Capital Market Efficiency
Solutions

Question 1
Define the concept of capital market efficiency. What is meant by the weak, semi-strong and strong forms of market efficiency? How does the concept of market efficiency differ from the concept of capital market *inefficiency*?

A market is **informationally efficient** if prices instantaneously and unbiased reflect all available, relevant information.

Weak form of market efficiency: Information on past prices is fully reflected in current prices. Past prices cannot help investors earn returns in excess of what other investors are earning on similar risk securities

Semi-strong form of market efficiency: All publicly available information is fully and instantaneously reflected in current market prices.
Examples: Announcements of earnings and dividends, share buybacks, stock splits, mergers, takeovers, etc
Implication of Semi-strong form of market efficiency: Past and currently available information is fully reflected in current market prices. Investors cannot use any publicly available information to *"beat the market"*. Note: A market cannot be semi-strong form efficient if it is weak form inefficient

Strong form of market efficiency: All information, public and private, is fully reflected in prices.
The market does not neglect any relevant information
Implication: Since all information is impounded in prices fully and instantaneously it will be useless in predicting future prices (and returns)

Implications of market inefficiency
Implications of strong form inefficiency: Company insiders with inside information may exploit their private information to earn "excess" or "abnormal" returns/profits.
Note 1: A market can be semi-strong form efficient but not necessarily strong form efficient
Note 2: Stock exchanges typically actively monitor and prevent insider trading

In an efficient market investors do not ***over-react*** or ***under react*** to "news".
Example: Bad news hits the market which implies that the price of a stock should fall by \$1.50 from \$5.00. Some market participants "panic" and offer to sell their shares at \$3.00. In an unbiased market the stock should trade at \$3.50 after the news announcement.

Question 2
In a speech given by the governor of the Reserve Bank of Australia it was implied that interest rates are likely to be lowered in the near future. What would be the *most likely* effect of such a reduction in interest rates on stock prices?
a. Stock prices would tend to fall following the announcement.
b. Some prices would tend to rise following the announcement.
c. Some stock prices would rise while others would fall following the announcement.
d. There would be little change in stock prices following the announcement.

Choice "d" is correct. This information is already anticipated by the market.

Question 3
John Smith states that superior risk-adjusted returns can be earned by buying the common shares of companies that have above-average return on capital and, at the same time, are selling at below-average price-to-earnings ratios. If this is true, the:
a. Weak form of the efficient market hypothesis would be confirmed.
b. Semi-strong form of the efficient market hypothesis would be confirmed.
c. Weak form of the efficient market hypothesis would be violated.
d. Semi-strong form of the efficient market hypothesis would be violated.

Choice "d" is correct. The semi-strong form of the EMH states that all prices and fundamental information (such as financial ratios) are already reflected in stock prices. Thus, an examination of past price (technical) data and/or past fundamental data will be of no use in gauging the future performance of a security's price or risk-adjusted return. If true, John Smith's statement would violate the semi-strong form of efficient market hypothesis. Note: John Smith's statement also violates the strong form of the efficient market hypothesis, which states that all relevant information about a company (technical and fundamental, whether public or private), as well as any implications that can be drawn from them are already embedded in the prices of securities.

Choice "a" is incorrect. The weak form of efficient markets hypothesis states that all past price and trading information is priced into securities. Consequently, technical analysis cannot be used to produce superior investment returns. John Smith's statement is based on fundamental analysis, not technical analysis.

Choice "b" is incorrect. The semi-strong form of the efficient market hypothesis states that the market reacts quickly to new information and the market is really priced for all existing information, whether technical or fundamental in nature. Thus, neither technical nor fundamental analysis can be used to produce superior risk-adjusted returns. John Smith's statement does not confirm this idea; rather, it contradicts it.

Choice "c" is incorrect. The weak form of the efficient market hypothesis states that superior risk-adjusted return cannot be obtained using past price and volume data (technical analysis).

John Smith’s statement is based on using fundamental, rather than technical analysis to select stocks that are likely to produce superior risk-adjusted returns.

Question 4

An investor believes the market to be semi-strong form efficient. If her belief is valid, which of the following is most accurate concerning how to select stocks that will produce superior risk-adjusted returns?

a. Technical analysis is likely to be an inefficient strategy, but fundamental analysis might be effective.

b. Fundamental analysis is likely to be an ineffective strategy, but technical analysis might be effective.

c. Technical and fundamental analyses are both likely to be effective strategies.

d. Technical and fundamental analyses are both likely to be ineffective strategies.

