Recall that physical capital is traded in the funds, or financial, markets and consumption is smoothed through the use of the financial markets.
Economics of Capital Markets

Structure and Function of Capital Markets
Financial Markets Structure (Continued)

- Financial markets are the focal point for much of our economic operations
- From an economic growth perspective, they are viewed as the main driver allowing growth

From an economic growth perspective (Continued)

- Sir J.R. Hicks
- J. Schumpeter
From an economic growth perspective
(Continued)

- There is a preponderance of empirical evidence that there is a positive first-order relationship between financial development and economic growth.

**Financial Markets Structure**

- Capital Market
  - Claims or Ownership
  - Traded
  - More Than One Year Maturity
  - Stocks, Bonds, Futures, Options
  - Standardized
  - Organized Exchanges

- Credit Market
  - Facilitates Borrowing and Lending
  - Combination Of Short-And Long-term
  - Nonstandardized
  - Usually Not Tradable
  - Financial Intermediaries

- Money Market
  - Money and Short-term
  - Near Monies
  - Less Than One Year Maturity
  - Money, Fed Funds, T-Bills
  - Financial Intermediaries And FED

- Allocates Funds
- Sets Prices

---

**Notes**
Economics of Capital Markets

Structure and Function of Capital Markets
Financial Markets Structure (Continued)

Financial Markets

Capital Market
Only market in which long-term, impersonal investments and borrowings can occur

Credit Market
Long-term and short-term personal investments and borrowings

Money Market
Strictly short-term finds transfers

Economics of Capital Markets

Structure and Function of Capital Markets
Financial Economics

- **Financial Economics** studies how financial markets impact allocations via pricing of financial assets or securities
  - Methodology: micro-based via close substitutes
  - Capital markets one component: long-term
Terms for holding claims set in capital markets

A function of capital markets and contracts is to establish and provide for the exchange of claims to assets, the income they generate and the value or price of those claims.
Economics of Capital Markets

Structure and Function of Capital Markets
Capital Markets (Continued)

Capital Markets

- Only market in which long-term, impersonal investments and borrowings can occur

Set Value

- At a Point in Time
- Capitalized Income Stream

Determine Title

- Assets
- Income

Financial Markets

- Capital Market
  - Long-term
  - Standardized
  - Organized Exchanges

- Credit Market
  - Nonstandardized
  - Financial Intermediaries

- Money Market
  - Short-term Monies
  - Financial Intermediaries and FED

Bring Borrowers and Lenders Together

Sets Value, Determines Title

No Ownership Claims to Assets Determined
Trading in terms of new issues and outstanding issues of claims

- Exchange of *outstanding issues* represents transfer of property rights
- Exchange of *new issues* represents transfer of funds from savers to borrowers

Equities or stock

- Equities residual claims on “risky” and uncertain future income stream of assets
- Holders have incentive to promote - or push company to promote - efficient use of assets to minimize costs
- Example: common stock
Types of equities
- Common stock
  » Last to be paid on dissolution of firm
- Preferred stock
  » Reduces “risks” to investor compared to common stock holder, but...
  - Preferred stock adds constraints on the firm
  - Would expect fewer issues of preferred stock than common stock

Common stock income components
- Dividend payments
  » Dividends are profits distributed to owners; i.e., holders of stock
- Capital gains and losses
  » Stock price changes
Debt

- Claim to a *prespecified portion* of future income stream of an asset
  - *Portion*: not whole income stream of asset
  - *Prespecified*: know portion before time
- Example: bonds
  - Value depends on value of underlying asset; i.e., its income stream
    - If income stream is “risky”, bond is “risky”

Bond income components

- Coupon payments: \( C = \lambda F \)
  - Fixed income stream
  - Based on
    - Coupon rate (\( \lambda \))
      - Fixed at time of issue
    - Face value of bond (F)
      - What it is worth
      - Usually $1000 face value
  - Repayment of loan: F
Example coupon bond
- Face value: amount of bond
  » Example: $1000
- Coupon rate: rate attached to bond at issuance and is amount issuer promises to pay each period
  » Example: 6%
- Coupon amount: $1000*0.06 = $60

Simple equations
Income from stocks:
\[ \text{Income} = \text{Dividend Stream} + \text{Gains/Losses} \]

Income from bonds:
\[ \text{Income} = \text{Coupon Payments} + \text{Repayment} \]
Structure and Function of Capital Markets

Basic Securities (Continued)

- The dollar income from any security is the dollar return from that security
  - Denote the dollar return in period $t$ by $R_t$

