PC BOND ANALYTICS

High Yield Bond Index – Methodology

November 15, 2006

Scotia Capital High Yield Bond Index Overview

The Scotia Capital High Yield Bond Index is designed to be a broad measure of the Canadian non- investment grade fixed income market. Returns are calculated daily, and are weighted by market capitalization, so that the return on a bond influences the return on the index in proportion to the bond's market value. The Scotia Capital High Yield Bond Index has been published since 1994. It is intended to be a transparent index, with individual security holdings disclosed electronically each day.

The criteria have changed over time to reflect the evolving nature of the Canadian High Yield Bond Market. When it was created in 1994, constituents included single A & lower rated securities. In the late 1990's, the Scotia Capital High Yield Bond Index included BBB and lower rated securities, and as we entered the 21st century, the criteria evolved again to include only BBB (mid) and lower- rated securities. The latest development, as outlined in this document, is effective December 31, 2004 and moves away from investment grade securities completely, including only non-investment grade securities rated less than BBB (low) but greater than D in the Scotia Capital High Yield Bond Index.

Industry Sub-Indices

The Scotia Capital High Yield Bond Index is divided into a variety of sub-indices according to industry breakdowns. The main industry sub-indices are Communication, Financial, Energy, and Industrial.

Bonds resident in these sub-indices are further detailed by the categories below.

Communication	Media Telecommunication
Financial	Insurance Services
Industrial	Consumer Manufacturing Resources
Energy	Generation

Eligibility Criteria

The High Yield Bond Index consists of semi-annual pay fixed rate bonds. It is restricted to domestic and global securities denominated in Canadian dollars, with a remaining effective term to maturity of at least one year. It is a non-investment grade index, and thus only includes securities rated less than BBB (low).

The majority of the bonds in the index are semi-annual pay bullet securities with no call or other option features. However, the index can also include the following: callable bonds, extendible/ retractable bonds, sinking funds, exchangeables, fixed-floaters (during the period when the coupon is fixed), semi-annual amortizing securities, and certain asset-backed securities (ABS) that are structured as semi-annual pay bullet bonds. Bonds with option features are assigned to index term sectors based on their effective maturity date (either the option exercise date or the final maturity date). Although most bonds in the index are public issues, private issues that meet the above criteria are also eligible for inclusion.

The index does not include floating-rate notes, convertible bonds, residential and commercial mortgage-backed securities (CMBS and MBS), other monthly-pay securities, other prepayable securities, inflation-indexed securities, zero coupon bonds or securities specifically targeted to the retail market.

Securities must be a minimum issue size of $100 million to help ensure that securities in the index are sufficiently liquid, and that it is possible for a fund manager to replicate the performance of the Index.

There must be a minimum of 10 institutional buyers. These dollar amounts include the original issue amount plus re-openings. Note that for the purpose of calculating returns and risk measures, index holdings are adjusted monthly to reflect the stripping and reconstitution of securities, but these adjustments do not affect index inclusion or exclusion.

Weighting

The securities in the Scotia Capital High Yield Bond Index are weighted by relative market capitalization. Thus, the return on a bond influences the return on the index in proportion to the bond's market value. Market value of a bond equals the adjusted amount outstanding, multiplied by the gross price (market price plus accrued interest), with the gross price expressed as a percentage.
The total amount outstanding of each issue is adjusted so that the portion of stripped securities is excluded and reconstituted securities are included.

Capitalization weighting effectively assumes an investor "buys the market." It thus reflects passive bond portfolio management better than other weighting schemes, and is therefore the most appropriate weighting scheme for a performance benchmark.

Effective Term

Bonds are classified to their effective terms to maturity. For a bond with an embedded option feature, including putable, callable, extendible, and retractable securities, the effective term is either the option exercise date, or the bond's final maturity date, depending on where the bond is trading in the market. In the case of a fixed-floater, the effective term is the date of the final fixed coupon payment. Amortizing securities are classified based on final maturity.

