CHAPTER 12
SOME LESSONS FROM CAPITAL MARKET HISTORY

12.1 RETURNS
A. Dollar returns
   Income component (dividends or interest payments) + capital gain or loss
B. Percentage returns (for stock)
   Dividend yield + capital gains yield

Example: Suppose you bought some stock at the beginning of the year for $25 per share. At the end of the year, the price is $35 per share. During the year, you got a $2 dividend per share. What is the dividend yield? What is the capital gains yield? The percentage return?

12.3 AVERAGE RETURNS
A. Calculating average returns
B. Historical average returns and risk premiums

Average historical returns, 1926-2000

<table>
<thead>
<tr>
<th>Investment</th>
<th>Average return %</th>
<th>Risk premium %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-company stocks</td>
<td>13.0</td>
<td>9.1</td>
</tr>
<tr>
<td>Small-company stocks</td>
<td>17.3</td>
<td>13.4</td>
</tr>
<tr>
<td>Long-term corporate bonds</td>
<td>6.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Long-term government bonds</td>
<td>5.7</td>
<td>1.8</td>
</tr>
<tr>
<td>U.S. Treasury bills</td>
<td>3.9</td>
<td>0</td>
</tr>
<tr>
<td>Inflation</td>
<td>3.2</td>
<td></td>
</tr>
</tbody>
</table>

Risk premium—reward for bearing risk, the difference between a risky investment return and the risk-free rate.

C. The First Lesson
Risky investments earn a risk premium. For large company common stocks, the average annual risk premium has been approximately 9.1% since 1926. For smaller (and, presumably riskier) firms, the average annual risk premium has been 13.4% over the same period.

12.4 THE VARIABILITY OF RETURNS
A. Variance of returns

Historical returns constitute a sample, so we use sample variance:

\[ \text{Var}(R) = \frac{1}{T-1} \sum_{t=1}^{T} (R_t - \bar{R})^2 \]
Suppose Hyperdrive Company has experienced the following returns in the last four years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>5%</td>
</tr>
<tr>
<td>2000</td>
<td>9%</td>
</tr>
<tr>
<td>2001</td>
<td>-12%</td>
</tr>
<tr>
<td>2002</td>
<td>20%</td>
</tr>
</tbody>
</table>

What is the average return? The variance of returns? The standard deviation?

12.5 CAPITAL MARKET EFFICIENCY

*Efficient capital market*—market in which current market prices fully reflect available information. In such a market, it is not possible to devise trading rules that consistently "beat the market" after taking risk into account.

**A. Price Behavior in an Efficient Market**

*Is the degree of market efficiency increasing? Consider:*

- Investors today have virtually instantaneous access to financial and economic information at low (or no) cost that, just a few years ago, was available only to professional portfolio managers at very high cost;
- The proportion of individuals owning stocks directly doubled between 1965 and 1990, and doubled again between 1990 and 1997;
- Nearly 30 percent of the retail stock market trading is done online, up from virtually zero just a few years ago;

**B. The Efficient Markets Hypothesis**

*Efficient markets hypothesis (EMH)*—asserts that modern U.S. stock markets are, as a practical matter, efficient. The important implication of the EMH is securities represent zero NPV investments—meaning that they are expected to return exactly their risk-adjusted rate.

Competition among investors and traders makes a market efficient.

**C. Some Common Misconceptions about the EMH**

1. Market efficiency does not mean that it doesn't make a difference how you invest, since the risk/return trade-off still applies, but rather that you can't expect to consistently "beat the market" on a risk-adjusted basis.

2. Stock price fluctuations are evidence that the market is efficient since new information is constantly arriving—prices that don't change are evidence of inefficiency.

3. The EMH doesn't say prices are random. Rather, the influence of previously unknown information causes randomness in price changes. As a result, price changes can't be predicted before they happen.
D. The Forms of Market Efficiency

1. *Weak form efficiency*—A form of the theory that suggests you can't beat the market by knowing past prices.

2. *Semi-strong form efficiency*—Perhaps the most controversial form of the theory, it suggests you can't consistently beat the market using publicly available information. That is, you can't win knowing what everyone else knows.

3. *Strong form efficiency*—The form of the theory that states no information of any kind can be used to beat the market. Evidence shows this form does not hold.

**Capital market history and the EMH:**
- 1. Prices respond very rapidly to new information.
- 2. Future prices are difficult to predict.
- 3. Mispriced stocks (those whose future price level can be predicted accurately) are difficult to identify and exploit.