Introduction to Pricing

- Introduce simple pricing concepts
  - Begin with bonds and then do stocks
  - Assumptions
    » No risk
      - Adjust for risk later
    » No inflation
      - Adjust for inflation later
      - All dollar amounts are in real terms
Bond prices set where suppliers and demanders agree
– Can prove that bond price is present value of future expected coupon amounts
– Use infinite-lived bond called a *perpetuity* or *consol*

Bond price is

\[ P_B = \frac{C}{r^B_f} \]

where \( C \) is the constant real *coupon amount* and \( r^B_f \) is the bond real discount factor devoid of risk
– Follows from simple supply and demand framework: agreement at the margin
Key observation
- Price of bond and real interest rate vary inversely
  » Know one, then other is known automatically
  » Only need to know one of these
- Bond real discount factor is called the yield or rate of return - it is an interest rate
- Clearly \( r_f^B = \frac{C}{P_B} \)

Stock price is similar
- Present value of dividends plus value of stock tomorrow if sold
- Assume just one holding period so that
  \[
  P_S^0 = \frac{D_1}{1 + r_f^S} + \frac{P_S^1}{1 + r_f^S}
  \]
  where \( D_1 \) is the real dividend tomorrow, \( P_S^1 \) is price tomorrow and \( r_f^S \) is the stock real discount factor devoid of risk
Simple algebra shows that stock discount factor is

\[ r_f^S = \frac{D_1}{P_0^S} + \frac{P_1^S - P_0^S}{P_0^S} \]

Dividend %Appreciation
Yield In Value

Stock real discount factor is called the rate of return - it is an interest rate.

Notice that the rates of return for stocks and bonds were presented as different amounts \( r_f^S \) and \( r_f^B \)

- What is their relationship?
  » The two rates of return must be equal
    - If not, then rational investor can earn a profit by buying the higher yielding security driving its price up and the rate of return down; conversely for the lower yielding security
    - Process is called arbitrage
Law of One Rate of Return
- Must have just one rate of return in the market
- Therefore,

\[ r^S_f = r^B_f = r_f \]

- Actual rates of return will differ at times because there are different “drivers” for each market (e.g., economy, policy, psychology)

For stocks and bonds, basically have

\[ r_f = \frac{\text{\$Return}}{P_{\text{Today}}} \]
Economics of Capital Markets

Structure and Function of Capital Markets
Sizing the Capital Markets

1994

Capital Market (Debt + Equity) $843.5B

Underwritten

$702.5B

Debt $625.5B

Conv $4.7B

Asset Backed $253.4B

Preferred $15.5B

Equity $77.1B

Debt $117.1B

Common $51.6B

Equity $23.9B

Private Placement $141.0B

Straight Corp $367.4B

Debt $625.5B

Value of US Corp. Underwritings and Private Placements

$ Billions


Total $843.5B Underwritten $702.5B Private Placement $141.0B

Economics of Capital Markets

Structure and Function of Capital Markets
Sizing the Capital Markets (Continued)

Notes
Economics of Capital Markets

Structure and Function of Capital Markets
Sizing the Capital Markets (Continued)

Value of US Private Placements

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Debt</th>
<th>Total Equity</th>
<th>Total Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>$117.1</td>
<td>$23.9</td>
<td>$141.0</td>
</tr>
</tbody>
</table>

Total Value of US Corp. Underwritings

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</tbody>
</table>
Economics of Capital Markets

Structure and Function of Capital Markets
Sizing the Capital Markets (Continued)

Total Debt Underwritten

Total Equity Underwritten

Notes
### Structure and Function of Capital Markets

#### Sizing the Capital Markets (Continued)

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>Holdings (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>$2913B</td>
</tr>
<tr>
<td>Private Pension Funds</td>
<td>$1047B</td>
</tr>
<tr>
<td>Public Pension Funds</td>
<td>$520B</td>
</tr>
<tr>
<td>Mutual Funds</td>
<td>$756B</td>
</tr>
<tr>
<td>Closed End Funds</td>
<td>$23B</td>
</tr>
<tr>
<td>Foreign</td>
<td>$37B</td>
</tr>
<tr>
<td>Life Ins. Co.</td>
<td>$159B</td>
</tr>
<tr>
<td>Other Ins. Co.</td>
<td>$105B</td>
</tr>
<tr>
<td>Bank Personal Trusts</td>
<td>$156B</td>
</tr>
<tr>
<td>Brokers/Dealers</td>
<td>$20B</td>
</tr>
<tr>
<td>Savings Inst.</td>
<td>$10B</td>
</tr>
<tr>
<td>Commercial Banks</td>
<td>$7B</td>
</tr>
<tr>
<td><strong>Institutions</strong></td>
<td><strong>$3136B</strong></td>
</tr>
</tbody>
</table>

Holders of US Equities Outstanding (% of Market Value)

