

FIN320F Exam 1 Lecture Notes

9/4/13: 1.0 Introduction to Section 1: The Financial System

1.1 Financial Instruments: Debt

- How do people raise cash?
 1. Borrow the money: get a cash advance on a credit card, get a loan from a bank or family...
 2. Sell/give away something you own: sell your car, bike or electronics via E-bay or Craigslist
- **Loan**= private transaction between borrower and lender
- When companies need extra cash, they have the same two options:
 - a. Borrow money (**issue debt**), or
 - b. Sell something they own (**issue equity**), above and beyond their regular product or service
- **Financial instrument** is particular kind of debt/equity that:
 - Give company cash now
 - Investors buy in the hope of obtaining future cash
- Debt Instruments:
 - Bonds
 - Loans
 - Treasury bills
 - Commercial paper
- Equity Instruments:
 - Common stock
 - Preferred stock
- Both governments and firms incur debt
 - Government debt:
 - Federal debt: considered to be default-free; they issue debt to people who can buy
 - **Treasury bills (AKA T bill)**: short-term (has to be repaid within a year)
 - **Treasury notes and treasury bonds**: long-term (bond= very long term)
 - Treasury debt is 0 default risk; they will sell more treasury to pay outstanding loans
 - Gov. gets money from taxes (income, property, etc.) to pay all of its bill
 - **Municipal debt**: issued by states and cities for
 - Revenue-generating projects, or
 - Ex: Building theatre, use ticket sale profits to pay back debt
 - General obligations to the citizenry
 - Ex: Austin borrows money to build school/fire station; because school/fire station doesn't earn revenue, they pay back loan with property taxes
 - Corporate debt:
 - Corporate bonds, Commercial paper, term loans, etc.
- Two ways to issue debt
 - The small way:
 - Obtain bank loan from commercial bank (common banks like Chase, BofA, etc.)
 - Go to investment bank (for companies to help them raise lots of \$)
 - Help break down large loan into lots of smaller loans (to lower risk of not paying back)
 - Consider private placement of debt
 - The big way:
 - Sell bonds to the public (AKA **public issue of debt**)
- How do loans work?
 - When a firm borrows money via a term loan, firm is borrowing directly from one or a few banks
 - This makes term loans quick, flexible, and inexpensive (relative to bonds)

- Typically, interest AND principal are paid monthly (always same payment)
- How do bonds work?
 - When a firm borrows money by issuing bonds, the firm is borrowing relatively smaller amounts of money from each of many investors/lenders
 - This makes bond issues much more complex and expensive than term loans, but allows for greater sums to be borrowed
 - Typically, is paid twice yearly and the *principal* is repaid in a lump sum at **maturity** (date where everything is due)
- All debts share some characteristics
 - **Principal**: the amount to be repaid; also called the *par/face/maturity* value of bond
 - **Interest**: the cost of borrowing money (how much extra you have to repay)
 - **Bond interest rate: AKA the “coupon” rate**
 - Not all bonds pay interest, (**zero coupon or zero interest bonds**) thus price is discounted from par
 - **Maturity date**: when principal is due
- **BOND COUPON PAYMENT FORMULA (DON'T HAVE TO MEMORIZE FORMULAS)**
 - **M**=Maturity Value
 - **C**=Coupon rate of interest
 - **m**=Number of interest payments per year
 - For US corporate bonds, this is always 2 (2 payments/year)
 - **INT**=(**MxC**)/**m**
- A 5-year \$1,000 par value bond bears a coupon rate of 4%. How much is each semi-annual coupon?
 - M= \$1,000
 - C= 4% = .04
 - m= 2
- $$\text{INT} = \frac{M \times C}{m} = \frac{\$1,000 \times .04}{2} = \frac{\$40}{2} = \$20$$
- If you hold a bond, you are a *debt holder, bond holder, debt/bond investor*; **you are in debt to who you borrowed from**
- Debt-holders have priority over equity holders
 - In the event of **liquidation** (turn all assets into cash to repay debt), employees & customers are paid first, the government next, then creditors (who you owe debt to). Equity-holders (owners) are last.
 - To subordinate a debt means to place it further back in the priority line
 - Senior debt is repaid before junior debt
 - Superior debt is repaid before subordinate debt
 - Debt holder = creditor = lender= **those who lent money to company**
- Debt-holders have no voting rights
 - Debt holders do not own the company; thus, they have no voting rights
 - Debt contracts can be written to allow for other types of control (see Debt, part 2)
- (Slide 15) **r=rate, RF=risk-free** (no such thing; closest thing is 30-day or 90-day treasury bill (T-bill))
 - More risk=more return
 - Investors are **risk-averse**: In order to take on more risk, we demand more return (bigger chance taken with lending=higher interest/return)
- Mortgage bonds are **secured** with collateral (home)
 - If bond is not repaid, bank/loaner can repossess the house
 - Having collateral lowers coupon rate (because collateral = less risk)
- Debenture bonds are **unsecured** (have no collateral to offer in case loan is not repaid)
- **Bond indenture (or indenture agreement)** is the contract/agreement b/t borrower and lender

