CHAPTER 8
The Efficient Market Hypothesis

8.1 RANDOM WALKS AND THE EFFICIENT MARKET HYPOTHESIS

**Efficient Market Hypothesis (EMH)**
- Do security prices reflect information
- Why look at market efficiency
  - Implications for business and corporate finance
  - Implications for investment

**Random Walk and the EMH**
- Random Walk - stock prices are random
  - Randomly evolving stock prices are the consequence of intelligent investors competing to discover relevant information
    - Expected price is positive over time
    - Positive trend and random about the trend

**Random Walk with Positive Trend**

**Random Price Changes**
- Why are price changes random
  - Prices react to information
  - Flow of information is random
  - Therefore, price changes are random
EMH and Competition

- Stock prices fully and accurately reflect publicly available information
- Once information becomes available, market participants analyze it
- Competition assures prices reflect information

Versions of the EMH

- Weak
- Semi-strong
- Strong

Types of Stock Analysis

- **Technical Analysis** - using prices and volume information to predict future prices
  - Weak form efficiency & technical analysis
- **Fundamental Analysis** - using economic and accounting information to predict stock prices
  - Semi strong form efficiency & fundamental analysis

8.2 IMPLICATIONS OF THE EMH
Implications of Efficiency for Active or Passive Management

- **Active Management**
  - Security analysis
  - Timing
- **Passive Management**
  - Buy and Hold
  - Index Funds

The Role of Portfolio Management in an Efficient Market

- Even if the market is efficient a role exists for portfolio management:
  - Appropriate risk level
  - Tax considerations
  - Other considerations

8.3 ARE MARKETS EFFICIENT

Empirical Tests of Market Efficiency

- **Magnitude Issue**
  - Actions of intelligent investment managers are the driving force
- **Selection Bias Issue**
  - The outcomes we observe have been preselected in favor of failed attempts
  - Cannot evaluate the true ability of portfolio managers
- **Lucky Event Issue**

Weak-Form Tests: Patterns in Stock Returns

- Returns over short horizons
  - Very short time horizons small magnitude of positive trends
  - 3-12 month some evidence of positive momentum
- Returns over long horizons – pronounced negative correlation
- Evidence on Reversals

Predictors of Broad Market Returns

- **Fama and French**
  - Aggregate returns are higher with higher dividend ratios
- **Campbell and Shiller**
  - Earnings yield can predict market returns
- **Keim and Stambaugh**
  - Bond spreads can predict market returns
Semi-Strong Tests: Market Anomalies

- **P/E Effect**
- **Small Firm Effect (January Effect)**
  - Invest in low-capitalization stocks
  - Earn excess returns

Semi-Strong Tests: Market Anomalies (Con’t)

- **Neglected Firm**
  - Small firms tend to be neglected by large institutional traders
- **Book-to-Market Ratios**
  - Beta seems to have no power to explain average security returns

Semi-Strong Tests: Market Anomalies (Con’t)

- **Post-Earnings Announcement Drift**
  - There is a large abnormal return on the earnings announcement day
Strong-Form Tests: Inside Information

- The ability of insiders to trade profitability in their own stock has been documented in studies by Jaffe, Seyhun, Givoly, and Palmon
- SEC requires all insiders to register their trading activity

Interpreting the Evidence

- Risk Premiums or market inefficiencies—disagreement here
  - Fama and French argue that these effects can be explained as manifestations of risk stocks with higher betas
  - Lakonishok, Shleifer, and Vishney argue that these effects are evidence of inefficient markets

Interpreting the Evidence (Con't)

- Anomalies or Data Mining
  - Rerun the computer database of past returns over and over and examine stock returns along enough dimensions:
    - Simple chance may cause some criteria to appear to predict returns

8.4 MUTUAL FUND AND ANALYST PERFORMANCE

Stock Market Analysts

- Do analysts add value—mixed evidence
  - Womack study found that positive changes are associated with increased stock prices of about 5%
  - Negative changes result in average price decreases of 11%
  - Are prices change due to analysts' information or through pressure brought on by the recommendations themselves
Mutual Fund Managers

- Some evidence of persistent positive and negative performance
- Potential measurement error for benchmark returns
  - Style changes
  - May be risk premiums
- Superstar phenomenon

Table 8.1 Performance of Mutual Funds Based on Three-Index Model

<table>
<thead>
<tr>
<th>Type of Fund (Munzerber Classification)</th>
<th>Number of Funds</th>
<th>Alpha (%)</th>
<th>t-Statistic for Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity funds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum volatility</td>
<td>12</td>
<td>-4.59</td>
<td>-1.87</td>
</tr>
<tr>
<td>Growth</td>
<td>33</td>
<td>-1.55</td>
<td>-1.23</td>
</tr>
<tr>
<td>Growth and income</td>
<td>48</td>
<td>-0.68</td>
<td>-1.65</td>
</tr>
<tr>
<td>Balanced funds</td>
<td>31</td>
<td>-1.27</td>
<td>-2.73</td>
</tr>
</tbody>
</table>

Table 8.2 Two-Way Table of Managers Classified by Risk-Adjusted Returns over Successive Intervals

<table>
<thead>
<tr>
<th>Second-Period Winners</th>
<th>Second-Period Losers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: No cut-off (n = 600)</td>
<td>150.09  149.51</td>
</tr>
<tr>
<td>First-period winners</td>
<td>149.51  150.09</td>
</tr>
<tr>
<td>B: 5% cut-off (n = 494)</td>
<td>127.49  127.49</td>
</tr>
<tr>
<td>First-period winners</td>
<td>127.49  127.49</td>
</tr>
<tr>
<td>First-period losers</td>
<td>119.51  127.49</td>
</tr>
<tr>
<td>C: 15% cut-off (n = 390)</td>
<td>106.58  92.42</td>
</tr>
<tr>
<td>First-period winners</td>
<td>92.42   106.58</td>
</tr>
<tr>
<td>First-period losers</td>
<td>86.58   106.58</td>
</tr>
</tbody>
</table>