Choice “d” is correct. The semi-strong form of the EMH suggests that all publicly available information is already incorporated into the market prices. Therefore, technical and fundamental analyses are both likely to be ineffective in finding stocks that will generate superior risk-adjusted returns.

Choice “a”, “b” and “c” are incorrect. The semi-strong form of the EMH suggests that both technical and fundamental analyses are likely to be ineffective in finding stocks that will produce superior risk-adjusted returns.

Question 5

Mr Smith reads in the Wall Street Journal that Microsoft announced unexpected high earnings three days ago. He calls his broker and asks him to buy 1,000 shares before the price rises on the announcement. This is a violation of which form of the efficient market hypotheses?

a. Weak form.

b. Semi-strong form.

c. Robust form.

d. Semi-weak form.

Choice “b” is correct. The semi-strong form of the efficient market hypothesis suggests public information is reflected quickly in stock prices. A significant relayed reaction in Microsoft’s stock price suggests violation of the semi-strong form of efficient market hypothesis. In addition to violating the semi-strong form, the strong form of the efficient market hypothesis is violated. Under the strong form, all public and private information is known and embedded in the stock price.

Choice “a” is incorrect. The weak form is based on historical price and trading behavior of the underlying stock. It does not address firm fundamentals and how information affects stock price. Thus, the weak form is not violated in this case.

Choice "c" is incorrect. There is no such theory as the robust form of the efficient market hypothesis.

Choice "d" is incorrect. There is no such theory as the semi-weak form of the efficient market hypothesis.

Question 6
Ms Smith tells a friend that her firm will announce a large mineral deposit discovery in three days. As the rest of the market is unaware of this information, the friend buys shares and becomes wealthy when the price of the stock rises on the day of the announcement. This is a violation of which form of the efficient market hypothesis?
a. Weak form.
b. Semi-strong form.
c. Strong form
d. Semi-weak form.

Choice "c" is correct. Ms. Smith's friend acted on private information that is not available to other investors. The fact that the friend made money is a violation of strong form of the efficient market hypothesis. The strong form argues that both public and private information are known and are reflected in the security's price. Thus, if the strong form holds the friend should not have been able to make money.

Choice "a" is incorrect. The weak form is based on historical price and trading behavior of the underlying stock. It does not address public or private information.

Choice "b" is incorrect. The semi-strong form addresses publicly available information, but the information was private. Thus, the friend's profits do not violate the semi-strong form of the efficient market hypothesis.

Choice "d" is incorrect. There is no such theory as the semi-weak from of the efficient market hypothesis.

Question 7
Which of the following statements is *most accurate*?
a. According to the strong form of the efficient market hypothesis, a broker should expect to earn an abnormally high risk-adjusted return by acting on a tip from the CEO of a company about an upcoming surprise announcement.
b. According to the semi-strong form of the efficient market hypothesis, trend-following techniques, whether applied to stock price data, stock price and volume data, earnings data, or price-to-earnings ratio data should not lead to abnormally high risk-adjusted returns for the investor.

c. The strong form of the efficient marker hypothesis is less inclusive than the weak form of the EMH.
d. According to the efficient market hypothesis, constructing a portfolio of securities whose values exceed their price by a wide margin is the best way to enhance an investor's return-to-risk ratio.

Choice "b" is correct. The semi-strong form of the EMH suggests that past price and volume trading patterns and past fundamental pattern cannot be used to produce above-average risk-adjusted returns.

Choice "a" is incorrect. If a market is strong-form efficient, then no one can benefit from any existing information, which includes a tip from a CEO about upcoming surprises (presumably the CEO would have bought ahead of the broker, exploiting the information for himself).

Choice "c" is incorrect. The strong form of the EMH states that all relevant information about a company, whether publicly or privately held, is embedded in the price of securities. This includes technical (price and volume) data, fundamental data, and implications that can be drawn from all available information, whether publicly disclosed or not. The weak form of the EMH indicates that technical (price and volume) data cannot be used to generate superior returns. Thus, the strong form of the EMH incorporates weak-form efficiency as well as other forms of efficiency. Therefore, the strong form of the EMH is more inclusive than the weak form.

