1. The correlation coefficient between stock returns for two non-overlapping periods should be zero. If not, one could use returns from one period to predict returns in later periods and make abnormal profits.

2. c. This is a predictable pattern in returns which should not occur if the weak-form EMH is valid.

3. c. This is a classic filter rule which should not produce superior returns in an efficient market.

4. b. This is the definition of an efficient market.

5. c. The P/E ratio is public information and should not be predictive of abnormal security returns.

6. b. Semi-strong form efficiency implies that market prices reflect all publicly available information concerning past trading history as well as fundamental aspects of the firm.

7. a. The full price adjustment should occur just as the news about the dividend becomes publicly available.

8. d. If low P/E stocks tend to have positive abnormal returns, this would represent an unexploited profit opportunity that would provide evidence that investors are not using all available information to make profitable investments.

9. c. In an efficient market, no securities are consistently overpriced or underpriced. While some securities will turn out after any investment period to have provided positive alphas (i.e., risk-adjusted abnormal returns) and some negative alphas, these past returns are not predictive of future returns.

10. c. A random walk implies that stock price changes are unpredictable, using past price changes or any other data.
11. d. A gradual adjustment to fundamental values would allow for the use of strategies based on past price movements in order to generate abnormal profits.

12. a.

13. b. The contrarian technical analyst would notice that other investors have become deeply pessimistic about prices, and therefore would take this as a bullish indicator, reasoning that market sentiment swings too widely and that stock prices reflect a too-pessimistic view of the economy.

14. No. Microsoft’s continuing profitability does not imply that stock market investors who purchased Microsoft shares after its success was already evident would have earned an exceptionally high return on their investments.

15. The question regarding market efficiency is whether investors can earn abnormal risk-adjusted profits. If the stock price run-up occurs when only insiders are aware of the coming dividend increase, then it is a violation of strong-form, but not semistrong-form, efficiency. If the public already knows of the increase, then it is a violation of semistrong-form efficiency.

16. While positive beta stocks respond well to favorable new information about the economy’s progress through the business cycle, they should not show abnormal returns around already anticipated events. If a recovery, for example, is already anticipated, the actual recovery is not news. The stock price already should reflect the coming recovery.

17. a. Consistent. Based on pure luck, half of all managers should beat the market in any year.

b. Inconsistent. This would be the basis of an “easy money” rule: simply invest with last year's best managers.

c. Consistent. In contrast to predictable returns, predictable volatility does not convey a means to earn abnormal returns.

d. Inconsistent. The abnormal performance ought to occur in January when earnings are announced.

e. Inconsistent. Reversals offer a means to earn easy money: just buy last week’s losers.
18. Expected rates of return will differ because of differential risk premiums.

19. The return on the market is 8%. Therefore, the forecast monthly return for GM is:

\[ 0.10\% + (1.1 \times 8\%) = 8.9\% \]

GM’s actual return was 7%, so the abnormal return was –1.9%.

20. a. Based on broad market trends, the CAPM indicates that AmbChaser stock should have increased by: 

\[ 1.0\% + 2.0(1.5\% – 1.0\%) = 2.0\% \]

Its firm-specific (nonsystematic) return due to the lawsuit is $1 million per $100 million initial equity, or 1%. Therefore, the total return should be 3%. (It is assumed here that the outcome of the lawsuit had a zero expected value.)

b. If the settlement was expected to be $2 million, then the actual settlement was a “$1 million disappointment,” and so the firm-specific return would be –1%, for a total return of 2% – 1% = 1%.

21. Given market performance, predicted returns on the two stocks would be:

Apex: \[ 0.2\% + (1.4 \times 3\%) = 4.4\% \]

Bpex: \[ –0.1\% + (0.6 \times 3\%) = 1.7\% \]

Apex underperformed this prediction; Bpex outperformed the prediction. We conclude that Bpex won the lawsuit.

22. a. \( E(r_M) = 12\% \), \( r_f = 4\% \) and \( \beta = 0.5 \)

Therefore, the expected rate of return is:

\[ 4\% + 0.5(12\% – 4\%) = 8\% \]

If the stock is fairly priced, then \( E(r) = 8\% \).

b. If \( r_M \) falls short of your expectation by 2% (that is, 10% – 12%) then you would expect the return for Changing Fortunes Industries to fall short of your original expectation by: \( \beta \times 2\% = 1\% \)

Therefore, you would forecast a “revised” expectation for Changing Fortunes of: \( 8\% – 1\% = 7\% \)

c. Given a market return of 10%, you would forecast a return for Changing Fortunes of 7%. The actual return is 10%. Therefore, the surprise due to firm-specific factors is 10% – 7% = 3% which we attribute to the settlement.
Because the firm is initially worth $100 million, the surprise amount of the settlement is 3% of $100 million, or $3 million, implying that the prior expectation for the settlement was only $2 million.

23. Implicit in the dollar-cost averaging strategy is the notion that stock prices fluctuate around a “normal” level. Otherwise, there is no meaning to statements such as: “when the price is high.” How do we know, for example, whether a price of $25 today will turn out to be viewed as high or low compared to the stock price six months from now?

