

### **Learning Module 3: Market Efficiency**

Q.109 Which of the following statements regarding market efficiency is *least likely* accurate?

- A. There are three forms of market efficiency: weak, semi-strong, and strong.
- B. In an efficient market, the prices of stocks will slowly adjust to new information.
- C. An efficient capital market reflects all of the information about its securities, including risk.

The correct answer is **B**.

According to the Efficient Market Hypothesis (EMH), in an efficient market, stock prices adjust instantaneously and fully to new information. This means that as soon as new information becomes available, it is immediately reflected in the stock prices. The rationale behind this is that in an efficient market, all participants have access to information at the same time and act on it quickly, leading to immediate price adjustments. .

**A is incorrect.** The Efficient Market Hypothesis (EMH) proposes three forms of market efficiency: weak, semi-strong, and strong. The weak form suggests that all past trading information is already reflected in stock prices, and thus, technical analysis cannot be used to achieve superior gains.

The semi-strong form posits that all publicly available information is reflected in stock prices, making fundamental analysis ineffective for predicting future price movements. The strong form asserts that all information, both public and private, is fully reflected in stock prices, indicating that no one can consistently achieve higher returns.

**C is incorrect.** All relevant information is already incorporated into the prices of securities. The inclusion of risk in the information set is crucial because it affects the required return on an investment. Investors need to understand the risk associated with securities to make informed decisions, and in an efficient market, this risk is already factored into the prices.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.1001 Which of the following is *least likely* accurate about intrinsic values?

- A. Intrinsic values are uncertain.
- B. Intrinsic values keep on changing.
- C. Intrinsic values are higher than the market value.

The correct answer is **C**.

Intrinsic value is an estimate of what an asset is worth, based on a detailed analysis of fundamentals. It can be higher, equal to, or lower than the market value at any given time. The market value is the price at which an asset trades in the market, which can be influenced by a wide range of factors, including investor sentiment, market trends, and external economic conditions, not just its fundamentals.

The discrepancy between market value and intrinsic value forms the basis for investment decisions in value investing, where investors seek to buy assets when their market price is below their calculated intrinsic value and sell them when their market price exceeds their intrinsic value. This approach is predicated on the belief that the market will eventually recognize the true value of the asset, leading to a convergence of market and intrinsic values over time.

**A is incorrect.** The statement that intrinsic values are uncertain is accurate. The calculation of intrinsic value involves various assumptions, estimates, and models that can vary significantly among different analysts and investors. Factors such as future cash flows, growth rates, and discount rates are inherently uncertain and subject to change.

This uncertainty is a fundamental characteristic of intrinsic value, making it a variable and sometimes contentious figure within financial analysis. The uncertainty does not detract from the concept of intrinsic value but rather highlights the complexity and subjective nature of valuing assets.

**B is incorrect.** Intrinsic values fluctuate over time as new information becomes available, economic conditions change, and as the underlying assumptions used in valuation models are updated. For instance, changes in a company's earnings forecasts, interest rates, or market conditions can lead to adjustments in the calculated intrinsic value of a company's stock.

This dynamic nature of intrinsic value reflects the reality of financial markets and the economy, where conditions are constantly evolving. Therefore, investors and analysts must regularly review and update their valuations to reflect the most current information and assumptions.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (b) Contrast market value and intrinsic value.**

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Q.1002 When the number of investors in a market increases, the market *most likely* becomes:

- A. less efficient.
- B. more efficient.
- C. as efficient as before/no change.

The correct answer is **B**.

Increasing the number of investors in a market typically leads to higher market efficiency. Market efficiency refers to the extent to which market prices reflect all available, relevant information.

A more efficient market is one where information is quickly disseminated and accurately reflected in stock prices, allowing for more informed and rational investment decisions. The presence of more participants in the market enhances the efficiency for several reasons.

Firstly, with more investors, there is a greater likelihood that new information will be quickly incorporated into stock prices. This is because a larger pool of investors increases the chances that at least some of them will have access to and act upon new information promptly.

Secondly, a higher number of participants also leads to increased trading volume, which can reduce bid-ask spreads and make it easier for investors to enter or exit positions at prices close to the market consensus. This liquidity is a key component of an efficient market.

The factors that make a market efficient are:

1. A large number of market participants.
2. The free availability of information.
3. Fewer restrictions on trading, such as allowing short-selling.
4. Lower transaction costs.

**A is incorrect.** The suggestion that an increase in the number of investors makes a market less efficient is not supported by the principles of market efficiency. In fact, the opposite is true; more participants generally enhance the flow of information and its incorporation into stock prices, contributing to efficiency rather than detracting from it.

**C is incorrect.** Stating that the efficiency of a market remains unchanged with an increase in the number of investors overlooks the dynamic nature of markets. Markets are not static, and changes in the number of participants can significantly impact how information is processed and reflected in prices.

An increase in market participants typically improves efficiency by enhancing liquidity and the speed at which information is reflected in stock prices.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.1003 Which of the below is *least likely* a characteristic of an efficient market?

- A. Lower transaction costs.
- B. Few market participants.
- C. Fewer restrictions on trading.

The correct answer is **B**.

Few market participants characterize an inefficient market. An efficient market will have a large number of market participants.

The factors that make a market efficient are:

1. Lower transaction costs.
2. The free availability of information.
3. A large number of market participants.
4. Fewer restrictions on trading, such as allowing short-selling.

**A is incorrect.** Lower transaction costs are indeed a characteristic of an efficient market. Lower costs encourage trading and investment, as investors are more likely to buy and sell securities when the cost of doing so is minimal. This increased trading activity contributes to the market's liquidity and ensures that security prices more accurately reflect the latest information available.

**C is incorrect.** Fewer restrictions on trading, such as the allowance of short selling and the absence of barriers to entry and exit, are characteristics of an efficient market. These conditions encourage participation from a wide range of investors and facilitate the smooth flow of information into market prices. Restrictions on trading can hinder the market's ability to adjust to new information, leading to prices that do not fully reflect available information.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.1004 Price changes are independent from one period to another in which form(s) of market efficiency?

- A. Strong form efficiency only.
- B. Semi-strong and strong form efficiency only.
- C. Weak, semi-strong, and strong form efficiency.

The correct answer is **C**.

This independence of price changes is a fundamental aspect of the EMH, as it implies that no information, including past prices, can be used to predict future prices with accuracy. This is because all known information is already reflected in current prices, making it impossible to achieve consistent excess returns.

In weak form efficiency, current asset prices are believed to fully incorporate all historical price and volume information. This implies that past price movements or patterns cannot be used to predict future price movements.

In semi-strong form efficiency, current asset prices are thought to reflect all publicly available information, including historical price and volume information as well as all public information such as financial statements and news reports.

Finally, in strong form efficiency, asset prices are considered to reflect all information, both public and private, meaning that no one can consistently achieve higher returns.

**A is incorrect.** It suggests that price changes are independent only in strong form efficiency. This is not accurate, as independence of price changes from one period to another is a characteristic of all forms of market efficiency, not just the strong form.

**B is incorrect.** It limits the independence of price changes to semi-strong and strong form efficiency only. This overlooks the fact that even in weak form efficiency, past prices and volume information are considered to have no predictive power over future prices. Therefore, the independence of price changes is a feature inherent in all forms of market efficiency, not just the semi-strong and strong forms.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1005 An investor can achieve positive risk-adjusted returns on average by using the fundamental analysis trading strategy in which of the following forms of market efficiency?

- A. Weak form efficiency only.
- B. Strong form efficiency only.
- C. Weak and semi-strong form efficiency only.

The correct answer is **A**.

Investors can use fundamental analysis to achieve positive risk-adjusted returns only in the weak form of market efficiency.

In the semi-strong and strong forms of market efficiency, investors can neither use fundamental analysis nor technical analysis to achieve superior gains. The prices in strong form efficient markets reflect public and private information, whereas those in semi-strong efficient markets reflect publicly available information.

The table below summarizes the possibility of earning abnormal returns through various strategies and active management, assuming different types of market efficiency.

	Technical Analysis	Fundamental Analysis	Insider Trading	Active Management
Weak	No	Yes	Yes	Yes
Semi-strong	No	No	Yes	No
Strong	No	No	No	No

**B is incorrect.** As seen in the table above, an investor cannot earn abnormal profits by using a trading strategy in the strong form of market efficiency. An investor in the strong form of market efficiency can earn abnormal returns by being lucky.

**C is incorrect.** As seen in the table above, an investor cannot earn abnormal profits by using fundamental analysis in the semi-strong form of market efficiency. An investor in the semi-strong form of market efficiency can earn abnormal returns by using insider trading.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1006 Fundamental analysis is *most likely* based on which of the following?

- A. Cost of information.
- B. Trading and analysis.
- C. Earnings and dividends.

The correct answer is **C**.

Fundamental analysis is a method used by investors to determine the intrinsic value of a security. This approach involves examining related economic, financial, and other qualitative and quantitative factors. Fundamental analysts study anything that can affect the security's value, from macroeconomic factors such as the state of the economy and industry conditions to microeconomic factors like the effectiveness of the company's management.

The core of fundamental analysis lies in evaluating a company's future earnings and dividends, which are crucial indicators of its financial health and potential for growth. Earnings reflect the company's profitability, while dividends represent the portion of profits distributed to shareholders. These elements are essential for investors aiming to make long-term investments based on the company's performance and prospects.

**A is incorrect.** The cost of information refers to the expenses associated with acquiring data necessary for making investment decisions. While access to relevant and timely information is crucial for various investment strategies, it is not the foundation of fundamental analysis. Fundamental analysis primarily focuses on evaluating a company's intrinsic value through its financial statements, earnings, dividends, and other economic indicators, rather than the cost associated with obtaining this information.

**B is incorrect.** Trading and analysis encompass a broad range of activities that investors undertake to make investment decisions. While trading strategies and technical analysis might consider price movements and market trends, fundamental analysis digs deeper into a company's financial health and market position.

Therefore, trading and analysis, especially those based on technical indicators, do not constitute the core of fundamental analysis, which is more concerned with earnings, dividends, and other financial metrics that indicate a company's underlying value.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.1007 Semi-strong form of markets in developed countries are:

- A. efficient.
- B. inefficient.
- C. can not be ascertained.

The correct answer is **A**.