- Identifies the terms/conditions of the loan
- Also identifies restrictive covenants designed to protect lenders/investors by exerting control over borrower issuer
 - Ex: Key financial performance requirements, call provision, sinking fund requirement
- What is a call provision?
 - Assume a company issues \$10 million of 10 yr., 9% coupon bonds (pays \$100k interest every 6 months, because 9% interest of \$10 mil)
 - 3 years later, market rates drop to 6%
 - They refinance their debt to take advantage of lower interest rates; they can do this because of call provision
 - As investor, if you compare two bond issues, identical in all respects except one includes call provision, demand higher coupon rate from one with call provision
 - Because **call provision allows them to refinance/lower interest rate** as market standard changes; call provision=risk for investor
- **Sinking fund**- “Pay as you go” forces borrower to slowly “sink” their debt to you
 - Most investors want company to pay a little bit each year to ensure money is paid
 - Bond indenture w/o sinking fund needs to have higher coupon rate, because has more risk
- **Bond ratings** help investors understand a bond’s default risk.. **Slide 22**
 - Fitch, Moody’s, Standard and Poor/S&P determine value/risk of bond
 - Medium and High quality= investment grade
 - Speculative= may or may not pay
 - Near default, lowest grade, and in default= junk bonds; high coupon rates because high risk that bond won’t be repaid
 - **Ratings on bonds contribute to coupon rate** (Risk and reward)
 - Assume company issued \$20 million in 8% coupon, A-rated bonds
 - Subsequently, the bonds down-graded to B rate later in time
 - **Does not change coupon rate, because of indenture agreement**
 - When company issues new bonds, coupon rate will be higher because bond grade has worsened
- How does bankruptcy work?
 - **Chapter 7: Company Failure, shuts down**
 - The company liquidates its assets and closes
 - Debt investors may receive partial payment
 - Equity investors receive nothing
 - Chapter 9: Debt Restructuring for Municipalities (Detroit)
 - **Chapter 11: Restructures/Renegotiates w/ debt holder**
 - The company continues operating and “restructures” its debts
 - Debt investors may be willing to forgive debt in exchange for company ownership
 - Equity investors may lose their investment
 - Chapter 13: A debt restructuring option for individuals (not businesses); very hard to do

9/9/13: 1.2 Equity (Ownership in company)

- Companies need cash, and have two options:
 - Borrow the money
 - Sell something they own, above and beyond selling their regular product or service; that is, sell part of the company
- The first option is called issuing debt; the second, issuing equity
 - Companies can issue equity in 2 ways:

- Private placement of equity: A start-up might sell a portion of itself to a single investor (eg. an angel) or venture (start-up) capital company (Like *Shark Tank*)
 - Ex: Dad gives you \$250k to start company, he gets 15% of profits
 - Public issue of equity: A bigger firm might sell many tiny pieces of itself (shares of stock) to each of many investors/stockholders/ shareholders
 - What is generally known as owning stock (Walmart/TT)
 - When investors buy common stock, they become part owners of the company
- Common stock: the most common type
 - Represents ownership of the company
 - Has no maturity date
 - May or may not pay dividends
 - Most new companies do not pay dividends; use money from stockholders to improve company
 - Usually has voting rights
 - Owners of stock (stockholders) are last in line in the event of liquidation
- Preferred stock: a hybrid security
 - Like bonds, provide regular income to owners
 - Like common stock, cannot cause bankruptcy
 - **Only lenders can push company into bankruptcy**
 - Priority is between bonds and common stock in terms of line to get paid during bankruptcy
- What are the advantages of equity (versus debt) financing?
 - Common stock doesn't require the firm to make fixed payments
 - Common stock never matures, thus never has to be repaid
 - Using common stock will improve the firm's debt ratio, thereby reducing risk of bankruptcy & providing financial flexibility
 - **Bottom line: If you don't borrow now, it will be easier to borrow later**
- What are the disadvantages of equity (versus debt) financing?
 - Giving up ownership means giving up some control
 - Paying dividends means sharing earnings with new owners
 - Issuing equity costs more than issuing debt (because of the risk-return trade-off)
 - Paying dividends is not a tax-deductible expense for the firm
 - ▶ Paying interest on debt/bond IS tax-deductible, considered income expense
- **Types of investment positions**
 - Long:
 - Buy a security, hold it, and hope the price will rise
 - When the price rises, sell it
 - The spread between the price paid when purchased & the price earned when sold is profit (capital gain)
 - Short:
 - Borrow a security, sell it, and hope the price will fall
 - When the price falls, repurchase it and return it to lender
 - The spread between the price earned when sold & the price paid when purchased is profit (capital gain)
- Types of orders
 - Market order: buy or sell a security at the best available price immediately
 - Limit order: buy at a particular price (or lower) or sell at a particular price (or higher)
 - Stop loss order: sell when the price drops to (or below) a particular price

