FIXED-INCOME ANALYSIS LECTURE 2

Tony Zhang
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1. INTRODUCTION

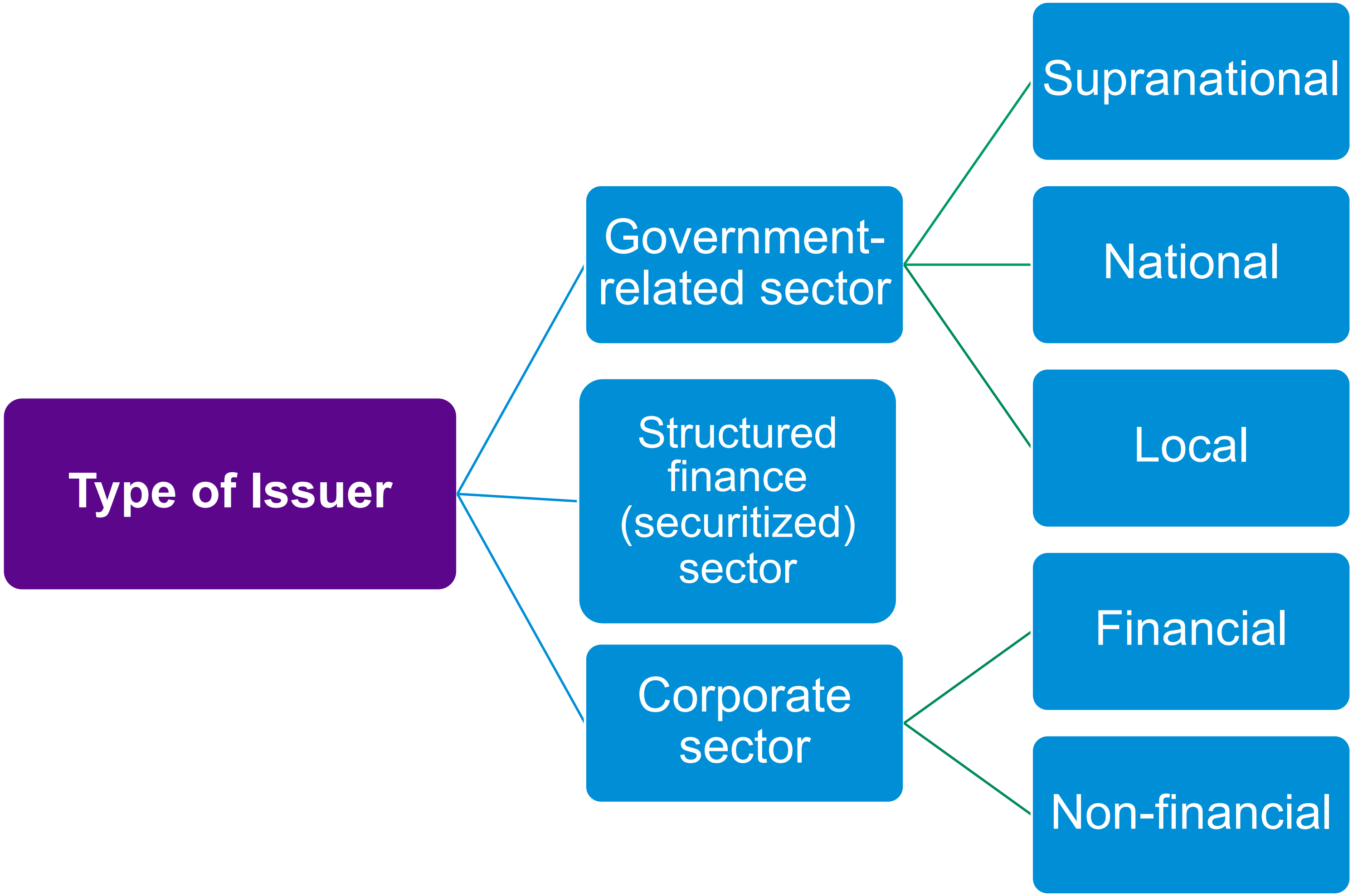
- Global fixed-income markets represent the largest subset of financial markets in terms of number of issuances and market capitalization.
- In 2010, global fixed-income markets were three times larger than global equity markets.
- Understanding how fixed-income markets are structured and how they operate is important for debt issuers and investors.
  - Debt issuers have financing needs that must be met.

