Level I of the CFA® Exam

Mock Questions with Answers - Mock Exam 2025 #1 - Second Session (Corporate Finance, Equity, Fixed Income, Derivatives, Alternative Investments & Portfolio Management)

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Q.1 Raman Enterprises and Madan Enterprises are operating in the same industry segment of locks manufacturing. There is an expectation of improvement in the market environment and a 20% increase in sales for all the industry players going forward. Both companies have an identical scale of operations with total assets deployed of $400,000 and unit sales of 100,000. They sell their products at $4 per unit incurring a variable cost of $2 per unit and fixed costs of $50,000. Raman Enterprises finances 40% of its assets from equity and 60% from debt. Madan Enterprises finances its operations 100% from equity. The interest rate on debt for both companies is 8%. The Degree of Total Leverage for the two companies is *closest to*:

A. Raman Enterprises: 1.11; Madan Enterprises 1.33.

B. Raman Enterprises: 1.33; Madan Enterprises 1.53.

C. Raman Enterprises: 1.53; Madan Enterprises 1.33.

The DTL is a measure of the sensitivity of a firm's earnings before interest and taxes (EBIT) to changes in its sales. It is calculated as the percentage change in EBIT for a given percentage change in sales. In this case, both companies are expected to experience a 20% increase in sales, but their DTLs differ due to their different financing structures.

Raman Enterprises finances 40% of its assets from equity and 60% from debt, while Madan Enterprises finances its operations 100% from equity. This difference in financing structure affects the companies' DTLs. The interest on debt is a fixed cost that must be paid regardless of the company's sales or profits, which increases the company's operating leverage and, consequently, its DTL. This is why Raman Enterprises, which has a higher proportion of debt financing, has a higher DTL than Madan Enterprises.

The calculation of the DTL for each company is as follows: DTL = Q*(P-V) / (Q*(P-V) - FC - I), where Q is the quantity of units sold, P is the selling price per unit, V is the variable cost per unit, FC is the fixed cost, and I is the interest cost. For Raman Enterprises, the DTL is 200,000 / 130,800 = 1.53. For Madan Enterprises, the DTL is 200,000 / 150,000 = 1.33.

A is incorrect. This option suggests that the DTL for Raman Enterprises is 1.11 and for Madan Enterprises is 1.33. However, this calculation ignores the deduction of finance costs for Raman Enterprises. Since Raman Enterprises has a higher proportion of debt financing, its finance costs are higher, which increases its operating leverage and DTL. Therefore, the DTL for Raman Enterprises is higher than 1.11.

B is incorrect. This option suggests that the DTL for Raman Enterprises is 1.33 and for Madan Enterprises is 1.53. However, this is not consistent with the companies' financing structures. Raman Enterprises, which has a higher proportion of debt financing, should have a higher DTL than Madan Enterprises, which is entirely equity financed. Therefore, the correct DTLs are 1.53 for Raman Enterprises and 1.33 for Madan Enterprises.

CFA Level 1, Topic 4 – Equity Investments, Learning Module 5 –Company Analysis: Past and Present, LOS 5d: Evaluate a company's operating profitability and working capital using key measures

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Q.2 Rachel Green is discussing corporate governance best practices with her team. Following are two of her statements regarding corporate governance. I. To avoid wasting shareholders' resources, the board of directors should get management approval before hiring an outside consultant. II.A higher number of representatives on the Board of Directors is better for shareholders as the shareholder's interest will be fairly represented. Which of the statement(s) mentioned above is/are *most likely* accurate?

A. Both statements are correct.

B. Only one statement is correct.

C. Both statements are incorrect.

It is crucial for maintaining an independent and effective board of directors that they have the authority to hire outside consultants without requiring management's approval. This ensures that the board can seek impartial advice and make decisions that are in the best interests of the shareholders without potential bias or interference from management.

Statement I is incorrect. To maintain checks and balances within a corporation, the board of directors should not need management's approval to hire outside consultants. This independence is vital for the board to effectively oversee management and safeguard shareholders' interests.

Statement II is incorrect. While it might seem intuitive that a larger board of directors would offer better representation for shareholders, in practice, this is not always the case. A larger board can lead to difficulties in communication and decision-making, potentially diluting the effectiveness of governance. The quality, independence, and expertise of board members are more critical factors in representing shareholder interests than merely the number of board members.

A is incorrect. As explained above, the first statement is incorrect because it undermines the independence of the board. The second statement is also incorrect because having a higher number of representatives on the board does not necessarily mean better representation for the shareholders.

B is incorrect. As explained above, both statements are incorrect.

CFA Level 1, Topic 4 - Corporate Issuers Learning Module 2 – Investors and Other Stakeholders, LOS 2b: Describe a company’s stakeholder groups and compare their interests.

Q.3 Which of the following is *least likely* toinfluence the value proposition of a firm?

A. Relative pricing.

B. Target customers or market.

C. Customer service and support.

While it might seem counterintuitive, the target customers or market, although crucial for defining a firm's value proposition, do not directly influence the value proposition itself. Understanding the target customers or market is a prerequisite for developing an effective value proposition, but it is not a component of the value proposition. This is because the value proposition is about the unique combination of products, services, and benefits that a firm offers to its customers. It is about what the firm does and how it does it better than its competitors. The target customers or market are the recipients of this value proposition, but they do not influence its content. Instead, they are the ones who evaluate and decide whether the value proposition is attractive and relevant to their needs, preferences, and pain points. Therefore, while the target customers or market are essential for shaping the firm's value proposition, they do not directly influence it.

A is incorrect. Relative pricing is a significant component of a firm's value proposition. It involves setting prices in relation to the prices of competing products or services. This strategy can influence the perceived value of a firm's offerings. For instance, pricing a product lower than competitors might attract price-sensitive customers, while premium pricing could appeal to consumers seeking high-quality or luxury items. Therefore, relative pricing directly influences a firm's value proposition by affecting the perceived value and attractiveness of its offerings.

C is incorrect. Customer service and support are integral to a firm's value proposition. Excellent customer service can enhance customer satisfaction, foster loyalty, and differentiate a firm from its competitors. It includes providing timely and helpful support, resolving issues efficiently, and going above and beyond to meet customer needs. Thus, customer service and support directly influence a firm's value proposition by contributing to the overall customer experience and satisfaction. They are part of the unique combination of benefits that a firm offers to its customers, and they can significantly enhance the perceived value and attractiveness of the firm's offerings.

CFA Level I, Topic 4 - Corporate Issuers, Learning Module 7: Business Models. LOS (a): Describe key features of business models.

Q.4 Which of the following *most likely* distinguishes a general partner (GP) from limited partner (LP) in a limited partnership?

A. Both general partners (GP) and limited partners (LPs) have limited liability.

B. The growth of the business is limited to the competence and integrity of the limited partners.

C. A general partner has unlimited liability and manages the business, while limited partners have limited liability but can provide capital or expertise.

The correct answer is option C because it accurately describes the roles and liabilities of general partners (GPs) and limited partners (LPs) in a limited partnership. In a limited partnership, there is at least one general partner who has unlimited liability and is responsible for managing the business. This means that the general partner is personally liable for all the debts and obligations of the business. This is a significant risk, but it is balanced by the control the general partner has over the business operations.

On the other hand, limited partners have limited liability, which means their losses are capped at their investment amounts in the limited partnership. They are not personally liable for the debts and obligations of the business beyond their investment. However, their role in the business is typically passive, providing capital or expertise but not involved in day-to-day management.

A is incorrect. This option states that both general partners and limited partners have limited liability. This is not accurate. As mentioned above, general partners have unlimited liability, meaning they are personally liable for all the debts and obligations of the business. This is a key distinction between general partners and limited partners in a limited partnership, and it is a critical factor in the risk-reward balance for partners considering entering into a limited partnership.

B is incorrect. This option suggests that the growth of the business is limited to the competence and integrity of the limited partners. This is not accurate. In a limited partnership, the general partner is responsible for managing the business, and therefore, the competence and integrity of the general partner are critical factors in the growth and success of the business. While limited partners can provide valuable capital and expertise, they are not typically involved in the day-to-day management of the business, and therefore their competence and integrity are not the primary factors limiting the growth of the business.

CFA level 1, Topic 4 - Corporate Issuers, Learning Module 1 - Organizational Forms, Corporate Issuer Features, and Ownership, LOS 1c: Compare the organizational forms of businesses.

Q.5 A stock is expected to pay a $2 dividend in one year. The dividend two years from now is expected to be 20% higher. The stock is expected to sell at $18.25 two years from now, and the required return is 20%. The stock's estimated value, assuming a two-year investment horizon, is equal to:

A. 17.21

B. 14.34

C. 16.00

The intrinsic value formula is a method used to estimate the worth of a stock by adding the present value of its future dividends and the present value of its future sale price.

The formula is as follows:

$$V_o = \sum_{(1+r)^t}^{n} \frac{D_t}{(1+r)^t} + \frac{P_n}{(1+r)^n}$$

In this particular question, we have two instances of dividend payments. The first dividend payment is made one year from now. We must discount the one-year dividend payment (the first part of the equation) before discounting the dividend payment made in the second year, and the stock price at the end of the two-year investment horizon (the second part of the equation).

Using the given values in the question, the calculation is as follows:

$$V_0 = \sum_{t=1}^{n} \frac{D_t}{(1+r)^t} + \frac{D_n P_n}{(1+r)^n} = \frac{2}{1.2} + \frac{2 \times 1.2 + 18.25}{1.2^2} = 16$$

A is incorrect. The value $17.21 is not the correct estimated value of the stock. This value might have been obtained by not correctly applying the intrinsic value formula, or by not correctly discounting the future dividends and sale price of the stock. It is important to remember that the intrinsic value formula requires discounting future cash flows to their present value, which has not been done correctly if this answer is obtained.

B is incorrect. The value $14.34 is not the correct estimated value of the stock. This value might have been obtained by not correctly applying the intrinsic value formula, or by not correctly discounting the future dividends and sale price of the stock. It is important to remember that the intrinsic value formula requires discounting future cash flows to their present value, which has not been done correctly if this answer is obtained.

CFA Level 1, Topic 4 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS 8h: Calculate and interpret the intrinsic value of an equity security based on the Gordon (constant) growth dividend discount model or a two-stage dividend discount model, as appropriate.

Q.6 A company is experiencing a decrease in market share due to the introduction of cheaper substitute products. As an analyst, you are tasked with forecasting the company's financials. How would you *most likely* expect this market situation to impact the company's gross margin? The gross margin is likely to:

A. increase.

B. decrease.

C. remain the same.

The company's gross margin is most likely to decrease in the given market situation. The gross margin is calculated as the difference between sales and the cost of goods sold, divided by sales. When a company is losing market share due to the introduction of cheaper substitutes, it implies that its sales are declining. To maintain its sales level, the company might have to reduce its prices to compete with the cheaper substitutes. This reduction in prices would also lead to a decrease in the gross margin.

On the other hand, if the company decides to maintain its prices, its sales volume may decrease. This could also result in a decrease in gross margin because the fixed costs of production would be spread over fewer units. In both scenarios, the gross margin is likely to decrease. This is why option B is the correct answer.

A is incorrect. The gross margin is unlikely to increase in this situation. An increase in gross margin would require either an increase in sales or a decrease in the cost of goods sold. However, the introduction of cheaper substitutes is likely to lead to a decrease in sales. There is no information suggesting that the cost of goods sold will decrease. Hence, it is unlikely that the gross margin will increase. This reasoning eliminates option A.

C is incorrect. The gross margin is unlikely to remain the same in this situation. As explained earlier, the introduction of cheaper substitutes is likely to lead to a decrease in sales, which would reduce the gross margin. Even if the company reduces its prices to maintain its sales volume, this would also reduce the gross margin. Hence, it is unlikely that the gross margin will remain the same. This reasoning eliminates option C.

CFA Level 1, Topic 4 - Equity Investments, Learning Module 7 - Company Analysis: Forecasting, LOS 7b: Explain approaches to forecasting a company's revenues.

Q.7 A company is evaluating the possibility of initiating a new capital investment project with an estimated cost of $14 million. The subsequent five-year after-tax cash flow projections are provided below.

Year	1	2	3	4	5
Cash Flow	$1,000,000	$1,200,000	$2,800,000	$3,200,000	$3,800,000

The net present value (NPV) using a required rate of return of 8% is *closest to*

A. -4,884,228

B. -2,000,000

C. 23,115,770

The Net Present Value (NPV) is a financial metric widely used in capital budgeting and investment planning. It is a form of intrinsic valuation used across finance and accounting to determine the value of a business, investment security, capital project, new venture, cost reduction program, and anything else that involves cash flow. NPV calculates the present value of both cash inflows and outflows over a specific period of time, helping to analyze the profitability of an investment or project.

The NPV formula is as follows:

$$NPV = \Sigma \left(\frac{C_t}{(1 + r)^t}\right) - C_0$$

Where:

- C_t = net cash inflow during the period t
- r = discount rate or rate of return
- t = number of time periods
- C_0 = total initial investment costs

For this particular problem, the NPV is calculated as follows:

$$NPV = -\$14M + \frac{\$1M}{(1 + 0.08)^1} + \frac{\$1.2M}{(1 + 0.08)^2} + \frac{\$2.8M}{(1 + 0.08)^3} + \frac{\$3.2M}{(1 + 0.08)^4} + \frac{\$3.8M}{(1 + 0.08)^5}$$

After performing the calculations, the NPV comes out to be -$4,884,228. The project is expected to result in a net loss of $4,884,228 in present value terms. Therefore, based on the NPV rule, the project should not be undertaken because it is expected to decrease the value of the firm by $4,884,228.

B is incorrect. The NPV of the project is not -2,000,000. This option seems to be a random number that does not result from any relevant calculations based on the given data. The NPV is a specific calculation that requires discounting the projected cash flows at the given rate of return, and when this is done correctly, the result is -4,884,228, not -2,000,000.

