

# INTERNATIONAL BOND MARKETS

## International Bond Markets

- The bond market (debt, credit, or fixed income market) is the financial market where participants buy and sell debt securities, usually bonds.

Size of the world bond market ('12 debt outstanding): USD 78 trillion.

- U.S. bond market debt: USD 33 trillion
- Japan bond market debt: USD 14 trillion.

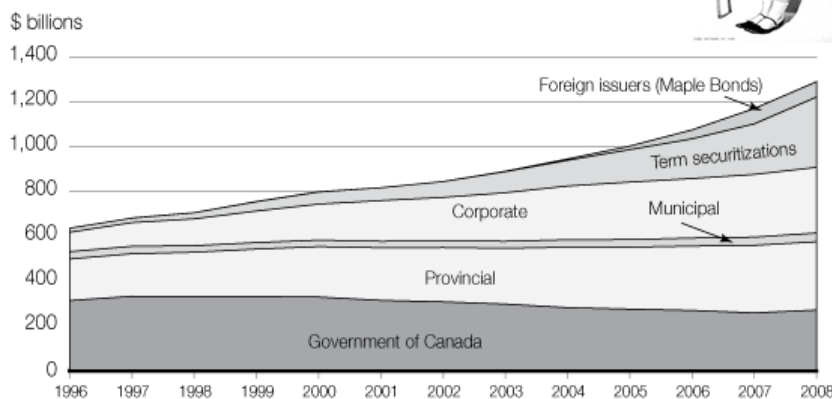
### Organization

- Decentralized, OTC market, with brokers and dealers.
- Small issues may be traded in exchanges.
- Daily trading volume in the U.S.: USD 822 billion
- Government debt dominates the market (49%).
- Used to indicate the shape of the yield curve.

- Typical Bond Market: Canada  
Dominated by government issues.

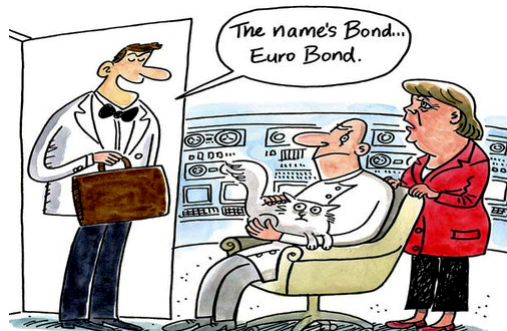


Chart 4  
**Amount of Domestic Bonds Outstanding by Issue Type**



Note: Figures are as at December 31.  
Source: Bank of Canada, *Banking and Financial Statistics*, Table K8.

- The world bond market is divided into three segments:
  - *Domestic bonds*: Issued locally by a domestic borrower. Usually denominated in the local currency. Largest segment: 71% of the bond market (2008).
  - *Foreign bonds*: Issued on a local market by a foreign borrower. Usually denominated in the local currency.
  - *Eurobonds*: Placed mainly in countries other than the one in whose currency the bond is denominated.



**Example:** Distinction between bond markets.

(A) *Domestic bonds.*

Amoco Canada issues a bond denominated in CAD in Canada. Issue is underwritten by a syndicate of Canadian securities houses.

(B) *Foreign bonds.*

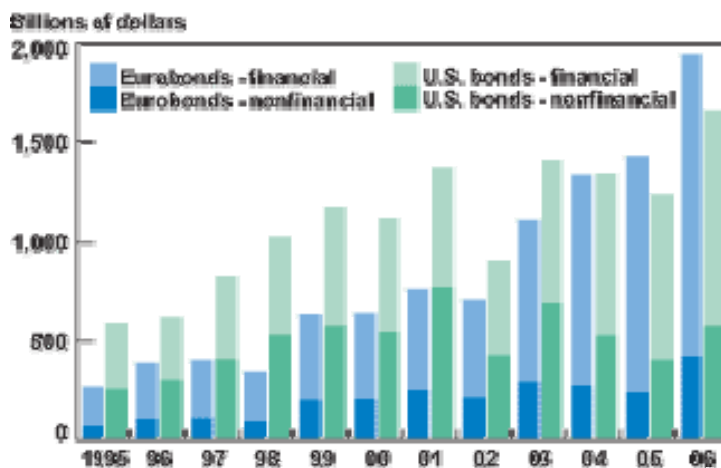
Amoco Canada issues bonds denominated in USD in the U.S. Issue is underwritten by a syndicate of U.S. securities houses.

