EE432 Monetary Theory and Policy

Lecture 4 Stocks and Derivatives

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Supplement

Chapter 8

Stocks, Stock Markets, and Market Efficiency

Stock, Stock Markets and Stock Index

Stocks

- A **share of stock** is a ***claim*** on the net income and assets of the corporation.

Rights of shareholders

- **Shareholders (stockholders)** have *ownership* interest in the company ***proportional to*** *shares owned*.
  - Large shareholder vs. small shareholders
- Rights include:
  1. rights to be 'residual claimants'
  2. voting rights ➔ influence management

Shareholders' payoff

- possible income:
  - dividends: payments made periodically, usually every quarter, to stockholders. Shareholders are eligible for dividends, but no guarantee.
  - capital gain: can sell stocks to earn price appreciation but may also incur loss from price decline.
- limited liability

Read stock quotes

Microsoft Corporation

(MSFT) NASDAQ

$26.03 $+0.05 +0.19%

Open	$26.11
High:	$26.39
Low:	$25.45
52-Wk Rng	$ 25.60 - $ 37.50
P/E Ratio	15.13
Volume	71,527,599

- 52-Wk Rng
  - Highest and lowest share price achieved by the stock over the past 52 weeks.
- P/E Ratio
  - Price-Earnings Ratio = (Current stock price)/(Current annual earnings per share)
- Volume
  - Volume of shares traded yesterday (in 100s)

Bonds vs. Stocks

Issuer	Cost	Cost
(company)	int. paid out (i)	(dividends pd out Cap gains

- Bond value or price today
  - Discount the CFs by (i) (reqr'd return)
  - Cfs = Int pmts; principal
  - PV, PMT,FV,N,i
- Stock value or price today
  - Discount the CFs by (R) (reqr'd return)
  - Cfs = Dividends

Bonds vs. Stocks

Bond's Value or Price Today

- = sum of the PVs of the future CFs;
  - That is – discount CFs (int Pmts (PMT) & Principal (FV)) by i% over some period (N) to get PV
  - PMT,FV,N,I known; solve for PV

Stock's Value or Price Today

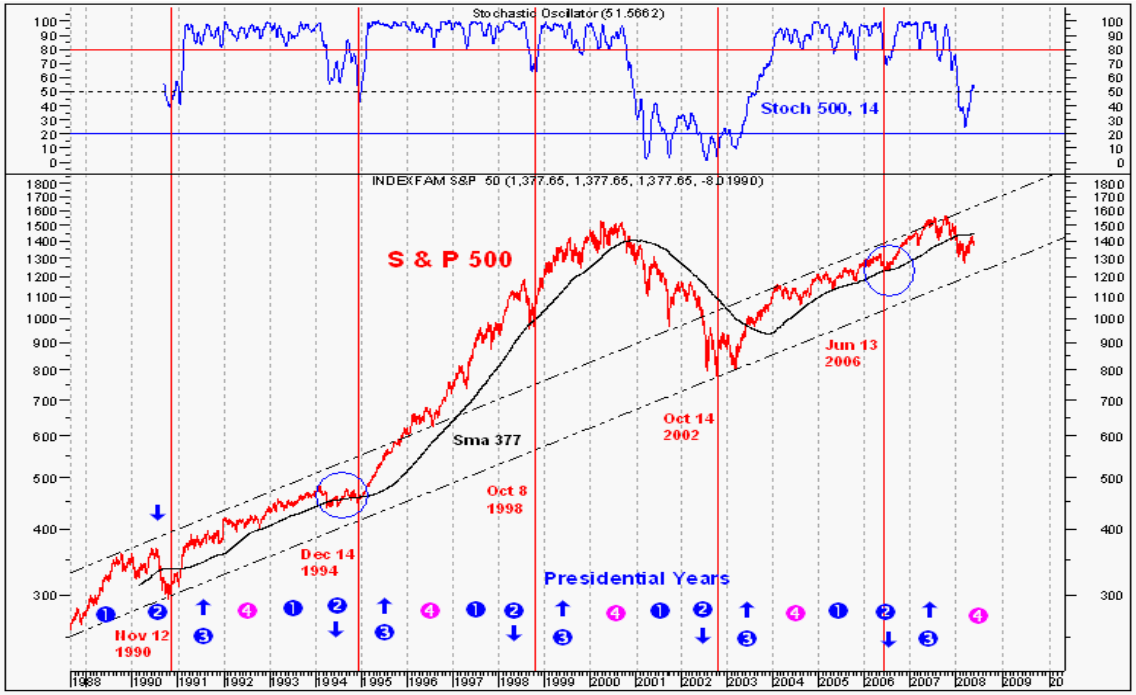
- = sum of the PVs of the future CFs;
  - Discount CFs (divids) by (R) (reqr'd return) to get P_o (PV)