2. OVERVIEW OF GLOBAL FIXED-INCOME MARKETS

- Common criteria to classify fixed-income markets:

  - Type of issuer
  - Bond maturity, credit quality, geography, currency denomination, and type of coupon
  - Bond issue and trading location

CLASSIFICATION OF FIXED-INCOME MARKETS



CLASSIFICATION OF FIXED-INCOME MARKETS

Maturity

- Maturities range from overnight to perpetuity:
  - Money market securities are fixed-income securities with maturity up to one year.
  - Capital market securities are fixed-income securities with maturity longer than one year.

Credit Quality

- Credit quality is either investment grade or non-investment grade.

Probability of Default=1 bp in 10 yeas

Moody’s Fitch SNP

junk bond

AAA,AA,A,BBB区分BB,B,CCC,CC,C,D(default)

CLASSIFICATION OF FIXED-INCOME MARKETS

Geography

- The largest markets are the US (40%), Japan (19%), and the UK (6%), followed by the continental European countries.

Currency Denomination

- The most popular currencies are the EUR, USD, GBP, and JPY.

Type of Coupon

FRN = Libor(6 month) + spread(1%)

- Coupons are either fixed rate or floating rate. floating- coupon payment
- The market's demand and supply of fixed- versus floating-coupon bonds are determined by the risk management considerations of participants.

CLASSIFICATION OF FIXED-INCOME MARKETS

Reference Rates

- Different reference rates are used depending on where the bonds are issued and the currency denomination.
- The choice of reference rate is very important because it determines the issuer's cost of financing and the investor's return.
- Libor (London interbank offered rate) is the common reference rate for floating-rate notes (FRNs), particularly in the Eurobond market.
- Libor rates reflect the rates at which a select set of banks believe they could borrow unsecured debt from other banks.
  - interbank money market

MINI-QUIZ #1

1. E[XY] = E[X]E[Y]?
2. You are working as a quant analyst at Goldman Sachs. You are asked to estimate the mean salary of team. However, no one is willing to let others know his/her exact number. How do you design a strategy?
3. Suppose that you roll a dice. For each roll, you are paid the face value. If a roll gives 4,5 or 6, you can roll the dice again. Once you get 1, 2 or 3, the game stops. What is the expected payoff of this game? 7
4. The price of a bond issued in the United States by a British company and denominated in US dollars is *most likely* to:
   A . change as US interest rates change.
   B . change as British interest rates change.
   C . be unaffected by changes in US and British interest rates

CLASSIFICATION OF FIXED-INCOME MARKETS

Fixed-Income Indices

- A fixed-income index is a multi-purpose tool used by investors and investment managers to describe a given bond market or sector, as well as to evaluate the performance of investments and investment managers.
- Most fixed-income indices are constructed as portfolios of securities that reflect a particular bond market or sector.
- Index weighting may be based on price or value (market capitalization).

why DJIA is much higher than stock prices?

CLASSIFICATION OF FIXED-INCOME MARKETS

Investors in Fixed-Income Securities

why center bank use open market operations?
make adjustment to marker liquidity.

Central banks	• invest directly in fixed-income securities • use open market operations to implement monetary policy
Institutional investors	• invest directly in fixed-income securities
Retail investors	• invest indirectly through fixed-income mutual funds or exchange-traded funds (ETFs) because of the higher complexity and diversity of bond markets

3. PRIMARY AND SECONDARY BOND MARKETS

Primary bond markets

Issuers first sell bonds to investors to raise capital.

Secondary bond markets

Existing bonds are subsequently traded among investors.

A bond issue in primary markets can be sold via

- a public offering (or public offer), in which any member of the public may buy the bonds,

OR

- a private placement, in which only a selected group of investors may buy the bonds.