Re-Balancing: Handling New Issues, Coupon Payments, and Roll-Outs

A market index has to be re-balanced periodically in order to account for routine events like coupon payments and new issues. The Scotia Capital High Yield Bond Index is re-balanced on a daily basis, since daily re-balancing most closely reflects the dynamic investment environment faced by portfolio managers.

A new issue that meets all the eligibility criteria enters the index on the day it is issued or auctioned. The bond is included in the calculation of index risk statistics on the day of issue, though it does not affect the return on the index until the following business day. The new security does not begin to accrue interest until the new issue settlement date. The cutoff time for inclusion on the day of issue is 3:00pm EST.

A bond is removed from the index on the day its remaining effective term to maturity declines to one calendar year, whether that year has 365 or 366 days. For example, on December 1 2004, the index sells a bond maturing in one year, December 1 2005, at the 4:00 pm mark-to-market price. This bond therefore contributes to the return on the index from November 30 (the previous business day) to December 1, 2004. It does not contribute to index duration and other risk statistics calculated at the close on December 1st 2004.

A detailed example of how index returns are calculated when the index constituents' change is provided in the appendix.

Valuation

The securities that make up the High Yield Bond Index are priced each day by the Scotia Capital Inc. trading desk at 4:00 pm Eastern Standard Time, using normal settlement rules (e.g. as of December 2004, 3-day settlement for most bonds is used). The 4:00 pm mid-market trader prices are automatically supplied to the index calculation system. Valuation at the 4:00 pm close is based on the trader's judgment of where a security should be priced, taking into account such factors as where the security previously traded, liquidity, and any market-wide as well as security-specific developments that can be expected to affect the price. This policy is intended to reflect changing market conditions, even in cases where a security may not frequently trade.

For securities that trade actively, the closing price will generally be close to where the security last traded, if not the same. For securities that trade less frequently, however, there could be a larger difference between the closing price and the price where the security last traded. This is especially the case in the Canadian high yield bond market.

Index Settlement Conventions

Accrued interest on bonds in the index is calculated assuming same day settlement. Most bonds in Canada accrue interest using an actual/365 day count convention. When the last calendar day in a month is not a business day, accrued interest is calculated to the last business day of the month. Same day settlement is used for calculating all index risk measures.

Credit Rating Categories

The Scotia Capital High Yield Index is restricted to securities rated below BBB(low), and above D. It thus can include bonds rated BB, B, CCC, CC, and C. Inclusion is based on credit ratings information from Dominion Bond Ratings Service, Moodys' Investor Service, and Standard and Poors'.

The Scotia Capital Bond Indices do not distinguish between minor ratings notches; only the broad letter-rating categories are used. Thus, ratings of BB (high), BB (mid), and BB (low) are viewed as equivalent for index classification purposes. As well, the index does not take into account a rating agency's outlook for a credit rating, or whether a particular rating may be under review by an agency.

Unsolicited ratings will not be used when determining index-rating categories.

Split credit ratings

If two agencies rate a security differently, the index will take the lower of the two credit ratings.

If three agencies rate a security the index uses the most common rating, or, if all three agencies rate the security differently, the index uses the middle rating.

Handling Defaults, Downgrades and Upgrades

A bond typically goes into default when an issuer misses an interest payment, assuming there are no provisions in the trust indenture that allow it to miss a payment. There are however other events that can also trigger default. For the purposes of the index, the bond will be assigned a default (D) rating when it has been assigned this rating by the rating agencies. Although it would be unusual, in the event the rating agencies disagree on the rating, the rules for handling split credit ratings will apply. The rating agencies will usually downgrade the bond to D the same day as the announcement of the missed interest payment, and almost always within one day of the announcement.

Once a bond goes into default, it will remain in the High Yield Index for a period of 3 months. This is analogous to the removal of bonds from the investment-grade Universe Bond Index when the bond is downgraded below BBB. The purpose of the 3-month waiting period is to ensure that the index sufficiently reflects the price decline on the downgraded or defaulted bond. It is conceivable, for example, that the market price may not fully reflect the impact of the default on the day that it occurs. Consequently, if the bond were immediately removed from the index, the index return could have an upward bias relative to a fund that was unable to immediately sell the bond. The three month waiting period is intended to minimize this kind of bias.

