I. The World’s Bond Markets: A Statistical Perspective (Not Exam Material)

- Total market value of the world’s bond markets is about 50% larger than the world’s equity markets.
- The U.S. dollar, euro, pound sterling, and yen are the 4 currencies in which the majority of domestic and international bonds are denominated.
- As of end-2011:
  - More domestic bonds than international bonds are denominated in the U.S. dollar (41% vs. 37.7%) and the yen (21.4% vs. 2.7%).
  - More international bonds than domestic bonds are denominated in the euro (42.3% vs. 18.8%) and the pound sterling (7.5% vs. 2.5%).


<table>
<thead>
<tr>
<th>Currency</th>
<th>Domestic</th>
<th>Percent</th>
<th>International</th>
<th>Percent</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. $</td>
<td>26,331</td>
<td>37.7%</td>
<td>11,313.0</td>
<td>41.0%</td>
<td>37,646.1</td>
<td>38.6%</td>
</tr>
<tr>
<td>Euro €</td>
<td>13,122.4</td>
<td>18.8%</td>
<td>11,723.2</td>
<td>42.5%</td>
<td>24,845.6</td>
<td>25.5%</td>
</tr>
<tr>
<td>Pound £</td>
<td>1,743.8</td>
<td>2.5%</td>
<td>2,061.6</td>
<td>7.5%</td>
<td>3,805.4</td>
<td>3.9%</td>
</tr>
<tr>
<td>Yen ¥</td>
<td>14,952.5</td>
<td>21.4%</td>
<td>758.1</td>
<td>2.7%</td>
<td>15,710.6</td>
<td>16.1%</td>
</tr>
<tr>
<td>Other</td>
<td>13,760.9</td>
<td>19.7%</td>
<td>1,723.8</td>
<td>6.3%</td>
<td>15,484.7</td>
<td>15.9%</td>
</tr>
<tr>
<td>Total</td>
<td>69,912.7</td>
<td>100%</td>
<td>27,579.7</td>
<td>100%</td>
<td>97,492.4</td>
<td>100%</td>
</tr>
</tbody>
</table>

(As of Year-End 2011 in Billions of U.S. Dollars)

Amounts of Domestic and International Bonds Outstanding

II. Foreign Bonds vs. Eurobonds

- Definitions
- Registered bonds vs. Bearer bonds
- National security registrations
- Withholding taxes
- Recent regulatory changes
- Global bonds
1. Foreign- vs. Euro-bonds: Definitions

- **Foreign bonds** are issued in a country by foreign companies and denominated in the country’s currency
  - Examples: Samurai bonds (issued in Yen in Japan), Yankee bonds (USD in the States), Bulldog bonds (GBP in the UK), etc.
- **Eurobonds** are denominated in a currency but issued outside of the area where that currency is legal tender

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Bearer Bonds vs. Registered Bonds

- **Bearer bonds** = bonds with no registered owner:
  - They offer anonymity
  - They also offer the same risk of loss as currency
- **Registered bonds** = bonds where the owner’s name is registered with the issuer
  - U.S. security laws require Yankee bonds sold to U.S. citizens to be registered.

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National Security Registrations

- **Yankee bonds** must meet the requirements of the SEC, just like U.S. domestic bonds.
- Many borrowers find this level of regulation burdensome and prefer to raise U.S. dollars in the Eurobond market.
- **Eurobonds** sold in the primary market in the United States may not be sold to U.S. citizens.
- Of course, a U.S. citizen could buy a Eurobond on the secondary market.