The semi-strong form of market efficiency posits that all publicly available information is already reflected in stock prices. This includes, but is not limited to, past trading information, financial statements, news releases, and other public disclosures. The semi-strong form is a component of the Efficient Market Hypothesis (EMH), which asserts that it is impossible to consistently achieve higher returns than average by using any information that the public already knows, because stock prices already incorporate and reflect all relevant information.

Event studies have found that stock prices adjust quickly and accurately to new information, leaving little to no opportunity for investors to earn abnormal returns by trading on that information once it is released. This rapid adjustment of stock prices to new information suggests that markets in developed countries are efficient in the semi-strong sense.

**B is incorrect.** Suggesting that semi-strong form markets in developed countries are inefficient contradicts the fact that these markets efficiently incorporate all publicly available information into stock prices. The efficiency of these markets is demonstrated through the inability of investors to consistently achieve abnormal returns by trading on public information, as prices adjust almost instantaneously to reflect new data.

**C is incorrect.** While it might seem prudent to claim that the efficiency of semi-strong form markets in developed countries cannot be ascertained due to potential variations in market structure, regulation, and transparency, the overwhelming evidence from event studies and other empirical research supports the conclusion that these markets are, in fact, efficient in the semi-strong form. This efficiency is a testament to the sophisticated nature of developed markets, where information dissemination is rapid and regulatory frameworks support transparency and fair trading.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1008 Which of the following calendar anomalies *least likely* exists anymore?

- A. Turn-of-the-year effect.
- B. Turn-of-the-month effect.
- C. Both turn-of-the-year and turn-of-the-month effects.

The correct answer is **B**.

The turn-of-the-month effect, which suggests that stock returns are higher on the last and first few days of the month, is considered to no longer exist in current financial markets. This conclusion is based on extensive research and analysis of market data over recent years.

The turn-of-the-month effect was once a recognized calendar anomaly, where empirical evidence suggested that returns during these specific days were abnormally high compared to the rest of the month. The increased efficiency means that any potential for abnormal profits is quickly arbitrated away, leading to the disappearance of the turn-of-the-month effect.

**A is incorrect.** The turn-of-the-year effect, also known as the January effect, where stocks, especially those of small-cap companies, have historically shown higher returns in January compared to other months, still shows some evidence of existence. This effect has been attributed to tax-loss selling in December, with investors selling losing positions for tax purposes and reinvesting in January, thus driving up prices.

**C is incorrect.** Stating that both the turn-of-the-year and turn-of-the-month effects no longer exist is inaccurate. While the turn-of-the-month effect is widely considered to have dissipated due to increased market efficiency, the turn-of-the-year effect, although diminished, still shows some level of persistence.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.1009 The effect when we find out that firms with poor stock returns over the previous 3-5 years continue posting poor returns, whereas firms with good returns over the previous 3-5 years continue posting good returns is *most likely* known as?

- A. Anomaly effect.
- B. Momentum effect.
- C. Overreaction effect.

The correct answer is **B**.

The momentum anomaly refers to the empirically observed tendency for rising asset prices to rise further and falling prices to keep falling. Stocks with strong past performance continue to outperform stocks with poor past performance in the next period.

It is termed an anomaly because in finance theory, an increase in asset price, in and of itself, should not warrant a further increase in asset price unless it is backed up by new information or changes in demand and supply. The momentum anomaly suggests investors should buy past "winners" while selling past "losers."

**A is incorrect.** An anomaly is an exception to the notion of market efficiency. An anomaly presents itself when a change in the price of an asset or security cannot be directly linked to current relevant information known in the market. The momentum and overreaction effects are all examples of market anomalies.

**C is incorrect.** The overreaction anomaly goes contrary to the momentum anomaly. It refers to the empirically observed tendency of stocks to exhibit long-term reversals in returns. Stocks that have performed poorly in the past three to five years demonstrate superior performance over the next three to five years compared to stocks that have performed well in the past. The overreaction anomaly suggests buying past losers while selling past winners.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.1011 Investors tend to be:

- A. less risk-averse when faced with potential gains.
- B. less risk-averse when faced with potential losses.
- C. more risk-averse when faced with potential gains.

The correct answer is **A**.

Investors tend to be less risk-averse when faced with potential gains. This behavior is rooted in the psychological principle of loss aversion, which is a key concept in behavioral finance.

Loss aversion suggests that the pain of losing is psychologically about twice as powerful as the pleasure of gaining. Therefore, when investors are presented with potential gains, they are more willing to take risks, hoping to capitalize on these gains. This inclination towards accepting higher risks in the pursuit of potential gains illustrates a fundamental aspect of human behavior in financial decision-making.

**B is incorrect.** This option incorrectly suggests that investors become more cautious or risk-averse when the potential for gains is presented. In reality, the prospect of gains often encourages investors to take on more risk, contrary to what is suggested by this option.

The principle of loss aversion and various studies in behavioral finance have shown that the potential for gains can lead to risk-seeking behavior, as the allure of the gains outweighs the fear of losses in the decision-making process.

**C is incorrect.** This option suggests that investors become less risk-averse or more willing to take risks when faced with potential losses. This is contrary to the established understanding of investor behavior under the influence of loss aversion. When confronted with potential losses, investors tend to become more risk-averse, not less.

They are more likely to avoid risks in an attempt to prevent further losses. This behavior is driven by the psychological impact of losses being more significant than that of equivalent gains, making investors more cautious in scenarios involving potential losses.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (g) Describe behavioral finance and its potential relevance to understanding market anomalies.**

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Q.1162 Which of the following statements regarding strong-form market efficiency is *most likely* accurate?

- A. Investors will often use the dividend discount model.
- B. Investors may try to develop an independent estimate of intrinsic value.
- C. Investors will usually accept market prices as accurately reflecting intrinsic values.

The correct answer is **C**.

This form of market efficiency suggests that no investor can consistently achieve higher returns than another investor with the same amount of invested capital because all available information is already incorporated into stock prices.

Therefore, investors operating under the assumption of strong-form efficiency would naturally accept market prices as accurately reflecting the intrinsic values of securities. This acceptance is based on the belief that it is impossible to consistently outperform the market through stock selection or market timing, as any information that could potentially influence a stock's price is already factored in.

**A is incorrect.** The use of the dividend discount model (DDM) is more characteristic of investors who believe they can identify mispriced stocks based on public information or their analysis of a company's future dividends.

In a strong-form efficient market, the premise is that all information, including insights that could be derived from the DDM, is already reflected in the stock's current price. Therefore, the utility of employing the DDM or similar valuation models to find undervalued stocks is negated under the assumption of strong-form efficiency.

**B is incorrect.** The effort to develop an independent estimate of a security's intrinsic value is predicated on the belief that the market price may not fully reflect the true value of the security, allowing for the possibility of achieving superior returns through detailed analysis.

However, in a strong-form efficient market, such efforts are deemed futile as it is assumed that all information, including insider or private information, is already incorporated into the market price.

Thus, the concept of independently estimating intrinsic values is inconsistent with the principles of strong-form market efficiency, where market prices are considered the best available estimates of intrinsic values.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1165 In which form(s) of market efficiency does the market price *most likely* reflect past market data, public information, and private information?

- A. Strong form.
- B. Semi-strong form.
- C. Semi-strong and strong form.

The correct answer is **A**.

Markets are strong form efficient when prices reflect all relevant information at any point in time, including private information.

The table below summarizes the different types of information reflected in the three forms of market efficiency.

Forms of Market Efficiency	Past Market Data	Public Information	Private Information
Weak	✓		
Semi-Strong	✓	✓	
Strong	✓	✓	✓

**B is incorrect.** The table above shows that the market price in the semi-strong form of market efficiency reflects past market data and publicly available information, but not private information.

**C is incorrect.** The market price in the semi-strong form of market efficiency does not reflect private information.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1166 Which of the following statements is *most likely* accurate regarding the weak form of market efficiency?

- A. Security prices fully reflect all past market data.
- B. Security prices reflect all publicly known and available information.
- C. Security prices reflect past market data, publicly known and private information.

The correct answer is **A**.

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 historical prices.

The table below summarizes the different types of information reflected security prices in the three forms of market efficiency.

Forms of Market Efficiency	Past Market Data	Public Information	Private Information
Weak	✓		
Semi-Strong	✓	✓	
Strong	✓	✓	✓

**B is incorrect.** The table above shows that it is in the semi-strong and strong form of market efficiency, not the weak form, where security prices reflect publicly known and available information. The weak form of market efficiency reflects only past market data.

**C is incorrect.** As seen in the table above, security prices reflect past market data, publicly known and private information in the strong, and not in the weak, form of market efficiency.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1167 The process of examining publicly available information and formulating forecasts to estimate the intrinsic value of assets is *most likely* known as?

- A. Technical analysis.
- B. Historical analysis.
- C. Fundamental analysis.

The correct answer is **C**.

Fundamental analysis involves a comprehensive review of available information regarding a company's or asset's financial health, market position, and potential for future growth to estimate its intrinsic value. This method is grounded in the belief that the market may not always reflect the true value of an asset, allowing investors to make informed decisions based on their assessments.

Fundamental analysts look at various factors, including earnings, expenses, assets, and liabilities, as well as broader economic indicators and industry trends. This approach is contrasted with technical analysis, which focuses on price movements and trading volumes to forecast future price trends.

**A is incorrect.** Technical analysis differs significantly from fundamental analysis. While fundamental analysis seeks to determine an asset's intrinsic value based on financial and economic indicators, technical analysis is based on the premise that historical price movements and volume data can be used to predict future price trends.

Technical analysts use charts and other tools to identify patterns and signals that suggest future movements. This method does not consider the underlying financial condition or market position of the company, which is a central focus of fundamental analysis.

**B is incorrect.** Historical analysis involves examining past events or trends to understand or interpret them. It can be a component of both fundamental and technical analysis but, on its own, does not constitute a comprehensive approach to predicting future asset values based on publicly available information.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.1168 If markets are inefficient, the difference between the intrinsic value and the market value of a company's security is *most likely*:

- A. zero.
- B. always positive.
- C. dependant on whether the stock is overvalued or undervalued.

The correct answer is **C**.

In inefficient markets, the difference between the intrinsic and market value of a company's security largely depends on whether the stock is overvalued or undervalued.

If undervalued (market price is less than the intrinsic value), the difference (intrinsic value-market value) will be positive.

