

Strip Bonds

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Description:

Strip bonds (strips) have gained enormous popularity since their inception in the early 1980s, and are currently used to achieve investment goals for clients with varying levels of risk aversion and investment knowledge. Increasingly, strips have become an important fixed income tool for individual investors.

A strip or zero coupon bond is created when a traditional bond is separated into its two basic components: the semi-annual interest coupons, and the principal (residual) payable at maturity. The two components are then sold separately at a discount to their maturity value, enabling investors to secure a locked-in yield if the strip is held to maturity.

Discount rates are dependent on a number of factors, including interest rates, term to maturity and the credit quality of the issuer. Credit quality reflects the likelihood that the issuer will be financially able to satisfy its debt obligations. Non-Government of Canada Bonds have credit risk, which is reflected in their credit rating. Credit ratings are used to express an issuer's likelihood of default. Consider two otherwise comparable bonds issued by companies A and B. If B has a worse credit rating than A, B would have to compensate investors with a greater yield (and lower price) relative to A.

Canadian Strip Market:

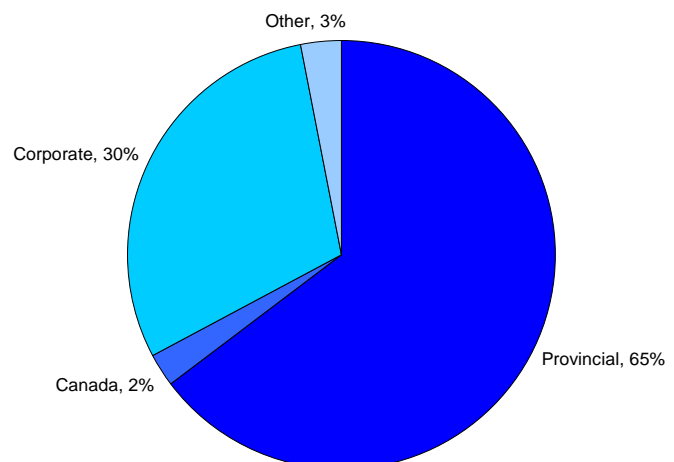
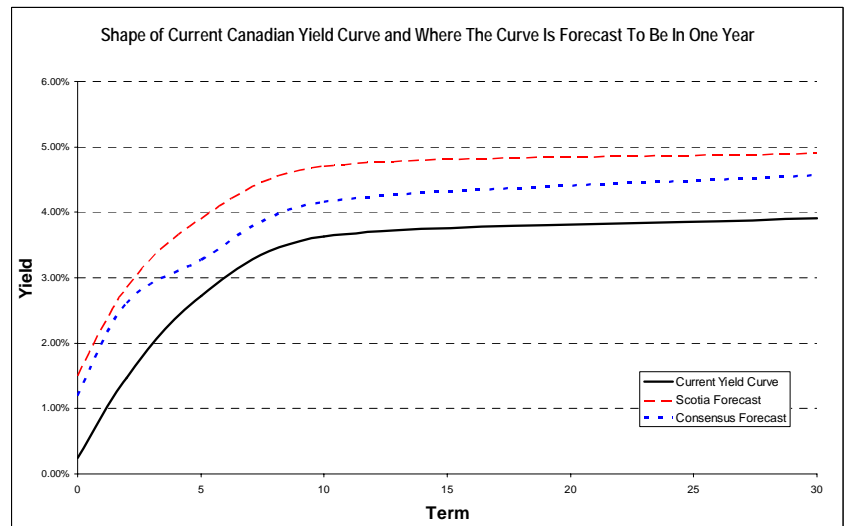
In Canada, the Canada Curve is used as a benchmark for pricing bonds. The Canada Curve shows the relationship between term to maturity and yield for Government of Canada Bonds, which represent the lowest risk category, and therefore provide the lowest yield and command the highest price.

The graph (right) shows expectations for the Canadian Yield Curve (as of October, 2009).

Bonds issued by provinces, corporations and municipalities must provide a greater yield than Government of Canada Bonds, due to the presence of credit risk. The additional yield varies among provincial strips due to differing credit ratings.

Due to less liquidity and additional credit risk in corporate strip markets, the bid-offer spread (the difference between the available buying and selling price) tends to be wider relative to government and provincial securities with the same maturity.

Currently, there is over \$7 trillion face value worth of strips outstanding in Canada (as of October, 2009).



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Pricing:

The appropriate interest rate applied to strips depends on the general level of interest rates in the economy, and the shape of the yield curve. Since strips provide no interest payments, they are priced off the Canada Curve at the spot rate. The spot rate provides a current yield for zero coupon bonds of varying maturities. In most cases, the yield curve is upward sloping, meaning that yields increase and prices decrease with maturities. When the yield curve is upward sloping, the spot rate lies above the Canada Curve for almost all maturities.

If the yield curve is flat, yields are constant for all maturities. Alternatively, a yield curve is inverted when yields decrease as maturities increase. An upward sloping yield curve is more prevalent than flat and inverted yield curves, which often signal uncertainty and economic slowing respectively.