The index does not recognize income on a bond that is in default, since by definition such a bond will not be paying coupon income. If a default occurs in between coupon payment dates, the accrued interest on the bond will be set to zero on the day the default occurs, reflecting the fact that the upcoming coupon payment is now zero.

In the event of a credit rating upgrade from default (D) to high yield, a bond that otherwise meets index eligibility requirements will enter the High Yield Index on the day the rating upgrade occurs. In the event of a credit rating upgrade sufficient to raise the bond's index rating to BBB or higher, the bond will be removed from the High Yield Index, and will enter the Universe Bond Index.

As in the case of a default, in the event that a bond is no longer rated by any of the three agencies, it will be removed from the index following a three month waiting period.

Index Risk Measures

Several risk measures are calculated for the Scotia Capital High Yield Index each day. Modified Duration, Macaulay Duration, and Convexity are calculated as market value weighted averages of the respective measures for constituent bonds. Val01, which measures the dollar price sensitivity to a change in yield (in contrast to modified duration, which measures percentage price sensitivity), is calculated by weighting the individual bonds by their adjusted par values. All risk measures are calculated based on same-day settlement (prior to implementation of the new index system on July 15th 2003, published risk measures were based on normal settlement conventions).

A large bond issue can significantly affect index duration. Issuance of a bond that has a shorter duration than that of the index causes index duration to decline, whereas issuance of a longer duration bond causes index duration to increase.

Other Index Statistics

The Price Index measures the return from capital gains, excluding coupon income and the reinvestment of coupons. The Yield Index measures the average yield of the constituent bonds, weighted by market value. A variety of other statistics are also calculated, including average coupon and term.

Revision of Index Rules Over Time

The rules and practices for constructing the High Yield and other fixed income indices necessarily change over time in order to reflect developments in the market. We will endeavor to provide reasonable advance notice of any such changes, as well as an assessment of any expected impact on the index.

Information Sources and Publications

The Scotia Capital High Yield Bond Indices can be monitored on a daily basis through two primary electronic information channels.

The PC-Bond* internet site, www.canadianbondindices.com, provides information on the various fixed income indices, including daily and monthly performance reports.
Historical time series and constituent information is also available in through the PC-Bond analytical software.

Contact Information:

Please direct any questions and or comments to:

PC-Bond
TSX Group
The Exchange Tower
130 King Street West
Toronto, Ontario Canada M5X 1J2

(416) 862 5800

Disclaimer

PC-Bond* calculates and publishes the Scotia Capital Real Return Bond Index and other Scotia Capital fixed income indices at its own expense as an information service to financial market participants. The indices are published on a best-efforts basis, and do not constitute a recommendation to trade any particular security.

This report has been prepared by PC-Bond*. Opinions, estimates and projections contained herein are our own as of the date hereof and are subject to change without notice. The information and opinions contained herein have been complied or arrived at from sources believed reliable but no representation or warranty, express or implied, is made as to their accuracy or completeness. Neither PC-Bond* nor its affiliates accepts any liability whatsoever for any loss arising from any use of this report or its contents.

This report is not, and is not to be construed as, an offer to sell or solicitation to buy any securities and/or commodity futures contracts. PC-Bond* and/or their respective officers, directors or employees may from time to time acquire hold or sell securities and/or commodities and/or commodity futures contracts mentioned herein. This research and all the information opinions and conclusions contained in it are protected by copyright. This report may not be reproduced in whole or in part, or referred to in an manner whatsoever, nor may the information, opinions, and conclusions contained in it be referred to without in each case the prior express written consent the PC-Bond*.

* PC-Bond is registered to 2092242 Ontario Inc. a subsidiary of TSX Group Inc..