If overvalued (market price is greater than the intrinsic value), the difference (intrinsic value-market value) will be negative.

If correctly valued (market price equals intrinsic value), the difference will be zero.

**A is incorrect.** The difference between the intrinsic value and the market value is zero when the intrinsic value equals the market value, which is usually not the case in inefficient markets because the market prices do not accurately reflect the intrinsic values of the securities.

**B is incorrect.** The difference between the intrinsic and market values of a company's security in inefficient markets is not always positive. It is positive in cases where the market price is less than the intrinsic value (security is undervalued)

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (b) Contrast market value and intrinsic value.**

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Q.1169 If markets are semi-strong efficient, standard fundamental analysis will yield abnormal trading profits that are *most likely*:

- A. positive.
- B. negative.
- C. equal to zero.

The correct answer is **C**.

In the context of semi-strong efficient markets, the hypothesis posits that all publicly available information is already reflected in stock prices. This includes historical data, financial reports, news releases, and any other publicly accessible information. The semi-strong form of market efficiency is a component of the Efficient Market Hypothesis (EMH), which asserts that it is impossible to consistently achieve higher returns than the average market returns on a risk-adjusted basis by using any information that is publicly available.

Given this premise, standard fundamental analysis, which involves evaluating a company's financial statements, market position, and potential for future growth to determine its stock's intrinsic value, would not yield abnormal trading profits in a semi-strong efficient market. This is because the intrinsic value identified through fundamental analysis would already be incorporated into the current stock price due to the market's efficiency in processing public information. Therefore, any investment strategy based on publicly available information would not consistently outperform the market, leading to abnormal trading profits being equal to zero.

**A is incorrect.** It suggests that positive abnormal trading profits can be achieved through standard fundamental analysis in semi-strong efficient markets. This contradicts the semi-strong form of the Efficient Market Hypothesis, which asserts that all publicly available information is already reflected in stock prices. Therefore, it is not possible to consistently generate positive abnormal profits by exploiting publicly available information.

**B is incorrect.** It implies that negative abnormal trading profits are the most likely outcome of standard fundamental analysis in semi-strong efficient markets. While it is true that investors might not consistently outperform the market, the semi-strong efficiency suggests that investors would, on average, earn a return that is commensurate with the market return for a given level of risk. The hypothesis does not inherently lead to negative abnormal profits; instead, it indicates that abnormal profits, whether positive or negative, would be difficult to achieve on a consistent basis due to the market's efficiency in processing public information.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1170 Suppose a market is in the semi-strong form of market efficiency. In that case, the risk-adjusted returns of a passively managed portfolio relative to an actively managed portfolio are *most likely*:

- A. equal.
- B. lower.
- C. higher.

The correct answer is **C**.

In the context of semi-strong form market efficiency, all publicly available information is already reflected in stock prices. This implies that any attempt to outperform the market by selecting securities based on publicly available information is unlikely to yield superior results, once fees and expenses are accounted for.

Therefore, on a risk-adjusted basis, passively managed portfolios, which typically incur lower costs and aim to replicate the performance of a market index, are likely to outperform actively managed portfolios.

**A is incorrect.** The assertion that the risk-adjusted returns of a passively managed portfolio are equal to those of an actively managed portfolio overlooks the impact of costs and fees. Active management often involves higher transaction costs, management fees, and potentially other expenses related to research and analysis.

These costs can significantly erode the gross returns of an actively managed portfolio, making it difficult for such portfolios to match, let alone exceed, the performance of a passively managed portfolio on a net, risk-adjusted basis.

**B is incorrect.** Stating that the risk-adjusted returns of a passively managed portfolio are lower relative to an actively managed portfolio contradicts the principles of semi-strong form market efficiency.

This form of market efficiency states that it is not possible to consistently achieve higher returns through active management strategies that rely on publicly available information, due to the fact that such information is already reflected in stock prices.

When the costs associated with active management are considered, including higher fees for active management and transaction costs, the net returns of actively managed portfolios are likely to be lower than those of passively managed portfolios.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1171 A stock is said to be overvalued if its market price is:

- A. less than its book value.
- B. less than its intrinsic value.
- C. greater than its intrinsic value.

The correct answer is **C**.

A stock is considered overvalued when its market price exceeds its intrinsic value. The intrinsic value of a stock is a theoretical value calculated based on fundamental analysis, which includes factors such as earnings, dividends, and growth rates, among others. It represents an estimate of the true value of a company's equity.

When the market price of a stock is higher than this calculated intrinsic value, it suggests that the stock is trading at a premium compared to its actual worth. This situation can occur due to various reasons, including speculative trading, market optimism, or overestimation of the company's growth prospects.

**A is incorrect.** Suggesting that a stock is overvalued if its market price is less than its book value is a misunderstanding of valuation concepts. The book value of a company is calculated from the balance sheet as the difference between the company's total assets and total liabilities. It represents the net asset value of the company according to its financial statements.

While book value can be a useful metric for valuation, especially for asset-intensive companies, it does not directly determine whether a stock is overvalued or undervalued. Stocks can trade above or below book value based on factors such as growth prospects, profitability, and market conditions.

**B is incorrect.** In fact, the opposite is true. A stock is considered undervalued when its market price is below its intrinsic value. This discrepancy can occur when the market has not fully recognized the company's potential or when temporary factors depress the stock price.

Undervalued stocks are often targeted by value investors, who believe that the market will eventually adjust the price upwards to reflect the company's true worth. Therefore, the condition of a stock being undervalued is an opportunity for investors rather than an indication of overvaluation.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (b) Contrast market value and intrinsic value.**

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Q.1660 An informationally efficient capital market is *most likely* defined as a market in which security prices:

- A. fully reflect all the publicly available security information.
- B. fully reflect all the available information about the security.
- C. fully reflect all the available and inside information about the security.

The correct answer is **A**.

In an informationally efficient capital market, security prices fully, rationally, and quickly reflect all publicly available information.

This concept is central to the Efficient Market Hypothesis (EMH), which posits that it is impossible to consistently achieve higher returns on a risk-adjusted basis than the market average by using any information that the market already knows.

The rationale behind this is that the prices of securities in such a market immediately adjust to new information, making it impossible to exploit any information for abnormal gains.

**B is incorrect.** It suggests that an informationally efficient market is one where prices reflect all available information about the security, not specifying the nature of the information. This definition is too broad and encompasses both public and private (or insider) information.

However, the Efficient Market Hypothesis, particularly in its semi-strong form, specifically refers to public information. Therefore, this option does not accurately capture the essence of an informationally efficient market as defined by prevailing financial theories.

**C is incorrect.** It implies that for a market to be informationally efficient, security prices must reflect all available and inside information about the security. This description aligns more closely with the strong form of the Efficient Market Hypothesis, which is a theoretical extreme and not widely observed in practice.

Most financial regulations and ethical standards prohibit trading based on insider information, making it unrealistic for market prices to fully reflect such information legally. Therefore, while this option might describe an idealized version of market efficiency, it does not accurately represent the commonly accepted definition of an informationally efficient capital market.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.1661 Fatima Al-Mukhtar is an investment manager who invests in the informationally efficient capital market of Libya. Assuming that Al-Mukhtar only invests in mid-cap Libyan stocks, which of the following investment styles will *most likely* result in the highest returns?

- A. Active management.
- B. Passive management.
- C. Both methods will result in the same net returns

The correct answer is **B**.

In an informationally efficient capital market, such as the one in Libya where Fatima Al-Mukhtar invests, the most suitable investment style to achieve higher returns is passive management. The Efficient Market Hypothesis (EMH) posits that all available information is already reflected in stock prices.

Therefore, it becomes challenging for investors to consistently outperform the market through active management strategies that rely on stock selection and market timing. Passive management, on the other hand, involves mimicking the performance of a market index by holding a diversified portfolio of stocks without attempting to pick "winners" or time the market.

This strategy benefits from lower transaction costs and management fees, which can significantly erode returns in active management.

**A is incorrect.** Active management in an informationally efficient market is unlikely to result in higher returns compared to passive management. Active managers attempt to outperform the market by exploiting short-term price fluctuations and mispriced securities.

Moreover, the higher transaction costs, including brokerage fees, and management fees associated with active management strategies, further diminish the net returns to investors. Therefore, despite the effort and resources expended in active management, it does not guarantee superior returns in an efficient market.

**C is incorrect.** While it might seem intuitive that both active and passive management would result in the same net returns in an efficient market, this is not the case when considering the impact of costs.

Passive management inherently incurs lower costs due to its buy-and-hold strategy and lower turnover.

Active management, by its nature, involves more frequent trading and higher turnover, leading to higher transaction costs and management fees. These costs can significantly impact the net returns investors receive.

Therefore, even in an efficient market, the lower-cost approach of passive management is more likely to result in higher net returns compared to active management.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.1665 Which form of market hypothesis *most likely* suggests that current market prices fully reflect all information from public and private sources?

- A. Weak form market efficiency.
- B. Strong form market efficiency.
- C. Semi-strong form market efficiency.

The correct answer is **B**.

The strong form of market efficiency hypothesis posits that all information, whether public or private (insider information), is fully reflected in current market prices. This form of the hypothesis asserts that no investor can consistently achieve higher returns than the market average by using any information, as all information is already incorporated into stock prices.

This includes non-public information, making it impossible for insiders to consistently benefit from trading on such information. The strong form of market efficiency is the most inclusive among the three forms, suggesting that markets are perfectly efficient and that it is not possible to "beat the market" through any means of analysis or access to information.

**A is incorrect.** The weak form of market efficiency suggests that all past trading information, including stock prices and volumes, is fully reflected in current market prices. According to this hypothesis, technical analysis, which relies on historical price and volume data, cannot consistently outperform the market.

However, it does not account for the information that is not contained in past trading data, such as fundamental analysis based on public financial statements or private insider information. Therefore, the weak form does not support the idea that current market prices reflect all information from both public and private sources.

**C is incorrect.** Any new public information is quickly incorporated into stock prices. However, unlike the strong form, the semi-strong form does not assert that private or insider information is reflected in market prices, distinguishing it from the strong form's broader claim.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1666 According to the efficient market hypothesis (EMH), which of the following forms of market efficiencies will an investor *most likely* achieve positive risk-adjusted returns on average using fundamental analysis?