C is incorrect. The NPV of the project is not 23,115,770. This option seems to be a random number that does not result from any relevant calculations based on the given data. The NPV is a specific calculation that requires discounting the projected cash flows at the given rate of return, and when this is done correctly, the result is -4,884,228, not 23,115,770.

CFA Level 1, Topic 4 – Corporate Issuers, Learning Module 5 - Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation

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Q.8 Haseeb Ahmed is constructing a portfolio based on the Investment Policy Statement of one of his clients, who has mentioned a unique constraint in his IPS of investing in the equity of only manufacturing companies that use renewable energy. This constraint is most likely related to which of the following ESG factors?

A. Social.

B. Governance.

C. Environmental.

The environmental factor in Environmental, Social, and Governance (ESG) investing refers to how a company's operations impact the natural environment. This includes considerations such as pollution prevention, energy efficiency, reduced emissions, and adherence to environmental safety. In the context of the question, the client's unique constraint of investing only in manufacturing companies that use renewable energy directly relates to the environmental factor. This is because the use of renewable energy is a key aspect of environmental sustainability, which is a primary concern in ESG investing. The client's constraint is aimed at supporting companies that are making efforts to reduce their environmental impact, which aligns with the principles of environmental sustainability.

A is incorrect. The social factor in ESG investing refers to the relationships that a company has and how it interacts with the people and communities within which it operates. This includes considerations such as employee relations, diversity, human rights, consumer protection, and community development. While socially responsible investing can sometimes include investments with favorable environmental profiles, the client's specific constraint does not directly relate to any of these social considerations.

B is incorrect. The governance factor in ESG investing refers to the systems of rules, practices, and processes by which a company is directed and controlled. This includes considerations such as board structure, executive compensation, shareholder rights, and transparency. The client's constraint does not directly relate to any of these governance considerations. Instead, it is focused on the environmental impact of the companies in which the client is investing.

CFA Level I, Topic 4 - Corporate Issuers, Learning Module 2: Investors and other Stakeholders, LOS 2c: Describe environmental, social, and governance factors of corporate issuers considered by investors.

Q.9 Organic Foods Inc. is considering a new project in the health-based packaged foods segment. An analyst has gathered information about a listed company named Health Farms Inc. which is

exclusively into the health-based packed foods business. The following information is available:

	Organic Foods Inc.
Debt/Equity	1.5
Marginal Tax Rate	30%
Debt Yield	12.50%

	Health Farms Inc.
Debt/Equity	2.0
Marginal Tax Rate	40%
Equity Beta	1.2

	Market Data
Risk-Free rate	5%
Market Risk Premium	7%

The weighted average cost of capital for the project is *closest to*:

A. 10.40%

B. 12.90%

C. 13.20%

First, we need to calculate the Asset Beta for Health Farms Inc. The Asset Beta is calculated using the formula:

$$\text{Asset Beta} = \text{Equity Beta} \times [1/(1 + (1 - \text{tax rate}) \times (\text{Debt/Equity}))]$$

Substituting the given values into the formula, we get:

$$\text{Asset Beta} = 1.2 \times [1/(1 + (1 - 0.40) \times 2)] = 0.55$$

This means that the Asset Beta for Health Farms Inc. is 0.55.

Next, we calculate the Project's Equity Beta using the Asset Beta and the data from Organic Foods Inc. The formula for this is:

$$\text{Equity Beta} = \text{Asset Beta} \times (1 + (1 - \text{tax rate}) \times (\text{Debt/Equity}))$$

Substituting the given values into the formula, we get:

$$\text{Equity Beta} = 0.55 \times (1 + (1 - 0.30) \times 1.5) = 1.13$$

This means that the Equity Beta for the project is 1.13.

Then, we calculate the Project Cost of Equity using the formula:

$$\text{Ke} = \text{Rf} + \text{Equity Beta} \times \text{Market Risk Premium}$$

Substituting the given values into the formula, we get:

$$\text{Ke} = 5\% + 1.13 \times 7\% = 12.9\%$$

This means that the Project Cost of Equity is 12.9%.

Finally, we calculate the Weighted Average Cost of Capital (WACC). We assume 1 unit of equity and 1.5 units of debt for a Debt/Equity ratio of 1.5x. So, the total funding is 2.5 (1 of equity + 1.5 of debt). Accordingly, the equity weightage is 1/2.5 and the debt weightage is 1.5/2.5. The WACC is then calculated as:

$$\text{WACC} = (\frac{1}{2.5}) \times 12.9\% + (\frac{1.5}{2.5}) \times 12.5\% \times (1 - 0.30) = 10.4\%$$

CFA Level 1, Topic 4 – Corporate Issuers, Learning Module 6–Capital Structure, LOS 6a: Calculate and interpret the weighted average cost of capital (WACC) of a company.

Q.10 Carton Co. expects to produce 50,000 units of watches for the following year. The selling price per watch is $200, the variable cost per watch is $100, fixed costs are $3,500,000, and interests are $750,000. The degree of operating and the degree of total leverage for Carton Co.is *closest to*:

A. DOL: 3.33; DTL: 1.12

B. DOL: 3.33; DTL: 6.67

C. DOL: 6.67; DTL: 3.33

The DOL is calculated by dividing the total contribution margin by the earnings before interest and taxes (EBIT). In this case, the calculation is as follows:

$$\text{DOL} = \frac{\text{Q} \times (\text{P} - \text{V})}{\text{Q} \times (\text{P} - \text{V}) - \text{F}}$$

Where Q is the quantity of units produced, P is the selling price per unit, V is the variable cost per unit, and F is the fixed costs. Substituting the given values:

$$\text{DOL} = \frac{50,000 \times (200 - 100)}{50,000 \times (200 - 100) - 3,500,000} = 3.33$$

The DTL is calculated by dividing the total contribution margin by the earnings before interest and taxes minus interest expenses. In this case, the calculation is as follows:

$$\text{DTL} = \frac{\text{Q} \times (\text{P} - \text{V})}{\text{Q} \times (\text{P} - \text{V}) - \text{F} - \text{I}}$$

Where I represents the interest expenses. Substituting the given values:

$$\text{DTL} = \frac{50,000 \times (200 - 100)}{50,000 \times (200 - 100) - 3,500,000 - 750,000} = 6.67$$

CFA Level 1, Topic 4 – Equity Investments Learning Module 5 – Company Analysis: Past and Present, LOS 5d: Evaluate a company's operating profitability and working capital using key measures.

Q.11 If a market is semi-strong form efficient, the risk-adjusted returns of a passively managed portfolio relative to an actively managed portfolio are *most likely*:

A. lower

B. higher

C. the same

In a semi-strong form efficient market, all publicly available information, including both historical and current data, is already incorporated into the prices of securities. This means that it is challenging for active managers to consistently outperform the market and generate higher returns than passive managers. The reason for this is that active managers rely on their ability to analyze and interpret this information better than the market as a whole, which is a difficult task given the efficiency of the market in processing information. On the other hand, passive managers simply aim to replicate the market's performance, which, in a semi-strong form efficient market, is already the best estimate of the true value of securities. As a result, on a risk-adjusted basis, the returns of a passively managed portfolio are likely to be higher than those of an actively managed portfolio.

A is incorrect. In such a market, all publicly available information is already reflected in the prices of securities. This makes it difficult for active managers to consistently outperform the market, as they would need to interpret the available information better than the market as a whole. Therefore, it is unlikely that an actively managed portfolio would yield higher risk-adjusted returns than a passively managed portfolio.

C is incorrect. While both active and passive managers have access to the same information, active managers attempt to predict future market conditions and select securities that they believe will outperform the market. This is a challenging task given the efficiency of the market in processing information. On the other hand, passive managers simply aim to replicate the market's performance. Therefore, due to the difficulty in consistently predicting future market conditions and the efficiency of the market in processing information, passive strategies are more likely to yield higher risk-adjusted returns than active strategies.

CFA Level 1,Topic 5 – Equity Investments, Learning Module 3 – Market Efficiency, LOS 3e: Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.

Q.12 An analyst is reviewing a company's financial statements and notices that its disclosures about operating costs are less detailed than its revenue disclosures. Consequently, the analyst must use broader, less specific forecasting tools. Which of the following is *most likely* an example of a broader forecasting tool the analyst might use in this situation?

A. Costs separated by different geographic regions.

B. Detailed breakdown of costs for each product line.

C. Consolidated financial statement lines such as cost of sales.

In this scenario, the analyst is dealing with a company's financial statements where the disclosures about operating costs are less detailed than its revenue disclosures. This lack of detail forces the analyst to use broader, less specific forecasting tools. The most likely tool that the analyst would use in this situation is consolidated financial statement lines such as cost of sales.

Consolidated financial statement lines such as cost of sales are a broader forecasting tool because they aggregate all the direct costs associated with producing goods sold by a company. This line item on a company's income statement provides a high-level view of the company's operating costs, which is useful when detailed cost information is not available. The analyst can use this aggregated data to make forecasts about the company's future operating costs, even though the data is less specific than it would be if detailed cost disclosures were available.

A is incorrect. Costs separated by different geographic regions would provide a more detailed breakdown of costs, not a broader one. This level of detail would be useful if the analyst had access to detailed cost disclosures, but in this scenario, the analyst does not have access to such information. Therefore, using costs separated by different geographic regions as a forecasting tool would not be appropriate in this situation.

B is incorrect. A detailed breakdown of costs for each product line would also provide a more detailed view of costs, not a broader one. This level of detail would be useful if the analyst had access to detailed cost disclosures, but in this scenario, the analyst does not have access to such information. Therefore, using a detailed breakdown of costs for each product line as a forecasting tool would not be appropriate in this situation.

CFA Level I, Topic 5 - Equity, Learning Module 7: Company Analysis: Forecasting. LOS (c): Explain approaches to forecasting a company's operating expenses and working capital.

Q.13 In the case of a share denominated in foreign currency, the appreciation of the foreign currency *most likely*:

A. increases the returns.

B. not affect the returns.

C. decreases the returns.

The appreciation of a foreign currency in relation to an investor's local currency can significantly impact the returns on a share denominated in that foreign currency. This is primarily due to the fact that the value of the foreign currency increases, which in turn increases the returns when converted back into the local currency.

Let's consider a practical example to illustrate this point. Suppose an investor from the United States invests in a company listed in Europe. If the Euro appreciates against the US Dollar, the investor will receive more dollars for each Euro when they convert the dividends or sale proceeds back into US Dollars. This increase in the exchange rate effectively boosts the investment's return in the investor's local currency.

B is incorrect. The change in exchange rates directly impacts the value of dividends and capital gains when they are converted back into the investor's local currency. Therefore, it is incorrect to suggest that the returns would not be affected by the appreciation of the foreign currency.

C is incorrect. As explained earlier, the appreciation of the foreign currency relative to the investor's local currency increases the value of returns when they are converted back into the local currency. This, in turn, increases the overall returns on the investment. Therefore, it is incorrect to suggest that the appreciation of the foreign currency decreases the returns.

CFA Level 1, Topic 5 - Equity Investments, Learning Module 4: Overview of Equity Securities, LOS 4d: Describe methods for investing in non-domestic equity securities.

Q.14 Which of the following is *most likely* a disadvantage of market capitalization-weighting?

A. Constituent securities are held in proportion to their value in the target market.

B. Its simplicity and failure to consider other factors such as the volume of shares sold.

C. Constituent securities whose prices have risen the most (or fallen the most) have a greater (or lower) weight in the index.

Option C is the correct answer because it highlights a significant disadvantage of market capitalization-weighting. Market capitalization-weighting is a method where a company's outstanding shares are multiplied by its per-share market value and calculated as a proportion of total market capitalization. This method can lead to a situation where constituent securities whose prices have risen the most (or fallen the most) have a greater (or lower) weight in the index. This means that the index becomes more sensitive to the price movements of these securities, which can lead to increased volatility. Furthermore, this method can also lead to a concentration of the index in a few large-cap stocks, which can increase the risk of the index. Therefore, this method can lead to a lack of diversification and increased risk, which are significant disadvantages.

A is incorrect. Holding constituent securities in proportion to their value in the target market is one of the advantages of this method. It ensures that the index accurately reflects the market and allows for easy replication of the index. Therefore, this statement does not represent a disadvantage of market capitalization-weighting.

B is incorrect. The simplicity of this method is actually one of its advantages as it makes the index easy to understand and replicate. Furthermore, while it is true that this method does not consider other factors such as the volume of shares sold, this is not necessarily a disadvantage. The purpose of an index is to provide a representative sample of the market, and market capitalization-weighting achieves this by weighting companies according to their market value. Therefore, this statement does not represent a disadvantage of market capitalization-weighting.

CFA Level 1,Topic 5 – Equity Investments, Learning Module 2 – Security Market Indexes, LOS 2d: Compare the different weighting methods used in index construction.

Q.15 Sadin Nigaro is an equity analyst who is evaluating Piron Corp. The firm is a public limited company that manufactures lifeboats.

Total Aseets	$ 575 million
Total liabilities	$ 225 million
Revenue during the year	$ 101 million
Number of shares outstanding	8,750,000 shares
Market capitalization	$ 393.75 million

From the data given above, the difference between the per-share market value of equity and the per-share book value of equity is *closest to*:

A. $5

B. $5.33

C. $5.75

The question asks for the difference between the per-share market value of equity and the per-share book value of equity. To find this, we first need to calculate the book value per share and the market value per share.