(C) *Eurobonds.*

Amoco Canada issues bonds to be placed internationally. Issue is denominated in a currency different from the local currency where the bond is issued. Main targeted investors are not Canadians. ¶

⇒ The Foreign bond and Eurobond markets make up the International Bond Market (30% of World Bond Market).

### • Corporate Issuances in U.S. Bond and Eurobond Markets



• The U.S. Market is losing appeal. ⇒ Less competitive?

## Type of Instruments

### Popular Instruments in International Bond Markets

- i. Straight or fixed income bonds.
- ii. Partly paid bonds.
- iii. Zero-coupon bonds.
- iv. Floating rate notes (FRNs).
- v. Perpetual FRNs.
- vi. Convertible bonds.
- vii. Bonds with warrants.
- viii. Dual-currency bonds.

### Example: Straight bond

4.375% May 2015 Slovak Republic EUR bond

Amount = EUR 2 billion

Issue date = May 14, 2009

Face value:  $F =$  EUR 1,000

Coupon:  $C = 4.375\% =$  EUR 43.75

Maturity = 6 years (May 2015)

Interest payment dates: May 14

Every May 14, the Slovak Republic pays EUR 43.75 to bondholders, for 6 years. ¶

- Tombstone of Slovak Republic's Eurobond



**Example:** Zero-coupon bonds ("zeros").

Zero June 1984 PepsiCo Overseas USD bond

Amount = USD 100 million.

Issue date = June 1981

Maturity = June 1984 (3 years)

Face value:  $F =$  USD 100

Coupon:  $C =$  0.

Issue Price = 67.255.

Compounded annual interest yield:  $(100/67.25)^{1/3} - 1 = 14.14\%$  ¶

**Example:** FRNs ("floaters").

LIBOR + 1/8 March 2024 Swedish Government USD bond.

Amount =	USD 500 million.
Issue date =	March 1 1984
Maturity =	March 1, 2024 (40 years).
Face value: $F =$	USD 1000
Coupon: $C =$	6-mo. LIBOR + 1/8
Interest payment dates:	March 1 and September 1

At the time the notes were offered (3/84), 6-mo. LIBOR was 10(7/16)%

First Coupon = 10(7/16)% + (1/8)% = 10(9/16)%.

Afterward, at the end of each 6-mo. period the interest rates on the notes are updated to reflect the current 6-mo. LIBOR rate for dollars. ¶

**Example:** Convertible bonds ("convertibles").

8% May 2002 Cantim (a Canadian co.) convertible USD eurobond.

Amount:	USD 100 million
Issue date =	May 1995
Maturity:	May 2002 (7 years)
$F =$	USD 1000
$C =$	8%.
Conversion price =	CAD 23.125
Conversion $S_t =$	1.2007 CAD/USD
Conversion period:	Any time after first interest payment

Principal is convertible into Cantim common stock at a conversion price per share of CAD 23.125, where each USD of face value would be convertible to CAD at a fixed exchange rate of 1.2007 CAD/USD.

⇒ each bond can buy 51.92 shares. ¶

## Eurobond Markets

### Euro-what?

- Euro-zzz: the currency of denomination of the zzz instrument is not the official currency of the country where the transaction takes place.

**Example:** a Malayan firm deposits USD not in the U.S. but with a bank outside the U.S., for example in Singapore or in Switzerland.

### Euromarket

- Offshore money market
- Low costs and lack of regulations
- Instruments traded in any currency.

The Eurobond market is just one segment of the Euromarket.

### Characteristics of Eurobonds

- A Eurobond is an international debt security.

Structure: similar to the standard debt security used in domestic markets.

Basic characteristics:

- Eurobonds are transferable (usually, *bearer*).
- Eurobonds are intended to be tradable.
- Eurobonds are a medium- to long-term debt security.
- Eurobonds are generally launched through a public offering.
- Eurobonds are generally listed on a stock exchange.

Transferability should be simple:

- bearer bond            (you have it, its yours)
  - registered bond      (your name should be in a book to own the bond)
- ⇒ the majority of Eurobonds are bearer bonds.

- Attractive characteristic of Eurobond markets for issuers:

The Eurobond and foreign bond markets seem to be segmented.

**Example:** The World Bank has issued in the U.S. foreign bond market and in Euromarkets. Issues of similar maturity have yielded 10 to 20 bps less.

