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## Real Return Bonds

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Income-oriented investors are attracted to the high quality and liquidity offered by Government of Canada bonds. However, these conventional debt securities do not protect investors against rising inflation. As investors are well aware, inflation has the effect of eroding the purchasing power of their capital. In fact, there were periods in the 1970s and early 1980s when inflation was so rampant that bond investments produced a negative return after inflation was taken into account.

One of the biggest concerns facing investors as they plan for the future is the effect of inflation on the purchasing power of money. Recognizing these concerns, the Government of Canada began issuing **Real Return** bonds in 1991. Real Return bonds are specifically designed to preserve the purchasing power of invested capital and interest payments through to maturity. Today there are three Real Return bonds to choose from: Government of Canada 4.25% due December 1, 2021; Government of Canada 4.25% due December 1, 2026; and Government of Canada 4.00% due December 1, 2031.

### Real Returns

A real return is the total return earned on an investment after the impact of inflation has been taken into account, or:  $\text{Real Return} = \text{Nominal Return} - \text{Inflation Rate}$

A nominal return is the yield to maturity that is quoted on conventional investments. The inflation rate is measured by the Consumer Price Index (CPI). A simple way of approximating the real return on a bond is to subtract the average annual inflation rate from the bond's nominal yield. For example, a bond with a 5% yield, held during a period when inflation averaged 3%, would generate a real return of 2% (5-3%). Practically speaking, a bond's real return can only be determined upon maturity, as changes in the rate of inflation prior to maturity are not known.

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## Real Return Bonds

Real Return Bonds (RRBs) are Government of Canada bonds that have been specifically designed to offset the impact of rising inflation. This is achieved by applying **Inflation Compensation** to the principal amount of the bond. Inflation Compensation ensures that the principal amount of the bond is adjusted for changes in the level of inflation through to maturity. As semi-annual coupon payments are applied to the ***inflation-adjusted principal amount***, they too keep pace with changes in inflation. The net result is that the purchasing power of the investment is preserved.

## How RRBs Differ From Conventional Bonds

With a conventional bond the nominal dollar value of the cash flows (i.e., semi-annual coupon payments and principal repayment) are known at the time of purchase. The future purchasing power of these cash flows, however, will depend on the level of inflation through to maturity. With an RRB, the nominal dollar value of the cash flows is not known in advance, but the return adjusted for inflation and, hence, the bond's purchasing power are known at the time of purchase. In the example below, a 4% real return is locked in at the time of purchase.

It is important to note that during a sustained period of declines in prices (i.e., deflation), the inflation-adjusted principal amount could fall below the original principal amount and semi-annual coupon payments could decline from period to period. Furthermore, Real Return bonds tend to be less liquid than conventional Government of Canada bonds.

## Inflation Compensation

Inflation Compensation is based on cumulative changes in the CPI since the issue date of the specific bond.

To illustrate we use a \$10,000 Canada 4.00% Real Return bond due December 1, 2031. In this example, we assume that the bond was issued on December 1, 1998 at \$10,000 to provide a real yield to maturity of 4%. Assume also that the CPI was 108.75 on issue date (1986 = 100). Interest is payable on June 1 and December 1 of each year.

If, on the first coupon date (June 1, 1999), there had been no change to the level of the CPI since December 1, 1998 the interest payment would have been \$200 ( $\$10,000 \times 0.04 / 02$ ). However, by June 1, 1999 the CPI had increased by 0.69% (i.e., from 108.75 to 109.50). In order to preserve the purchasing power of the first coupon payment, the principal amount of the bond was adjusted upwards by 0.69%. The interest payment was calculated as follows:

$$\mathbf{\$10,000 \times 1.0069 \times .04 / 2 = \$201.38.}$$

The next coupon payment date will be December 1, 1999. For illustration purposes, if the CPI has increased by a further .59% to 110.15, the interest payment will be:

$$\mathbf{\$10,000 \times 1.01284^* \times .04 / 2 = \$202.56.}$$

$$* (1.0069 \times 1.0059)$$

Similar adjustments are made for each semi-annual coupon payment as well as the bond's principal amount at maturity.

### Tax Considerations

For tax purposes, coupon payments and any increase in Inflation Compensation must be included annually as income, notwithstanding that Inflation Compensation will not be paid until maturity. During periods of very high inflation, there is a possibility that tax owing in a given year may be greater than the coupon interest received.

***For further information about Real Return bonds and Real Return strip bonds, please contact your BMO Nesbitt Burns Investment Advisor.***

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