PRIMARY BOND MARKETS

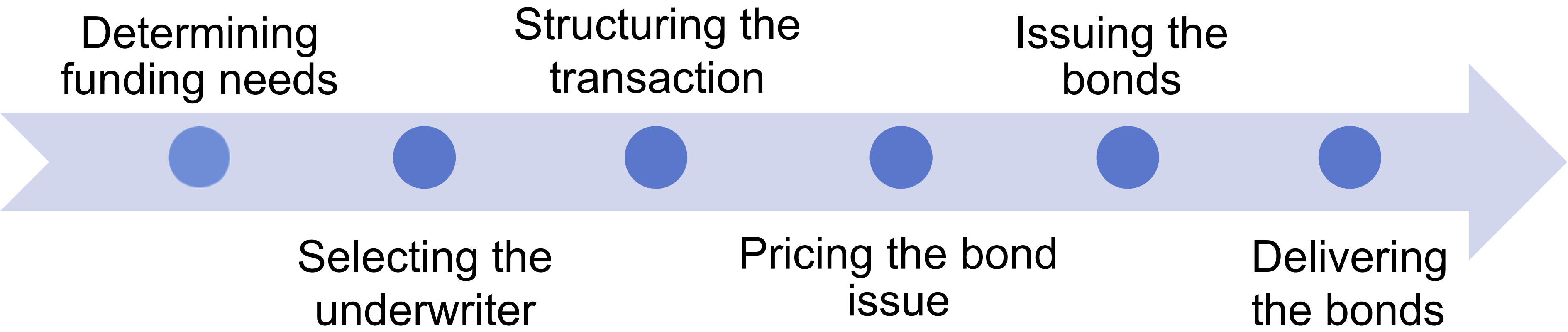
Public Offerings

Underwritten offerings	Best effort offerings	Auctions
The investment bank guarantees the sale of the bond issue at an offering price that is negotiated with the issuer.	The investment bank only serves as a broker. It only tries to sell the bond issue at the negotiated offering price if it is able to for a commission.	These are bond issuing mechanisms that involve bidding. In many countries, most sovereign bonds are sold to the public via a public auction.

IB takes lots of the risk

Underwritten Offerings

- Underwritten offerings are typical bond-issuing mechanisms for corporate bonds, some local government bonds, and some securitized instruments.
- The underwriting process typically includes six phases:



PRIMARY BOND MARKETS

- A **shelf registration** allows certain authorized issuers to offer additional bonds to the general public without having to prepare a new and separate offering circular for each bond issue.
- Rather, the issuer prepares a single, all-encompassing offering circular that describes a range of future bond issuances, all under the same document.

SECONDARY BOND MARKETS

- There are two main ways for secondary markets to be structured:

An **organized exchange** provides a place where buyers and sellers can meet to arrange their trades. Although buy or sell orders may come from anywhere, the transaction must take place at the exchange according to the rules imposed by the exchange.

In contrast, in **over-the-counter** (OTC) markets buy and sell orders initiated from various locations are matched through a communications network.

MINI-QUIZ #2

1. Which of the following *best* describes a primary market for bonds? A market:
   A . in which bonds are issued for the first time to raise capital.
   B . that has a specific location where the trading of bonds takes place.
   C . in which existing bonds are traded among individuals and institutions.
2. US Treasury bonds are typically sold to the public via a(n):
   A . auction.
   B . primary dealer.
   C . secondary bond market.
3. In a single-price bond auction, an investor who places a competitive bid and specifies a rate that is above the rate determined at auction will *most likely* :
   A . not receive any bonds.
   B . receive the bonds at the rate determined at auction.
   C . receive the bonds at the rate specified in the investor's competitive bid.
4. A bond purchased in a secondary market is *most likely* purchased from:
   A . the bond's issuer.
   B . the bond's lead underwriter.
   C . another investor in the bond.
5. Corporate bonds will *most likely* settle on the:
   A . trade date.
   B . trade date plus one day. treasure bond
   C . trade date plus three days.

BREAK

4. SOVEREIGN BONDS

- Sovereign bonds are the bonds issued by national governments. Bond names vary depending on the country of issue and the bond's maturity.

In the United States, Treasury bills (T-bills) are one year or shorter, Treasury notes (T-notes) have maturity between 1 year and 10 years, and Treasury bonds (T-bonds) have an original maturity of longer than 10 years.

- The majority of the trading in secondary markets is of sovereign securities that were most recently issued. These securities are called "on the run."

SOVEREIGN BONDS

- Sovereign bonds are usually unsecured obligations of the sovereign issuer. That is, they are not backed by collateral but by the taxing authority of the national government.

Local currency sovereign bonds have low(er) credit risk because of the taxing and money-issuing power of the government.

Foreign currency sovereign bonds' credit risk depends on the strength of the national economy and government finances.

SOVEREIGN BONDS

- National governments issue different types of bonds, such as the following:

Fixed-rate bonds are by far are the most common type of sovereign bond. Two types of fixed-rate bonds are common: zero-coupon bonds (or pure discount bonds) and coupon bonds.

Some national governments around the world issue **bonds with a floating rate** of interest that resets periodically based on changes in the level of a reference rate, such as Libor.

Many national governments issue **inflation-linked bonds, or linkers**, whose cash flows are adjusted for inflation.

5. NON-SOVEREIGN GOVERNMENT, QUASI-GOVERNMENT, AND SUPRANATIONAL BONDS

Non-sovereign government bonds

Issued by governments below the national level, such as provinces, regions, states, and cities.

- These bonds are typically issued to finance public projects, such as schools, motorways, hospitals, bridges, and airports.
- The sources for paying interest and repaying the principal include the taxing authority of the local government, the cash flows of the project the bond issue is financing, and special taxes and fees established specifically for the purpose of making interest payments and principal repayments.

