Session 2: Financial Instruments & Markets

Foundations of Finance

Spring 2026

Outline

No formulas today!!!

1. Some important concepts/ideas
2. A little background:

- The axioms of finance
- Real and financial assets
- What determines price?
- Financial markets

Finance is Based on Simple Axioms

1. Investors prefer more to less
   - Example: $100 is better than $10.

2. Investors are risk averse
   - Example:
     A) $1 million for sure
     B) 50/50 gamble $0/$2 million

3. Money paid in the future is worth less than the same amount today
   - Example: $100 today is better than $100 next year

4. Financial markets are competitive; no arbitrage
   - Example: There should not be a stock that people agree is under-priced

Real Versus Financial Assets

- Real assets [US Financial Accounts]
  - Assets used to produce goods and services
  - Examples: factories, land, human capital

- Financial assets [Financial Markets]
  - A contract that entitles you to the cash flows on real assets
    - Stocks
    - Bonds
  - Derivatives (contingent claims)

The two Sides of Financial Assets

- Every financial security is an asset for somebody and a "liability" for somebody else.

  Examples:

  i. WalMart issues a 10-year bond (borrows money), purchased by an investor (like you). Your asset, their liability!

  ii. You take out a mortgage to buy a house. Your liability, the bank's asset.

- These financial assets and liabilities cancel each other out in the aggregate. Their net value is zero. So all the wealth in the economy is real wealth, represented by real assets.

So, then, why are financial assets important?

Use of Financial Instruments

- Allocation of capital—financing of projects

  Example: GM wants money to develop and produce electric cars, Exxon-Mobil wants money to drill in the Arctic
  Capital markets allow millions of individual investors to provide this money.

- Allocation of risk
  - Diversification (risk-sharing)
  - Hedging
- Consumption smoothing—saving and borrowing

  i.e.: some individuals are spending more than they earn (e.g. students or retirees) other individuals earn more than they currently need for their consumption (I need to save for my kid's college education).

Important Financial Assets

I. Fixed Income Securities

II. Equity

III. Derivatives

I. Fixed Income Securities

Borrowing instruments with

- Fixed (pre-specified) cash-flows: coupons or interest payments

Example: a 10-year, 8%, semi-annual coupon bond with $1000 face value

Cash-flows:

0	0.5	1	1.5…	10
-P	40	40	40	1000+40

- Valuation: time value of money (**TVM**)
- Lots of different types of bonds/loans
  - ✓ Borrower, e.g., corporation, U.S. gov't, individual (bank loan, mortgage loan)
  - ✓ Maturity
  - ✓ Interest rate

II. Equity

Common stocks

- "Ownership in a firm"
- Future cash-flows (dividends) are uncertain
- Maturity is indefinite
- Involves risk
- Valuation: TVM + risk adjustment

Example: a share of common stock in Walmart

http://finance.yahoo.com/q/bc?s=WMT+Basic+Chart

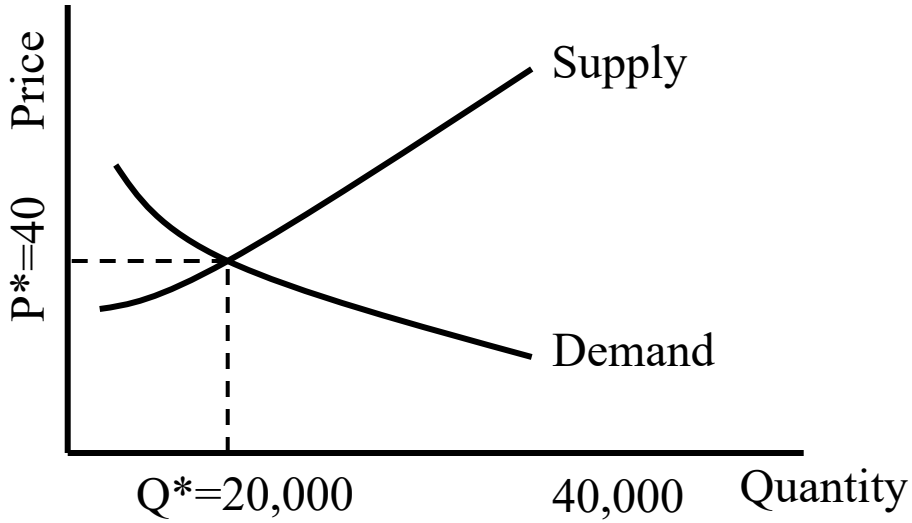
III. Derivatives

Derivative securities/contingent claims

- Definition: “securities whose cash flows depends on values of other assets”
- Examples: options, futures, swaps, bonds with option features (convertible or callable bonds)
- Valuation: TVM + risk + option adjustment

Equilibrium Prices

- What determines the price?
  - In economic theory? ⟹ Value
  - In reality? ⟹ Market clearing (equilibrium) price, where supply equals demand
- What is the equilibrium price?
- What is the mechanism that drives prices towards equilibrium?



Primary Markets

- Raises capital
- How are new securities floated (sold)?
  - Government securities: typically *auctioned*
  - Corporate securities, federal agency debt, municipal bonds, mortgage-backed securities: typically *underwritten* by investment banks

Secondary Markets

- Investors usually trade through brokers
- Brokers help investors trade without taking positions themselves (no inventory)
- Broker guarantees counterparty that
  - An investor can pay for a security he is buying
  - An investor can deliver a security he is selling

Conclusion

- Pricing/valuation
  - Think economics
  - Market structure matters
    http://en.wikipedia.org/wiki/Flash_crash

- Next class—the first principle of valuation, i.e., the time value of money

Next Session Assignments

- Reading (*Time Value of Money*)
  - RWJ: Chapters 4, 5.1-5.2
  - Problems: 4.1-4.7, 4.11, 4.13, 4.18, 4.20, 4.22, 4.23, 4.26, 5.1, 5.3, 5.7, 5.8, 5.10, 5.11, 5.24, 5.26, 5.38, 5.39, 5.44, 5.47, 5.48, 5.52

- Assignments
  - Problem Set 1 due for the 2nd February (Lesson 5)