenon has probably made the yield curve overly flat in recent weeks. The economic recovery and other factors should bring these medium- and long-term rates back up, although our most likely scenario does not have them rising abruptly, since there are more positive forces in favour of bond rates. The range forecasts for American and Canadian rates for bonds with maturities of 10 years are, in the short-term, 3.75% to 4.75% respectively and, in the medium term, from 3.25% to 5.25%. However, our economic forecasts, using the scenario that is considered the most likely, are banking on rates that could mainly stay within the upper part of these ranges. All in all, we believe bond rates will continue to stay below their “theoretical” values in the years to come.
Notes


2 This situation could change in the post-Greenspan era. His mandate will be concluding at the end of this year, and an increasing number of voices within the Federal Reserve and on the FOMC appear to be in favour of an eventual adoption of a precise, public inflation target.


4 Page 10 of our Quarterly Financial Forecasts presents the calculation of Taylor’s rule for several economies on a standardized basis.

5 Non-inflationary unemployment rate: NAIRU - Non Accelerating Inflation Rate of Unemployment.


7 Results of the regression: Estimated FFR = 2.37 + 0.940858 x (Y-Y*) + 0.527 x (P-P*)
   1988-2005 period Typical respective spreads: 0.109 0.061 0.190
   R²: 0.787

8 Questions and answers from Alan Greenspan’s testimony before Congress’ Joint Economic Committee. Transcription by Bloomberg, June 9, 2005.

9 This is called the Fisher equation, after the neoclassical economist Irving Fisher (1867-1947).

10 Results of the regression: Estimated BR = 0.762 x FFR + 0.206 x ΔY - 0.459 x DEF
   1955-2005 period Typical respective spreads: 0.041 0.027 0.039
   R²: 0.725

11 The negative contribution by key rates is due to the fact that, in real terms, they were still below zero until very recently.

12 For the moment, the broadly unanticipated behavior of world bond markets remains a conundrum,” Alan Greenspan in his statement for the Federal Reserve Board’s semi-annual Monetary Policy Report to the Congress Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, February 16, 2005.

13 Also maintained by Irving Fisher.


16 These factors could, however, eventually be offset by a prolonged decrease by the American dollar and its upward impact on price indexes.


18 This scenario of course depends on the basic assumptions presented in our Quarterly Financial Forecasts. Our alternate scenarios, which are more uncertain, could occur if the risks inherent in our basic scenario arise.

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