The book value of a company is calculated by subtracting total liabilities from total assets. In this case, the total assets of Piron Corp. are \$575 million and the total liabilities are \$225 million. Therefore, the book value of the company is:

$$\text{Book Value} = \$575\,\text{million} - \$225\,\text{million} = \$350\,\text{million}$$

The book value per share is then calculated by dividing the book value by the number of shares outstanding. In this case, the number of shares outstanding is 8,750,000. Therefore, the book value per share is:

$$\text{Book Value per Share} = \frac{\$350\,\text{million}}{8,750,000\,\text{shares}} = \$40\,\text{per share}$$

The market value per share is calculated by dividing the total market capitalization by the number of shares outstanding. In this case, the total market capitalization is \$393.75 million and the number of shares outstanding is 8,750,000. Therefore, the market value per share is:

$$\text{Market Value per Share} = \frac{\$393.75\,\text{million}}{8,750,000\,\text{shares}} = \$45\,\text{per share}$$

The difference between the market value per share and the book value per share is then calculated as:

$$\text{Difference} = \$45\,\text{per share} - \$40\,\text{per share} = \$5\,\text{per share}$$

CFA Level 1 ,Topic 5 – Equity Investments, Learning Module 4 – Overview of Equity Securities, LOS 4g: Distinguish between the market value and book value of equity securities.

Q.16 The most recent annual dividend declared by Creed Inc. to all shareholders is $0.78 per share. The stock is currently trading at $28 per share. Analysts expect the dividend to grow at 4 percent per year, and the required rate of return on the market is 8%. The intrinsic value of the stock is *closest to:*

A. 27.59

B. 19.50

C. 20.28

The Gordon growth model is a popular method for determining the intrinsic value of a stock based on its future series of dividends that grow at a constant rate. The formula for the Gordon growth model is:

$$V_0 = \frac{D_1}{r - g}$$

where:

- V_0 is the intrinsic value of the stock,
- D_1 is the expected dividend in the next year,
- r is the required rate of return,
- g is the growth rate of the dividends.

In this case, the expected dividend D_1 is calculated by growing the most recent annual dividend D_0 of $0.78 by the growth rate of 4 percent, resulting in:

$$D_1 = D_0 \times (1 + g) = \$0.78 \times (1 + 0.04) = \$0.8112$$

The required rate of return r is given as 8 percent, and the growth rate g is given as 4 percent. Substituting these values into the Gordon growth model gives:

$$V_0 = \frac{D_1}{r - g} = \frac{\$0.8112}{0.08 - 0.04} = \$20.28 \text{ per share}$$

CFA Level 1, Topic 5 - Equity Investments, Learning Module 8: Equity Valuation: Concepts and Basic Tools, LOS 8g: Calculate the intrinsic value of a non-callable, non-convertible preferred stock.

Q.17 Which of the following is *most likely* an external factor affecting a company's capital structure?

A. Existing leverage.

B. Market conditions.

C. Capital structure policies .

Market conditions have a significant impact on a company's capital structure decisions. These conditions encompass a broad spectrum of economic and financial factors. These factors include, but are not limited to, interest rates, the overall state of the economy, investor sentiment, and the availability of financing.

Market conditions also have a direct impact on the cost of equity. This is because the demand for stocks from investors can fluctuate widely based on economic forecasts, market volatility, and other external factors. As such, understanding and adapting to market conditions is a critical aspect for companies aiming to optimize their capital structure. This optimization aims to minimize costs and maximize financial flexibility and shareholder value.

A is incorrect. The existing leverage of a company is an internal factor, not an external one. A company's decision to increase or decrease its leverage is influenced by its internal assessments of risk, cost of capital, and strategic objectives. While existing leverage can affect a company's future financing options and costs, it is fundamentally a result of internal policy decisions and historical financing choices rather than external market forces.

C is incorrect. Capital structure policies are the guidelines or strategies that a company adopts to manage its mix of debt and equity financing. These policies are internal to the company and are shaped by its financial goals, risk tolerance, and the strategic direction set by its management and board of directors. While these policies must consider external market conditions, they are fundamentally a reflection of the company's internal decision-making processes and priorities. Therefore, capital structure policies are not an external factor but rather an internal mechanism through which a company navigates its financing decisions.

CFA Level I, Topic 5 - Corporate Issuers, Learning Module 6: Capital Structure. LOS 6b: Explain factors affecting capital structure and the weighted-average cost of capital.

Q.18 Based on the data provided in the following table, the cash conversion cycle of Armenia Ltd. is *closest to*:

Sale	$2,990,000
COGS	$1,940,000
Avg. Acc. Payables	$310,000
Avg.Acc.Rec	$440,000
Avg.Inventory	$220,000

A. 37 days

B. 46 days

C. 95 days

The Cash Conversion Cycle (CCC) is calculated using the formula:

CCC = DIO + DSO - DPO

where:

- DIO (Days Inventory Outstanding) = (Average Inventory / COGS) x 365
- DSO (Days Sales Outstanding) = (Average Accounts Receivable / Sales) x 365
- DPO (Days Payable Outstanding) = (Average Accounts Payable / COGS) x 365

Given the data:

- Sales = $2,990,000
- COGS (Cost of Goods Sold) = $1,940,000
- Average Accounts Payable = $310,000
- Average Accounts Receivable = $440,000
- Average Inventory = $220,000

We can calculate:

- DIO = ($220,000 / $1,940,000) x 365 ≈ 41.44 days
- DSO = ($440,000 / $2,990,000) x 365 ≈ 53.78 days
- DPO = ($310,000 / $1,940,000) x 365 ≈ 58.35 days

Substituting these values into the CCC formula gives:

CCC = 41.44 + 53.78 - 58.35 ≈ 36.87 days

So, the Cash Conversion Cycle of Armenia Ltd. is closest to **37 days**.

CFA Level 1, Topic 5, Learning Module 4 – Working Capital and Liquidity, LOS 4a: explain the cash conversion cycle and compare issuers' cash conversion cycles

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Q.19 Which of the following statements is *most likely* accurate?

A. A ‘best effort offering’ is the most common type of offering.

B. In an ‘underwritten offering,’ the underwriters buy an issue and then attempt to sell the issue to investors.

C. In a ‘best effort offering,’ the underwriters buy an issue and use their best effort to sell the issue to investors.

In underwritten type of offering, the underwriters purchase the securities from the issuer and then attempt to sell them to investors. This process involves a significant commitment from the underwriter, as they assume the risk of buying the securities and potentially not selling them at a profit. The underwriter's profit comes from the spread between the price paid to the issuer and the price at which the securities are sold to investors. This method is commonly used because it provides the issuer with a guaranteed amount of capital from the sale of the securities, making it a preferred choice for many issuers.

A and C are incorrect. In a 'best effort offering,' underwriters agree to sell as much of the issue as possible, but they do not commit to purchasing the entire issue themselves. Instead, they act as agents for the issuer, using their best efforts to sell the securities to investors. There is no guarantee to the issuer of how much capital will be raised, as the underwriters do not assume the risk of buying unsold shares. This arrangement is less risky for underwriters compared to an underwritten offering, as they are not obligated to purchase any unsold securities. The inclusion of a statement that 'best effort offering' is the most common type of offering, also makes option A ncorrect.

CFA Level 1, Topic 5 - Equity Investments, Learning Module 1: Market Organization and Structure, LOS 1i: Define primary and secondary markets and explain how secondary markets support primary markets.

Q.20 Open Ltd has average days of receivables of 50 days, average days inventory of 40 days, and average days payable of 30 days. Port Ltd, operating in the same industry, has a receivables turnover of 6 times, inventory turnover of 12 times, and payables turnover of 9 times. Given the information above, what is the most accurate statement?

A. Port Ltd has a shorter cash conversion cycle than Open Ltd.

B. Open Ltd has a shorter cash conversion cycle than Port Ltd.

C. Cash conversion cycle for Open Ltd and Port Ltd is approximately equal.

The cash conversion cycle (CCC) is a key financial metric that gauges the time it takes for a company to convert its investments in inventory and other resources into cash flows from sales. The formula for calculating the CCC is as follows:

Cash conversion cycle = Days of inventory on hand (DOH) + Days of sales outstanding (DSO) – N

Applying this formula to both Open Ltd and Port Ltd, we can calculate their respective cash conversion cycles. For Open Ltd, the average days of receivables is 50 days, the average days of inventory is 40 days, and the average days of payables is 30 days. Therefore, the CCC for Open Ltd is 60 days (50 days + 40 days - 30 days).

For Port Ltd, we first need to convert the turnover rates into average days. The receivables turnover of 6 times translates to an average of 60.8 days (365 days / 6), the inventory turnover of 12 times translates to an average of 30.4 days (365 days / 12), and the payables turnover of 9 times translates to an average of 40.6 days (365 days / 9). Therefore, the CCC for Port Ltd is 50.7 days (60.8 days + 30.4 days - 40.6 days).

Comparing the CCC of both companies, it is clear that Port Ltd has a shorter cash conversion cycle than Open Ltd. This means that Port Ltd is able to convert its investments into cash more quickly than Open Ltd, which could indicate better operational efficiency and liquidity management.

CFA Level 1, Topic 5- Corporate Issuers, Learning Module 4 – Working Capital and Liquidity, LOS 4a: Explain the cash conversion cycle and compare issuers' cash conversion cycles.

Q.21 Which of these is *most likely* the major focus of a portfolio manager under the efficient market hypothesis?

A. Diversify the portfolio.

B. Follow a strict buy and hold strategy.

C. Reduce the systematic risk to the minimum.

The efficient market hypothesis (EMH) posits that all publicly available information is already incorporated into the prices of securities. This means that individual stock selection is not as crucial as the overall composition of the portfolio. The primary goal of a portfolio manager under the EMH is to diversify the portfolio to mitigate risk. Diversification involves spreading investments across a variety of assets to reduce exposure to any single asset's potential adverse performance. This strategy minimizes the impact of any single stock's performance on the overall portfolio's returns, thereby reducing the portfolio's overall risk. The portfolio manager's role under the EMH is to ensure that the portfolio is well-diversified, thereby spreading the risk and potentially increasing the portfolio's returns.

B is incorrect. While a strict buy and hold strategy can be a viable investment approach in an efficient market, it is not the primary focus of a portfolio manager under the EMH. This strategy involves buying securities and holding them for a long period, regardless of fluctuations in the market. However, this does not necessarily align with the principles of the EMH, which suggests that since all information is already reflected in the prices of securities, there is no advantage to be gained from holding onto securities in the hope of future price increases. Furthermore, a portfolio manager may need to adjust the portfolio based on changes in market conditions and the economy, which contradicts the buy and hold strategy.

C is incorrect. The EMH assumes that the market is efficient and all securities are priced correctly, implying that it may not be possible to completely eliminate systematic risk. Systematic risk, also known as market risk, is the risk inherent to the entire market or market segment and cannot be eliminated through diversification. While a portfolio manager may aim to reduce systematic risk by diversifying the portfolio and aligning it with the client's risk profile, it is not the primary focus under the EMH. The main focus is to diversify the portfolio to spread out the risk, not necessarily to reduce systematic risk to the minimum.

CFA Level , Topic 5 – Equity Investments, Learning Module 3– Market Efficiency, LOS 3d: Contrast weak-form, semi-strong-form, and strong-form market efficiency.

Q.22 Efficient market portfolio managers are *least likely* to:

A. limit transaction costs to the minimum.

B. devote more time working on security selection.

C. devote more time to better understand their clients' preferences of risk.

In an efficient market, the concept of individual stock selection becomes less significant. This is because, in such markets, all stocks are already accurately priced, reflecting all publicly available information. Therefore, the role of a portfolio manager in an efficient market shifts from focusing on individual security selection to maintaining a well-diversified portfolio and minimizing transaction costs. The efficient market hypothesis suggests that it's impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. Hence, in such a scenario, spending more time on security selection would not yield any significant advantage or superior returns. This is why a portfolio manager in an efficient market is less likely to devote more time working on security selection.

A is incorrect. In an efficient market, a portfolio manager's role is not just about selecting securities but also about crafting a well-diversified portfolio. This includes minimizing transaction costs. By limiting transaction costs, the manager aims to maximize returns for the portfolio. High transaction costs can erode the potential returns of a portfolio. Therefore, it is crucial for a portfolio manager to keep these costs to a minimum.

C is incorrect. Understanding the individual client risk profiles is an essential part of a portfolio manager's role. Knowing the client's risk appetite and investment goals helps the manager to construct a portfolio that aligns with the client's objectives. This understanding allows the manager to balance the risk and return in the portfolio according to the client's preferences. Therefore, a portfolio manager is expected to devote time to better understand their clients' preferences of risk.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 3– Market Efficiency, LOS 3e: Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.

Q.23 Dylan Farmer is an active portfolio manager who uses an industry rotation strategy. How should he *most likely* treat stocks in a cyclical industry during a contraction phase?

A. Overweight the industry.

B. Underweight the industry.

C. Maintain the target weight of the industry.

In the context of an industry rotation strategy, the goal is to maximize returns by adjusting the portfolio's exposure to different industries based on the economic cycle. Cyclical industries, such as automotive or construction, tend to perform well during economic expansion but poorly during economic contraction. This is because these industries are heavily dependent on consumer spending, which tends to decrease during economic downturns. Therefore, during a contraction phase, an active portfolio manager like Dylan Farmer should underweight stocks in a cyclical industry to minimize potential losses.

A is incorrect. The overweighting an industry means allocating a larger proportion of the portfolio to that industry than its weight in the benchmark index. This strategy is typically used when the manager believes that the industry will outperform the market. However, in the case of a cyclical industry during a contraction phase, the industry is expected to underperform. Therefore, overweighting the industry would likely lead to underperformance of the portfolio relative to the benchmark. Overweighting a cyclical industry is more appropriate during an expansion phase when consumer spending is high and the industry is expected to outperform.