Choice "d" is incorrect. If the capital markets are perfectly efficient, it is not useful to draw a distinction between security values and security prices in order to attempt to buy undervalued securities and sell overvalued ones because everything that contributes to value (technical analysis, fundamental analysis, and private information) is already embedded in the securities' pricing structure.

Question 8
Ms Smith follows a strategy of buying stocks when the stock price trends are positive. If her strategy is unsuccessful, this is a validation of what form of the efficient market hypothesis (EMH)?
a. Weak form.
b. Semi-strong form.
c. Strong form.
d. Comprehensive form.

Choice "a" is correct. Using price trends to predict future price action is a violation of the weak form of the EMH, which states that security prices reflect all information about price and trading behavior in the market. Since her strategy of using price trends is not successful, then the weak form is not violated.

Choice "b" is not correct. The semi-strong form of the efficient market hypothesis suggests public information is reflected quickly in stock prices. Her strategy only relies on stock price trends, not fundamental information. Thus, her lack of success does not determine whether the semi-strong form is validated.

Choice "c" is incorrect. According to the strong form of the Efficient market Hypothesis (EMH). All relevant information, whether public or private, is embedded quickly into the prices of securities. Her strategy only relies on stock price trends and the alck of its success does not determine whether the strong form is validated.

Choice "d" is incorrect. There is no such thing as a "comprehensive" form of the EMH.

Question 9

Mr Smith reads in the Financial Times that ExxonMobil announced unexpectedly high earnings the other day. He calls his broker and asks him to buy 500 shares before the price rises on the announcement. Which form of market efficiency is being violated if he profits from this transaction.

a. Semi-strong form.
b. Fragile form.
c. Weak form.
d. Insider form.

Choice "a" is correct. Under the semi-strong form of the efficient market hypothesis, the information from the Financial Times should be quickly reflected in Exxon Mobil's stock price. Thus, the ability to make money on this information three days later is a violation of the semi-strong form.

Choice "b" is incorrect. There is no such theory as the fragile form of the efficient market hypothesis.

Choice "c" is incorrect. Weak form efficiency says technical analysis does not work. But fundamental information, such as an earnings release, is not quickly embedded in the share price.

Choice "d" is incorrect. Insider trading occurs while in possession of material (non-public) information. There is no private information in this question. In addition, insider trading is not a form of market efficiency.

Question 10
Mr Smith, a Vice President at XYZ Petroleum, tells his sister that the company will announce a huge contract in three days. Since this information has not been released to the market, his sister immediately buys shares of XYZ Petroleum and earns huge profit when the news is announced. Which form of market efficiency has been violated?
a. Weak form.
b. Semi-strong form.
c. Strong form.
d. Private information form.

Choice "c" is correct. The sister acted on and benefited from private information that was not available to other investors. Her being able to profit from such private information is a violation of strong form of the efficient market hypothesis, which states that all information that is available, whether public or private, should already be embedded in the security's price.

Choice "a" is incorrect. The weak form of the EMH states that historical pricing and volume data of the underlying stock is already embedded in its price. The weak form of the EMH does not address public or private fundamental information, such as a new contract.

Choice "b" is incorrect. The semi-strong form of the efficient market hypothesis states that the market reacts quickly to new public information. It does not address the issue of private information.

Choice "d" is incorrect. The sister acted on private information and benefited from it. However, this is a violation of the strong form of the EMH. There is no such thing as the "private information" form of the EMH.

Question 11
GPR announces that earnings per share for the current quarter are $12.48, which is nearly double what investors and analysts expected. In an efficient market, the price of GPR will:
a. Change immediately to reflect changes in investor expectations.
b. Gradually rise over several days as investors assimilate the new information.
c. First rise, reflecting investor's surprise, and then retreat somewhat as investors assimilate the new information.
d. Not change at all.

Choice "a" is correct. In a efficient market, the price of GPR's stock will change quickly to reflect new expectations about the firm.

Choice "b" is incorrect. If it takes days for investors to assimilate all new information, then the market is not efficient.

Choice "c" is incorrect. An efficient market reacts appropriately to any new information, with no increase above fair value and subsequent decline.

Choice "d" is incorrect. In an efficient market, information drives stock prices. Thus, this new information will cause a change in the price of GPR's shares.