

# The Stock Market

Mishkin Chapter 7:Part B (pp. 156-177)

**Modified Notes from F. Mishkin  
Eighth Edition**

**L. Tesfatsion  
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## Key In-Class Discussion Questions

### Mishkin Chapter 7: Part B (pp. 156-177)

- How do economists model the way investors form their expectations?
- What does “**adaptive expectations**” mean?
- What does “**rational expectations**” mean?
- What is the **Efficient Market Hypothesis (EMH)**?
- Does the EMH provide practical advice for stock market investing?
- Empirical evidence for and against the EMH in stock markets?
- Evidence for and against the EMH in other markets?
- **Application:** Black Monday Crash of 1987

# Alternative Views of Expectation Formation

## **Adaptive Expectations (Mishkin, Ch7, p. 157):**

Expectations are formed on the basis of past experiences only, typically as some kind of weighted average of past observations.

*EXAMPLE:* To form a forecast for the price of IBM stock in 2007, call it  $P^e(2007)$ , an investor forms a weighted average of the prices he has observed for shares of IBM in 2006, 2005, and 2004:

$$P^e(2007) = .70 \times P(2006) + .20 \times P(2005) + .10 \times P(2004)$$

# Rational Expectations: Two Basic Forms

**1. Weak-Form Rational Expectations:** Whatever information people have, they make optimal use of this information in forming their expectations. (**Note:** *No* restriction placed on information.)

**2. Strong-Form Rational Expectations (Mishkin, Ch7,157-8):**

a) People have access to all available information about the structure of the world in which they live;

(**Note:** *Strong* restriction placed on information.)

b) and they make optimal use of this information in forming their expectations.

c) Thus, their expectations will be correct up to unsystematic (unavoidable) errors, e.g.,  $P^e = P + (\text{unavoidable error})$

## Implications of Strong-Form Rational Expectations

**1.** If there is a change in the way a variable moves, then the way in which expectations of this variable are formed also changes.

*Example:* A sudden change in government monetary policy leading to a change in the movements of the Fed Funds rate results in an immediate change in people's expectations regarding the Fed Funds rate.

**2.** Forecasts are not always exactly correct, but forecast errors are not predictable in advance and they average out to zero.

**3.** Two reasons why expectations can fail to be rational in the strong-form sense:

- a. Investors fail to USE all available relevant information.
- b. Investors fail to make OPTIMAL use of all available relevant information.

## Efficient Market Hypothesis (Mishkin, Ch7, pp. 160-162)

$$RET_t = \frac{P_{t+1} - P_t + C}{P_t}$$

$$RET_t^e = \frac{P_{t+1}^e - P_t + C}{P_t}$$

**Rational Expectations implies:**  $P_{t+1}^e = P_{t+1}^{of}$  (optimal forecast),

$$\text{and } P_{t+1}^e = P_{t+1}^{of} \Leftrightarrow RET_t^e = RET_t^{of}$$

**Efficient Market Hypothesis -- First Form  
(Mishkin, p. 160):**

$$RET_t^e = RET_t^{of} \tag{1}$$

Expectations in financial markets are equal to optimal forecasts using all available information (i.e., investors have strong-form rational expectations).

## Efficient Market Hypothesis...Continued

### **Efficient Market Hypothesis -- Second Form (Stronger) (Mishkin, p. 161):**

In addition to (1), i.e., strong-form rational expectations,

$$\mathbf{RET}_t^{\text{of}} = \mathbf{RET}_t^* \text{ (Equilibrium S=D Return Rate)} \quad (2)$$

Current security prices in a financial market will be set so that the optimal forecast of a security's return rate using all available information equals the security's equilibrium return rate.

# Efficient Market Hypothesis...Continued

**Why the Efficient Market Hypothesis (Second Form) Makes Sense:**

$$RET_t^{of} > RET_t^* \rightarrow P_t \uparrow, RET_t^{of} \downarrow \text{ until } RET_t^{of} = RET_t^*$$

$$RET_t^{of} < RET_t^* \rightarrow P_t \downarrow, RET_t^{of} \uparrow \text{ until } RET_t^{of} = RET_t^*$$

1. Intuitive that security prices will adjust until all perceived unexploited profit opportunities are eliminated.

2. This security price adjustment can take place even if there are uninformed irrational participants in the market as long as enough investors recognize and act to exploit any profit opportunities that arise.

## Efficient Market Hypothesis...Continued

### **Efficient Market Hypothesis -- Third Form (Strongest) (Mishkin, p. 162):**

In addition to (1) and (2), security prices reflect true fundamental (intrinsic) value, meaning there are no “price bubbles” on security prices.

*Example.* Stock prices equal the discounted value of their dividend payment streams. Letting  $P_0$  = Current share price and  $D_t$  = Dividend expected in time period  $t$ :

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + k_e)^t}$$

# Implications of EMH for Investing (Mishkin, Ch. 7, pp. 168-171)

1. Published reports of financial analysts not very valuable
2. Should be skeptical of hot tips
3. Security prices might fall on good news
4. Prescription for investors:
  - a. Shouldn't try to outguess market.
  - b. Therefore, buy and hold.
  - c. Diversify with no-load mutual fund.

# Evidence on EMH in Stock Markets (Mishkin, pp. 162-168)

## Early Favorable Empirical Evidence (1970-1983):

1. Investment analysts and mutual funds do not persistently beat the market (e.g., the average return on the S&P 500)
2. Technical analysis (predicting future prices on the basis of past price patterns) does not persistently beat the market.
3. Stock prices appear to reflect publicly available information: *anticipated* announcements do not appear to affect stock prices
4. Departures of stock prices from fundamental value do not appear to be predictable, i.e.,

$$P_{t+1} + D_t \approx (1 + \text{RET}_t) \times P_t + (\text{unsystematic mean-0 error})$$

# Evidence on EMH in Stock Markets

## Unfavorable Empirical Evidence (“Anomalies”) Since 1983:

1. Small-firm effect: Small firms have abnormally high returns
2. January effect: Abnormal price rise from December to January (small firms)
3. Market overreaction to news announcements
4. Excessive stock price volatility relative to fluctuations in fundamental value
5. Mean reversion (low returns today → higher returns in future, and vice versa)
6. New information is not always immediately incorporated into stock prices

**Summary Overview:** EMH might be a reasonable starting point for understanding stock markets, but it is not the whole story

## EMH in Other Markets? (Mishkin, Ch.7, 171-173)

1. Bond markets appear to be efficient.
2. Survey data evidence for markets other than financial markets is mixed. There is skepticism about the quality of the data.
3. The following implication is supported:  
If there is a change in the way a variable moves, then the way in which expectations of this variable are formed also changes.

# Behavioral Finance (Mishkin pp. 173-4)

- The lack of short selling (causing over-priced stocks) might be explained by loss aversion
- The large trading volume might be explained by investor overconfidence
- Stock market bubbles might be explained by overconfidence and social contagion

# Basic Concepts and Key Issues from Mishkin

## Chapter 7: Part B (pp. 156-177)

### Basic Concepts:

- Adaptive expectations
- Rational expectations (strong and weak form)
- Efficient Market Hypothesis
- Behavioral finance

### Key Issues:

- Adaptive vs. rational expectations
- Weak vs. strong-form rational expectations
- Implications of strong-form rational expectations
- Three versions of the Efficient Market Hypothesis
- Implications of the EMH for stock market investing
- Empirical evidence for and against the EMH in stock markets and other forms of markets