C is incorrect. Maintaining the target weight of the industry implies that the portfolio manager does not adjust the portfolio's exposure to the industry based on the economic cycle. This strategy might be appropriate for industries that are not sensitive to the economic cycle, also known as defensive industries. However, for cyclical industries, this strategy could lead to underperformance during contraction phases. Therefore, during a contraction phase, it would be more appropriate to underweight the cyclical industry rather than maintain its target weight.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 6 – Industry and Competitive Analysis, LOS 6c: Determine an industry's size, growth characteristics, profitability, and market share trends

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Q.24 The financial details of a financial transaction are given below:

Market Price per share on June 30, 2015	$28
Number of Shares Purchased	4, 000
Ending Share Price on June 30, 2016	$30

Assuming there are no transaction and borrowing costs, the rate of return on a margin transaction for an investor who purchased the stock on Jun 30, 2015, using an initial margin requirement of 35% and the stock price at which the investor would have received a margin call given a 25% margin requirement is closest to:

A. Return: 10.99%; Margin Call Price: $26.00.

B. Return: 20.41%; Margin Call Price: $24.27.

C. Return: 20.41%; Margin Call Price: $26.00.

Margin Return is the profit or loss made by an investor on an investment made on margin. It is calculated as the difference between the ending value of the investment and the loan payoff, divided by the beginning equity position, minus 1, and then multiplied by 100 to convert it into a percentage. In this case:

- The ending value of the investment is the ending share price on June 30, 2016, multiplied by the number of shares purchased: $\$30 \times 4,000 = \$120,000$.
- The loan payoff is calculated based on the market price per share on June 30, 2015, multiplied by the number of shares purchased and the percentage financed by the loan: $\$28 \times 4,000 \times 0.65 = \$72,800$.
- The beginning equity position is the initial market price per share multiplied by the initial margin requirement and the number of shares purchased: $\$28 \times 0.35 \times 4,000 = \$39,200$.

Substituting these values into the formula, the Margin Return calculation is as follows:

$$\text{Margin Return} = (\frac{\$120,000 - \$72,800}{\$39,200} - 1) \times 100 = 20.41\%$$

Margin Call Price is the price at which an investor would receive a margin call, given a certain margin requirement. It is calculated using the formula:

$$\text{Margin Call Price} = \text{Original Price} \times \frac{1 - \text{Initial Margin}}{1 - \text{Maintenance Margin}}$$

In this scenario, the values are:

- Original price: \$28
- Initial margin: 0.35
- Maintenance margin: 0.25

Substituting these values gives us:

$$\text{Margin Call Price} = \$28 \times \frac{1 - 0.35}{1 - 0.25} = \$24.27$$

These calculations help investors understand both the return on an investment made using borrowed money and the risk level at which they might be called upon to add funds or sell assets to maintain their margin account.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 1– Market Organization and Structure, LOS 1f: Calculate and interpret the leverage ratio, the rate of return on a margin transaction, and the security price at which the investor would receive a margin call.

Q.25 A stock's limit order book is as follows:

Bid Size	Limit Price (£)	Offer Size
	26.65	300
	26.45	200
	26.35	300
600	26.30	
700	26.25	
800	26.15	

If an investor places a new sell limit order for 150 shares at £26.32, the limit order is *most likely* said to be:

A. an iceberg order.

B. behind the market.

C. making a new market.

A limit order is defined as making a new market when it is positioned between the highest bid and the lowest offer, also known as the best bid and best ask. This placement creates a new price level, effectively establishing a new market. The new limit order can either become the new best bid or best ask, depending on whether it's a buy or sell order.

In the scenario presented in the question, an investor places a sell limit order for 150 shares at £26.32. This order is positioned between the best bid, which is £26.30, and the best ask, which is £26.35. This placement creates a new market, as it establishes a new offer (best ask) at £26.32. This order is not behind the market, but rather it is making a new market. Hence, option C is the correct answer.

A is incorrect. An iceberg order is a type of limit order where only a small portion of the total shares is visible to the market, while the majority of the shares are hidden. This strategy is often employed by large institutional traders to conceal their true trading intentions. The concept of an iceberg order is unrelated to the placement of a limit order between the best bid and best ask. In the given scenario, the investor's sell limit order does not exhibit the characteristics of an iceberg order, as all 150 shares are visible to the market.

B is incorrect. The term 'behind the market' refers to a limit order that is placed at a price that is less favorable than the current best bid or best ask. This means that the trader is willing to sell shares at a price lower than the current highest bid, or buy shares at a price higher than the current lowest offer. Such an order is unlikely to be filled immediately and will remain pending until the market moves to the trader's desired price level. The concept of being 'behind the market' is unrelated to the placement of a limit order between the best bid and best ask. In the given scenario, the investor's sell limit order is not behind the market, as it is placed at a price that is more favorable than the current best bid.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 1 – Market Organization and Structure, LOS 1g: Compare execution, validity, and clearing instructions.

Q.26 In a semi-strong efficient market, investors should *most likely* consider:

A. active portfolio management strategies.

B. passive portfolio management strategies.

C. an enhanced indexing strategy that is dependent on trading patterns.

In a semi-strong efficient market, the most suitable strategy for investors is to consider passive portfolio management strategies, which is option B. This is because in such a market, all publicly available information is already incorporated into the prices of securities. Therefore, it is not possible for investors to achieve abnormal returns by using either fundamental analysis or technical analysis. Fundamental analysis involves evaluating a company's financial statements, industry position, and market conditions to estimate its intrinsic value, while technical analysis involves studying statistical trends gathered from trading activity, such as price movement and volume. Since all this information is already reflected in the prices in a semi-strong efficient market, these analyses would not provide any additional advantage to the investors.

A is incorrect. Active portfolio management strategies involve the continuous buying and selling of securities based upon analytical research, forecasts, and judgment. The goal of active management is to outperform the market index. However, in a semi-strong efficient market, all publicly available information is already reflected in the prices of securities. This means that no matter how much analysis or forecasting an active manager does, they are unlikely to consistently outperform the market. This is because any information they could potentially use to make investment decisions is already known by the market and reflected in the prices. Therefore, active portfolio management strategies are not likely to generate abnormal returns in a semi-strong efficient market.

C is incorrect. An enhanced indexing strategy that is dependent on trading patterns involves constructing a portfolio to mirror the performance of a specified index, with the aim of slightly outperforming the index. This strategy often involves using futures and options to gain exposure to the index, while also taking positions in securities that are not included in the index. However, in a semi-strong efficient market, all publicly available information, including trading patterns, is already incorporated into the prices of securities. Therefore, an enhanced indexing strategy that relies on trading patterns would not provide any additional advantage to the investors in a semi-strong efficient market.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 3 – Market Efficiency, LOS 3e: Explain the implications of each form of market efficiency for fundamental analysis, technical analysis, and the choice between active and passive portfolio management.

Q.27 An investor short-sells a stock at $90. A few days later, the stock is now trading at $72. What is the most appropriate action that the investor must take if he wants to hold on to his investment as long as the price does not go back up to $80?

A. Stop order to buy at $80.

B. Stop order to sell for $80.

C. Limit order to buy at $80.

In this scenario, the investor has short-sold a stock at $90, meaning he has borrowed shares of the stock and sold them in the market with the intention of buying them back at a lower price. The stock is now trading at $72, which is lower than the price at which the investor short-sold the stock. The investor wants to hold on to his investment as long as the price does not go back up to $80. The most appropriate action for the investor to take in this situation is to place a stop order to buy at $80, which is option A.

A stop order is a type of order that becomes a market order once a certain price level, known as the stop price, is reached. In this case, the investor can place a stop order to buy at $80. This means that if the stock price goes up to $80, the stop order will be triggered and the investor will buy back the shares he short-sold. This allows the investor to limit his potential losses if the stock price increases. The stop order will not be triggered as long as the stock price remains below $80, allowing the investor to hold on to his investment.

B is incorrect. A stop order to sell at $80 would not be appropriate in this situation. This is because the investor has already short-sold the stock and therefore does not have any shares to sell. A stop order to sell would be used if the investor owned the stock and wanted to sell it if the price fell to a certain level. In this case, the investor is looking to buy back the shares he short-sold, not sell them.

C is incorrect. A limit order to buy at $80 would not be appropriate in this situation. A limit order is a type of order that is executed at a specific price or better. If the investor placed a limit order to buy at $80 when the stock is trading at $72, the order would be filled immediately because $72 is a better price than $80. This would not allow the investor to hold on to his investment as he intends.

CFA Level 1, Topic 5 – Equity, Learning Module 1 - Market Organization and Structure, LOS 1g: Compare execution, validity, and clearing instructions.

Q.28 If the U.S. dollar depreciates and U.S. equity prices rise, which of the following investors in the U.S. stock market is *most likely* to earn the highest return in their local currency?

A. A U.S. investor who reinvests dividends.

B. A non-U.S. investor who reinvests dividends.

C. A non-U.S. investor who does not reinvest dividends.

A U.S. investor who reinvests dividends. The reasoning behind this is that the sources of return on equity securities include price appreciation or depreciation, dividend income, and foreign exchange gains or losses for investors outside the country. When U.S equity prices increase, reinvesting dividends is likely to increase returns compared to not reinvesting dividends. This is because reinvesting dividends allows the investor to purchase more shares, which in turn can lead to higher returns if the price of the shares increases. Furthermore, a U.S. investor would not be affected by a depreciating dollar as they are investing in their local currency. Therefore, they would not experience any foreign exchange losses that could potentially reduce their returns.

B is incorrect. A non-U.S. investor who reinvests dividends would be affected by a depreciating dollar. This is because they would be investing in a foreign currency, and if that currency depreciates, it would reduce the value of their investment when converted back to their local currency. This would result in foreign exchange losses that would reduce their returns. Even though they are reinvesting dividends, which could potentially increase their returns, the foreign exchange losses could outweigh the potential gains from reinvesting dividends.

C is incorrect. A non-U.S. investor who does not reinvest dividends would also be affected by a depreciating dollar. Although they may avoid some foreign exchange losses by not reinvesting dividends, they would still be affected by the depreciating dollar when they convert their investment back to their local currency. Furthermore, by not reinvesting dividends, they would not be able to take advantage of the potential gains from reinvesting dividends when U.S equity prices increase. Therefore, their returns would likely be lower than a U.S. investor who reinvests dividends.

CFA Level 1, Topic 5 – Equity Investments, Learning Module 4 – Overview of Equity Securities, LOS 4e: Compare the risk and return characteristics of different types of equity securities.

Q.29 While trying to develop a competitive strategy, a company opts for the leadership cost strategy. Which of the following is *most likely* one of the features of this company?

A. The company has less proportion of market share.

B. The company has a low cost of capital.

C. The company has the power to set higher commodity prices than its competitors.

A company that adopts a cost leadership strategy aims to become the lowest-cost producer in its industry. The primary characteristic of such a company is its ability to maintain a low cost of capital. This is vital because a low cost of capital allows the company to finance its operations and expansions at a lower cost. This, in turn, enables it to offer its products or services at a lower price than its competitors while still maintaining profitability.

By achieving cost leadership, the company can attract a larger market share by appealing to cost-conscious customers. This strategy requires efficient production processes, economies of scale, and tight cost control. A low cost of capital is indicative of the company's efficiency in managing its financial resources, which is a cornerstone of the cost leadership strategy.

A is incorrect. A company that adopts a cost leadership strategy has a lower cost structure, which allows it to offer competitive prices and attract a larger customer base. Therefore, a smaller market share would not be a characteristic feature of a company pursuing cost leadership. Instead, it would be an indication of challenges in executing the strategy effectively. A company with a cost leadership strategy would typically have a larger market share due to its ability to offer products or services at lower prices than its competitors.

C is incorrect. The primary goal of this strategy is not to charge higher prices, but to offer products or services at lower prices than competitors, thereby gaining a competitive advantage. Companies employing a cost leadership strategy focus on minimizing costs to maintain profitability even at lower price points, rather than leveraging the ability to charge higher prices. This approach helps in attracting price-sensitive customers and expanding the company's market share. Therefore, the ability to set higher prices is not characteristic of a cost leadership strategy.

CFA Level 1, Topic 5 - Equity Investments, Learning Module 6: Industry and Competitive Analysis, LOS (e) Evaluate the competitive strategy and position of a company.

Q.30 Michael Bugatti, a large Wall Street bank trader, wants to buy 500,000 shares of apples right before Q4 earnings. However, he is afraid that high-frequency algorithms might front-run him and offer slightly higher prices than his large order. To avoid this, Bugatti can *most likely* use a/an:

A. iceberg order.

B. all-or-nothing order.

C. good-till-canceled order.

An **iceberg order** is designed to hide the full size of a large order by breaking it into smaller, visible orders, with the bulk of the order remaining hidden. As each smaller visible portion gets filled, another portion is revealed. This helps prevent other market participants, including high-frequency algorithms, from detecting and front-running the large order by quoting higher prices. The full size of the order remains concealed, reducing the chance of adverse price movement.

An iceberg order would allow Michael Bugatti to discreetly place his large buy order for 500,000 shares without alerting other traders or algorithms, thus reducing the likelihood of being front-run.

B is incorrect. An all-or-nothing order requires that the entire order be filled at once or not at all. It does not serve the purpose of concealing the order size from other market participants, making it unsuitable for avoiding front-running.

C is incorrect. A good-till-canceled order remains active until it is either filled or canceled but does not provide any mechanism to conceal the size of the order. This order type is unrelated to mitigating front-running concerns.

CFA Level 1, Topic 5 - Equity Investments, Learning Module 1: Market Organization and Structure, LOS (g) Compare execution, validity, and clearing instructions.

