Wealth Management
Dominion Securities

Real return bonds primer

The basics

The inflation debate

There is a significant debate amongst economists, central bankers, and market participants surrounding the outlook for inflation. The question is, will the significant monetary and fiscal policy support lead to higher nominal growth and inflation, or are we set for a prolonged period of muted growth and low inflation? A resurgence of inflation could have significant implications for investment returns, particularly conventional bonds, leaving investors to naturally assess all options on the table.

While conventional bonds provide a certain nominal return but an unknown real return, the opposite holds for inflation-linked bonds, which provide a certain real return and an uncertain nominal return. This article lays out the foundation for understanding nominal versus real returns, what Canadian real return bonds (RRBs) are, and the role they can play in portfolios.

Setting the scene with real returns

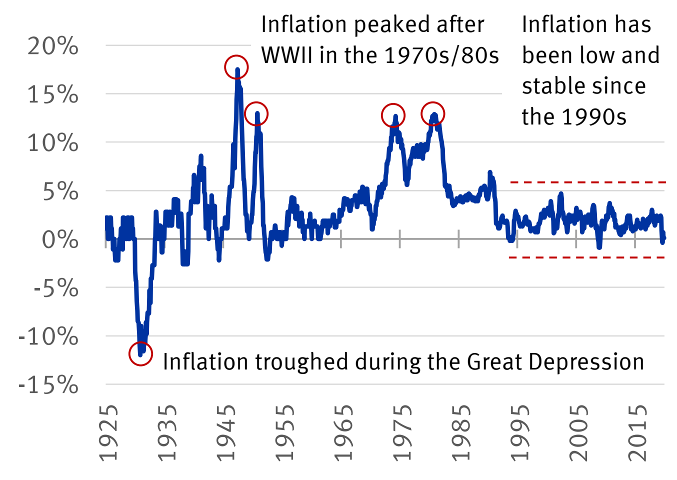
An investment return is "real" if you subtract the impact of inflation over the holding period from the total return; i.e., real return = holding period total return (or nominal return) *minus* inflation. Investors do this to judge

whether they have preserved the value of capital after inflation. You can liken real returns to the same way economic output is measured in the economy, either with (nominal) or without (real) inflation included.

For income-generating assets like bonds and Guaranteed Investment Certificates (GICs), the conventional yield is a nominal metric and includes compensation for inflation. Investors buy these types of instruments with the belief that at maturity, the total return has sufficiently outpaced the rate of inflation and therefore preserved the value of capital. For example, if an investor purchases a 5-year bond with a 3% yield to maturity and inflation averages 2% over the term of the bond, the investor makes a 3% nominal return and a 1% real return.

The real return can only be calculated at the end of the holding period, when inflation is known. Conventional bonds therefore provide a known nominal return but an unknown real return. Uncertainty around inflation is why some investors choose to buy income-generating assets that account for the actual inflation rate, not an assumed rate, i.e., RRBs. These provide a known real return but an unknown nominal return, the latter dictated by realized inflation.

Canadian inflation has been low, stable since the 1990s



Source - Bloomberg

Real return bonds

RRBs are issued by the government of Canada and carry the same credit rating as any other federally issued bonds. Investors who buy and hold RRBs to

All values in Canadian dollars and priced as of Sept. 21, 2020 market close, unless otherwise noted.

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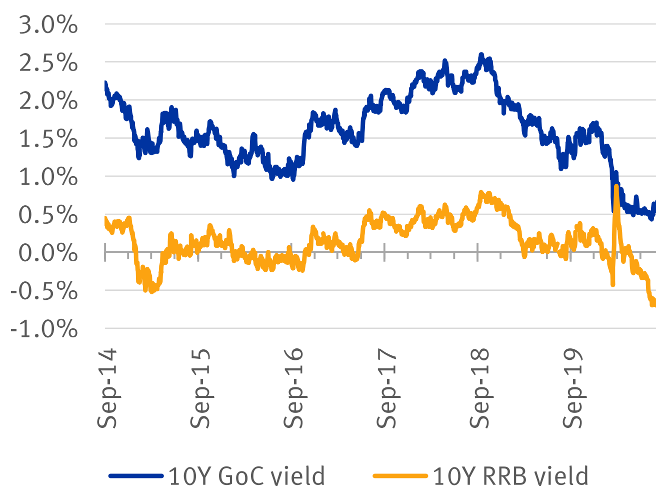
maturity are provided a real return, which is known at the point of purchase and is received regardless of the inflation environment that unfolds over the life of the bond. The purchasing power of the amount invested is preserved through an inflation adjustment to the principal amount of the bond. Persistent inflation would cause the principal amount to rise such that at maturity, the investor would receive back more than what was spent to purchase the bond. In more simple terms, the adjustment to the principal matches the level of inflation so to preserve the value of capital. The income received from an RRB is calculated from the adjusted principal amount, varying with inflation, in order to preserve the purchasing power of each coupon.