- A. Weak form market efficiency.
- B. Strong form market efficiency.
- C. Semi-strong form market efficiency.

The correct answer is **A**.

Fundamental analysis analyzes the intrinsic value of a company's stock using micro and macroeconomic factors. It comprises three parts: Industry Analysis, Economic Analysis, and Company Analysis. Fundamental analysis relies on public data, for example, a company's historical earnings and profit margins, to predict future growth.

The semi-strong form of efficiency suggests that current security prices reflect all the past security market information and all publicly available information. An investor cannot achieve positive risk-adjusted returns on average by using fundamental analysis in the semi-strong and strong form of market efficiency because the security prices already reflect publicly available information.

An investor can only achieve positive risk-adjusted returns by using fundamental analysis in the weak form of market efficiency.

The table below summarizes the possibility of earning abnormal returns through various strategies and active management, assuming different types of market efficiency.

	Technical Analysis	Fundamental Analysis	Insider Trading	Active Management
Weak	No	Yes	Yes	Yes
Semi-strong	No	No	Yes	No
Strong	No	No	No	No

**B is incorrect.** Under strong form efficiency, all information, including insider information, is already reflected in stock prices. Therefore, fundamental analysis, which relies on publicly available information, cannot yield excess returns.

**C is incorrect.** In a semi-strong efficient market, all publicly available information is already incorporated into stock prices. Since fundamental analysis primarily uses public information to assess a stock's intrinsic value, it would not be possible to achieve positive risk-adjusted returns using this method in a semi-strong efficient market.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1667 Technical analysis is used to test if a market is weak-form efficient. Which of the below data sets is *most likely* required to conduct technical analysis?

- A. Non-public material data.
- B. Past (historic) prices and volumes data.
- C. Current earnings, dividends, and accounting ratio data.

The correct answer is **B**.

Technical analysis is a method used by traders and investors to forecast the future price movements of securities based on past market data, primarily price and volume. The core premise behind technical analysis is that historical trading activity and price changes can be valuable indicators of a security's future price movements.

This approach is particularly relevant when testing for weak-form market efficiency, which posits that all historical price information is fully reflected in current market prices. Therefore, if technical analysis can consistently produce abnormal returns, it would suggest that the market is not weak-form efficient, as investors could leverage historical price and volume data to achieve returns that exceed those justified by the information available.

**A is incorrect.** Non-public material data, also known as insider information, is not relevant to technical analysis. Technical analysis solely relies on publicly available historical data, such as prices and volumes, and does not incorporate non-public or insider information. Utilizing non-public material data for trading is not only unethical but also illegal in many jurisdictions.

The effectiveness of technical analysis in predicting future price movements is based on the assumption that all relevant information, including historical prices and volumes, is already reflected in the market prices, making non-public information irrelevant to this analysis approach.

Past (historic) prices and volumes data are the primary inputs for technical analysis. This method analyzes patterns in this data to identify potential trading opportunities. Technical analysts believe that historical price movements and trading volumes can indicate future price trends.

**C is incorrect.** Current earnings, dividends, and accounting ratio data are primarily used in fundamental analysis, not technical analysis. Fundamental analysis assesses a security's intrinsic value by examining related economic, financial, and other qualitative and quantitative factors. This approach involves analyzing a company's financial statements, the health of the business, its competitive position, and the overall economy and market conditions.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.1668 Joe Timberlake is a trader who trades equities in the United Arab Emirates (UAE). Timberlake is consistently able to earn abnormal profits by using fundamental data, but when he

uses only technical analysis, he isn't profitable. UAE's market efficiency is *most likely*?

- A. Weak-form efficient.
- B. Strong-form efficient.
- C. Semi-strong form efficient.

The correct answer is **A**.

Fundamental analysis analyzes the intrinsic value of a company's stock using micro and macroeconomic factors. It comprises three parts: Industry Analysis, Economic Analysis, and Company Analysis. Fundamental analysis relies on public data, for example, a company's historical earnings and profit margins, to predict future growth. Traders cannot earn abnormal profits by using fundamental analysis if the security prices of the markets they trade in already reflect public information.

On the other hand, Technical analysis analyzes statistical trends, such as price movements and volume, to identify trading opportunities. Technical analysts use historical (past) trading activity and a security's price changes as valuable indicators of the security's future price movements.

The market is weak-form efficient if a trader can earn abnormal profits using fundamentals but not technical analysis. An investor cannot earn abnormal profits by using technical analysis in all forms of market efficiency.

The table below summarizes the possibility of earning abnormal returns through various strategies and active management, assuming different types of market efficiency.

	Technical Analysis	Fundamental Analysis	Insider Trading	Active Management
Weak	No	Yes	Yes	Yes
Semi-strong	No	No	Yes	No
Strong	No	No	No	No

**B is incorrect.** Strong-form efficiency asserts that stock prices reflect all information, both public and private (including insider information), making it impossible for investors to achieve abnormal profits through any analysis or information.

Timberlake's ability to earn abnormal profits through fundamental analysis contradicts the premise of strong-form efficiency, indicating that the UAE market does not operate under this level of efficiency.

**C is incorrect.** Semi-strong form efficiency suggests that stock prices incorporate all publicly available information, including historical trading data and fundamental analysis insights. If the UAE market were semi-strong form efficient, Timberlake would not be able to generate abnormal profits through fundamental analysis, as all such information would already be reflected in stock prices.

His success with fundamental analysis indicates that the market does not adjust instantaneously to new public information, which contradicts the semi-strong form efficiency hypothesis.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1669 In which form of market efficiency will active management *most likely* earn consistent abnormal profits?

- A. Weak form market efficiency.
- B. Strong form market efficiency.
- C. Semi-strong form market efficiency.

The correct answer is **A**.

Active management is when managers frequently buy and sell stocks in their portfolios to outperform a specific benchmark or index. Passive management, on the other hand, is when managers try to be at par with a specific index or benchmark performance. Active managers charge more fees as compared to passive managers because they have to manage the portfolio actively.

When markets are semi-strong or strong form efficient, security prices reflect all public and private information and no one has monopolistic access to information. Therefore, active management cannot consistently earn abnormal profits.

The table below summarizes the possibility of earning abnormal returns through various strategies and active management, assuming different types of market efficiency.

	Technical Analysis	Fundamental Analysis	Insider Trading	Active Management
Weak	No	Yes	Yes	Yes
Semi-strong	No	No	Yes	No
Strong	No	No	No	No

**B is incorrect.** Investors in the strong form of market efficiency cannot use any trading strategy to consistently earn abnormal profits because the security prices reflect all information. Investors can earn abnormal profits only by being lucky.

**C is incorrect.** Investors in the semi-strong form of market efficiency can earn abnormal profits only by using insider information.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.1670 The process of investigating data until a statistically significant relationship is found is *least likely* referred to as:

- A. data mining.
- B. data snooping.
- C. market anomaly.

The correct answer is **C**.

Market anomaly refers to a situation where a security's or market's actual performance deviates from the expected outcome under the efficient market hypothesis. Market anomalies represent patterns or behaviors in financial markets that seem to contradict the notion of market efficiency, suggesting that investors can earn abnormally high returns.

Examples of market anomalies include the January effect, momentum, and value effect among others. Unlike data mining or snooping, market anomalies are observed phenomena that challenge existing financial theories rather than the process of searching for new patterns or relationships.

**A is incorrect.** Data mining involves analyzing large volumes of data to discover patterns and relationships that can inform decision-making. While it can be a powerful tool for uncovering useful insights, it is also susceptible to overfitting and finding spurious correlations if not conducted with proper statistical rigor.

**B is incorrect.** Similarly, data snooping refers to the practice of extensively searching through data in an attempt to find statistically significant relationships. It is akin to data mining and carries the same risks of overfitting and discovering relationships that do not hold in general. Data snooping can lead to the formulation of investment strategies or theories that appear sound based on historical data but fail to perform as expected in future periods.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.1672 Which of the following is *most likely* a cross-sectional anomaly?

- A. Value effect.
- B. Earning surprises.
- C. Day-of-the-week effect.

The correct answer is **A**.

Market anomalies are exceptions to the notion of market efficiency. They are present if a change

in an asset or security price cannot be directly linked to current relevant information known in the market.

Market anomalies can be categorized into either time series anomalies, cross-sectional anomalies, or other anomalies.

Cross-sectional anomalies include the size effect and the value effect.

Time series anomalies include the calendar effect and the momentum/over-reaction effect.

Other anomalies include closed-end fund discounts; earnings surprise anomalies, and initial public offerings.

### **Anomalities explained**

- *Size effect* - small companies (small-cap stocks) tend to outperform large companies (large-Cap stocks), contrary to what is expected in the market.
- *Value effect* - Value stocks (Stock with a below-average price to earnings and market book ratios and above-average dividend yields) have consistently outperformed growth stocks, which is contrary to how investors expect markets to perform.
- *Calendar effect* - There is significant differences in returns on different days, weeks, or months of the year. The most common calendar effect is the January effect (Stocks tend to outperform in January).
- *Momentum/Overreaction effect* - The momentum effect refers to the empirically observed tendency for rising market prices to keep rising and falling market prices to keep falling. The momentum effect suggests that investors should buy past winners and sell past losers. On the other hand, the overreaction effect states that stocks that have performed poorly in the past three to five years demonstrate superior performance over the next three to five years compared to stocks that have performed well in the past. The overreaction effect suggests that investors should buy past losers and sell past winners.
- *Closed-end fund discounts* - Sometimes, closed-end funds sell at a discount to their net asset value. Tax inefficiencies and expectations of manager underperformance may partially explain this anomaly.
- *Earnings surplus* - Stock prices tend to underreact to new information allowing for a momentum trading strategy to be potentially profitable.
- *Initial public offerings* - By purchasing stocks at their initial public offering, investors tend to earn excess returns.

**B is incorrect.** Earning surprises refers to the market's reaction to an earnings report that significantly deviates from the consensus expectations. While earning surprises can lead to immediate and significant price adjustments in the stock of the company reporting the surprise, this phenomenon is categorized under "other anomalies" rather than cross-sectional anomalies.

**C is incorrect.** The day-of-the-week effect is a type of time series anomaly, not a cross-sectional anomaly. It refers to the pattern where stock returns are affected by the day of the week, with Friday often showing higher average returns compared to other days, for example.