<table>
<thead>
<tr>
<th>Year</th>
<th>Households</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>48.2%</td>
<td>51.8%</td>
</tr>
</tbody>
</table>

### Economics of Capital Markets

#### Structure and Function of Capital Markets

#### Sizing the Capital Markets (Continued)

- Households: $2913B
- Private Pension Funds: $1047B
- Public Pension Funds: $520B
- Mutual Funds: $756B
- Closed End Funds: $23B
- Foreign: $37B
- Life Ins. Co.: $159B
- Other Ins. Co.: $105B
- Bank Personal Trusts: $156B
- Brokers/Dealers: $20B
- Savings Inst.: $10B
- Commercial Banks: $7B

#### Holdings of US Equities Outstanding (% of Market Value)

- Households: 48.2%
- Institutions: 51.8%
Economics of Capital Markets

Structure and Function of Capital Markets
Sizing the Capital Markets (Continued)

Share of Household Liquid Financial Assets

1994 Share of Household Financial Assets

Notes
Household ownership characteristics - 1990

- Number of individual shareholders: 51,440K
  - Female: 17,750K
  - Male: 30,220K
- Adult shareholder incidence: 1 in 4
- Median household income: $43,800
- Median age: 43
- Median portfolio: $11,400

Studying and understanding capital markets goes beyond just understanding how terms for holding capital are set
- Major issue is resource allocation, but there are other issues
The capital markets, especially Wall Street, exert large influence on investment decisions of firms
- Firms have been accused of favoring short-term investments just to meet investor demands
- Implication: innovation and R&D stifled negatively impacting long-term economic growth and competitiveness

Understanding capital markets, especially global capital markets, important for understanding international developments and U.S. competitiveness
- Capital markets not restricted to national borders
- Investments can take place electronically
- One implication: trying to regulate or control capital markets next to impossible
Economics of Capital Markets

Structure and Function of Capital Markets
Studying Capital Markets (Continued)

- Understanding capital markets (Continued)
  - Example
    » Japanese government tried to prevent trading of some “modern complex financial derivatives” tied to the Nikkei in Tokyo
    » Trading simply moved to Singapore
    » A trader for Barings Securities (Nick Leeson) Placed A $29B bet in Singapore on the Nikkei (and lost!)
      - Barings, one of the world’s oldest banks, collapsed

Economics of Capital Markets

Structure and Function of Capital Markets
Studying Capital Markets (Continued)

- Understanding capital markets (Continued)
  - Everyone effectively borrows capital on an “equal-access basis” on the world capital markets in New York, London, Tokyo
    » For investing, “there are no rich or poor countries.”
Understanding capital markets (Continued)

- Global capital markets and electronic trading systems enable huge sums of money to move around the world quickly
  - On a normal day, world capital markets move $1.3T but world’s exports are only $3T in a year
  - In 2 days, the world’s capital markets can move as much money as all economies can move in a year

Understanding capital markets (Continued)

- Problem this creates
  - Linkages make potential crashes potentially larger and more far reaching than previous crashes
Capital markets and crashes

- Dramatic movements in the capital markets, in particular, the stock market, can have big impact on the business cycle and growth
  » We are all aware of the 1929 Stock Market Crash
  » In 1987, the stock market fell but was so short-lived that it had minimal impact
    - We will discuss both briefly later in course

- From 12/89 To 8/92, at least, the Nikkei fell from 38916 to 14309
  » Bigger decline than American stock market decline in 1929 and 1932
  » Led to recession in Japan that seems to still be continuing
Economics of Capital Markets

Structure and Function of Capital Markets
Function of Capital Markets

- Previously viewed the capital markets as a way to bring borrowers and lenders of loanable funds together
  - Naive view of this market since all markets bring two parties together
  - Capital markets do more...

  Capital Markets manage risk

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Economics of Capital Markets

Structure and Function of Capital Markets
Function of Capital Markets (Continued)

- To understand the management function, we must understand...
  - The operations of capital markets
  - The concepts of risk and uncertainty
Structure and Function of Capital Markets
Review Questions

- Describe the structure of Financial Markets and the individual submarkets.
- How does the capital market differ from the credit and money markets?
- Discuss the international linkages in the capital markets.
- What is the function of the financial markets?
- Describe some common income streams.

Structure and Function of Capital Markets
Review Questions (Continued)

- Describe the basic structure of the capital markets.
- Distinguish between common and preferred stock.
- What is debt?
## Economics of Capital Markets

### Structure and Function of Capital Markets

#### Key Concepts and Terms

- Capital Markets
- Debt
- Financial Economics
- Financial Markets
- Money Markets
- New issues
- Outstanding issues
- Preferred and common stock

### Suggested Readings

Economics of Capital Markets

Structure and Function of Capital Markets
Suggested Readings (Continued)