Stock Valuation

Stock Valuation

- **Fundamental Finance View:**
  - Stock prices are largely ***determined by the true financial conditions of firms***, as reflected in their profits, market power, R&D prospects, etc.
- **Behavioral Finance View:**
  - Stock prices are strongly affected by market psychology:
    1. "**irrational exuberance (enthusiasm)**" or pessimism;
    2. "**beauty contest**" guesses about the *most attractive stocks* to buy based on *what other people are buying or selling* (fads, herd following, …).

Technical analysis



cycles and waves

candle stick chart

Underlying Assumptions of Technical Analysis

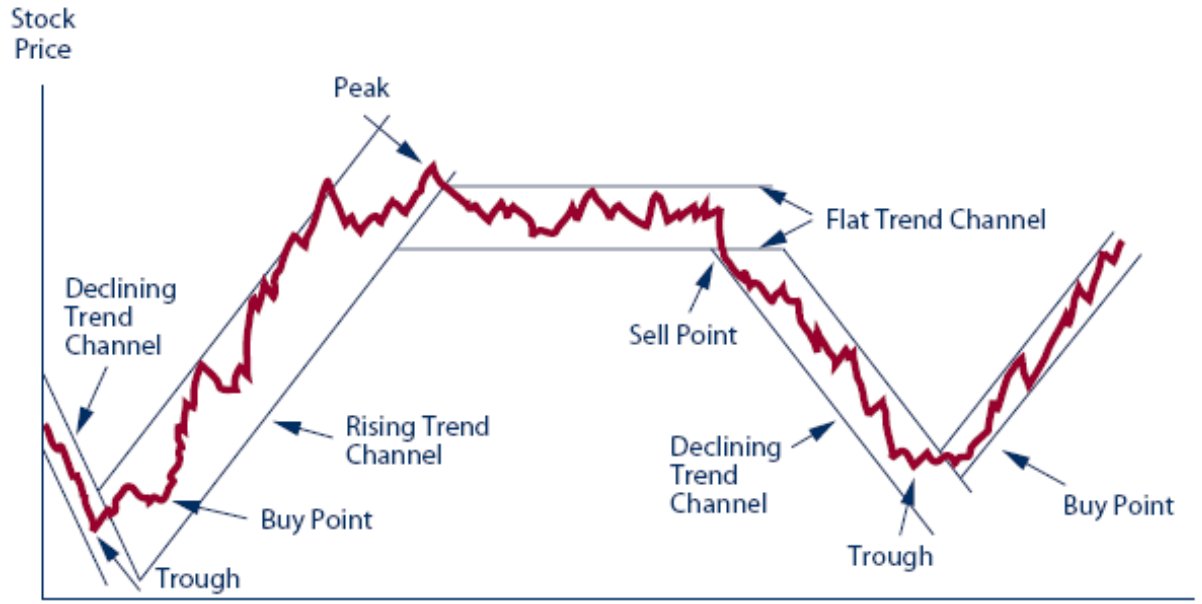
- **Prevailing trends** change in ***reaction*** to ***shifts in supply and demand relationships***.
- These **shifts**, no matter why they occur, ***can be detected*** sooner or later in the action of the market itself