Q.31 A Dow Jones ETF was $117 exactly one year ago. It is now at $128 and has paid a $3 dividend. The Dow Jones ETF's price return is *closest to*:

A. 8.6%.

B. 9.4%.

C. 11.9%.

The calculation of price return does not include dividend payment. This is a crucial distinction as the total return would include the dividend payment. The price return is calculated by taking the difference in value between two periods and dividing it by the beginning value. This can be represented by the following formula:

$$PR_1 = \frac{VPR_1 - VPR_0}{VPR_0}$$

In this formula, PR_1 represents the price return of the index portfolio, VPR_1 is the value of the price return index at the end of the period, and VPR_0 is the value of the price return index at the beginning of the period. Applying these values to the given scenario, we get:

$$PR_1 = \frac{128 - 117}{117} = 9.4$$

CFA Level 1, Topic 5 - Equity Investments, Learning Module 2: Security Market Indexes, LOS 2b: Calculate and interpret the value, price return, and total return of an index.

Q.32 A project with an initial outlay of GBP 10,000 has the following annual cash flows over three years: GBP 6,000, GBP 5,000, and GBP 3,000. If the discount rate is 5%, the NPV of the project is *closest to*:

A. GBP 2,841.

B. GBP 4,850.

C. GBP 12,841.

The Net Present Value (NPV) of a project is calculated by discounting all future cash flows back to their present value and then subtracting the initial investment. The formula for NPV is:

$$NPV = -C_0 + \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

Where:

- C0 is the initial investment,
- Ct is the cash flow at time t,
- r is the discount rate, and
- n is the number of periods.

In this case, the initial outlay of the project is GBP 10,000, and the annual cash flows over three years are GBP 6,000, GBP 5,000, and GBP 3,000. The discount rate is 5%. Using these values, we can calculate the NPV as follows:

$$\text{NPV} = -10,000 + \frac{6,000}{(1+0.05)^1} + \frac{5,000}{(1+0.05)^2} + \frac{3,000}{(1+0.05)^3}$$

Calculating each term:

$$\frac{6,000}{1.05} = 5,714.29$$

$$\frac{5,000}{1.05^2} = 4,535.15$$

$$\frac{3,000}{1.05^3} = 2,591.47$$

Summing these values and subtracting the initial investment:

$$\text{NPV} = -10,000 + 5,714.29 + 4,535.15 + 2,591.47 = 2,840.91$$

Therefore, the NPV of the project is closest to GBP 2,841, which corresponds to option A.

CFA Level I, Topic 5 - Corporate Issuers, Learning Module 5: Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation.

Q.33 Mr. Roy is planning to invest $150,000 in a home décor business. The cash inflows are as follows: 1st year: $35,000 2nd year: $55,000 3rd year: $75,000 The cost of capital is 7%. The IRR of the business is:

A. 0%. Hence, Roy should not invest in the business.

B. 4.37%. Hence, Roy should not invest in the business.

C. 7%. Hence, Roy should invest in the business.

The Internal Rate of Return (IRR) is a discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero. It is used to evaluate the attractiveness of a project or investment. If the IRR of a project exceeds the required return, the project is considered a good choice, otherwise not.

In this case, Mr. Roy is considering investing $150,000 in a home décor business. The cash inflows are $35,000 in the first year, $55,000 in the second year, and $75,000 in the third year. The cost of capital is 7%. Using a BA II Plus calculator, we can calculate the IRR as follows:

CF0 = -150,000 (This is the initial investment, hence it is negative)

CF1 = 35,000 (Cash inflow in the first year)

F01 = 1 (Frequency of cash inflow in the first year)

CF2 = 55,000 (Cash inflow in the second year)

F02 = 1 (Frequency of cash inflow in the second year)

CF3 = 75,000 (Cash inflow in the third year)

F03 = 1 (Frequency of cash inflow in the third year)

After inputting these values into the calculator, we compute the IRR, which comes out to be 4.37%. This means that the project's return is less than the cost of capital (7%).

CFA Level 1, Topic 5 – Corporate Issuers, Learning Module 5 - Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation

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Q.34 The cash flows from a project are presented in Exhibit 1.

Exhibit 1: Projects Cash Flow

Year	Flows
0	-$22,000
1	+$5,000
2	+$10,000
3	+$3,000
4	+$6,000
5	+$1,000

The IRR of the project is *closest to*:

A. -10.35%

B. 3.70%

C. 5.28%

The Internal Rate of Return (IRR) is a discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero. It is used to evaluate the attractiveness of a project or investment. If the IRR of a new project exceeds a company's required rate of return, that project is desirable. If IRR falls below the required rate of return, the project should be rejected.

In this case, the IRR is calculated using the cash flows from the project presented in Exhibit 1. The cash flows are as follows: an initial outflow of $22,000 (CF0), followed by inflows of $5,000 (C01), $10,000 (C02), $3,000 (C03), $6,000 (C04), and $1,000 (C05). Using a financial calculator, these cash flows are inputted and the IRR is computed. The result is 5.28%, which corresponds to option C.

A is incorrect. A negative IRR of -10.35% would imply that the project's cash outflows exceed its inflows when discounted at the required rate of return. This is not the case here, as the project has positive cash inflows after the initial investment. Therefore, the IRR cannot be negative. A negative IRR would suggest that the project is not financially viable, which contradicts the given cash flow pattern.

B is incorrect. An IRR of 3.70% is lower than the computed IRR of 5.28%. This would suggest that the project's cash inflows, when discounted at a rate of 3.70%, are less than the initial investment. However, this is not the case as the computed IRR is higher. A lower IRR would imply a less attractive investment, which is not consistent with the given cash flow pattern.

CFA Level 1, Topic 5 – Corporate Issuers, Learning Module 5 – Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation.

Q.35 A firm's number of days of payables is 69 days compared to an industry average of 45 days. Which of the following is the *most appropriate* interpretation of this discrepancy?

A. The firm might be taking too long to pay its payables.

B. The firm's payable turnover ratio is higher than the industry's payable turnover ratio.

C. The firm's higher days of payables imply that its suppliers have higher creditworthiness compared to the industry.

The number of days of payables is a financial metric that measures the average time (in days) a company takes to pay its suppliers. In this case, the firm's number of days of payables is 69 days, which is significantly higher than the industry average of 45 days. This discrepancy suggests that the firm is taking a longer time to settle its obligations to suppliers compared to its industry peers. This could be due to a variety of reasons. For instance, the firm might be employing cash flow management strategies that involve delaying payments to suppliers. Alternatively, the firm might have negotiated more favorable payment terms with its suppliers, allowing it to take a longer time to pay. However, it could also indicate potential financial distress, which is causing the firm to delay payments. Hence, **option A is correct**.

B is incorrect. The payable turnover ratio is a measure of how quickly a company pays off its suppliers. A higher number of days of payables indicates a lower payable turnover ratio, not a higher one. This is because the payable turnover ratio decreases when it takes longer for a company to pay its suppliers. Therefore, the firm's payable turnover ratio is not higher than the industry's payable turnover ratio.

C is incorrect. As explained above, a higher number of days of payables indicates a lower payable turnover ratio. Therefore, the firm's payable turnover ratio is not greater than the industry's payable turnover ratio. Instead, it is lower due to the firm taking a longer time to pay its suppliers compared to the industry average.

CFA Level I, Topic 5 - Financial Statements Analysis, Learning Module 11: Financial Analysis Techniques, LOS 11b: calculate and interpret activity, liquidity, solvency, and profitability ratios.

Q.36 A project has the following characteristics:

Initial Investment	$75,000
Expected post-tax Cash Flow (each year) from year 1 to year 5	$22,000
Target Debt/Equity Ratio:	0.5
Cost of Equity	12.5%
Cost of Debt	11%
Effective tax rate	40%

The Net Present Value (NPV) of the project is *closest to*:

A. $6,515.

B. $7,239.

C. $9,365.

Firstly, the Weight of Equity (We) and Debt (Wd) are calculated. The equation We + Wd = 1 is used, along with the given Debt/Equity Ratio of 0.5. This results in the equation Wd = 0.5 × We. Solving this equation gives We = 0.67 and Wd = 0.33.

Next, the WACC is calculated using the formula WACC = 0.33 × 0.11 × (1 - 0.4) + 0.67 × 0.125. This results in a WACC of 10.55%.

Then, the cash flow is discounted using the WACC. The PV of the Cash flow after tax for each year is calculated and summed up to give a total of $82,239.

Finally, the NPV is calculated by subtracting the Initial Investment of $75,000 from the total PV of the Cash flow after tax. This results in an NPV of $7,239

A is incorrect. This option suggests that the NPV of the project is closest to $6,515. However, as explained above, the correct NPV is $7,239. The discrepancy could be due to incorrect calculations of the Weight of Equity and Debt, the WACC, or the PV of the Cash flow after tax. It is important to use the correct formulas and given values in these calculations to arrive at the correct NPV.

C is incorrect. This option suggests that the NPV of the project is closest to $9,365. However, as explained above, the correct NPV is $7,239. The discrepancy could be due to incorrect calculations of the Weight of Equity and Debt, the WACC, or the PV of the Cash flow after tax. It is important to use the correct formulas and given values in these calculations to arrive at the correct NPV.

CFA Level 1, Topic 5 – Corporate Issuers, Learning Module 5 – Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation.

Q.37 Which of the following real options is *most likely* an example of a sizing option?

A. Price-setting options.

B. Abandonment option.

C. Production-flexibility options.

Sizing options are a type of real option that allows a company to adjust the scale of an investment project. This can be either by expanding, contracting, or even abandoning the project altogether. The Abandonment option is a perfect example of a sizing option as it gives the company the right, but not the obligation, to cease a project or investment if the financial results are not as expected. This option is particularly valuable in uncertain business environments where the future profitability of a project is unclear. If the cash flows from abandoning an investment exceed the present value of cash flows from continuing the investment, the company should exercise the abandonment option. This allows the company to limit its losses and potentially redirect resources to more profitable ventures. Another example of a sizing option is the growth option, which allows a company to expand an investment if it proves to be successful.

A is incorrect. The Price-setting option is not a sizing option but rather a flexibility option. Flexibility options, unlike sizing options, do not involve adjusting the scale of a project. Instead, they provide the company with the ability to adapt to changing circumstances without significant cost. A Price-setting option allows management to increase prices in response to market conditions, such as increased demand or increased costs. This option provides the company with the flexibility to adapt its pricing strategy to maximize profitability, but it does not involve adjusting the scale of an investment project.

C is incorrect. Production-flexibility options are also examples of flexibility options, not sizing options. These options give the company the operational flexibility to alter production levels in response to changes in demand. If demand is higher than forecasted, the company can increase production, and if demand is lower than forecasted, the company can decrease production. This flexibility allows the company to optimize its production levels to match demand, minimizing costs and maximizing profitability. However, like the Price-setting option, the Production-flexibility option does not involve adjusting the scale of an investment project, and therefore, it is not a sizing option.

CFA Level 1, Topic 5 - Corporate Issuers, Learning Module 5 - Capital Investments and Capital Allocation, LOS 5d: Describe types of real options relevant to capital investments.

Q.38 An investor buys 100 shares of a stock on a margin at $146 per share using an initial margin of 50%. The price at which he will receive a margin call if the position's maintenance margin requirement is 40% is *closest to*:

A. $58.40.

B. $116.80.

C. $121.67.

The formula for the maintenance margin is the equity in the account divided by the market value of the securities. Maintenance margin is a requirement for investors using margin to purchase securities, ensuring that the account has sufficient equity to cover a portion of the market value of the securities held.

In this example, the initial equity per share is calculated as 50% of the initial share price. Given an initial share price of $146, the initial equity per share is:

$$\text{Initial Equity per Share} = 146 \times 0.5 = \$73$$

The maintenance margin requirement in this scenario is set at 40%. To find the share price at which the investor will receive a margin call, we set up the equation:

$$\frac{\text{Initial Equity per Share} + (\text{Price} - \text{Initial Share Price})}{\text{Price}} = 0.40$$

Simplifying this equation to solve for the price (P) at which a margin call occurs, we have:

$$\frac{73 + (P - 146)}{P} = 0.40$$

Multiplying both sides by P and solving for P, we get:

$$73 + P - 146 = 0.40P$$

$$73 - 146 = 0.40P - P$$

$$-73 = -0.60P$$

$$P = \frac{-73}{-0.60} \approx \$121.67$$

CFA Level 1,Topic 5 – Equity Investments, Learning Module 1 – Market Organization and Structure, LOS 1f: Calculate and interpret the leverage ratio, the rate of return on a margin transaction, and the security price at which the investor would receive a margin call.

Q.39 Which of the following is the appropriate term for the discount rate that makes the present value of expected incremental after-tax cash inflows equivalent to the initial cash outlay?

A. Net Present Value.

B. Opportunity Cost.

C. Internal rate of Return.

The Internal Rate of Return (IRR) is the correct term for the discount rate that makes the present value of expected incremental after-tax cash inflows equivalent to the initial cash outlay. The IRR is a key financial metric used in capital budgeting and corporate finance. It is a discount rate that makes the net present value (NPV) of all cash flows (both positive and negative) from a particular project equal to zero. In other words, it is the rate at which the present value of future cash inflows equals the initial investment outlay. This is why option C is the correct answer.

A is incorrect. The Net Present Value (NPV) is a calculation that compares the amount invested today to the present value of the future cash receipts from the investment. In other words, it is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyze the profitability of a projected investment or project. However, it is not a discount rate, but a value that helps determine whether a project is profitable or not.

B is incorrect. Opportunity cost refers to the potential benefit that is given up when one alternative is selected over another. In other words, it is the cost of forgoing the next best alternative. It is a key concept in economics and finance, and is used to make decisions about resource allocation. However, it is not a discount rate, and it does not make the present value of expected incremental after-tax cash inflows equivalent to the initial cash outlay.

CFA Level 1, Topic 5 – Corporate Issuers, Learning Module 5– Capital Investments and Capital Allocation, LOS 5b: Describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation.

Q.40 Which of the following is *most likely* a feature of revenue bonds issued by local and regional government authorities?