9/11/13: 1.3 Financial Markets & Participants

- Financial markets have many labels
 - Equity market vs. debt market
 - Stock market vs. bond market
 - Stock exchange vs. over-the-counter market
 - Primary market vs. secondary market
 - Capital market vs. money market
- Stock Exchange vs. OTC market
 - A stock exchange (market) is a physical or virtual place where securities are traded
 - The New York Stock Exchange is an organized, *physical* exchange
 - The Nasdaq is an organized, *virtual* exchange
 - The OTC market is not an exchange. (OTC= over-the counter, sells “penny” (small) stock)
 - Trading is directly between buyer and seller
 - Examples: Pink Sheets, OTC Bulletin Board
 - From the investor’s perspective, a stock exchange is like e-bay, whereas an Over-The-Counter (OTC) market is like Craigslist.
- Primary vs. secondary markets (Slide 5)
 - **Primary**: First time stock is offered to public/company receives cash
 - **Public offerings are ALWAYS Primary offerings**
 - **Secondary**: Also a primary exchange because is first time *those* stock are being offered to public
 - Secondary is also market where stocks that have already been released are traded
- IPO (Initial Public Offering) Process (applies to both stocks and bonds): (slides 6-8)
 - Company gives stock to primary investors
 - A **primary** offering because first time stock is available
 - Investors sell stock to secondary investors (like citizens); investors use \$ from this transaction to sell more stocks (or bonds)
 - Simply transferring who receives stock (or bond bi-annual payments)
 - Even loans can be bought/sold
 - Ex: You get money from mortgage lender, give them an agreement to pay back loan. Lender sells loan to secondary investor; you then have to repay secondary investor (who essentially owns your debt)
- **>99% of all stock transactions are secondary offerings**
- Capital market vs. money market
 - Capital= long-term (>1 yr.)
 - Money market= short-term (<1 yr.)
 - EX:
 - 10 yr. bond= Capital
 - 90-day T-bill= Money market
 - Share of stock traded= stock exchange, secondary market, capital market (never matures)
 - **Only instruments that are traded in money market are short-term debt instruments** (because equity/stock doesn’t mature at all/within 1 yr.)
- What’s the difference b/t broker/dealer?
 - A broker matches buyers/sellers; Ebay is a broker (matches buyer/seller of product)
 - Makes money through transaction fees; Does NOT own inventory
 - A dealer buys/sells own inventory. Ex: Car dealer, pawn shop
 - Make money on variable cost of product (diff b/t how much they buy/sell for)
 - Mark-up= price diff. on product; spread= price diff. on stock
- Types of brokers
 - Discount/online brokers: Execute customers’ transactions, do not offer advice

- Cost 30-80% less than full service brokers
 - EX: E*Trade, Schwab, Scottrade
- Full-service broker: Provide investment advice AND execute transactions
 - Will give **margin loans** to buy stock (stock is collateral for loan)
 - More expensive than discount/online broker
 - Ex: Edward Jones, Merrill Lynch, Morgan Stanley, UBS
- Financial intermediaries act as financial go-betweens
 - Commercial banks – accept deposits from savers; invest deposits in debt markets or make direct loans to borrowers
 - Insurance companies – receive premiums from the insured; invest premiums to earn \$ to pay claims
 - Pension funds – accept contributions from employees and/or employers; invest contributions to earn \$ to pay pensions
 - Mutual funds – sell shares to investors; invest deposits to generate \$ for investors’
- Investment Bankers
 - Investment bankers help firms raise cash
 - The investment banker helps decide how much cash to raise, how many and what kind of securities to issue, the offering price, the offer date, etc.
 - Investment bankers may underwrite the issue (salary/fee from firm), or may work on a best-efforts (commission) basis