Dow Theory: Technical Analysis Rationale

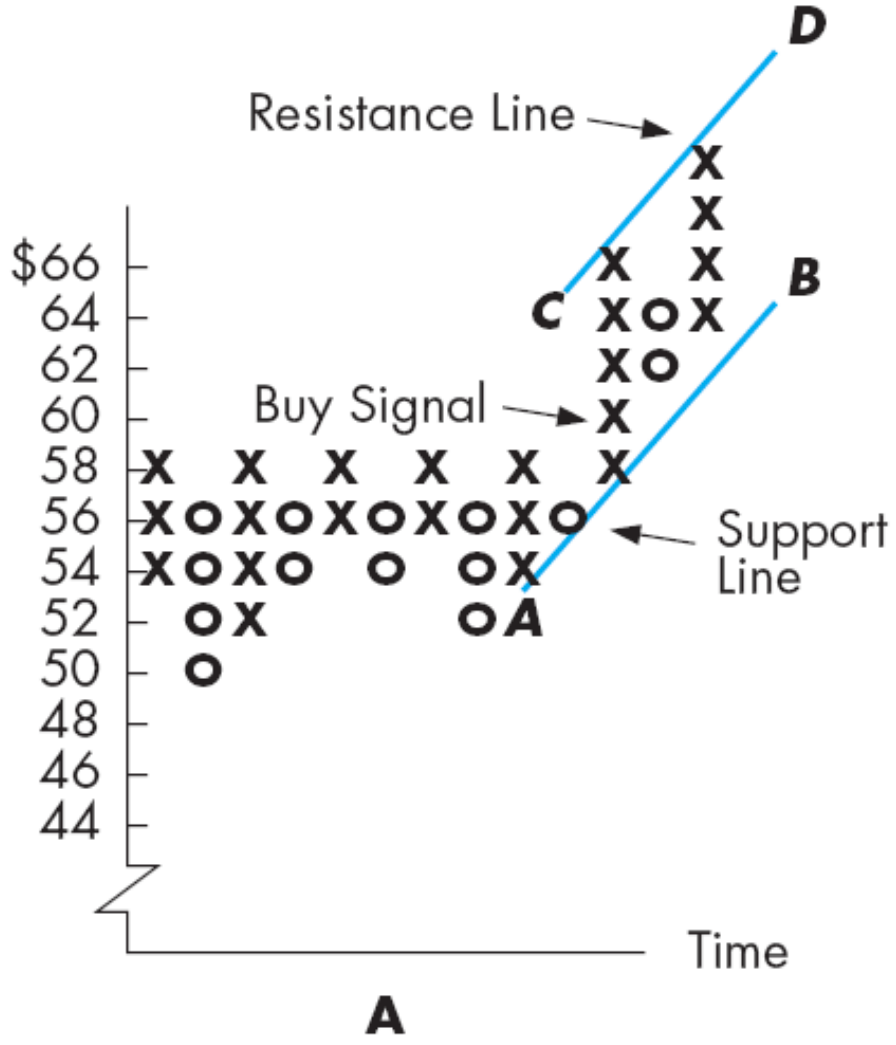
- A **typical stock price cycle** for the market or a stock *goes through a peak and trough as well as trends*
- By **analyzing the trend patterns** (rising trend, flat trend, declining trend) and the change in trend, *a technical analyst would be able to decide what trade is needed*