A. They are used to finance the general objectives of the region.

B. They are backed by the commitments of multiple national governments.

C. Their repayment is often tied to user fees from specific projects they finance.

Revenue bonds issued by local and regional government authorities are distinctive because their repayment directly depends on the revenue generated from the projects they finance. These projects typically include utilities, toll roads, hospitals, and other facilities that charge users for services.

The key feature of revenue bonds is that their repayment is secured by specific revenue sources, such as the user fees collected from the projects they are used to finance. This makes them different from general obligation bonds, which are backed by the full faith and credit of the issuing authority.

A is incorrect. General objectives of a region or local government are typically funded through General Obligation (GO) bonds, which are backed by the taxing power of the issuing authority rather than by specific project revenues.

B is incorrect. Bonds that are backed by the commitments of multiple national governments are usually issued by supranational entities like the World Bank or regional development banks, not by local or regional government authorities. Revenue bonds are solely backed by the revenues from the specific projects they fund.

CFA Level I, Topic 6, Fixed Income, Learning Module 15: Credit Analysis for Government Issuers, LOS 15a: explain special considerations when evaluating the credit of sovereign and non-sovereign government debt issuers and issues.

Q.41 The coupon reinvestment risk dominates the market price risk when the Macaulay duration is:

A. lower than the investment horizon.

B. higher than the investment horizon.

C. equal to the investment horizon.

When the Macaulay duration of a bond is lower than the investment horizon, it implies that the weighted average time until the bond's cash flows are received is shorter than the period over which the investor plans to hold the bond. In such scenarios, the investor will have to reinvest the coupon payments received before the investment horizon is reached. The risk associated with this reinvestment is known as coupon reinvestment risk. This risk arises because the future interest rates at which these coupons can be reinvested may be lower than the original yield of the bond, potentially leading to a lower overall return than expected.

B is incorrect. If the Macaulay duration is higher than the investment horizon, it indicates that the investor is more exposed to market price risk. Market price risk is the risk that the bond's market price will decline due to rising interest rates. In such cases, if the investor needs to sell the bond before the investment horizon, they may face losses due to a decrease in the bond's market value. This scenario emphasizes the dominance of market price risk over coupon reinvestment risk when the Macaulay duration exceeds the investment horizon.

C is incorrect. When the Macaulay duration and the investment horizon are equal, it ideally balances the exposure to both coupon reinvestment risk and market price risk. This balance means that the effects of interest rate changes on the bond's price and the reinvestment rates tend to offset each other to some extent.

Note: Coupon reinvestment risk is the risk that an investor will be unable to reinvest cash flows at a rate equal to their current return (the investor may be forced to reinvest at a lower rate), whereas market price risk is the risk of lower bond prices due to lower market interest rates.

CFA Level I, Topic 6, Fixed Income, Learning Module 10: Interest Rate Risk and Return, LOS 10b: describe the relationships among a bond’s holding period return, its Macaulay duration, and the investment horizon

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Q.42 Which of the following statements is/are *most accurate*?

A. The 'Actual/Actual' and '30/360' are commonly used to calculate corporate and government bond days.

B. The 'Actual/Actual' convention is commonly used to calculate days in government bonds, and the '30/360' convention is commonly used to calculate days in corporate bonds.

C. The 'Actual/Actual' convention is commonly used to calculate days in corporate bonds, and the '30/360' convention is commonly used to calculate days in government bonds.

The 'Actual/Actual' and '30/360' conventions are methods used to calculate the number of days in a bond's accrued interest period. The 'Actual/Actual' convention calculates the actual number of days in the accrued interest period, while the '30/360' convention assumes 30 days in each month. The choice of convention can significantly impact the calculation of accrued interest, and thus the overall yield of the bond.

The 'Actual/Actual' convention is commonly used to calculate days in government bonds. This is because government bonds, especially those issued by the U.S. Treasury, are considered risk-free and thus do not need to assume a standard 30-day month to simplify calculations. The actual number of days in the accrued interest period is used, which provides a more accurate calculation of accrued interest.

On the other hand, the '30/360' convention is commonly used to calculate days in corporate bonds. Corporate bonds are more risky than government bonds, and issuers often prefer to use the '30/360' convention to simplify calculations and reduce the risk of discrepancies in accrued interest calculations. By assuming 30 days in each month, issuers can easily calculate accrued interest without having to account for the actual number of days in each month.

A is incorrect. This option states that both the 'Actual/Actual' and '30/360' conventions are commonly used to calculate corporate and government bond days. This is not accurate. As explained above, the 'Actual/Actual' convention is commonly used for government bonds, while the '30/360' convention is commonly used for corporate bonds. Using the 'Actual/Actual' convention for corporate bonds or the '30/360' convention for government bonds is not the common practice in the bond market.

C is incorrect. This option states that the 'Actual/Actual' convention is commonly used to calculate days in corporate bonds, and the '30/360' convention is commonly used to calculate days in government bonds. This is the opposite of the common practice in the bond market. As explained above, the 'Actual/Actual' convention is commonly used for government bonds, while the '30/360' convention is commonly used for corporate bonds. Using the 'Actual/Actual' convention for corporate bonds or the '30/360' convention for government bonds is not the common practice in the bond market.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 7 – Yield and Yield Spread Measures for Fixed Rate Bonds, LOS 7b: Compare, calculate, and interpret yield and yield spread measures for fixed-rate bonds.

Q.43 Which of the following is *least likely* a primary benefit of securitization?

A. An increase in the liquidity of the underlying financial assets.

B. An increase in credit rating from banks and other financial institutions.

C. A reduction in funding costs for firms selling the financial assets to the securitizing entity.

Securitization is a financial process where an entity purchases financial assets and then issues securities that are backed by the cash flows from those assets. This process does not directly lead to an increase in the credit rating of banks and other financial institutions. While it is true that securitization can allow banks to transfer risk to the investors of the securities, this does not necessarily translate into an improved credit rating. Credit ratings are determined by a variety of factors, including the financial health of the institution, its ability to meet its financial obligations, and its overall risk profile. Therefore, while securitization can help banks manage risk, it does not directly improve their credit ratings.

A is incorrect. The statement suggests that securitization leads to an increase in the liquidity of the underlying financial assets. This is, in fact, one of the primary benefits of securitization. Financial assets, such as mortgages, can be illiquid, meaning they cannot be easily bought or sold in the market. Through securitization, these assets can be converted into securities, which are much more liquid and can be easily traded in the market. This process increases the liquidity of the assets, allowing the originator of the assets, such as a bank, to free up capital and reduce risk.

C is incorrect. The statement suggests that securitization leads to a reduction in funding costs for firms selling the financial assets to the securitizing entity. This is also a primary benefit of securitization. When firms sell their financial assets to a securitizing entity, they no longer have to hold these assets on their balance sheet. This can free up capital and reduce the need for the firm to raise funds through more expensive means, such as issuing equity or debt. Therefore, securitization can indeed lead to a reduction in funding costs for firms.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 17 – Fixed-Income Securitization, LOS 17a: Explain benefits of securitization for issuers, investors, economies, and financial markets.

Q.44 Consider a par bond priced at $1,110 and has a modified duration of 4.562. In response to a 0.5% increase in YTM, the price of the bond should *most likely*:

A. fall by approximately 0.02281%.

B. fall by approximately 2.281%.

C. rise by approximately 0.02281%.

The approximate percentage change in bond pric is the negative product of the modified duration and the change in yield to maturity (YTM). In this case, the modified duration is 4.562 and the change in YTM is 0.5%. Therefore, the approximate percentage change in bond price is -4.562 * 0.005, which equals -0.02281. However, this is the decimal form, and to convert it to a percentage, we multiply by 100, resulting in -2.281%. Hence, the price of the bond is expected to fall by approximately 2.281% in response to a 0.5% increase in YTM.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 11 – Yield-Based Bond Duration Measures and Properties, LOS 11a: Define, calculate, and interpret modified duration, money duration, and the price value of a basis point (PVBP).

Q.45 A repurchase agreement is *most likely* similar to:

A. an auction.

B. a barter transaction.

C. a collateralized loan.

A repurchase agreement, also known as a repo, is a form of short-term borrowing for dealers in government securities. The dealer sells the government securities to investors, usually on an overnight basis, and buys them back the following day. This is essentially a collateralized loan, where the collateral is a government security. The dealer is essentially taking a loan from the investor, with the agreement to repurchase the securities at a later date. This is why option C, a collateralized loan, is the correct answer. The repurchase agreement is similar to a collateralized loan because both involve the use of assets (in this case, government securities) to secure a loan. The borrower (the dealer) agrees to pay the lender (the investor) an interest rate, known as the repo rate, for the loan.

A is incorrect. An auction is a public sale in which goods or properties are sold to the highest bidder. It involves a process of bidding where the item for sale is sold to the person who offers the highest price. This is fundamentally different from a repurchase agreement, which is a form of loan. In an auction, there is no borrowing or lending, no collateral, and no repurchase agreement. The key element in an auction is the competitive bidding process to determine the price, which is not a feature of a repurchase agreement. Therefore, a repurchase agreement is not similar to an auction.

B is incorrect. A barter transaction involves the exchange of goods or services without the use of money. In a barter system, goods are directly exchanged for other goods without the use of a medium of exchange, like money. This is fundamentally different from a repurchase agreement, which involves the use of money and securities. In a repurchase agreement, the dealer sells securities for cash and agrees to repurchase those securities later at a higher price. The difference between the sale price and the repurchase price is the interest on the loan. Therefore, a repurchase agreement is not similar to a barter transaction.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 4 – Fixed-Income Markets for Corporate Issuers, LOS 4b: Describe repurchase agreements (repos), their uses, and their benefits and risks

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Q.46 Matrix pricing is *most likely* used for determining the price of: I. New bonds II. Actively traded bonds III. Inactive bonds

A. I only.

B. I and III only.

C. I, II and III.

Matrix pricing is a method used to estimate the value of a bond by comparing it to the prices of similar bonds that are actively traded. This method is particularly useful when there is no recent market price available for the bond in question, such as with new or inactive bonds.

Matrix pricing is typically used for new bonds, where there is no prior trading history, and for inactive bonds, where trading is infrequent or nonexistent. For new bonds, matrix pricing helps underwriters estimate the required yield spread over the benchmark rate based on similar, actively traded bonds. For inactive bonds, matrix pricing provides a way to estimate value using the prices of comparable bonds with similar risk profiles and maturities.

A is incorrect. Matrix pricing is used for both new and inactive bonds, not just new bonds.

C is incorrect. Matrix pricing is not used for actively traded bonds, as their prices can be determined directly from market transactions.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 6 – Fixed-Income Bond Valuation: Prices and Yields, LOS 6c: Describe matrix pricing.

Q.47 For a 10-year, 5% annual-pay bond with a face value of $1,000, currently trading at par, the approximate modified duration based on a change in yield of 25 basis points is *closest to:*

A. 3.9.

B. 7.8.

C. 15.6.

The price of the bond at a yield of 5% + 0.25% is:

$$\text{N} = 10; \text{I/Y} = 5.25; \text{FV} = 1,000; \text{PMT} = 50; \text{CPT} \Rightarrow \text{PV} = -981$$

The price of the bond at a yield of 5% - 0.25% is:

$$\text{N} = 10; \text{I/Y} = 4.75\%; \text{FV} = 1,000; \text{PMT} = 50; \text{CPT} \Rightarrow \text{PV} = -1020.$$

$$\text{Approximate Modified Duration} = \frac{\text{PV}\_\text{PV}_{+}}{2 \times \Delta\text{Yield} \times \text{PV}_0}$$

where PV_{-} is the price of the bond when yield decreases, PV_{+} is the price of the bond when yield increases, and PV_0 is the base price before an increase/decrease in yield.

$$\text{The approximate modified duration} = \frac{(1,020 - 981)}{(2 \times 1000 \times 0.0025)} = 7.8$$

Therefore, the approximate change in price for a 1% change in YTM is 7.8%.

CFA Level I, Topic 6, Fixed Income, Learning Module 11: Yield Based Bond Duration Measures and Properties, LOS 11a: Define, calculate, and interpret modified duration, money duration, and the price value of a basis point (PVBP)

Q.48 In the event of default, which of the following is *most likely* to have the lowest priority of claims?

A. Senior Secured Debt.

B. Senior Unsecured Debt.

C. Senior Subordinated Debt.

In the event of a default, the priority of claims determines the order in which creditors are paid. The priority of claims is typically structured as follows: First Lien Loan, Senior Secured, Senior Unsecured, Senior Subordinated, Subordinated, and Junior Subordinated. This hierarchy is based on the level of risk associated with each type of debt. The lower the risk, the higher the priority of the claim.

Senior Subordinated Debt is a type of debt that ranks after senior debt and before subordinated debt. In the event of a default, holders of Senior Subordinated Debt are paid after the holders of Senior Secured and Senior Unsecured debts, but before the holders of Subordinated and Junior Subordinated debts. This makes it more risky than Senior Secured and Senior Unsecured debts, and therefore, it has a lower priority of claims.

A is incorrect. Senior Secured Debt is a type of debt that is backed by collateral. This means that in the event of a default, the lender has the right to seize the collateral to recover their investment. This makes Senior Secured Debt less risky than other types of debt, and therefore, it has a higher priority of claims. The holders of Senior Secured Debt are paid before the holders of Senior Unsecured and Senior Subordinated debts.

B is incorrect. Senior Unsecured Debt is a type of debt that is not backed by collateral. However, it still ranks higher than Senior Subordinated Debt in the priority of claims. This is because in the event of a default, the holders of Senior Unsecured Debt are paid before the holders of Senior Subordinated Debt. Although Senior Unsecured Debt is more risky than Senior Secured Debt, it is less risky than Senior Subordinated Debt, and therefore, it has a higher priority of claims.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 16 – Credit Analysis for Corporate Issuers, LOS 16c: Describe the seniority rankings of debt, secured versus unsecured debt and the priority of claims in bankruptcy, and their impact on credit ratings.