Zero coupon bonds mature at face value. The current price is found by discounting back from par at an appropriate discount rate. In most cases, the longer the term to maturity, the lower the current price.

This table (right) shows the relationship between price and yield to maturity for various interest rate levels. It illustrates that, for a given interest rate, prices decline as maturities are lengthened. For example, a bond with a \$10,000 face value with semi-annual compounding earning 4% will cost \$9,612 for 1 year to maturity and \$2,051 for 40 years to maturity.

\$10,000 Face Value & Semi-Annual Compounding						
Years to Maturity	3%	4%	5%	6%	7%	8%
1	9,707	9,612	9,518	9,426	9,335	9,246
2	9,422	9,238	9,060	8,885	8,714	8,548
3	9,145	8,880	8,623	8,375	8,135	7,903
5	8,617	8,203	7,812	7,441	7,089	6,756
10	7,425	6,730	6,103	5,537	5,026	4,564
15	6,398	5,521	4,767	4,120	3,563	3,083
20	5,513	4,529	3,724	3,066	2,526	2,083
30	4,093	3,048	2,273	1,697	1,269	950
40	3,039	2,051	1,387	936	635	431

Why Invest in Strips?

Strips cater to a variety of investment strategies, ranging from conservative to speculative. A conservative investor can use a buy and hold strategy, effectively locking in their yield at the time of purchase. More active investors can use strips to realize capital gains by speculating on interest rate movements. Such investors would buy when rates are high, and sell when rates are low. This type of risky strategy can result in significant losses, caused by adverse changes to interest rates, and therefore prices.

To illustrate, an investor can make a bet on interest rates decreasing by buying a strip, with the intention of selling it at a higher price when/if interest rates decline. However, if interest rates rise, and the investor requires cash, they may be forced to sell their strip at a price below their purchase price.

Locked-In Yield:

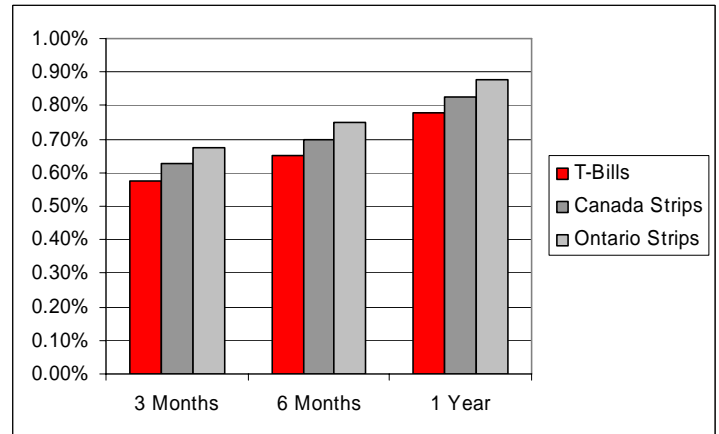
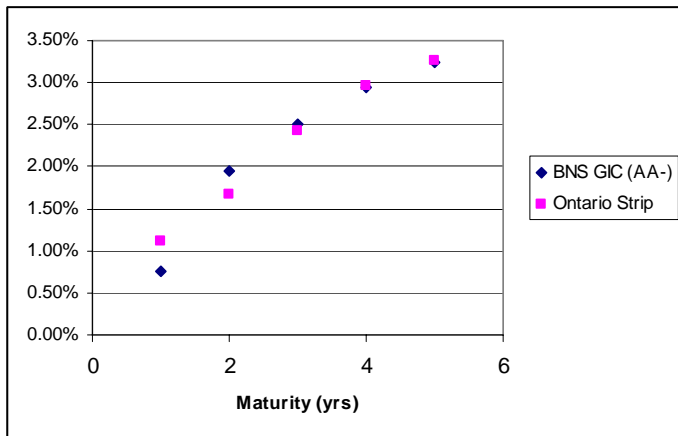
Strips provide the unique benefit of locking in a yield at the time of purchase, given that they are not sold prior to maturity. Throughout the life of the bond, strips must move towards their face value. Therefore, an investor holding a strip will inevitably see the price of their bond rise. However, the price movement may not be perfectly linear

Attractive Relative Yield:

In general, strips provide a yield premium relative to interest-bearing bonds of the same maturity.

Strips can also be used as an alternative to Guaranteed Investment Certificates (GICs) and other money market instruments (graph below left, as of Oct, 2009). The graph (below right, as of Oct, 2009) shows a comparison between the average yields to maturity for Canada T-Bills, Canada Strips and Ontario Strips over the past year for short-term horizons. Canada strips provide a slight yield improvement over T-Bills due principally to lower liquidity in the strip market. However, if the investor holds the strip to maturity it is inconsequential. The additional yield of Ontario strips above Canada strips arises from both liquidity factors and lower credit quality.

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Liquidity:

The existence of an active secondary market means that investors are not forced to hold their strips until maturity. Investors have the freedom to sell their strips at any time, subject to current market interest rates and a bid-offer spread. Currently, provincial strips have an average bid-offer spread equal to 0.1% in yield. This is very liquid relative to GICs, which are often not eligible to be sold prior to maturity, and when they are, bid-offer spreads are on average equivalent to 0.5% in yield.