We will run through the differences between conventional bonds and RRBs in more detail below, but the most important concept to remember is that investors who buy and hold RRBs to maturity will receive a total return equal to: *The real yield* (at time of purchase) + *realized inflation* over the life of the bond.

Nominal yield on a 10-year Government of Canada bond vs. yield on a 10-year real return bond



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RRBs vs. conventional Government of Canada bonds

There are similarities between buying a conventional Government of Canada (GoC) bond and an RRB, such as having the same credit risk and buying the bonds over the counter, but there are some major differences.

All-encompassing yield versus real yield + principal adjustment (at maturity)

With a conventional bond, the bondholder lends capital to a government or company for a set period of time, receives an income stream for doing so, and receives money back at the end of the bond's term. For example, a government borrows $10,000 from the bondholder for five years and pays 3% interest each year. At the end of the 5-year period, the government pays back the $10,000 along with the final interest payment. Embedded in that 3% coupon is compensation for inflation over the life of the bond.

The difference with an RRB is that bondholders don't know how much they will receive after five years because the inflation environment is unknown. They also don't receive the full compensation for inflation until maturity, or when they sell the RRB, when the inflation is known. The government pays a lower *real* coupon each year and the principal will adjust up or down depending on inflation over the life of the bond.

Investors in RRBs are protected against higher inflation because the principal will adjust upwards in such an environment; lower inflation would result in a more modest upwards adjustment. Outright deflation would actually cause the principal value to fall. For RRBs, investors lock in the real yield they will earn over the life of the bond and the principal will adjust to ensure this occurs, regardless of the prevailing inflation environment.

Cash flow

A conventional bond has known cash flows at the time of purchase; i.e., a 3% coupon bond pays $300 of annual income if $10,000 in face value is held, but the future purchasing power of these cash flows are not known. The future purchasing power depends on the level of inflation over the life of the bond. With RRBs, the opposite is true. The future purchasing power is known upfront, but the actual cash flows are not. Inflation will dictate what these cash flow payments will be in the future.

For an RRB, the coupon will be lower than the nominal 3% because the risk of inflation is removed. Let's assume an RRB pays a 1% real coupon. If the inflation rate over a coupon period is 1.5%, the principal will be adjusted to reflect this. For example, $10,000 invested becomes $10,150. The coupon will also be adjusted by the same factor because it is calculated from the principal amount. It will increase from $100 ($10,000 x 1%) to $101.50 ($10,150 x 1%). The principal adjustment preserves the value of the 1% real coupon.

We recognize that the initial coupon payment of the RRB is much lower than the coupon payment of the conventional bond. This is because the RRB principal will adjust

higher over time with inflation, and therefore the coupon payments of the RRB will head higher over time. The more inflation that occurs, the bigger the principal adjustment and the coupon that is paid on the RRB.

Liquidity

The RRB market is smaller than the conventional GoC bond market, and experiences lower trading volume. The trading costs of RRBs are low during normal market conditions but will increase materially with financial market stress. During bouts of market volatility, where GoC bonds offer superior liquidity, one might find that the transaction costs of RRBs increase disproportionately and their yields may rise. For a buy-and-hold investor this might not pose a major headwind; however, we think investors should prudently consider this before purchasing an RRB in place of a conventional GoC bond.

Deciding between an RRB or a conventional GoC bond

The main question we are left with is, when would one prefer to purchase a conventional GoC bond or an RRB? Liquidity is one driver as noted above, but there are a few other key considerations, which we explore below.