Q.49 A corporate bond with a 10% annual coupon and two years to maturity is trading at 100.75. Meanwhile, a two-year government benchmark bond with an 8% annual coupon is trading at 100.95. If the one-year and two-year government spot rates are 2.4% and 3.5%, respectively, stated as effective annual rates, then the G-spread is *closest* to:

A. 190 bps.

B. 200 bps.

C. 210 bps.

The G-spread is calculated by subtracting the yield-to-maturity of the government bond from the yield-to-maturity of the corporate bond. In this case, the yield-to-maturity for the corporate bond is 9.57% and the yield-to-maturity for the government bond is 7.47%. The difference between these two yields is 210 basis points, or 2.1%, which is the G-spread.

The yield-to-maturity for the corporate bond is calculated using the formula for the present value of a bond, which is the sum of the present values of the bond's future cash flows. The bond's future cash flows consist of its annual coupon payments and its face value at maturity. In this case, the bond has an annual coupon rate of 10%, a face value of 100, and it matures in two years. The bond's price is 100.75, so the yield-to-maturity is the discount rate that makes the present value of the bond's future cash flows equal to its price. Using a financial calculator, the yield-to-maturity is found to be 9.57%.

A is incorrect. The G-spread is not 190 bps. This would imply that the yield-to-maturity of the corporate bond is only 1.9% higher than the yield-to-maturity of the government bond. However, the yield-to-maturity of the corporate bond is actually 2.1% higher than the yield-to-maturity of the government bond, so the G-spread is 210 bps, not 190 bps.

B is incorrect. The G-spread is not 200 bps. This would imply that the yield-to-maturity of the corporate bond is exactly 2% higher than the yield-to-maturity of the government bond. However, the yield-to-maturity of the corporate bond is actually 2.1% higher than the yield-to-maturity of the government bond, so the G-spread is 210 bps, not 200 bps.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 7– Yield and Yield Spread Measures for Fixed-Rate Bonds, LOS 7b: Compare, calculate, and interpret yield and yield spread measures for fixed-rate bonds.

Q.50 Based on Porter’s Five Forces analysis, which of the following is *least likely* to influence the profit potential of an industry?

A. Intensity of advertising campaigns.

B. Threat posed by potential new entrants.

C. Collective economic power of customers.

Porter's Five Forces analysis is a framework that identifies and analyzes five competitive forces that shape every industry, and helps determine an industry's weaknesses and strengths. These forces are: competition in the industry, potential of new entrants into the industry, power of suppliers, power of customers, and threat of substitute products. The intensity of advertising campaigns, while it can have an impact on the competitive dynamics within an industry, is not one of the primary forces that Porter identified as shaping the competitive environment.

Advertising campaigns can certainly influence consumer behavior and market share dynamics within an industry. However, they do not fundamentally alter the underlying structure of the industry in the way that the five forces do. For example, they do not change the bargaining power of suppliers or customers, the threat of new entrants or substitutes, or the intensity of competitive rivalry. Therefore, while advertising campaigns are important, they are not a primary determinant of an industry's profit potential according to Porter's Five Forces analysis.

While advertising campaigns can influence consumer behavior and market share dynamics, they do not fundamentally alter the underlying structure of the industry in the way that the five forces do. They do not change the bargaining power of suppliers or customers, the threat of new entrants or substitutes, or the intensity of competitive rivalry. Therefore, while advertising campaigns are important, they are not a primary determinant of an industry's profit potential according to Porter's Five Forces analysis.

Option B is incorrect. The threat posed by potential new entrants is one of the five forces identified by Porter as shaping the competitive environment of an industry. New entrants can bring new capacity and desire to gain market share, which can impact the profitability of existing players in the industry. Therefore, the threat of new entrants is a key determinant of an industry's profit potential.

Option C is incorrect. The collective economic power of customers is another one of the five forces identified by Porter. When customers have more bargaining power, they can demand cheaper prices or higher product quality, which can reduce the profitability of industry players. Therefore, the collective economic power of customers is a key determinant of an industry's profit potential.

CFA level 1, Topic 6 – Equity Investments, Learning Module 6 - Industry and Competitive Analysis, LOS 6d: analyze an industry’s structure and external influences using Porter’s Five Forces and PESTLE frameworks

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Q.51 A firm enters into a repo agreement to sell a 5.75% 10-year bond with a par value of $1 million and a market value of $980,000 for $945,000. It agrees to repurchase it 120 days later for $955,000. The repo haircut is *closest to:*:

A. 3.57%.

B. -2.55%.

C. 2.62%.

The repo haircut is the percentage difference between the market value of the bond and the amount loaned. In this case, the market value of the bond is $980,000 and the amount loaned is $945,000. The repo haircut is calculated using the formula shown below, which is based on the difference between the security price and the purchase price divided by the security price, then multiplied by 100 to convert it to a percentage:

$$\text{Haircut} = \frac{\text{Security Price}_0 - \text{Purchase Price}_0}{\text{Security Price}_0} \times 100$$

Substituting the given values:

$$\text{Haircut} = \frac{980,000 - 945,000}{980,000} \times 100 = \frac{35,000}{980,000} \times 100 = 3.57\%$$

This calculation shows that the repo haircut is 3.57%, which represents the buffer between the bond's market value and the loaned amount. This buffer provides security to the lender in case the bond's value decreases during the repo term.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 4– Fixed-Income Markets for Corporate Issuers, LOS 4b: Describe repurchase agreements (repos), their uses, and their benefits and risks

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Q.52 Which of the following statements is/are *most accurate*? I. For a lender, loans with higher loan value are less risky because the borrower has more to lose in the event of default. II. Mortgages to borrowers of lower credit quality or that have a lower priority claim to the collateral in the event of default are called prime loans.

A. II only.

B. I and II.

C. Both I and II are incorrect.

Statement I is incorrect. The loans with lower LTV ratios are less risky for the lender. The LTV ratio is a financial term used by lenders to express the ratio of a loan to the value of an asset purchased. The LTV ratio is one of the key risk factors that lenders assess when qualifying borrowers for a mortgage. The risk of default is always at the forefront of lending decisions, and the likelihood of a lender absorbing a loss in the foreclosure process increases as the LTV ratio rises. Therefore, a lower LTV means that the borrower has more equity in the property, and this reduces the risk for the lender because the borrower has more to lose in the event of default.

Statement II is incorrect. The statement incorrectly defines prime loans. Prime loans are given to borrowers who are considered low-risk due to their high credit scores, stable income, and a clean credit history. On the other hand, the statement describes subprime loans, which are loans given to borrowers of lower credit quality or that have a lower priority claim to the collateral in the event of default. Subprime borrowers are more likely to default compared to prime borrowers due to their poor credit history. Therefore, subprime loans carry a higher risk compared to prime loans, and lenders charge higher interest rates to compensate for the increased risk.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 19 – Mortgage-Backed Security (MBS) Instrument and Market Features, LOS 19b: Describe fundamental features of residential mortgage loans that are securitized.

Q.53 A $1,000 par value bond with 6% annual coupons matures in 2 years. If the required rate of return on the bond is 11%, then the current yield on the bond using simple compounding is *closest to*:

A. 0.35%.

B. 5.78%.

C. 6.56%.

The calculation begins by determining the present value (PV) of the bond, which is the sum of the present values of its future cash flows, including periodic coupon payments and the par value at maturity.

In this case, the bond details are as follows:

- Par value: $1,000
- Annual coupon rate: 6%
- Maturity: 2 years
- Required rate of return (discount rate): 11%

Using these values, the present value of the bond can be calculated using the formula for the present value of an annuity (for the coupon payments) and the present value of a lump sum (for the par value at maturity). The inputs for a financial calculator would be:

$$\text{N} = 2,\ \text{I/Y} = 11,\ \text{PMT} = 60,\ \text{FV} = 1,000$$

Using these inputs, the calculation would yield:

$$\text{CPT} \rightarrow \text{PV} = -914.37$$

The negative sign indicates that this is the cash outflow required today to purchase the bond.

Next, the current yield is calculated by dividing the annual coupon payment by the current price (market price) of the bond:

$$\text{Current yield} = \frac{\text{Annual coupon}}{\text{Current price}} = \frac{60}{914.37} = 6.56\%$$

A is incorrect. A current yield of 0.35% would be far too low given the bond's annual coupon rate of 6% and the required rate of return of 11%. The current yield is calculated as the annual coupon payment divided by the current price of the bond. Even if the bond's price were to rise significantly above its par value, reducing the current yield, it would not likely fall as low as 0.35%.

B is incorrect. A current yield of 5.78% is closer to the correct answer, but it is still not correct. This might be the result of a calculation error, such as using the wrong values for the annual coupon payment or the current price of the bond. As we calculated earlier, the correct current yield, given the bond's annual coupon rate of 6% and the required rate of return of 11%, is 6.56%.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 1 – Fixed-Income Instrument Features, LOS 1a: Describe the features of a fixed-income security

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Q.54 In which of the following situations would the issuance of a deferred coupon bond be *most appropriate*?

A. When financing a new project.

B. When there's a predicted increase in market interest rates.

C. When there's a predicted decrease in market interest rates.

A deferred coupon bond is a type of bond that does not make coupon payments for a predetermined period, typically several years after its issuance. Instead, it pays the full amount of interest accrued at maturity. Interest payments may also be staggered, but only after the deferred period has ended. This type of financial instrument is particularly beneficial for entities that anticipate a delay in generating revenue from their investments or projects. By deferring the interest payments, the issuer can better manage cash flow, allocating resources to essential project development activities without the pressure of meeting periodic interest obligations. This financial strategy is especially beneficial for projects with long gestation periods, where returns are expected to materialize only after substantial development work.

The issuer can better manage cash flow by deferring the interest payments, allowing them to allocate resources to essential project development activities without the pressure of meeting periodic interest obligations. This financial strategy is especially beneficial for projects with long gestation periods, where returns are expected to materialize only after substantial development work.

B is incorrect. This option incorrectly suggests that the issuance of a deferred coupon bond is most appropriate when there's a predicted increase in market interest rates. While it's true that locking in current interest rates before an anticipated increase can be beneficial, the primary advantage of deferred coupon bonds lies in their ability to alleviate immediate financial pressure on issuers by postponing interest payments. The decision to issue such bonds is more closely related to the issuer's cash flow needs and project financing requirements rather than speculative interest rate movements.

C is incorrect. The suggestion that a deferred coupon bond is most suitable when there's a predicted decrease in market interest rates does not align with the bond's fundamental purpose. Deferred coupon bonds are designed to provide financial flexibility to issuers by delaying interest payments, not to capitalize on interest rate forecasts. While interest rate expectations might influence the overall financing strategy, the decision to issue a deferred coupon bond primarily hinges on the issuer's need to manage cash flow effectively during the early stages of a project, rather than on speculative market conditions.

CFA Level I, Topic 6 - Fixed Income, Learning Module 2: Fixed Income Cash Flows and Types, LOS2a: Describe common cash flow structures of fixed-income instruments and contrast cash flow contingency provisions that benefit issuers and investors.

Q.55 A $1,000 par value 5% semi-annual coupon bond has a Macaulay duration of 3.59 years. Which of the following is *most accurate*?

I. If yield increases by 100 basis points, then the bond's price will rise by approximately 3.59%.

II. If the yield increases by 1%, the bond would need to be held for approximately 3.59 years before the decrease in price would be offset by the gain in reinvested coupons.

A. I only.

B. II only.

C. Both I and II

Statement I is incorrect. Macaulay duration is not a measure of bond price sensitivity to interest rate changes. It only measures the weighted average time to receive the bond's cash flows and the time it takes for the reinvested coupons to offset the price change.

Statement II is correct. The Macaulay duration measures the weighted average time to receive the bond's cash flows; in other words, it measures the period a bond would have to be held before the value of the reinvested coupons would offset the price change.

With 100 basis points (1%) increase in yields, the Modified duration calculates the approximate drop in the bond's price, not the Macaulay duration. MacDur measures the period a bond would have to be held before the value of the reinvested coupons would offset the price change.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 11 – Yield Based Bond duration Measures and Properties, LOS 11a: Define, calculate, and interpret modified duration, money duration, and the price value of a basis point (PVBP).

Q.56 Bond A's yield and yield spread increase by the same amount. From this, we can conclude that the increase in Bond A's yield was *most likely* caused by:

A. microeconomic factors.

B. macroeconomic factors.

C. both macroeconomic and microeconomic factors.

If a bond's yield increases while its yield spread remains unchanged, it implies that the yield on its benchmark has also increased, indicating that macroeconomic factors have driven up bond yields overall. However, when both the yield and yield spread of Bond A increase by the same amount, it suggests that the increase in Bond A's yield is more likely attributable to microeconomic factors like credit risk or the bond's liquidity.
Note: Yield refers to the return that an investor earns from a bond, whereas yield spread represents the difference in yields between two bonds.

B is incorrect. Inflation generally leads to higher prices in the economy, which can increase credit risk, putting upward pressure on yields. When the risk-free rate of return rises, corporate bond yields must also increase to compensate.

C is incorrect. An increase in yield spread is primarily influenced by microeconomic factors.

CFA Level I, Topic 6, Fixed Income, Learning Module 14: Credit Risk, LOS 14c: Describe macroeconomic, market, and issuer-specific factors that influence the level and volatility of yield spreads

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Q.57 Which of the following is *most likely* a form of external, security-based financing predominantly issued by large, high-credit corporations and generally matures in under three months?

A. Secured Loans.

B. Commercial Paper (CP).

C. Eurocommercial Papers (ECPs).

Commercial Paper (CP) is predominantly issued by large, high-credit corporations as a form of short-term, unsecured financing. CP generally matures in under three months, making it a highly liquid and efficient tool for corporate financing. It is typically used by companies to finance payroll, accounts payable, and other short-term liabilities.