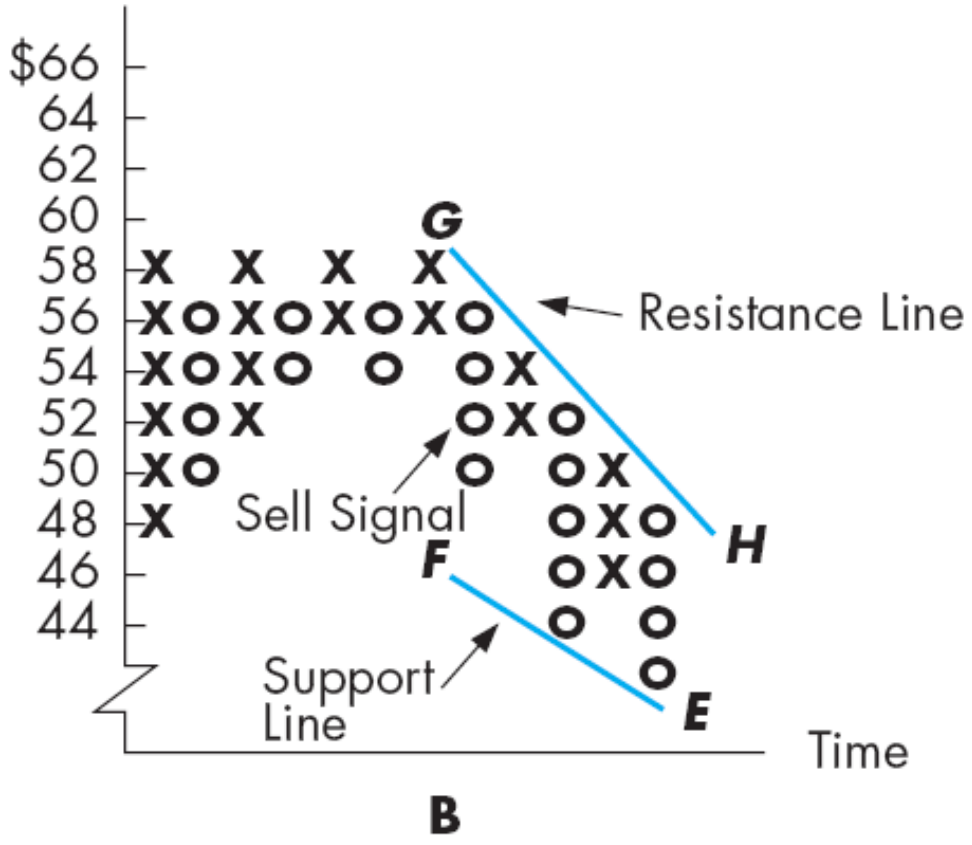
Technical Analysis

Exhibit 15.2 Typical Stock-Market Cycle

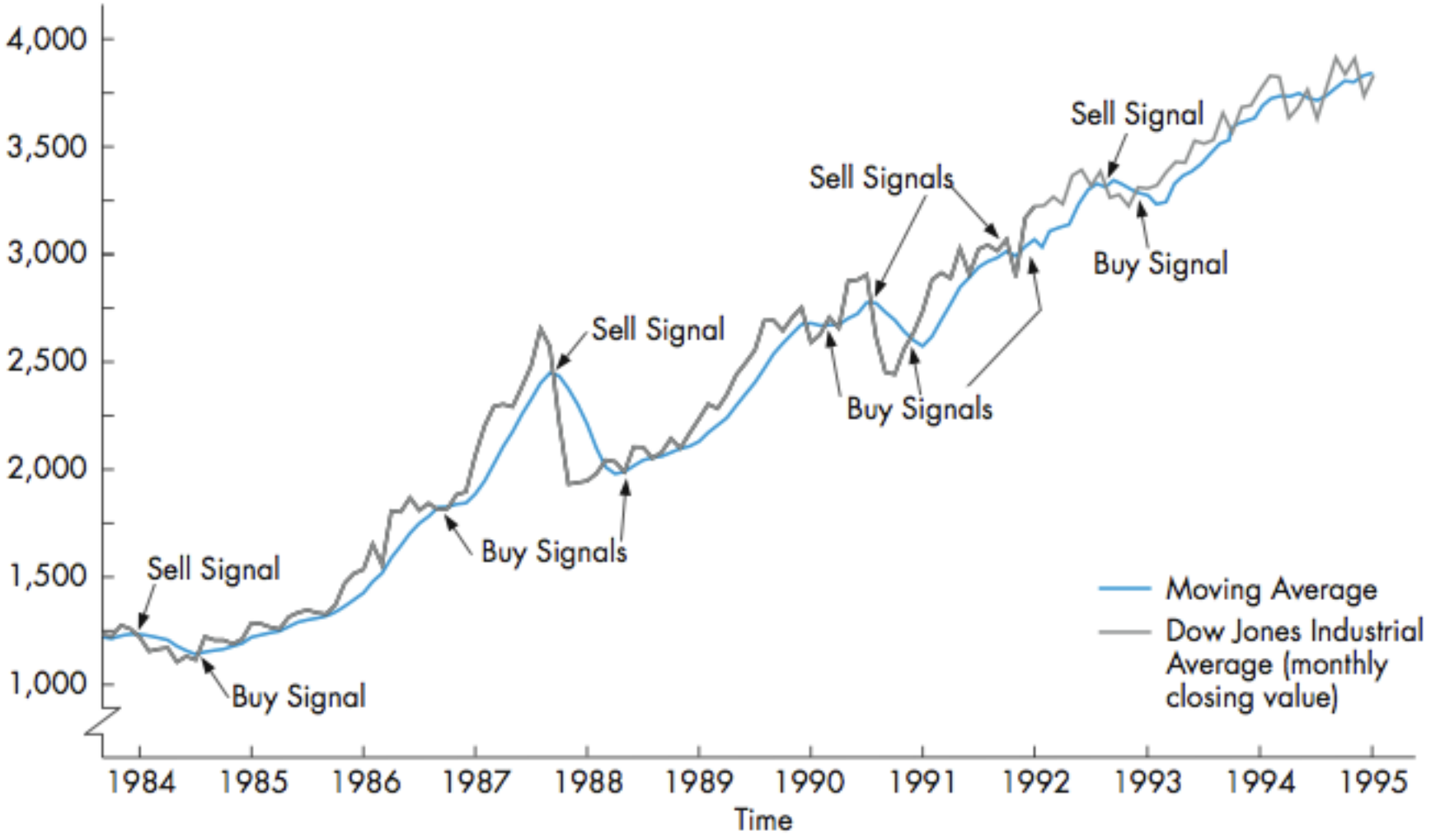


Buy and Sell Indicators





Dow Jones Industrial Average and a Six-Month Moving Average

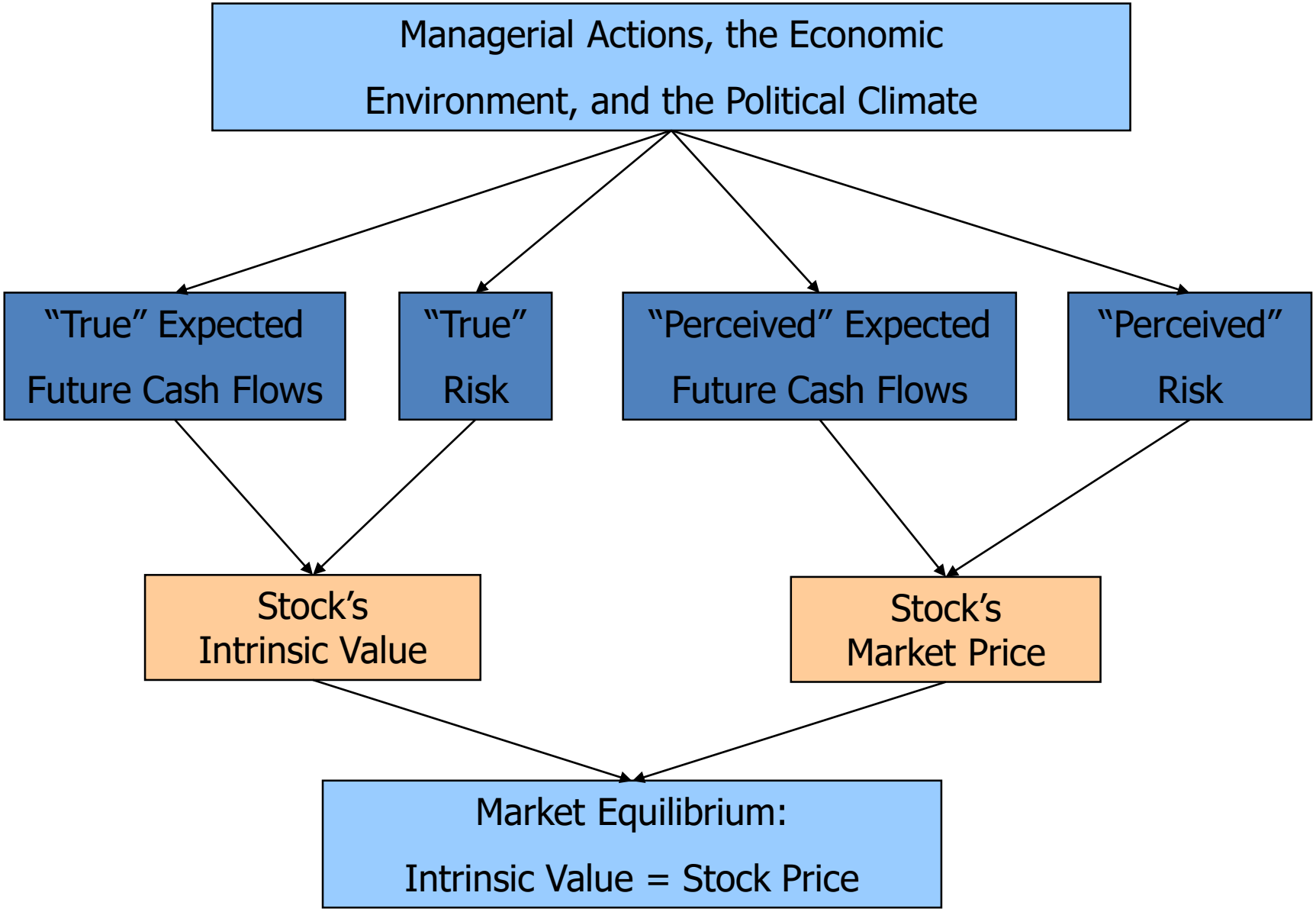


The Theory of Efficient Markets

What is market equilibrium?

- In equilibrium, the **intrinisic price must equal the actual price**.
- *If the **actual price is lower than the fundamental value***, then the *stock is a "bargain."*
- Buy orders will exceed sell orders, the **actual price will be bid up**. The opposite occurs if the actual price is higher than the fundamental value.

Intrinsic Values and Market Stock Prices



What's the Efficient Market Hypothesis (EMH)?

- **Securities are normally in equilibrium and are "fairly priced."** *One cannot "beat the market"* except through good luck or inside information.
- EMH does *not assume* all investors are *rational*.
- EMH assumes that **stock market prices track intrinsic values fairly closely**.

Chapter 9

Derivatives: Futures, Options, and Swaps

Uses of Derivatives

- To **hedge** or insure risks; i.e., shift risk.
- To reflect a view on the future direction of the market, i.e., to **speculate**.
- To lock in an **arbitrage** profit
- To **change** the nature of an **asset or liability**.