5. NON-SOVEREIGN GOVERNMENT, QUASI-GOVERNMENT, AND SUPRANATIONAL BONDS

Quasi-government bonds

Issued by quasi-government organizations, which are established to perform some functions for the government.

- Most quasi-government bonds do not offer an explicit guarantee by the national government, although investors often perceive an implicit guarantee.
- Quasi-government entities typically do not have direct taxing authority; instead, bonds are repaid from the cash flows generated by the entity or from the project the bond issue is financing.

Supranational bonds

Issued by supranational agencies, such as the World Bank, the International Monetary Fund (IMF), and the Asian Development Bank (ADB).

NON-SOVEREIGN GOVERNMENT, QUASI-GOVERNMENT, AND SUPRANATIONAL BONDS

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MINI-QUIZ #3

1. Sovereign bonds with a maturity at issuance shorter than one year are *most likely*
   :
   A. floating-rate bonds.
   B. zero-coupon bonds.
   C. coupon-bearing bonds.
2. Floating-rate bonds are issued by national governments as the *best* way to reduce:
   A. credit risk.
   B. inflation risk.
   C. interest rate risk.
3. Sovereign bonds whose coupon payments and/or principal repayments are adjusted by a consumer price index are *most likely* known as:
   A. linkers.
   B. floaters.
   C. consols.

6. CORPORATE DEBT

Companies raise debt as part of their overall capital structure, both to fund short-term spending needs (e.g., working capital) as well as long-term capital investments.

Sources of debt capital for companies:

- Bank loans and syndicated loans
  lead syndicater
  menber syndicater
  disperse risks
- Commercial paper
- Corporate notes and bonds

CORPORATE DEBT

Bilateral loan

- A bilateral loan is from a single lender to a single borrower.
- Bank loans are the primary source of debt financing for small and medium-size companies as well as for large companies in countries where bond markets are underdeveloped.

Syndicated loan

- A syndicated loan is from a group of lenders, called the "syndicate," to a single borrower.
- Syndicated loans are primarily originated by banks, and the loans are extended to companies but also to governments and government-related entities.

CORPORATE DEBT

Commercial paper

- Commercial paper is a short-term, unsecured promissory note issued in the public market or via a private placement that represents a debt obligation of the issuer.
- It is a valuable source of flexible, readily available, and relatively low-cost short-term financing.
  - It is a source of funding for working capital and seasonal demands for cash.
  - The maturity of commercial paper can range from overnight to one year, but a typical issue matures in less than three months.
  - The largest issuers of commercial paper are financial institutions, but some non-financial companies are also regular issuers of commercial paper.
  - Most commercial paper is of high credit quality.

CORPORATE DEBT

- Corporate notes and bonds are the debt instruments issued by private companies and have the following characteristics:

- Can be privately placed or sold in public markets
- Range in maturity from 1 to over 30 years
- May have fixed, floating, payment-in-kind (PIK), or zero-coupon structures
- May have a serial or term maturity structure
- May be unsecured or backed by collateral of various forms
- May have various contingency provisions
- Mostly traded over the counter

7. SHORT-TERM FUNDING ALTERNATIVES AVAILABLE TO BANKS

- Financial institutions, such as banks, have larger financing needs than non-financial companies because of the nature of their operations.

Banks have access to funds from these sources:	
The retail market—for example, deposits from their customers	The wholesale market—for example, central bank funds, interbank deposits, certificates of deposit, and repurchase agreements

SHORT-TERM FUNDING ALTERNATIVES AVAILABLE TO BANKS

Repurchase agreements

Repurchase agreements are an important source of funding not only for banks but also for other market participants.

A repurchase agreement, or repo, is the sale of a security with a simultaneous agreement by the seller to buy the same security back from the purchaser at an agreed-on price and future date.

A repurchase agreement can be viewed as a collateralized loan in which the security sold and subsequently repurchased represents the collateral posted.

SHORT-TERM FUNDING ALTERNATIVES AVAILABLE TO BANKS

repurchase vs reverse repurchase

Repurchase price	• Price at which the dealer repurchases the security
Repurchase date	• Date when the security is repurchased, often the next business day
Repo rate	• Interest rate on a repurchase agreement • Affected by the risk associated with collateral, the repo term, the delivery requirement, the supply and demand conditions of the collateral, and the interest rates of alternative financing
Repo margin	• Difference between the market value of the security used as collateral and the value of the loan

MINI-QUIZ #4

1. Relative to sovereign bonds, non-sovereign bonds with similar characteristics *most likely* trade at a yield that is:
   A . lower.
   B . the same.
   C . higher.