This anomaly is related to how returns vary over time rather than differences in returns across different stocks or sectors at a single point in time. The day-of-the-week effect challenges the efficient market hypothesis by suggesting that predictable patterns exist in stock returns over time, which could potentially be exploited for abnormal returns.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.***

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Q.1674 Which of the following is the result of uninformed or less informed traders that watch and mimic the actions of other investors?

- A. Loss aversion.
- B. Momentum effect.
- C. Information cascade.

The correct answer is C.

An information cascade occurs when individuals, in the absence of complete information, observe and emulate the actions of others, assuming that those others possess better information. This phenomenon is particularly prevalent in financial markets, where uninformed or less informed traders look to the behavior of their peers as a proxy for valuable information.

The assumption is that the actions of others are based on some knowledge they possess, which the observer does not. In the context of trading and investment, this can lead to a herd behavior, where investors collectively buy or sell stocks not based on fundamental analysis or personal conviction, but because they perceive others are doing so.

This can amplify trends in the market, sometimes irrespective of the underlying financial health of the assets in question, leading to bubbles or crashes. Information cascades highlight the importance of critical thinking and independent analysis in investment decisions, as relying solely on the actions of others can lead to suboptimal outcomes.

**A is incorrect.** Loss aversion refers to a psychological phenomenon where individuals prefer avoiding losses to acquiring equivalent gains. For example, the pain of losing \$100 is more intense than the pleasure of gaining \$100. This concept is a cornerstone of behavioral economics and explains why people might opt for decisions that minimize losses rather than maximize gains, even when the expected outcomes are mathematically equivalent.

It does not directly relate to the behavior of mimicking others due to a lack of information, but rather to the intrinsic value individuals place on gains and losses.

**B is incorrect.** The momentum effect is a phenomenon observed in financial markets where an asset price movement in one direction is likely to continue moving in that direction for some time. This effect can be driven by various factors, including investor psychology, where the perception of increasing value encourages more buying, further driving up the price.

While the momentum effect might be influenced by information cascades, as investors follow the actions of others, it is distinct in its focus on the continuation of price trends rather than the underlying cause of those trends being the imitation of others' actions without full information. The momentum effect is more about the persistence of price movements and less about the informational basis of investment decisions.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (g) Describe behavioral finance and its potential relevance to understanding market anomalies.**

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Q.2884 Shares of Fition Corp. are trading at \$67 today while analysts expect the price of the shares to reach \$72 in 1 year and pay a dividend of \$1.50. Given a required rate of return of 14%, Shares of Fition Corp. are *most likely*:

- A. Underpriced by \$2.53.
- B. Overpriced by \$2.53.
- C. Underpriced by \$3.84.

The correct answer is **B**.

Using the one-year holding period DDM, the value of the stock today is the present value of any dividends during the year plus the present value of the expected price of the stock at the end of the year.

$$\text{Price} = \frac{\$72}{1.14} + \frac{\$1.5}{1.14} = \$64.47$$

A stock is considered overpriced when the intrinsic value of the stock is less than the current market price of a stock

Since the current value of the stock is \$67, the stock is overpriced by \$2.53.

**A is incorrect.** It suggests that the shares are underpriced by \$2.53. This conclusion would imply that the intrinsic value of the shares is higher than the current market price, which contradicts our calculation. The intrinsic value, as calculated, is lower than the market price, indicating that the shares are overpriced, not underpriced.

**C is incorrect.** It suggests that the shares are underpriced by \$3.84. The calculation based on the DDM shows that the shares are overpriced by \$2.53, not underpriced by any amount. This option fails to accurately reflect the relationship between the market price and the intrinsic value of Fition Corp. shares.

**CFA Level I, Topic 6 - Equity, Learning Module 8: Equity Valuation: Concepts & Basic Tools. LOS (e): Explain the rationale for using present value models to value equity and describe the dividend discount and free-cash-flow-to-equity models.**

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Q.3620 Country A is an emerging economy. The country's financial market is characterized by a low number of market participants and high transaction costs. Concerned by the increased volatility in its equity markets, the government recently banned the short-selling of securities. The financial market of country A is *most likely*:

- A. inefficient.
- B. strong form efficient.
- C. semi-strong form efficient.

The correct answer is **A**.

The financial market of Country A is most likely inefficient due to several key factors that are indicative of market inefficiency. An efficient market is characterized by certain features that facilitate the fair and transparent pricing of securities, based on all available information. These features include:

1. A large number of market participants.
2. The free availability of information.
3. Less restrictions on trading such as allowing short-selling.
4. Lower transactions costs.

In the case of Country A, the market is described as having a low number of participants and high transaction costs.

This scenario limits the diversity of opinions and valuations, making it difficult for securities to be priced accurately and fairly. Additionally, the high transaction costs discourage trading, reducing market liquidity and further hindering the efficient pricing of securities. The government's recent ban on short-selling introduces a significant restriction on trading practices, preventing investors from expressing negative views on securities.

The combination of these factors suggests that Country A's financial market lacks the characteristics of an efficient market, making it most likely inefficient.

**B is incorrect.** Strong form efficiency implies that all information, including public, private (insider), and historical information, is fully reflected in stock prices. The characteristics of Country A's market, such as high transaction costs and restrictions on trading practices, are inconsistent with strong form efficiency, which would not exhibit such barriers to information flow and trading.

**C is incorrect.** Semi-strong form efficiency suggests that all publicly available information is reflected in stock prices. However, the description of Country A's market indicates significant barriers to information flow and trading, such as high transaction costs and a ban on short-selling. These barriers would likely prevent the market from efficiently incorporating all publicly available information into stock prices, contradicting the premise of semi-strong form efficiency.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.3622 The *most likely* explanation of the "January Effect" is that:

- A. tax-loss selling occurs in January.
- B. tax-loss buying occurs in December.
- C. tax-loss selling occurs in December.

The correct answer is **C**.

The "January Effect" refers to the observed seasonal increase in stock prices during the month of January. This phenomenon is most commonly attributed to tax-loss selling in December, where investors sell securities that have declined in value over the year to realize capital losses for tax purposes.

These losses can offset capital gains taxes owed on other investments. After selling these securities in December, investors often reinvest in the market in January, leading to increased demand and, consequently, higher stock prices. This pattern suggests a strategic behavior among investors to optimize their tax situation, which inadvertently impacts the stock market dynamics.

**A is incorrect.** The statement that tax-loss selling occurs in January is inaccurate. Tax-loss selling primarily takes place in December, before the end of the tax year for most investors. This strategy allows investors to claim capital losses on their tax returns, reducing their taxable income.

The effect of this selling pressure is typically seen in the form of lower stock prices in December, followed by a rebound in January as investors re-enter the market.

**B is incorrect.** The option suggesting that tax-loss buying occurs in December misinterprets the nature of the January Effect. While it is true that investors engage in transactions at the end of the year for tax purposes, the critical activity is selling, not buying, to realize losses.

The concept of tax-loss buying does not directly contribute to the January Effect. Instead, the rebound or increase in stock prices in January can be attributed to the reinvestment of funds from the sales made in December, as well as other investors entering the market to take advantage of lower prices, leading to an overall increase in demand and subsequently, stock prices.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.3623 Which of the following is *most likely* an assumption of the efficient market hypothesis?

- A. Investors behave irrationally.
- B. Investors mainly invest in single stocks.
- C. Successive stock price changes are independent of each other.

The correct answer is **C**.

The Efficient Market Hypothesis (EMH) states that all available information is fully reflected in stock prices, and as such, it is impossible to consistently achieve higher returns than the overall market through stock selection or market timing.

A key assumption of the EMH is that successive stock price changes are independent of each other. This means that the price movement of a stock at any given moment is not influenced by its past price movements. This assumption is crucial because it underpins the theory that it is not possible to predict future stock prices based on past prices, making it impossible to consistently outperform the market through analysis or prediction of trends.

**A is incorrect.** These irrationalities are viewed as random and thus cancel each other out. The EMH does not deny the existence of irrational behavior but posits that such behavior does not systematically influence market prices in a way that can be exploited for consistent profit.

**B is incorrect.** The assumption that investors mainly invest in single stocks is not aligned with the principles of the EMH. The EMH assumes that investors diversify their investments across a broad portfolio of assets. Diversification is a key strategy for managing risk, as it reduces the impact of the performance of any single investment on the overall portfolio.

By investing in a diversified portfolio, investors can achieve a more stable return over time, which is consistent with the rational behavior assumed by the EMH. The focus on portfolio investment rather than single stocks reflects the understanding that it is not possible to consistently pick "winning" stocks in an efficient market, as all known information is already reflected in stock prices.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.3624 For efficient market conditions to hold:

- A. every market participant must be well informed.
- B. a few market participants must be well informed.
- C. the majority of market participants must be well informed.

The correct answer is **B**.

The efficient market hypothesis (EMH) posits that securities' prices in financial markets fully incorporate all available information. According to this theory, it is not necessary for every market participant to be well informed for a market to be efficient. Instead, the presence of a few well-informed participants is sufficient to ensure that any new information is quickly reflected in securities' prices.

These informed participants, through their trading activities, help adjust prices to reflect new information, thereby eliminating any profit-making opportunities that could arise from possessing this information. This process ensures that prices at any given time represent the true value of the securities, based on the currently available information.

**A is incorrect.** This option suggests that every market participant must be well informed for efficient market conditions to hold. However, the efficient market hypothesis does not require all participants to be well informed.

Instead, it relies on the idea that as long as there are some well-informed participants, they will act on new information in a way that quickly adjusts prices to reflect this information. The actions of these informed participants ensure market efficiency, even if the majority of market participants are not well informed.

**C is incorrect.** This option suggests that the majority of market participants must be well informed for the market to be efficient. Similar to option A, this is a misunderstanding of the efficient market hypothesis.

The key to market efficiency is not the proportion of informed participants but the presence of enough informed participants to act on and incorporate new information into prices. Even with a minority of participants being well informed, their trading activities based on new information can ensure that prices reflect all available information, thereby maintaining market efficiency.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.3625 An equity research analyst is trying to test the efficient market hypothesis. He selects three similar mutual funds and compares the fund's return with the market return. Exhibit 1 summarizes the information collected by the analyst.