24. No. The value of dividend predictability would be already reflected in the stock price.

25. The market responds positively to new news. If the eventual recovery is anticipated, then the recovery is already reflected in stock prices. Only a better-than-expected recovery should affect stock prices.

26. Over the long haul, there is an expected upward drift in stock prices based on their fair expected rates of return. The fair expected return over any single day is very small (e.g., 12% per year is only about 0.03% per day), so that on any day the price is virtually equally likely to rise or fall. However, over longer periods, the small expected daily returns accumulate, and upward moves are indeed more likely than downward ones.

27. Buy. In your view, the firm is not as bad as everyone else believes it to be. Therefore, you view the firm as undervalued by the market. You are less pessimistic about the firm’s prospects than the beliefs built into the stock price.

28. The negative abnormal returns (downward drift in CAR) just prior to stock purchases suggest that insiders deferred their purchases until after bad news was released to the public. This is evidence of valuable inside information. The positive abnormal returns after purchase suggest insider purchases in anticipation of good news. The analysis is symmetric for insider sales.

29. Here we need a two-factor model relating Ford’s return to those of both the broad market and the auto industry. If we call \( r_I \) the industry return, then we would first estimate parameters \( a, b, c \) in the following regression:

\[
r_{FORD} = a + br_M + cr_I + e
\]
Given these estimates we would calculate Ford’s firm-specific return as:

\[ r_{FORD} = [a + br_M + cr_I + e] \]

This estimate of firm-specific news would measure the market’s assessment of the potential profitability of Ford’s new model.

30. The market may have anticipated even greater earnings. *Compared to prior expectations*, the announcement was a disappointment.

31. a. Some empirical evidence that supports the EMH is:
   (i) professional money managers do not typically earn higher returns than comparable risk, passive index strategies;
   (ii) event studies typically show that stocks respond immediately to the public release of relevant news;
   (iii) most tests of technical analysis find that it is difficult to identify price trends that can be exploited to earn superior risk-adjusted investment returns.

   b. Some evidence that is difficult to reconcile with the EMH concerns simple portfolio strategies that apparently would have provided high risk-adjusted returns in the past. Some examples of portfolios with attractive historical returns:
      (i) low P/E stocks;
      (ii) high book-to-market ratio stocks;
      (iii) small firms in January;
      (iv) firms with very poor stock price performance in the last few months.

   Other evidence concerns post-earnings-announcement stock price drift and intermediate-term price momentum.

   c. An investor might choose not to index even if markets are efficient because he or she may want to tailor a portfolio to specific tax considerations or to specific risk management issues, for example, the need to hedge (or at least not add to) exposure to a particular source of risk (e.g., industry exposure).

32. a. The efficient market hypothesis (EMH) states that a market is efficient if security prices immediately and fully reflect all available relevant information. If the market fully reflects information, the knowledge of that information would not allow an investor to profit from the information because stock prices already incorporate the information.

   i. The *weak form* of the EMH asserts that stock prices reflect all the information that can be derived by examining market trading data such as the history of past prices and trading volume.
A strong body of evidence supports weak-form efficiency in the major U.S. securities markets. For example, test results suggest that technical trading rules do not produce superior returns after adjusting for transaction costs and taxes.

ii. The semistrong form states that a firm’s stock price reflects all publicly available information about a firm’s prospects. Examples of publicly available information are company annual reports and investment advisory data.

Evidence strongly supports the notion of semistrong efficiency, but occasional studies (e.g., those identifying market anomalies such as the small-firm-in-January or book-to-market effects) and events (such as the stock market crash of October 19, 1987) are inconsistent with this form of market efficiency. However, there is a question concerning the extent to which these “anomalies” result from data mining.

iii. The strong form of the EMH holds that current market prices reflect all information (whether publicly available or privately held) that can be relevant to the valuation of the firm.

Empirical evidence suggests that strong-form efficiency does not hold. If this form were correct, prices would fully reflect all information. Therefore even insiders could not earn excess returns. But the evidence is that corporate officers do have access to pertinent information long enough before public release to enable them to profit from trading on this information.

b.  

i. **Technical analysis** involves the search for recurrent and predictable patterns in stock prices in order to enhance returns. The EMH implies that technical analysis is without value. If past prices contain no useful information for predicting future prices, there is no point in following any technical trading rule.

ii. **Fundamental analysis** uses earnings and dividend prospects of the firm, expectations of future interest rates, and risk evaluation of the firm to determine proper stock prices. The EMH predicts that most fundamental analysis is doomed to failure. According to semistrong-form efficiency, no investor can earn excess returns from trading rules based on publicly available information. Only analysts with unique insight achieve superior returns.