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Withholding Taxes *(Not Exam Material)*

- Prior to 1984, the United States required a 30% withholding tax on interest paid to nonresidents who held U.S. government or U.S. corporate bonds.
- The repeal of this tax led to a substantial shift in the relative yields on U.S. government and Eurodollar bonds.
- This fact lends credence to the notion that market participants react to tax code changes

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Security Regulations That Ease Bond Issuance

- **Shelf Registration (SEC Rule 415)**
  - Allows the issuer to preregister a securities issue, and then offer the securities when the financing is actually needed
- **SEC Rule 144A**
  - Allows qualified institutional investors to trade private placements
  - These issues do not have to meet the strict information disclosure requirements of publicly traded issues *(why?)*

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2. Global Bonds

- A **global bond** is a very large international bond offering by a single borrower that is simultaneously sold worldwide (practically: North America, Europe, Asia)
  - Global bond issues were first offered in 1989.
  - Global bonds denominated in U.S. dollars and issued by U.S. corporations **trade as**
    - Eurobonds overseas
    - *domestic* bonds in the U.S.
Deutsche Telekom Global Bond

- The largest corporate global bond issue to date is the $14.6 billion Deutsche Telekom multicurrency offering. The issue includes:
  - Three U.S. dollar tranches with 5-, 10-, and 30-year maturities totaling $9.5 billion.
  - Two euro tranches with 5- and 10-year maturities totaling €3 billion.
  - Two British pound sterling tranches with 5- and 30-year maturities totaling £9.5 billion.
  - One 5-year Japanese yen tranche of ¥90 billion.

III. Types of Instruments

- Straight fixed-rate debt
- Floating-rate notes
- Equity-related bonds (Not Exam Material)
- Zero coupon bonds (Not Exam Material)
- Dual-currency bonds
- Composite currency bonds

1. Straight Fixed-Rate Debt

- These are "plain vanilla" bonds with a specified coupon rate and maturity and no options attached.
- Since most Eurobonds are bearer bonds, coupon dates tend to be annual rather than semi-annual.
- The vast majority of new international bond offerings are straight fixed-rate issues.

2. Floating-Rate Notes

- FRNs work like an adjustable rate mortgage
- Common reference rates:
  - 3-month or 6-month U.S. dollar LIBOR.
- FRNs reset every 6 or 12 months → the premium or discount is usually quite small.
  …as long as there is no change in the default risk.

3. Equity-Related Bonds

(Not Exam Material)

- Convertible bonds
- Bonds with equity warrants

Convertible Bonds (Not Exam Material)

- A convertible bond issue allows the investor to exchange the bond for a predetermined number of equity shares of the issuer.
  - The floor-value of a convertible bond is its straight fixed-rate bond value.
  - Convertibles usually sell at a premium above the larger of their straight debt value and their conversion value.
- Investors are usually willing to accept a lower coupon rate of interest than the comparable straight fixed coupon bond rate because they find the conversion feature attractive.
IV. Characteristics of International Bond Market Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Frequency of Payment</th>
<th>Size of Coupon</th>
<th>Payoff at Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight-fixed rate</td>
<td>Annual</td>
<td>Fixed</td>
<td>Currency of issue</td>
</tr>
<tr>
<td>Floating rate note</td>
<td>Every 3 to 6 months</td>
<td>Variable</td>
<td>Currency of issue</td>
</tr>
<tr>
<td>Convertible bond</td>
<td>Annual</td>
<td>Fixed</td>
<td>Currency of issue or conversion to equity shares</td>
</tr>
<tr>
<td>Straight-fixed rate with equity warrants</td>
<td>Annual</td>
<td>Fixed</td>
<td>Currency of issue plus conversion to equity shares</td>
</tr>
<tr>
<td>Zero coupon bond</td>
<td>None</td>
<td>Zero</td>
<td>Currency of issue</td>
</tr>
<tr>
<td>Dual currency bond</td>
<td>Annual</td>
<td>Fixed</td>
<td>Dual currency</td>
</tr>
</tbody>
</table>