Exhibit 1: Return Generated

Period	Mutual Fund 1	Mutual Fund 2	Mutual Fund 3	Market
Year 1	12%	7%	11%	10%
Year 2	11%	14%	14%	13%
Year 3	9%	13%	10%	8%
Year 4	4%	11%	10%	9%

The analyst then makes the following comment:

*"As return generated by Mutual Fund 3 has exceeded market return in all the four years, an investor must invest in Mutual Fund 3 to generate abnormal returns."*

If the efficient market hypothesis holds, then an investor should *most likely* invest in:

- A. Mutual Fund 1.
- B. Mutual Fund 3.
- C. any of the three mutual funds.

The correct answer is **C**.

The Efficient Market Hypothesis (EMH) states that all available information is already reflected in stock prices, and thus, it is impossible to consistently achieve higher returns than the overall market through stock selection or market timing.

According to EMH, any outperformance observed in one period is likely due to chance rather than skill, and it is improbable for any investor or fund manager to consistently beat the market over the long term. Therefore, if the EMH holds true, the choice of mutual fund should not significantly impact the expected returns, as all funds would, on average, perform in line with the market after adjusting for risk.

Option C is the correct choice because it aligns with the principles of the Efficient Market Hypothesis. EMH suggests that investors cannot consistently achieve returns higher than the market average through either the selection of individual securities or mutual funds, as prices fully reflect all available information.

**A is incorrect.** Choosing Mutual Fund 1 based on its past performance does not guarantee future returns. The EMH suggests that any above-market returns achieved by Mutual Fund 1 in certain periods are likely due to luck rather than the fund manager's ability to consistently predict or exploit market inefficiencies. Over time, the performance of Mutual Fund 1 is expected to align with market returns, making it no more attractive than any other fund from an EMH perspective.

**B is incorrect.** All known information is already reflected in asset prices. Therefore, the past performance of Mutual Fund 3 does not provide a reliable basis for expecting future outperformance.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

Q.3626 If the efficient market hypothesis holds, an investor should *most likely*:

- A. follow a "buy and hold" strategy.
- B. invest in high beta stocks to generate abnormal returns.
- C. frequently churn his portfolio to generate an abnormal return.

The correct answer is **A**.

If the Efficient Market Hypothesis (EMH) holds true, the most appropriate strategy for an investor is to adopt a "buy and hold" approach. The EMH posits that all available information is already reflected in stock prices, meaning that it is impossible to consistently achieve higher returns than the market average through stock selection or market timing.

Under the EMH, since prices are always fair, the best strategy for an investor is to buy a diversified portfolio of stocks and hold them over the long term. This approach minimizes transaction costs and avoids the pitfalls of trying to time the market or select undervalued stocks, which, according to the EMH, does not yield consistent above-market returns due to the efficient nature of the market.

**B is incorrect.** Investing in high beta stocks to generate abnormal returns is not a viable strategy under the Efficient Market Hypothesis. High beta stocks are more volatile and may offer higher returns, but the EMH suggests that these potential returns are already priced in based on available information.

Therefore, selecting high beta stocks in anticipation of abnormal returns does not align with the EMH, which posits that no investor can consistently achieve higher than market-average returns through any selection strategy due to market efficiency.

**C is incorrect.** Frequently churning a portfolio in an attempt to generate abnormal returns is counterproductive in an efficient market. The EMH asserts that since all available information is already reflected in stock prices, attempts to outperform the market through frequent buying and selling are unlikely to succeed and will incur higher transaction costs.

This strategy contradicts the principles of the EMH, which advocate for a more passive investment approach, recognizing that market prices are fair and reflect all known information.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.3627 During a presentation conducted by a research team in Albania, an equity research analyst makes the following comment:

"The majority of market participants do not keep track of the country's macroeconomic variables. Therefore, I believe that the stock prices will not fully reflect all available information."

Which of the following statements is *most* accurate?

If the efficient market hypothesis holds, then the stock prices will fully reflect all information:

- A. if no market participants keep track of the country's macroeconomic variables.
- B. if all market participants keep track of the country's macroeconomic variables.
- C. even if only a few market participants keep track of the country's macroeconomic variables.

The correct answer is **C**.

The Efficient Market Hypothesis (EMH) states that stock prices fully incorporate all available information. This theory suggests that it is impossible to consistently achieve higher returns than the overall market because stock prices already reflect all known information.

According to EMH, even if only a few market participants are aware of certain macroeconomic variables or any other type of information, the actions of these informed participants will influence stock prices to reflect this information.

This is because these informed traders will buy or sell stocks based on their knowledge, which in turn will move the stock prices in a direction that reflects this information before others can act on it. Therefore, the market does not require every participant to be aware of all information for stock prices to fully reflect available information.

**A is incorrect.** The EMH relies on the premise that stock prices adjust to reflect new information as it becomes available. If no one is aware of or acts on macroeconomic variables, then this information cannot be reflected in stock prices. However, EMH asserts that it only takes a few informed participants to adjust their trading based on new information for stock prices to reflect this information.

**B is incorrect.** The EMH does not require all market participants to keep track of macroeconomic variables or any other type of information for stock prices to fully reflect all available information.

Instead, the hypothesis suggests that as long as there are some informed participants who act on their exclusive information, their trading activity is sufficient to adjust stock prices to reflect this information.

The presence of these informed traders ensures that stock prices incorporate all known information, even if the majority of market participants are not aware of it.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.3628 The shares of closed-end investment funds trade at a discount from its net asset value (NAV). This is *most likely* due to:

- I. tax liabilities associated with unrealized capital gains and losses.
- II. management fees.
- III. the illiquidity of the fund's shares.

A. I & II

B. I & III

C. II & III

The correct answer is **B**.

The shares of closed-end investment funds often trade at a discount from their net asset value (NAV) primarily due to tax liabilities associated with unrealized capital gains and losses, and the illiquidity of the fund's shares.

Closed-end funds are unique in that they issue a fixed number of shares at an initial public offering, and these shares then trade on the open market. This structure can lead to the shares trading at a price that is different from the fund's NAV.

Investors may be concerned about the potential tax implications of these unrealized amounts, which can affect the desirability and thus the price of the fund's shares. Additionally, the illiquidity of the fund's shares, due to the fixed number of shares and potentially lower trading volumes compared to other securities, can make it more challenging for investors to buy or sell shares at their preferred prices, leading to a discount in the market price relative to the NAV.

**A is incorrect.** This option suggests that management fees are a primary reason for the discount in closed-end fund shares relative to their NAV. While management fees are a consideration for investors in any managed fund, they are not a distinguishing factor that would cause closed-end funds specifically to trade at a discount. Both closed-end and open-end funds incur management fees, and these fees are typically factored into the NAV of the fund.

**C is incorrect.** As explained, management fees are a common expense across both closed-end and open-end funds and are accounted for in the NAV calculation. The inclusion of management fees as a reason for the discount overlooks the more significant factors of tax liabilities associated with unrealized capital gains and losses, and the illiquidity of the fund's shares, which are more directly related to the trading discount observed in closed-end funds.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.3629 If the markets are strong-form efficient, then investors can *most likely*:

- A. generate abnormal returns based on public information.
- B. generate abnormal returns based on private/insider information.
- C. fail to generate abnormal returns based on private/insider information.

The correct answer is C.

In the context of strong-form market efficiency, it is considered that all information, whether public or private (insider information), is already reflected in stock prices. This implies that no investor, regardless of the information they possess, can consistently achieve returns that outperform the market average. Strong-form efficiency is the most stringent version of the Efficient Market Hypothesis (EMH), suggesting that markets are perfectly efficient and that it is impossible to achieve higher returns without assuming higher risk.

**A is incorrect.** Under strong-form efficiency, even public information cannot be used to generate abnormal returns. The premise of strong-form efficiency is that all information, including historical stock prices, public news, and even insider information, is already incorporated into stock prices. Therefore, using public information to achieve above-market returns would be futile since the market has already adjusted for this information.

**B is incorrect.** It suggests that investors can generate abnormal returns based on private or insider information. This contradicts the principle of strong-form market efficiency, which asserts that stock prices fully reflect all information, public and private. In a strong-form efficient market, even possessing insider information would not provide an investor with an advantage, as the market price would have already adjusted to reflect this information. The hypothesis posits that no one can consistently achieve higher returns on a risk-adjusted basis by using any information, as the market prices are always fair and fully informed.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (d) Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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Q.3630 The financial markets of country AAA is classified as weak-form efficient. Which of the following is *most likely* correct regarding the financial markets of AAA?

- A. Technical analysts can never generate abnormal returns.
- B. Technical analysts can generate abnormal returns consistently.
- C. Technical analysts cannot generate abnormal returns consistently.

The correct answer is **C**.

In a weak-form efficient market, such as that of country AAA, the prices of securities fully reflect all historical trading information. This classification implies that past price movements and volume data are incorporated into current stock prices, making it impossible for investors to achieve consistent abnormal returns through technical analysis.

Technical analysis involves the study of past market data, primarily price and volume, to forecast future price movements. Since all historical information is already reflected in stock prices in a weak-form efficient market, any attempt to use this information for predicting future price movements would not yield results better than random chance over time.

**A is incorrect.** This option suggests that technical analysts can never generate abnormal returns. While it is challenging to achieve consistent abnormal returns in a weak-form efficient market through technical analysis, it is not entirely impossible. There may be short-term anomalies or market inefficiencies that skilled analysts could exploit. However, these opportunities are rare and not consistent enough to rely on as a strategy for generating abnormal returns.

**B is incorrect.** All historical price and volume information is already reflected in the current market prices. Therefore, using technical analysis to predict future price movements and generate abnormal returns on a consistent basis is highly unlikely. The market's efficiency at incorporating past trading information into current prices negates the advantage that technical analysis might provide.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.3631 Which of the following will *least likely* increase market efficiency?

- A. Reducing the securities transaction tax from 1.5% to 0.75%.
- B. Allowing derivative transactions to be used only for hedging purposes.
- C. Increasing the cap on foreign shareholding in domestic companies from 50% to 75%

The correct answer is **B**.

Option B, which suggests allowing derivative transactions to be used only for hedging purposes, would least likely increase market efficiency. Market efficiency is enhanced when there are fewer restrictions on trading activities, allowing for a more fluid and dynamic market environment.

Derivatives, such as options and futures, play a crucial role in the financial markets by providing mechanisms for risk management, price discovery, and speculative opportunities. Restricting their use solely to hedging purposes limits these functions, potentially reducing the liquidity and depth of the market.