9/16/13: 1.4 The Federal Reserve (AKA *The Fed*)

- Fed Reserve= **our central bank**
 - Ben Bernake= current Fed. Reserve Chairman, term ends in January
 - Have district fed reserve banks (We are in district 11, with HQ in Dallas)
- Responsibilities of the Fed:
 - Regulate depository institutions; protect depositors from poor financial mgmt.
 - Serve the banking industry: check clearing services, loans, worn bill replacement, etc.
 - Hold US Treasury’s checking account: tax receipts are deposited; expenses withdrawn
 - **Conduct monetary policy: that is, control the US money supply**
- **How does the Fed conduct monetary policy?**
 - **Option 1:** Change Reserve requirement
 - Reserve requirement determines % of deposits that banks are allowed to lend
 - Reserve requirements are rarely changed
 - **By decreasing the reserve requirement, the Fed increases banks’ capacity to lend (thus to “create” money by lending more)**
 - Reserve requirement example (See 1.4 slide 12)
 - **Option 2:** Change the discount rate
 - This is the rate the Fed charges banks (*interest*) when banks borrow money from them to meet temporary shortages in required reserves
 - Rose from 6.5% in 1978 to 13% in 1980; currently 0.75% per year
 - **By decreasing the discount rate, the Fed encourages further borrowing, thereby promoting liquidity (“creating” money)**
 - AKA “tightening the money supply” AKA “reducing liquidity”
 - Do not confuse “discount rate” with “federal funds rate”
 - The discount rate is the rate at which the Fed lends to banks; it is set by the Fed
 - The federal funds rate is the rate at which banks lend to each other; it is set by banks, NOT BY FED

- **Option 3: Open market Operations**
 - Since the 1990's, the Fed has preferred to set a target federal funds rate & achieve it through **open market operations** (which influence banks to set fed. Funds rate where FED wants it to be)
 - **The most important tool for conducting monetary policy**
 - Involves buying and selling US Treasuries (T-bills, T-notes, T-bonds)
 - Auctions occur almost daily
 - EX: Selling Treasuries
 - Assume the US government has agreed to spend more than it has earned; it must borrow money to pay for the expenditures
 - The Fed borrows \$ from investors (in US and abroad) by selling Treasuries
 - Investors take \$ out of their banks to pay Fed; the \$ is no longer in circulation
 - **By selling Treasuries; the Fed decreases the money supply**
 - EX: Buying Treasuries
 - Assume the US government has earned more than it has spent; it decides to use the surplus to pay down its debt
 - The Fed buys back outstanding Treasuries from investors (repays debt)
 - Investors receive \$ from the Fed and put it in their banks; this \$ is back in circulation
 - **By buying Treasuries; the Fed increases the money supply**
- What are Treasuries?
 - Treasury bills (T-bills) are short-term debt instruments with terms of <1 yr
 - T-bills do not pay interest; rather, they are sold at a discount from face value
 - The annualized discount percentage is called the risk-free rate, r_{rf}
 - Treasury notes (T-notes) and Treasury bonds (T-bonds) pay a stated interest rate
 - T-notes have terms of **1-10 yrs**
 - T-bonds have terms of **>10 yrs**
- Why does the Fed Conduct Monetary Policy?
 - To fight inflation
 - Inflation= general increase in prices; Consumer Price Index (CPI) = primary measure of inflation
 - To promote economic growth
 - **Gross Domestic Product (GDP)** is all the goods and services produced within a nation's borders, and **The annual change in GDP is the primary measure of growth**
- **Inflation/Growth Goals are in Direct Conflict**
 - Tightening (decreasing) the money supply:
 - Causes interest rates to rise,
 - Which causes aggregate demand to fall,
 - Which causes inflation and GDP to fall
 - Loosening (increasing) the money supply:
 - Causes interest rates to fall,
 - Which causes aggregate demand to rise,
 - Which causes inflation and GDP to rise
- New Responsibilities at the FED:
 - In March 2008, Fed became lender of last resort to investment banks and auto manufacturers:
 - Previously, Fed lent only to commercial banks
 - Fed accepted illiquid ("toxic") assets as collateral