Usual explanation: no requirement of registered form for Eurobond. ¶

⇒ Formal characteristics of Eurobonds: no different from domestic or foreign bonds.

⇒ The structure of the underwriting syndicate is the main difference between other bonds and Eurobonds.

### • Q: How are bond priced?

Bonds typically trade in 1,000 increments of a given currency (say, USD or EUR) and are priced as a percentage of par values (100%).

Price of a bond: The NPV of all future cash flows generated by the bond discounted at an appropriate interest rate –i.e., YTM (there is a one-to-one relation between the price of a bond (P) and the YTM of a bond).

$$P = C_1/(1+YTM) + C_2/(1+YTM)^2 + C_3/(1+YTM)^3 + \dots + C_T/(1+YTM)^T,$$

$C_t$  = Cash flows the bond pays at time t. ( $C_T$  = coupon<sub>T</sub> + Face Value<sub>T</sub>)

Once you know the YTM, you know the price –given that you know  $C_t$ .

Interesting mathematical fact: If  $C=YTM$  ⇒  $P = 100$  (par or 100%).



• **Q: How are bond priced?**

**Example:** A straight Eurodollar bond matures in 1 year.

$$C = 10\%$$

$$FV_1 = \text{USD } 100$$

$$P = 95 \text{ (USD } 95)$$

$$YTM_{\text{Bond}} = ?$$

$$P = \frac{C + FV_1}{1 + YTM} \Rightarrow 95 = \frac{110}{1 + YTM}$$

$$\Rightarrow YTM = 110/95 - 1 = .15789$$

• **Setting the YTM -i.e., the price- of a (Euro)bond**

We have three different main cases:

- (1) Established company with a history of borrowing (say, GE, IBM);
- (2) Established company with no history of borrowing (until 2010: MSFT, Google);
- (3) New company.

**1. Established company**

**Example:** IBM wants to borrow USD 100M in a week => Eurobonds

$$YTM_{\text{IBM}} = ?$$

Benchmarks: - Look at competitors.

- Look at secondary market (the best way).

IBM has outstanding bonds trading in the secondary market:

$$YTM_{\text{IBM-outstanding}} = 5.45\% \Rightarrow YTM_{\text{IBM-new debt}} = 5.45\% \quad \blacksquare$$

## 2. Established company with no history of borrowing

- Analyze the company.
- Benchmarking: Look at competitors and industry benchmarks  
 $\Rightarrow$  set a range, say  $YTM \in [2.55\%, 4.10\%]$ . Based on your analysis, pick a YTM in the range.

Conservative YTM: 410 bps ( $\Rightarrow$  risk of overselling bond issue –i.e., underpricing risk!).

Aggressive YTM: 255bps ( $\Rightarrow$  risk of not selling enough bonds)

## 3. New company

If MNC is new to Eurobond markets, setting the YTM is more difficult:

- Analyze the firm.
- Benchmarking: Look at competitors & industry.
- Determine potential demand. Book building for the new bond (phone calls, lots of research.)

## 3. New company (continuation)

The YTM is determined by:

$$YTM = \text{Base Rate } (k_f) + \text{Spread (Risk of Company)}$$

$k_f$  = risk free rate = government bond (of similar maturity)

Spread = Risk of company = this is what the investment bank has to determine (in bps)

In general, the spread is related to a risk rating (S&P, Moody's). If a company is in a given risk category, there's a corresponding risk spread.

**Example:** Space Tourism (or an internet company in 1996)

New company, no similar borrower in the market.

The investment banker determines that the YTM spread is in the range 140 bps to 210 bps over U.S. Treasuries ( $k_f$ ).

The investment banker decides on setting the Yield spread at 145 bps.

**Example (continuation):**

The lead manager is able to formulate a pricing scheme:

U.S. Treasury: 5.915% s.a. (semiannual)

ST spread: 1.45% s.a.

ST yield: 7.365% s.a. ( $\Rightarrow$  p.a. =  $(1 + 0.07365/2)^2 - 1$ )

Technical detail:

Straight Eurobonds pay annual coupon. Government bonds are usually priced with s.a. YTM. We need to adjust the spread to the annual yield.

$$YTM_{ST} = (1 + 0.07365/2)^2 = 7.501\% \text{ p.a. (annual)}$$

At inception, the bond sells at par  $\Rightarrow P = 100$  (if  $P = 100 \Rightarrow C = YTM$ ).

Then,

$$C_{ST} = YTM = 7.50\% \quad \blacktriangledown$$