This constraint could deter market participants, including speculators who contribute to market liquidity and efficiency by taking on risk from those looking to hedge. Moreover, derivatives are instrumental in the price discovery process, helping to reflect all available information in asset prices more accurately. Limiting their use could impede this process, thus detracting from market efficiency.

**A is incorrect.** Reducing the securities transaction tax from 1.5% to 0.75% is likely to increase market efficiency.

Transaction costs, including taxes, can significantly impact trading decisions and market participation. High transaction costs may deter trading and liquidity provision, leading to wider bid-ask spreads and less efficient price discovery.

By reducing the securities transaction tax, trading becomes more cost-effective, encouraging greater participation from both retail and institutional investors. This increased activity can enhance liquidity, narrow bid-ask spreads, and improve the market's ability to reflect new information in prices promptly, all of which are hallmarks of an efficient market.

**C is incorrect.** Increasing the cap on foreign shareholding in domestic companies from 50% to 75% is likely to increase market efficiency. This policy change would allow more foreign investment into the domestic market, broadening the investor base and increasing the amount of capital available for domestic companies.

A larger pool of investors, including those from different geographical regions with diverse perspectives and information, contributes to the market's depth and liquidity. Furthermore, foreign investors often bring additional scrutiny and demand for transparency, which can lead to better corporate governance and more accurate pricing of securities. By facilitating greater foreign participation, the market becomes more competitive and efficient in processing and reflecting information in asset prices.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (c) Explain factors that affect a market's efficiency.**

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Q.3632 In an efficient market, the market price of an asset is *most likely*:

- A. close to its intrinsic value.
- B. equal to its intrinsic value.
- C. perceived to be its intrinsic value.

The correct answer is **C**.

In an efficient market, the concept of intrinsic value plays a crucial role in understanding how assets are priced. The intrinsic value of an asset is a theoretical value that reflects all current and potential future information that could impact the asset's value. In an efficient market, it is assumed that all available information is already reflected in the market price of an asset.

Therefore, the market price is perceived by investors to accurately represent the asset's intrinsic value. This perception is crucial because it implies that the market operates under the assumption that prices are fair and reflect all known information, making it difficult to consistently achieve higher returns without taking on additional risk.

**A is incorrect.** Stating that the market price of an asset is close to its intrinsic value implies a degree of imprecision that is not characteristic of an efficient market. In an efficient market, the prices of assets are expected to fully incorporate all available information.

Therefore, suggesting that the price is only close to the intrinsic value undermines the concept of market efficiency, which posits that prices at any given moment are the best available estimates of intrinsic value.

**B is incorrect.** It suggests that the market price of an asset is exactly equal to its intrinsic value at all times. While this statement aligns closely with the concept of an efficient market, it overlooks the nuance that in practice, the market's perception of an asset's intrinsic value is what guides pricing.

The intrinsic value is a theoretical construct that cannot be precisely calculated due to the subjective nature of estimating future cash flows and the appropriate discount rate.

Therefore, in an efficient market, it is more accurate to say that the market price is perceived to be the intrinsic value, acknowledging the role of market participants' perceptions and the potential for minor, short-lived deviations from true intrinsic value.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.**

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Q.3633 The efficient market hypothesis states that portfolio managers can *most likely*:

- A. beat the market consistently.
- B. beat the market using insider information.
- C. beat the market sometimes just by being lucky.

The correct answer is **C**.

The Efficient Market Hypothesis (EMH) posits that all available information is already reflected in stock prices, and thus, it is impossible to consistently achieve higher returns than the overall market through stock selection or market timing.

According to EMH, any excess returns achieved by portfolio managers can be attributed to luck rather than skill or insider information. This hypothesis is grounded in the belief that markets are efficient, and prices on traded assets, such as stocks, bonds, or property, already incorporate and reflect all known information.

**A is incorrect.** All available information is already factored into asset prices, consistently outperforming the market through either skill or analysis is virtually impossible. The hypothesis suggests that any instances of beating the market are more likely due to chance rather than any systematic or analytical advantage.

This is because any new information that could potentially be used to gain an advantage is quickly absorbed by the market, rendering it ineffective for consistent outperformance.

**B is incorrect.** While insider information might theoretically provide an advantage in an inefficient market, the Efficient Market Hypothesis, particularly in its strong form, asserts that even insider information is reflected in stock prices. Therefore, according to EMH, using insider information would not consistently lead to outperforming the market.

Moreover, trading on insider information is illegal in many jurisdictions and is considered unethical in the investment community. The premise of EMH is that markets are efficient to the extent that no information, public or private (insider), can give an investor a consistent edge over the market.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.**

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Q.3634 The slow adjustment of stock prices to an unexpected earnings announcement is *most* likely due to:

- A. inefficient markets.
- B. studies not taking into account the transaction costs and risk.
- C. slow dissemination of information among the market participants.

The correct answer is **B**.

The slow adjustment of stock prices to unexpected earnings announcements is most likely due to studies not taking into account transaction costs and unsystematic risk. This perspective highlights the complexities involved in the price adjustment process following new information releases.

Transaction costs, including brokerage fees and taxes, can deter investors from immediately acting on new information, thereby delaying the price adjustment process. Additionally, unsystematic risk, which is specific to a company or industry, can further complicate investors' responses to earnings announcements.

Investors may need time to assess the implications of the new information on the company's risk profile, thus contributing to the slow adjustment of stock prices.

**A is incorrect.** Inefficient markets as a reason for the slow adjustment of stock prices to unexpected earnings announcements might seem plausible at first glance. However, this explanation overlooks the role of transaction costs and unsystematic risk in the price adjustment process.

While market inefficiency can contribute to delays in price adjustments, it is the overlooking of transaction costs and unsystematic risk in studies that more directly explains the observed slow adjustments. Market inefficiency might be a broader context in which these factors operate, but it is not the most direct cause.

**C is incorrect.** Slow dissemination of information among market participants is another potential explanation for the slow adjustment of stock prices to unexpected earnings announcements. However, this explanation does not fully account for the complexities involved in the adjustment process.

In today's digital age, information dissemination is relatively fast, and markets often react quickly to new information. The more nuanced issue lies in how transaction costs and unsystematic risk are factored into the decision-making process by investors. These elements can delay the incorporation of new information into stock prices, beyond the simple speed of information dissemination.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.3635 Assume that you are a researcher conducting an empirical experiment on a trading strategy using time series of returns. You find statistical evidence that there are abnormal returns. Which of the following *most likely* be the name given to your finding?

- A. Evidence of market anomaly.
- B. Evidence of market inefficiency.
- C. Evidence of future abnormal returns.

The correct answer is **A**.

Finding significant abnormal returns does not inherently imply that markets are inefficient or that the technique can be applied to future periods to achieve abnormal returns. Abnormal returns are called market anomalies since, rather than being the product of market inefficiency, they may result from the model used to forecast expected returns. They may also result from underestimating transaction costs or other expenses associated with executing the strategy.

Time series analysis includes the calendar effect and the momentum/overreaction effect; Cross-sectional analysis includes the size effect and the value effect.

Other anomalies include closed-end fund discounts, earnings surprises, and initial public offerings.

### **Anomalities explained**

**Size effect** - small companies (small-cap stocks) tend to outperform large companies (large-cap stocks), contrary to what is expected in the market.

**Value effect** - Value stocks (Stocks with a below-average price to earnings and market book ratios and above-average dividend yields) have consistently outperformed growth stocks, which is contrary to how investors expect markets to perform.

**Calendar effect** - There are significant differences in returns on different days, weeks, or months of the year. The most common calendar effect is the January effect (Stocks tend to outperform in January).

**Momentum/Overreaction effect** - The momentum effect refers to the empirically observed tendency for rising market prices to keep rising and falling market prices to keep falling. The momentum effect suggests that investors should buy past winners and sell past losers.

The overreaction effect contradicts the momentum effect. The overreaction effect states that stocks that have performed poorly in the past three to five years demonstrate superior performance over the next three to five years compared to stocks that have performed well in the past. The overreaction effect suggests that investors should buy past losers and sell past winners.

**Closed-end fund discounts** - Sometimes, closed-end funds sell at a discount to their net asset value. Tax inefficiencies and expectations of manager underperformance may partially explain this anomaly.

**Earnings surplus** – Stock prices tend to underreact to new information allowing for a momentum trading strategy to be potentially profitable.

**Initial public offerings** – By purchasing stocks at their initial public offering, investors tend to earn excess returns.

**B is incorrect.** While evidence of market inefficiency might seem like a plausible conclusion from finding abnormal returns, it is not the most direct interpretation. Market inefficiency refers to a broader concept where prices do not always accurately reflect the value of an asset due to various factors such as transaction costs, restrictions on short selling, and information asymmetry.

Although finding abnormal returns could suggest inefficiencies, it is more accurately described as an anomaly, which is a specific instance or condition under which the general assumption of market efficiency fails.

**C is incorrect.** Evidence of future abnormal returns is a misleading interpretation of the findings. While discovering abnormal returns in historical data might suggest the potential for similar strategies to yield abnormal returns in the future, it does not guarantee such outcomes.

Financial markets are dynamic, and factors contributing to past anomalies may change or become well-known, leading to an adjustment in prices that eliminates the opportunity for abnormal returns.

Therefore, while the discovery of abnormal returns is significant, it should not be directly equated with the expectation of future abnormal returns without considering the changing market conditions and the possibility of adaptive market behavior.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (f) Describe market anomalies.**

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Q.3636 During a classroom discussion on efficient markets, a student makes the following comment:

"Dot-com bubble indicates that the market is not efficient. An efficient market would never bid the stock prices to such irrational levels."

Which of the following is the *most accurate* statement?

- A. The comment made by the student is correct.
- B. Efficient markets may under-react, but rarely never overreacts.
- C. Efficient markets may overreact or under-react, but on average markets are efficient.

The correct answer is **C**.

The concept of market efficiency is central to understanding how prices of securities reflect available information. The Efficient Market Hypothesis (EMH) posits that securities' prices fully

reflect all available information at any given time.

However, the occurrence of events such as the Dot-com bubble challenges the notion of market efficiency by suggesting that prices can deviate significantly from their intrinsic values due to investor irrationality or other factors.