IV. Characteristics of International Bond Market Instruments

| Currency Distribution of International Bond Amounts Outstanding (Not Exam Material) |
|-----------------------------------------------|-----------------------------------------------|
| 2008  | 2009  | 2010  | 2011  | 2012  |
| Euro  | 10,873.9 | 12,387.5 | 11,799.6 | 11,723.2 | 9,586.9 |
| USD   | 8,215.2  | 9,429.0  | 10,506.3 | 11,313.0 | 7,208.2 |
| Pound | 1,701.8  | 2,145.5  | 2,092.6  | 2,061.6  | 1,959.2 |
| Yen   | 746.8    | 693.9    | 760.4    | 758.1    | 645.4  |
| CHF   | 331.7    | 365.5    | 400.9    | 389.0    | 380.0  |
| CAD   | 240.2    | 367.0    | 352.3    | 358.0    | 287.0  |
| other | 607.5    | 750.1    | 871.8    | 976.8    | 1,014.5 |
| Total | 22,717.1 | 26,078.5 | 26,783.9 | 27,579.7 | 21,081.2 |
V. International Bond Market: Credit Ratings (Not Exam Material)

- Fitch IBCA, Moody’s or Standard & Poor’s
  - sell credit rating analysis
  - Focus on default risk, not exchange rate risk
- Assessing sovereign debt focuses on political risk and economic risk.

VI. Eurobond Market Structure (Not Exam Material)

- Primary market
  - Very similar to U.S. underwriting.
- Secondary market
  - OTC market centered in London.
    - Comprised of market makers as well as brokers.
    - Market makers and brokers are members of the International Capital.
  - Market Association (ICMA), a self-regulatory body based in Zurich.
- Clearing procedures
  - Euroclear and Cedel handle most Eurobond trades.

1. Eurobond Practices: Primary Market

- A borrower desiring to raise funds by issuing Eurobonds to the investing public will contact an investment banker and ask it to serve as the lead manager of an underwriting syndicate that will bring the bonds to market.
- The underwriting syndicate is a group of investment banks, merchant banks, and the merchant banking arms of commercial banks that specialize in some phase of a public issuance.
- The lead manager will sometimes invite co-managers to form a managing group to help negotiate terms with the borrower, ascertain market conditions, and manage the issuance.

2. Eurobond Practices: Secondary Market

- Eurobonds initially purchased in the primary market from a member of the selling group may be resold prior to their maturities to other investors in the secondary market.
- The secondary market for Eurobonds is an over-the-counter market with principal trading in London. However, important trading is also done in other major European money centers, such as Zurich, Luxembourg, Frankfurt, and Amsterdam.
The secondary market consists of market makers and brokers connected by an array of telecommunications equipment. Market makers stand ready to buy or sell for their own account by quoting two-way bid and ask prices. Market makers trade directly with one another, through a broker, or with retail customers. The bid-ask spread represents a market maker’s only profit; no other commission is charged.

Eurobond transactions in the secondary market require a system for transferring ownership and payment from one party to another. Two major clearing systems, Euroclear and Clearstream International, handle most Eurobond trades. Euroclear is based in Brussels and is operated by Euroclear Bank. Clearstream is located in Luxembourg.

Both clearing systems operate in a similar manner. Each clearing system has a group of depository banks that physically store bond certificates. Members of either system hold cash and bond accounts. When a transaction is conducted, electronic book entries are made that transfer book ownership of the bond certificates from the seller to the buyer and transfer funds from the purchaser’s cash account to the seller’s. Physical transfer of the bonds seldom takes place.

Euroclear and Clearstream perform other functions associated with the efficient operation of the Eurobond market. (1) The clearing systems will finance up to 90 percent of the inventory that a Eurobond market maker has deposited within the system. (2) The clearing systems will assist in the distribution of a new bond issue. The clearing systems will take physical possession of the newly printed bond certificates in the depository, collect subscription payments from the purchasers, and record ownership of the bonds. (3) The clearing systems will also distribute coupon payments. The borrower pays to the clearing system the coupon interest due on the portion of the issue held in the depository, which in turn credits the appropriate amounts to the bond owner’s cash accounts.