Forwards

- **Gain/Loss on Forwards**
  - **Long position:**
    - The payoff to the long is S – F
  - **Short position:**
    - The payoff to the short is F – S

Futures vs. Forwards

- Futures are similar to forwards, **except:**
  - **Futures trade on futures exchanges**
  - Futures are **standardized contracts**
    - this increases their liquidity
    - but sometimes firms prefer precise, custom made (OTC) forward contracts

Futures vs Forwards

Default risk for futures is ***lower*** because:

- The **clearinghouse** of the exchange ***guarantees payments.***
- An **initial margin** is **required**.
- Futures contracts are "**marked to market**" daily (daily resettlement)

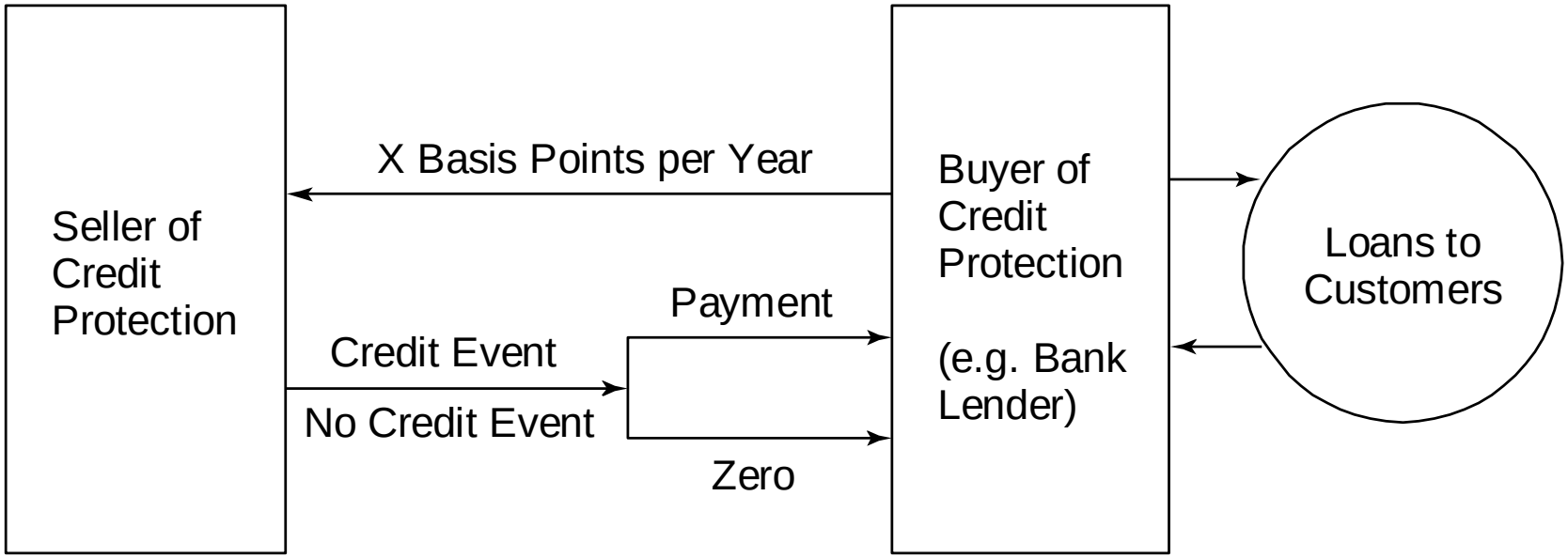
Options

- **Call option economics**
  - For the long:
    - Call payoff = max(0, S-K) *; S= Spot price K = Strike price*
    - Call profit = max(0, S-K) – future value of option premium
  - For the writer (the short):
    - Call payoff = -max(0, S-K)
    - Call profit = -max(0, S-K) + future value of option premium

Options

- **Put option economics**
  - For the long:
    - Put payoff = max(0, K-S)
    - Put profit = max(0, K-S) – future value of option premium
  - For the writer (the short):
    - Put payoff = -max(0, K-S)
    - Put profit = -max(0, K-S) + future value of option premium

Figure 15.6 A credit default swap (CDS).



End of lecture