In summary, the EMH holds that the market appears to adjust so quickly to information about both individual stocks and the economy as a whole that no technique of selecting a portfolio using either technical or fundamental analysis can consistently outperform a strategy of simply buying and holding a diversified portfolio of securities, such as those comprising the popular market indexes.

c. Portfolio managers have several roles and responsibilities even in perfectly efficient markets. The most important responsibility is to identify the risk/return objectives for a portfolio given the investor’s constraints. In an efficient market,
portfolio managers are responsible for tailoring the portfolio to meet the investor’s needs, rather than to beat the market, which requires identifying the client’s return requirements and risk tolerance. Rational portfolio management also requires examining the investor’s constraints, including liquidity, time horizon, laws and regulations, taxes, and unique preferences and circumstances such as age and employment.

33. a. The earnings (and dividend) growth rate of growth stocks may be consistently overestimated by investors. Investors may extrapolate recent growth too far into the future and thereby downplay the inevitable slowdown. At any given time, growth stocks are likely to revert to (lower) mean returns and value stocks are likely to revert to (higher) mean returns, often over an extended future time horizon.

b. In efficient markets, the current prices of stocks already reflect all known relevant information. In this situation, growth stocks and value stocks provide the same risk-adjusted expected return.

34. i. Mental accounting is best illustrated by Statement #3. Sampson’s requirement that his income needs be met via interest income and stock dividends is an example of mental accounting. Mental accounting holds that investors segregate funds into mental accounts (e.g., dividends and capital gains), maintain a set of separate mental accounts, and do not combine outcomes; a loss in one account is treated separately from a loss in another account. Mental accounting leads to an investor preference for dividends over capital gains and to an inability or failure to consider total return.

ii. Overconfidence (illusion of control) is best illustrated by Statement #6. Sampson’s desire to select investments that are inconsistent with his overall strategy indicates overconfidence. Overconfident individuals often exhibit risk-seeking behavior. People are also more confident in the validity of their conclusions than is justified by their success rate. Causes of overconfidence include the illusion of control, self-enhancement tendencies, insensitivity to predictive accuracy, and misconceptions of chance processes.

iii. Reference dependence is best illustrated by Statement #5. Sampson’s desire to retain poor performing investments and to take quick profits on successful investments suggests reference dependence. Reference dependence holds that investment decisions are critically dependent on the decision-maker’s reference point. In this case, the reference point is the original purchase price. Alternatives are evaluated not in terms of final outcomes but rather in terms of gains and losses relative to this reference point. Thus, preferences are susceptible to manipulation simply by changing the reference point.

35. a. Frost's statement is an example of reference dependence. His inclination to sell the international investments once prices return to the original cost depends not only
on the terminal wealth value, but also on where he is now, that is, his reference point. This reference point, which is below the original cost, has become a critical factor in Frost’s decision.

In standard finance, alternatives are evaluated in terms of terminal wealth values or final outcomes, not in terms of gains and losses relative to some reference point such as original cost.

b. Frost’s statement is an example of susceptibility to cognitive error, in at least two ways. First, he is displaying the behavioral flaw of overconfidence. He likely is more confident about the validity of his conclusion than is justified by his rate of success. He is very confident that the past performance of Country XYZ indicates future performance. Behavioral investors could, and often do, conclude that a five-year record is ample evidence to suggest future performance. Second, by choosing to invest in the securities of only Country XYZ, Frost is also exemplifying the behavioral finance phenomenon of asset segregation. That is, he is evaluating Country XYZ investment in terms of its anticipated gains or losses viewed in isolation.

Individuals are typically more confident about the validity of their conclusions than is justified by their success rate or by the principles of standard finance, especially with regard to relevant time horizons. In standard finance, investors know that five years of returns on Country XYZ securities relative to all other markets provide little information about future performance. A standard finance investor would not be fooled by this “law of small numbers.” In standard finance, investors evaluate performance in portfolio terms, in this case defined by combining the Country XYZ holding with all other securities held. Investments in Country XYZ, like all other potential investments, should be evaluated in terms of the anticipated contribution to the risk-reward profile of the entire portfolio.

c. Frost’s statement is an example of mental accounting. Mental accounting holds that investors segregate money into mental accounts (e.g., safe versus speculative), maintain a set of separate mental accounts, and do not combine outcomes; a loss in one account is treated separately from a loss in another account. One manifestation of mental accounting, in which Frost is engaging, is building a portfolio as a pyramid of assets, layer by layer, with the retirement account representing a layer separate from the “speculative” fund. Each layer is associated with different goals and attitudes toward risk. He is more risk averse with respect to the retirement account than he is with respect to the “speculative” fund account. The money in the retirement account is a down side protection layer, designed to avoid future poverty. The money in the “speculative” fund account is the upside potential layer, designed for a chance at being rich.

In standard finance, decisions consider the risk and return profile of the entire portfolio rather than anticipated gains or losses on any particular account, investment, or class of investments. Alternatives should be considered in terms of final outcomes in a total portfolio context rather than in terms of
contributions to a “safe” or a “speculative” account. Standard finance investors seek to maximize the mean-variance structure of the portfolio as a whole and consider covariances between assets as they construct their portfolios. Standard finance investors have consistent attitudes toward risk across their entire portfolio.