Appendix: Index Return Calculation

The one day index return measures the total return on the constituent bonds, including capital gains, accrued income, and coupon payments. The one day return from time t-1 to time t is calculated as follows, where P and AI denote market price and accrued interest, respectively, Q denotes the adjusted amount outstanding, and CPN denotes the total coupon cash flow:

$$r_t = \frac{\sum_i Q_{i,t-1} \cdot (P_{i,t} + AI_{i,t})/100 + \sum_{i*} CPN_{i,t}}{\sum_i Q_{i,t-1} \cdot (P_{i,t-1} + AI_{i,t-1})/100} - 1$$

Ignoring coupon payments, the equation says that the return on the index is calculated from the change in price and accrued from t-1 to t, holding the index constituents fixed as of t-1. The coupon cash flows are summed only for those bonds that pay coupons on day t.

Given the index value at day t-1 and the one-day return, the index value for day t is calculated as follows:

$$Index_t = Index_{t-1} \times (1 + r_t)$$

A series of one-day returns calculated as described above can be linked together geometrically to obtain the total return index over a longer time period:

$$Index_t = Index_{t-k} \times (1 + r_{t-k+1}) \times \ldots \times (1 + r_{t-1}) \times (1 + r_t)$$

Given two index levels, the periodic rate of return can be calculated as follows:

$$r_{t-k,t} = \frac{Index_t}{Index_{t-k}} - 1$$

The above chain-linking procedure ensures that the measurement of market performance is not distorted by changes in index composition. Note that it is consistent with the Time-Weighted Rate of Return (with daily weighting) advocated by the Association for Investment Management and Research (AIMR) for measuring portfolio performance3[1].

Calculation Example

[1] *AIMR Performance Presentation Standards Handbook 1997*, Association for Investment Management and Research.

To illustrate the index total return calculation, consider a simple 2-bond index, with prices and accrued as shown below. Assume there is initially 5 million outstanding of bond 1, and 10 million of bond 2. On day 2 an additional 5 million of bond 1 is issued, and bond 2 pays a coupon of 275,000. On day 3, the outstanding amount of bond 2 is reduced by 2.5 million to reflect amounts that have been stripped.

	Market Price		**Accrued Interest**	
	Bond 1	**Bond 2**	**Bond 1**	**Bond 2**
Day1	101.083	101.489	1.3089	2.7274
Day2	101.188	101.775	1.3233	0.0000
Day3	101.293	102.062	1.3377	0.0151
Day4	101.398	102.350	1.3521	0.0301

The total return from day 1 to day 2 is calculated as follows. Note that the coupon payment is included in the return calculation, but that the 5 million re-opening of bond A is not included.

$$r_2 = \frac{\$5M \times (101.188 + 1.3233)/100 + \$10M \times (101.775 + 0.00)/100 + \$0.275M}{\$5M \times (101.083 + 1.3089)/100 + \$10M \times (101.489 + 2.7274)/100} - 1$$
$$= 0.23698\%$$

The total return from day 2 to day 3 is calculated as follows. Note that now the 5 million re-opening of bond 1 is included in the return calculation, and the day 2 coupon payment no longer appears.

$$r_3 = \frac{\$10M \times (101.293 + 1.3377)/100 + \$10M \times (102.062 + 0.0151)/100 + 0.0}{\$10M \times (101.188 + 1.3233)/100 + \$10M \times (101.775 + 0.00)/100} - 1$$
$$= 0.20630\%$$

From day 3 to day 4, the total return is calculated as follows, using the reduced amount of 7.5 million for bond 2 to reflect the 2.5 million of this bond that has been stripped.

$$r_4 = \frac{\$10M \times (101.398 + 1.3521)/100 + \$7.5M \times (102.350 + 0.0301)/100 + 0.0}{\$10M \times (101.293 + 1.3377)/100 + \$7.5M \times (102.062 + 0.0151)/100} - 1$$
$$= 0.19348\%$$

If we assume an index value of 100 on day 1, the index value for day 2 is:

$$\begin{aligned} Index_2 &= 100 \times (1.0023698) \\ &= 100.23698 \end{aligned}$$

Similarly, the index values for days 3 and 4 are:

$$\begin{aligned} Index_3 &= 100.23698 \times (1.0020630) \\ &= 100.44377 \end{aligned}$$

$$\begin{aligned} Index_4 &= 100.44377 \times (1.0019348) \\ &= 100.63811 \end{aligned}$$