The most accurate statement in this context is that efficient markets may overreact or under-react, but on average, markets are efficient. This perspective acknowledges the possibility of discrepancies in the short term while maintaining that, over the long term, prices tend to reflect the underlying fundamentals of securities.

**A is incorrect.** It suggests that the occurrence of the Dot-com bubble is definitive proof that markets are not efficient. While it's true that the Dot-com bubble involved significant overvaluation of stocks, particularly in the technology sector, this does not necessarily invalidate the concept of market efficiency.

The bubble can be seen as a result of speculative excesses and irrational exuberance, which, while they may lead to temporary mispricings, do not necessarily mean that the market is fundamentally inefficient.

**B is incorrect.** It suggests that efficient markets may under-react but rarely overreact. This statement underestimates the potential for markets to overreact to information, whether due to psychological biases, herd behavior, or other factors. Both overreactions and under-reactions can occur in efficient markets, reflecting the dynamic nature of information processing and investor behavior.

The key point is that, despite these short-term fluctuations, the market mechanism works to incorporate all available information into prices, leading to efficiency on average over the long term.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (e) Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.***

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Q.3637 The efficient market hypothesis *most likely* requires that:

- A. the overall market must be rational.
- B. every market participant must be rational.
- C. only a few market participants must be rational.

The correct answer is **A**.

This option aligns with the principles of the EMH, which does not necessitate that every participant in the market behaves rationally. Instead, the hypothesis suggests that as long as there are enough rational participants who act on new information, the market will remain efficient. These rational participants help ensure that prices reflect all available information, thereby contributing to the market's efficiency. The presence of some irrational participants does not negate the hypothesis, as their impact is diluted by the actions of the rational majority.

**B is incorrect.** The statement that the overall market must be rational is a misunderstanding of the EMH. The hypothesis does not require that the market itself exhibits rationality as an entity. Instead, it is based on the idea that the collective actions of market participants, who are assumed to act on available information, lead to an efficient market where prices reflect all known information. The market's efficiency is a result of the aggregate of individual actions rather than an inherent characteristic of the market itself.

**C is incorrect.** The EMH does not require that all participants act rationally at all times. In fact, the hypothesis allows for irrational behavior by some market participants, as long as their actions are offset by rational decisions made by others. The key aspect of the EMH is that, on average, the market reflects all available information in the prices of securities, not that every individual makes rational decisions.

**CFA Level I, Topic 6 - Equity, Learning Module 3: Market Efficiency. LOS (c): Explain factors that affect a market's efficiency.**

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Q.3638 After visiting one of the stores of a large retail corporation, Pharell Sanders, the general manager of Vizion Hedge Fund, makes the following comment:

"The store layout, cleanliness, and the prompt service show great attention to detail. I plan to invest in the company; if the company is well-organized, the investment opportunity has to be good."

Sanders is *most likely* exhibiting the:

- A. narrow framing.
- B. disposition effect.
- C. representativeness bias.

The correct answer is **C**.

Representativeness bias is a cognitive bias where individuals make judgments about the probability of an event under uncertainty based on how much it resembles their existing stereotypes or patterns, rather than considering all relevant information.

In this scenario, Sanders equates the operational efficiency and aesthetic appeal of a single store with the overall investment potential of the company. This leap from operational characteristics to investment quality does not necessarily consider the company's financial health, market position, competitive advantages, or any other critical investment analysis metrics.

By relying on a heuristic that 'if a company is well-organized, the investment opportunity has to be good,' Sanders is potentially overlooking other crucial factors that determine an investment's success.

**A is incorrect.** Narrow framing refers to the tendency of individuals to view problems or decisions in isolation without considering the broader context or the impact on the overall portfolio.

In this case, Sanders's decision-making process does not specifically indicate that he is viewing the investment in isolation from a broader portfolio context. Instead, he is making an inference about the company's investment potential based on its operational characteristics, which is more indicative of representativeness bias.

**B is incorrect.** The disposition effect is the tendency of investors to sell assets that have increased in value while holding onto assets that have decreased in value. This behavior is driven by the psychological inclination to avoid realizing losses and to secure gains.

Sanders's decision to invest in the company based on his observations of the store does not reflect a preference for selling winning investments or holding losing ones. Instead, his decision-making process is influenced by his perception of the company's operational efficiency as a proxy for its overall investment potential, which aligns with representativeness bias.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (g) Describe behavioral finance and its potential relevance to understanding market anomalies.**

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Q.3639 Sarah Wallace, an equity research analyst, conducts an investor awareness program centered around the theme of "Behavioral Finance and the Art of Investing." An extract of her lecture is as shown below.

"Stock prices are governed by the random walk theory, which states that we cannot predict stock price movements. Therefore, stock prices are independent of each other; the price of a security tomorrow is independent of the security price today."

The behavioral bias *most likely* to be addressed by the lecture is the:

- A. anchoring bias.
- B. gambler's fallacy.
- C. mental accounting.

The correct answer is **B**.

The gambler's fallacy is particularly relevant in the context of stock market investments, where some investors might believe that a stock that has been increasing or decreasing in value over a series of days is due for a reversal, despite the fact that each day's price movement is independent of the previous day's movements.

This bias can lead to suboptimal investment decisions, such as selling a stock after a series of gains due to the mistaken belief that a decline is imminent, or conversely, buying a stock after a series of losses under the assumption that a rebound is due.

**A is incorrect.** Anchoring bias refers to the tendency to rely too heavily on the first piece of information encountered (the "anchor") when making decisions. In the context of investing, this could manifest as an investor placing undue emphasis on the initial price at which they encountered a stock, which might influence their perception of subsequent price movements or valuation assessments.

While anchoring can affect investment decisions, it is not directly related to the belief in patterns of random events, which is the central theme of Wallace's lecture on the random walk theory and the independence of stock price movements.

**C is incorrect.** Mental accounting is a concept in behavioral finance where individuals categorize their money into different 'accounts' based on subjective criteria, such as the source of the money or its intended use. This can lead to irrational financial behaviors, such as treating money differently based on its origin (e.g., being more willing to spend "found" money than earned money) or failing to optimize the overall utility of their resources.

While mental accounting can influence how individuals allocate and perceive their investments, it does not specifically address the misconception about the predictability of stock price movements based on past trends, which is the focus of the gambler's fallacy and the subject of Wallace's lecture.

***CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (g) Describe behavioral finance and its potential relevance to understanding market anomalies.***

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Q.3640 The shares of AAA Pharmaceuticals Limited made a lifetime high at \$265. A week later, the company recently received a US FDA warning letter regarding deficiencies observed in the company's drug manufacturing processes. As a result, the shares of the company crashed and currently trade at around \$120. Ankit Vishnu, a retail investor who tracks the company's shares, made the following comment:

"The share's price dropped from a lifetime high of \$265 to \$120, a drop of 55% making it a strong 'buy.'"

The behavioral bias exhibited by Vishnu is *most likely* the:

- A. anchoring bias.
- B. conservatism bias.
- C. mental accounting bias.

The correct answer is **A**.

Ankit Vishnu's decision to consider the shares of AAA Pharmaceuticals Limited a strong 'buy' after a significant drop in price due to a US FDA warning letter is a classic example of anchoring bias. Anchoring bias occurs when an individual relies too heavily on an initial piece of information (the "anchor") when making decisions.

In this case, Vishnu is anchored to the stock's lifetime high of \$265, using it as a reference point to evaluate the current price of \$120 as attractively low, without adequately considering the substantial negative impact the FDA warning letter could have on the company's future earnings and stock price. This bias leads him to overlook the fundamental change in the company's outlook and potentially exposes him to significant investment risk.

**B is incorrect.** The statement that the share price dropped from a lifetime high of \$265 to \$120, a drop of 55%, making it a strong 'buy' is based on the anchoring bias, not conservatism bias. Conservatism bias refers to the tendency of individuals to insufficiently revise their beliefs when presented with new evidence.

In this scenario, Vishnu is not showing reluctance to update his beliefs in light of new information; rather, he is overly focused on the past high price as a benchmark for making investment decisions, which is indicative of anchoring bias.

**C is incorrect.** Mental accounting bias involves categorizing money into different accounts mentally and treating these accounts differently, affecting financial decision-making. Vishnu's decision-making process does not involve segregating his investments or money into different mental accounts but is instead influenced by his fixation on the stock's previous high price.

Therefore, his behavior does not demonstrate mental accounting bias but rather shows a clear example of anchoring bias, where the initial high price of the stock serves as the anchor for his investment decision, despite significant negative developments.

**CFA Level 1, Topic 6 - Equity Investments, Learning Module 3: Market Efficiency, LOS (g) Describe behavioral finance and its potential relevance to understanding market anomalies.**

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Q.3869 Volume information will *most likely* have predictive power on the future direction of security prices in which of the following forms of market efficiency?

- A. Semi-strong.
- B. Weak, semi-strong, and strong form.
- C. Neither the weak, semi-strong nor the strong form.

The correct answer is **A**.

In the context of market efficiency, volume information can potentially have predictive power on the future direction of security prices in the semi-strong form of market efficiency. The semi-strong form of market efficiency posits that all publicly available information, including trading volume data, is already reflected in stock prices.

Investors who can analyze and interpret volume information swiftly, before it is fully reflected in the price, might gain an advantage. This does not contradict the semi-strong form of market efficiency as it acknowledges the role of new information in price adjustments.

**B is incorrect.** Suggesting that volume information has predictive power in weak, semi-strong, and strong forms of market efficiency is inaccurate.

In weak-form efficiency, prices reflect all past trading information including volume and price history, and it is believed that no amount of analysis of past price movements or trading volumes can provide an investment edge.

In strong-form efficiency, all information, both public and private (insider information), is already reflected in stock prices, leaving no room for any information, including volume, to provide predictive power on future price movements.

**C is incorrect.** Stating that volume information will have no predictive power in neither the weak, semi-strong, nor the strong form of market efficiency overlooks the nuances of how information is processed in different forms of market efficiency.

While it is true that in strong-form efficiency, all information is already priced in, making it impossible for volume information to offer any predictive power, the semi-strong form allows for the possibility that new public information (including volume data) can momentarily offer predictive insights before it is fully reflected in the price.

**CFA Level I, Topic 6 - Equity, Learning Module 3: Market Efficiency. LOS (d): Contrast weak-form, semi-strong-form, and strong-form market efficiency.**

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