2. Bonds issued by a governmental agency are *most likely* :
   A . repaid from the cash flows generated by the agency.
   B . guaranteed by the national government that sponsored the agency.
   C . backed by the taxing power of the national government that sponsored the agency.

3. From the dealer's viewpoint, a repurchase agreement is *best* described as a type of:
   A . collateralized short-term lending.
   B . collateralized short-term borrowing.
   C . uncollateralized short-term borrowing.

4. The interest on a repurchase agreement is known as the:
   A . repo rate.
   B . repo yield.
   C . repo margin.

5. The level of repo margin is higher:
   A . the higher the quality of the collateral.
   B . the higher the credit quality of the counterparty.
   C . the longer the length of the repurchase agreement.

8. SUMMARY

Classifications of fixed-income markets

- The most widely used ways of classifying fixed-income markets include the type of issuer; bond maturity, credit quality, geography, currency denomination, and type of coupon; and where the bonds are issued and traded.

Use of interbank offered rate as a reference rate

- Interbank offered rates, such as Libor, are the most commonly used reference rates for floating-rate debt and other financial instruments.
- Interbank offered rates are sets of rates that reflect the rates at which banks believe they could borrow unsecured funds from other banks in the interbank market for different currencies and different maturities.

SUMMARY

Bond issuance in primary markets

- There are two mechanisms for issuing a bond in primary markets: a public offering, in which any member of the public may buy the bonds, or a private placement, in which only an investor or small group of investors may buy the bonds either directly from the issuer or through an investment bank.

Secondary markets for bonds

- Most bonds are traded in over-the-counter (OTC) markets, and institutional investors are the major buyers and sellers of bonds in secondary markets.

Sovereign bonds

- Sovereign bonds are issued by national governments primarily for fiscal reasons. They take different names and forms depending on where they are issued, their maturities, and their coupon types.

SUMMARY

Non-sovereign government and supranational bonds

- Local governments, quasi-government entities, and supranational agencies issue bonds, which are named non-sovereign, quasi-government, and supranational bonds, respectively.

Corporate bonds

- Companies raise debt in the form of bilateral loans, syndicated loans, commercial paper, notes, and bonds.

Banks' funding alternatives

- Financial institutions have access to additional sources of funds, such as retail deposits, central bank funds, interbank funds, large-denomination negotiable certificates of deposit, and repurchase agreements.

SUMMARY

Repurchase agreements

- A repurchase agreement is similar to a collateralized loan.
- It involves the sale of a security (the collateral) with a simultaneous agreement by the seller (the borrower) to buy the same security back from the purchaser (the lender) at an agreed-on price in the future.
- Repurchase agreements are a common source of funding for dealer firms and are also used to borrow securities to implement short positions.

HOMEWORK

1. Read the text book “Fixed Income Analysis” Chapter 1 and Chapter 2
2. The distinction between investment grade debt and non-investment grade debt is *best* described by differences in:
   A . tax status.
   B . credit quality.
   C . maturity dates
3. A bond issued internationally, outside the jurisdiction of the country in whose currency the bond is denominated, is *best* described as a:
   A . Eurobond.
   B . foreign bond.
   C . municipal bond
4. Compared with developed markets bonds, emerging markets bonds *most likely* :
   A . offer lower yields.
   B . exhibit higher risk.
   C . benefit from lower growth prospects.
5. With respect to floating-rate bonds, a reference rate such as the London interbank offered rate (Libor) is *most likely* used to determine the bond’s:
   A . spread.
   B . coupon rate.
   C . frequency of coupon payments

HOMEWORK

6. Which of the following statements is *most accurate* ? An interbank offered rate:
   A . is a single reference rate.
   B . applies to borrowing periods of up to 10 years.
   C . is used as a reference rate for interest rate swaps.
7. Which of the following statements related to secondary bond markets is *most accurate* ?
   A . Newly issued corporate bonds are issued in secondary bond markets.
   B . Secondary bond markets are where bonds are traded between investors.
   C . The major participants in secondary bond markets globally are retail investors
8. A bond market in which a communications network matches buy and sell orders initiated from various locations is *best* described as an:
   A . organized exchange.
   B . open market operation.
   C . over-the-counter market.
9. A liquid secondary bond market allows an investor to sell a bond at:
   A . the desired price.
   B . a price at least equal to the purchase price.
   C . a price close to the bond's fair market value.
10. Agency bonds are issued by:
    A . local governments.
    B . national governments. treasury
    C . quasi-government entities

    implicit back by government, low credit rate