Inflation outlook

Having an absolute view on inflation is important—i.e., if you are concerned about higher inflation then you would start to look into the characteristics of RRBs. But having a relative view of inflation is critical to deciding whether to purchase a conventional GoC bond or an RRB. Let's bring in two example bonds to illustrate:

- 5-year conventional GoC bond that yields 3%
- 5-year RRB that provides 1% real yield (+ realized inflation)

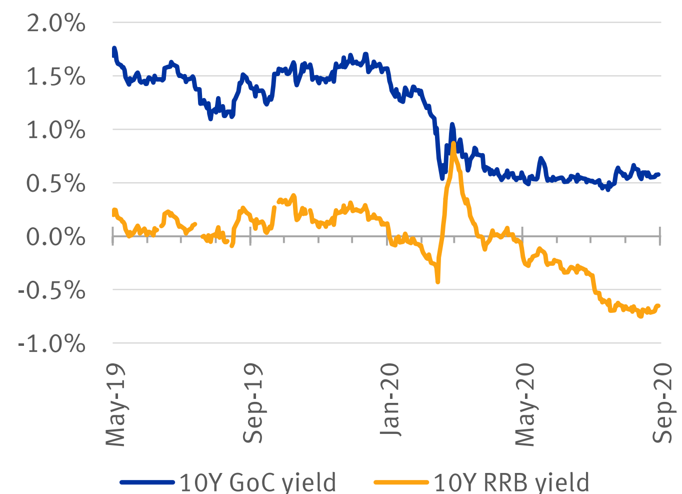
If the inflation rate averaged 2% throughout the 5-year period, investing in the conventional GoC bond and the RRB would yield the same return of 3% (before taxes) at maturity. If inflation averages more than 2% per annum, the RRB would provide higher compensation for inflation than the conventional bond, and vice versa. Therefore, a view on inflation should be considered relative to what the market is compensating an investor for.

Let's dig a little deeper. The 2% inflation rate here is known as the inflation breakeven rate. Investors can view this each day as it varies with the two bonds' changing prices, allowing a constant judgement of whether one would prefer to invest in a conventional GoC bond or an RRB. If the breakeven rate is 2% and an investor holds a view that inflation should average more than this over the life of the bond, owning the RRB would be preferable in order to be compensated for higher inflation. If an investor sees inflation as being lower than 2%, say 1% on average, one would want to lock in the 2% compensation that the conventional bond affords.

Taxes

For RRBs, coupon payments and adjustments of principal for inflation must be included annually as income, despite the fact that the full inflation compensation is not realised until the bondholder sells the RRB, or it matures. This can create a tax drag, generally making RRBs best suited for registered or non-taxable accounts, depending on an investor's individual circumstances and financial objectives.

The yield on an inflation-linked bond increases during periods of market volatility



Source - Bloomberg

Other considerations for RRBs

We know that RRBs offer a total return equal to "the real yield + realized inflation" if the bond is bought and held until maturity, but it's also true that RRBs don't always rise in value during their life. There are periods when an RRB might lose value and two main factors could cause this: (1) inflation turns negative, i.e., deflation, and (2) real yields move higher, not lower.

Inflation adjustment turns negative

The inflation adjustment is presumably positive, central banks have low but positive inflation targets after all, but sometimes an economy can experience a recession during which it is fairly common for prices to steadily decline. Negative inflation, or deflation as it is more commonly known, causes an RRB's bond principal to slowly decrease. The RRB no longer adjusts higher to protect its future purchasing power—the opposite actually happens. This adjustment will occur for as

long as the deflationary environment persists. In very rare circumstances—and those that haven't occurred in Canadian history—a long period of deflation could result in the principal adjustment heading below the initial level it started out at on day one.

Real yields move higher

If an investor purchases an RRB with a real yield of 1%, that return will be locked in for the life of the bond. Economic conditions will likely change between when the bond is purchased and when it matures, influencing the value of the 1% real return that's been locked in. For example, let's assume the real yield on a new RRB with the same maturity is 2%. The ability to now lock in a 2% real yield means that the bond with a 1% real yield is less valuable, and the value of the bond would drop to reflect the prevailing market yield. On a bond with a 10-year duration profile, this would translate to an approximate 10% drop in value. This matters less if one is set on owning the bond to maturity, but it does impact the price value that is shown on a statement.

A useful portfolio tool

Due to the price sensitivity of RRBs to changes in real yields, many investors believe RRBs aren't the optimal hedge for inflation. If judging the performance of RRBs based on each calendar year, we would tend to agree. But by owning RRBs to maturity, investors know exactly what they will receive (the real yield). RRBs can play a useful role in portfolios when the relative pricing is attractive.

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