Convenience:

Since strips provide no interest payments, investors do not have to worry about reinvesting interest payments at changing interest rates. Also, investors do not have to compensate the seller of strips for any accrued interest at the time of purchase.

Flexibility:

Strips have face values ranging from millions to as low as \$1, as well as a wide variety of maturities and issuers. Such choice allows investors with different profiles to participate.

Investment Risk Factors:

Liquidity Risk:

There is minimal liquidity risk in government strip markets due to the presence of active secondary markets. There is potential for relative illiquidity in corporate strip markets. This is possible in situations involving company specific or credit market events.

Reinvestment Risk:

Strips do not have reinvestment risk. As a result of having no cash flows prior to maturity, the investor does not have to worry about reinvesting interest payments at continually changing rates, allowing investors to know with absolute certainty the yield they will receive at maturity.

Interest Rate Risk:

Strip prices are more volatile than traditional bonds with interest payments, reacting more to changes in interest rates. However, if the strip is held to maturity, this price sensitivity does not matter. This table (below) illustrates the price sensitivity of various strips with different maturities and yields. For each yield, the impact on price of a 50bps (0.5%) change in either direction is shown. For example, if an investor purchases a 10-year strip at 6% for \$5,537, the price could move to \$5,813 or \$5,275 if yields move up or down by 0.5% respectively.

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\$10,000 Face Value & Semi-Annual Compounding																		
Years to Maturity	3%	3%- 50bps	3%+ 50bps	4%	4%- 50bps	4%+ 50bps	5%	5%- 50bps	5%+ 50bps	6%	6%- 50bps	6%+ 50bps	7%	7%- 50bps	7%+ 50bps	8%	8%- 50bps	8%+ 50bps
1	9,707	9,755	9,659	9,612	9,659	9,565	9,518	9,565	9,472	9,426	9,472	9,380	9,335	9,380	9,290	9,246	9,290	9,201
2	9,422	9,515	9,330	9,238	9,330	9,148	9,060	9,148	8,972	8,885	8,972	8,799	8,714	8,799	8,631	8,548	8,631	8,466
3	9,145	9,282	9,011	8,880	9,011	8,750	8,623	8,750	8,498	8,375	8,498	8,254	8,135	8,254	8,018	7,903	8,018	7,790
5	8,617	8,832	8,407	8,203	8,407	8,005	7,812	8,005	7,624	7,441	7,624	7,263	7,089	7,263	6,920	6,756	6,920	6,595
10	7,425	7,800	7,068	6,730	7,068	6,408	6,103	6,408	5,813	5,537	5,813	5,275	5,026	5,275	4,789	4,564	4,789	4,350
15	6,398	6,889	5,942	5,521	5,942	5,130	4,767	5,130	4,431	4,120	4,431	3,831	3,563	3,831	3,314	3,083	3,314	2,869
20	5,513	6,084	4,996	4,529	4,996	4,106	3,724	4,106	3,379	3,066	3,379	2,782	2,526	2,782	2,293	2,083	2,293	1,892
30	4,093	4,746	3,531	3,048	3,531	2,631	2,273	2,631	1,964	1,697	1,964	1,468	1,269	1,468	1,098	951	1,098	823
40	3,039	3,702	2,496	2,051	2,496	1,686	1,387	1,686	1,141	940	1,141	774	638	774	526	434	526	358

Taxes:

The Canada Customs and Revenue Agency (CCRA) require holders of strips to pay tax on the interest that accrues each year, even though it hasn't been received. Annual accrued interest is calculated as the difference between the value at purchase and at year end, and taxed as interest income. This makes strips unattractive to hold in a taxable account, since interest is claimed but not paid. Instead, it is advantageous to hold strips in tax-deferred and/or tax-free accounts including Retirement Savings Plans, Retirement Income Funds, and Tax-Free Savings Accounts. Other products, including Retirement Savings Packages and Capped Annuity Packages are treated like strips for tax purposes, and are therefore also better suited for tax-deferred and/or tax-free accounts.

Investment Themes:

Maturity Matching:

Strips provide considerable certainty, allowing investors who hold their strips to maturity to lock-in their yield, subject only to credit risk. This allows investors to plan for future financial needs, since they know the exact amount they will receive at maturity.

For example, if an investor requires \$20,000 in 10 years for education or retirement needs, at 4%, an investment of only \$13,511.28 is required today (annual compounding).

Overview of current interest rate environment:

In response to a renewed appetite for risk, Government of Canada benchmark yields have begun to rise across all maturities. Scotia Economics predicts that longer dated bond yields will continue to rise over the next year. Therefore, longer dated strips (10-30 year maturities) are relatively less attractive for active investors, in comparison to shorter dated maturities. Instead, active investors should remain invested in shorter dated strips.

However, from a long term perspective, maintaining an investment discipline is key to success. Strip coupons can be an instrumental part of a long term fixed income investing strategy, such as the laddered portfolio approach.

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