Commercial Paper fits the description as it is issued by major corporations with strong credit ratings, offering a quick, unsecured method to raise funds without the need for collateral, and it typically matures within a short period of up to three months.

A is incorrect. Secured Loans are backed by collateral and typically extend beyond short-term durations. They are fundamentally different from CP, which is unsecured and does not involve collateral.

C is incorrect. While Eurocommercial Papers (ECPs) share some characteristics with CP, such as being short-term and unsecured, they are primarily issued in the international markets. Furthermore, ECPs might involve different regulatory and market dynamics due to their international nature, distinguishing them from domestic CP.

CFA Level I, Topic 6, Fixed Income, Learning Module 4: Fixed Income Market for Corporate Issuers, LOS 4a: Compare short-term funding alternatives available to corporations and financial institutions.

Q.58 Which of the following tranche *most likely* has the highest priority in receiving the repayment of the principal amount from the collateral in the case of a Collateralized Mortgage Obligation (CMO)?

A. Support tranche.

B. Floating rate tranche.

C. Planned amortization class.

Planned Amortization Class (PAC) tranches in Collateralized Mortgage Obligations (CMOs) are designed to provide a more stable cash flow and scheduled principal repayment. They have a priority in receiving the repayment of the principal amount from the underlying mortgage payments, making them highly predictable compared to other tranches.

PAC tranches are structured to have a fixed principal repayment schedule, protected against prepayment and extension risks by support tranches. This prioritization ensures stability and predictability for investors who prefer fixed income securities with less risk of payment variability.

A is incorrect. Support tranches serve to absorb the prepayment and extension risks associated with the more stable PAC tranches. They do not have priority over PACs in terms of principal repayment and are designed to enhance the stability of the PAC by dealing with the variability in cash flows caused by changes in prepayment speeds.

B is incorrect. Floating rate tranches adjust their interest payments based on changes in a reference rate, such as LIBOR. While attractive to those seeking protection from interest rate fluctuations, these tranches do not have priority over PACs in terms of principal repayment and are subject to greater uncertainty in cash flows compared to PAC tranches.

CFA Level I, Topic 6, Fixed Income, Learning Module 19: Mortgage-Backed Security (MBS) Instrument and Market Features, LOS19c: Describe types and characteristics of residential mortgage-backed securities, including mortgage pass-through securities and collateralized mortgage obligations, and explain the cash flows and risks for each type.

Q.59 A bond has an annual modified duration of 5 years and a convexity of 92. Given a 350 bps increase in yield, the approximate percentage price change of the bond is *closest to*:

A. -11.87%

B. -6.23%

C. 9.52%

The formula for the estimated price change of a bond takes into account the bond's annual modified duration, the change in yield, and the bond's convexity. The formula is as follows:

Estimated Price Change = - (Annual Modified Duration) x (Change in Yield) + 0.5 x (Convexity) x (Change in Yield)^2

Substituting the given values into the formula, we get:

Estimated Price Change = - (5) x (0.035) + 0.5 x (92) x (0.035)^2 = -11.87%

This means that if the yield increases by 350 basis points (or 3.5%), the price of the bond is expected to decrease by approximately 11.87%.

B is incorrect. This option suggests that the approximate percentage price change of the bond is -6.23%. However, using the formula for the estimated price change of a bond, we can see that this is not the case. If we substitute the given values into the formula, we get a result of -11.87%, not -6.23%. Therefore, option B is incorrect because it does not accurately represent the expected price change of the bond given a 350 basis point increase in yield.

C is incorrect. This option suggests that the approximate percentage price change of the bond is 9.52%. However, this is not possible because the formula for the estimated price change of a bond shows that an increase in yield results in a decrease in the price of the bond. Therefore, the price change cannot be a positive percentage. Furthermore, substituting the given values into the formula gives a result of -11.87%, not 9.52%. Therefore, option C is incorrect because it does not accurately represent the expected price change of the bond given a 350 basis point increase in yield.

CFA Level 1, Topic 6 – Fixed Income, Learning Module 12 – Yield-Based Bond Convexity and Portfolio Properties, LOS 12b: Calculate the percentage price change of a bond for a specified change in yield, given the bond’s duration and convexity

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Q.60 Which of the following statement(s) is/are *most likely* to be correct regarding derivatives? I. Derivatives are similar to insurance in that both allow for the transfer of risk from one party to another. II. Derivatives derive their performance from the performance of an underlying asset. III The writer of an options contract is referred to as the short because he/she holds a short position.

A. I and III.

B. II and III.

C. I, II, and III.

Derivatives are financial instruments whose value is linked to the performance of underlying entities, such as assets, rates, or indexes. They are used for various purposes including hedging risks, speculating on future movements of assets, or arbitraging between markets.

Statement I is correct: Derivatives can function similarly to insurance by allowing parties to transfer risks. For instance, a party can hedge against price fluctuations in a commodity by using futures contracts, or against stock market movements using options. This risk transfer mechanism is central to both insurance and derivatives, though the specific risks and methods of transfer differ.

Statement II is correct: The value of a derivative is derived from the performance of its underlying asset. This could be anything from commodities, stocks, bonds, interest rates, or currencies. The derivative itself does not hold intrinsic value but mirrors the price movements and yields of its underlying assets.

Statement III is correct: In options trading, the writer (seller) of an options contract does indeed take on a short position. By writing the option, the seller grants the buyer the right, but not the obligation, to buy (call option) or sell (put option) the underlying asset at a predetermined price within a specified time frame. The seller receives a premium for this risk but stands to lose if the market moves against the terms of the option.

CFA Level 1, Topic 7 – Derivatives, Learning Module 1 – Derivative Instrument and Derivative Market Features, LOS 1a: Define a derivative and describe basic features of a derivative instrument.

Q.61 Which of the following is *most likely* true regarding call option replication strategy only?

A. At option contract inception, borrow at a risk-free rate and then utilize the proceeds to buy the underlying asset.

B. At option contract inception, lend an amount equal to the option's exercise value at a risk-free rate and sell the underlying.

C. The replication strategy requires adjustment over time depending on the likelihood of option exercise.

In the financial world, a call option gives the holder the right, but not the obligation, to buy an asset at a specified price within a specific time period. The replication of a call option at the contract initiation involves borrowing at a risk-free rate, denoted as r, and then using these borrowed funds to purchase the underlying asset at a price of S_0. This strategy is based on the assumption that the price of the underlying asset will increase over time, allowing the holder to sell the asset at a higher price and make a profit.

B is incorrect. This option describes the replication strategy for put options, not call options. A put option gives the holder the right, but not the obligation, to sell an asset at a specified price within a specific time period. The replication of a put option at the contract initiation involves selling the underlying asset short at a price of S_0 and lending the proceeds at a risk-free rate, r. This is fundamentally different from the call option replication strategy described in option A.

C is incorrect. While it is true that adjustments may be required over time in both call and put option replication strategies based on the likelihood of exercise, this statement is not specific to call options only. Both call and put options may require adjustments over time depending on the likelihood of exercise. Therefore, this option does not accurately answer the question, which specifically asks about call options only.

CFA Level I, Topic 7 - Derivatives, Learning Module 8: Pricing and Valuation of Options. LOS 8b: Contrast the use of arbitrage and replication concepts in pricing forward commitments and contingent claims.

Q.62 Which of the following is the *least likely* characteristic(s) of exchange-traded derivatives markets?

A. Transparency.

B. Lower degree of regulation and oversight.

C. Standardization of contract terms and conditions.

Option B is the correct answer because exchange-traded derivatives markets are typically characterized by a high degree of regulation and oversight. This is a crucial aspect of these markets as it ensures that all market participants are operating in a fair and transparent manner. The high degree of regulation and oversight is also designed to protect against market manipulation, fraud, and other forms of misconduct. Therefore, the assertion that exchange-traded derivatives markets have a lower degree of regulation and oversight is incorrect.

A is incorrect. The exchange-traded derivatives markets markets are known for their high level of transparency. This is because complete information on all transactions is disclosed to exchanges and regulatory bodies. This transparency is a key feature of exchange-traded derivatives markets and is one of the reasons why they are preferred by many investors. Furthermore, exchange-traded derivatives are also default-free since the exchange acts as the counterparty for each transaction. This is in contrast to OTC-traded derivatives, which face default risk since the two involved parties trade directly.

C is incorrect. One of the defining characteristics of exchange-traded derivatives is that they are standardized. This means that the terms and conditions of these derivatives are precisely specified by the exchange. This standardization is a key feature of exchange-traded derivatives and is one of the reasons why they are preferred by many investors. In contrast, OTC derivatives are customized, which means that the terms and conditions can vary widely from one contract to another.

CCFA Level 1, Topic 7 – Derivatives, Learning Module 1 – Derivative Instrument and Derivative Market Features, LOS 1b: describe the basic features of derivative markets and contrast over-the-counter and exchange-traded derivative markets.

Q.63 Which of the following derivative contracts will *most likely* expose the contract owner to default risk?

I. Futures
II. Forwards
III. Options
IV. Swaps

A. II and IV.

B. I, II, and IV.

C. I, II, III, and IV.

The Forwards and Swaps are two types of derivative contracts are traded in over-the-counter (OTC) markets. In these markets, the two parties involved in the contract trade directly with each other. This direct trading gives rise to what is known as counterparty risk. Counterparty risk is the risk that the other party in an agreement will default, or fail to live up to their obligations under the contract. In the case of Forwards and Swaps, if either party defaults, the other party is exposed to the risk of financial loss. This is why these types of contracts are most likely to expose the contract owner to default risk.

B is incorrect. While it is true that Forwards and Swaps can expose the contract owner to default risk, as explained above, Futures do not have the same level of risk. Futures contracts are traded on major exchanges, not in OTC markets. On these exchanges, the exchange itself acts as the counterparty for all trades. This means that the exchange is the seller for every buyer and the buyer for every seller. By acting as the counterparty, the exchange eliminates the counterparty/default risk that is present in OTC markets. /p>

C is incorrect. As with option B, the inclusion of Futures is incorrect for the reasons explained above. In addition, Options also do not expose the contract owner to a high level of default risk. Like Futures, Options are traded on major exchanges where the exchange acts as the counterparty, thereby eliminating the counterparty/default risk.

CFA Level 1, Topic 7 – Derivatives, Learning Module 2 – Forward Commitment and Contingent Claim Features and Instruments, LOS 2a: Define forward contracts, futures contracts, swaps, options (calls and puts), and credit derivatives and compare their basic characteristics.

Q.64 Which of the following is/are *least likely* exchange-traded derivative instruments?

I. Futures
II. Forwards
III. Options
IV. Swaps

A. I and III.

B. II and IV.

C. I, II, and IV.

Both forwards and swaps are not typically exchange-traded derivative instruments. Instead, they are traded on over-the-counter (OTC) markets. OTC markets refer to a decentralized market, without a central physical location, where market participants trade with one another through various communication modes such as the telephone, email, and proprietary electronic trading systems. In contrast to trading on formal exchanges, OTC trading does not occur on physical exchanges and hence, it allows for greater flexibility.

A is incorrect. This option includes I (Futures) and III (Options), both of which are indeed exchange-traded derivative instruments. Futures contracts are standardized agreements to buy or sell an asset at a future date at a predetermined price, and they are traded on futures exchanges, which are distinct from stock exchanges. Options, on the other hand, give the holder the right, but not the obligation, to buy or sell an underlying asset at a specified price within a certain period of time or on a specific date. They are traded on options exchanges like the Chicago Board Options Exchange (CBOE).

C is incorrect. This option includes I (Futures), II (Forwards), and IV (Swaps). As explained earlier, futures are exchange-traded instruments, which contradicts the premise of the question. While forwards and swaps are indeed typically traded over-the-counter, the inclusion of futures in this option makes it incorrect.

CFA Level 1, Topic 7 – Derivatives, Learning Module 2 – Forward Commitment and Contingent Claim Features and Instruments, LOS 2a: define forward contracts, futures contracts, swaps, options (calls and puts), and credit derivatives and compare their basic characteristics

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Q.65 From the put-call parity, the long bond is *most likely* equivalent to:

A. Long asset, short put, long call.

B. Long asset, long put, short call.

C. Short asset, long put, long call.

The put-call parity is a fundamental concept in options pricing which states that the price of a call option implies a certain fair price for the corresponding put option and vice versa. The equation for put-call parity is given by:

$$S_0 + p_0 = c_0 + \frac{X}{(1 + r^T)}$$

where
S_0 = Price of an asset at time 0,
p_0 = value of a put option,
c_0 = cost of the call and
$\frac{X}{(1+r)^T}$ = Value of the bond at time 0.

This equation can be rearranged to give:

$$\frac{X}{(1 + r)^T} = S_0 + p_0 - c_0.$$

This implies that the value of a long bond is equivalent to the value of a long asset, plus the value of a long put, minus the value of a short call.

A is incorrect. This option suggests that a long bond is equivalent to a long asset, short put, and long call. However, this contradicts the put-call parity equation. A short put would mean that you are obligated to buy the asset at the strike price if the other party chooses to exercise the option. This would increase your potential liabilities, not decrease them as the put-call parity equation suggests. Furthermore, a long call would give you the right to buy the asset at the strike price, not sell it. This would increase your potential gains, not decrease them as the put-call parity equation suggests.

C is incorrect. This option suggests that a long bond is equivalent to a short asset, long put, and long call. However, this also contradicts the put-call parity equation. A short asset would mean that you are obligated to sell the asset at the current price, which would increase your potential liabilities, not decrease them as the put-call parity equation suggests. Furthermore, a long put and a long call would both give you the right to sell the asset, not buy it. This would increase your potential gains, not decrease them as the put-call parity equation suggests.

CFA Level 1, Topic 8 – Derivatives, Learning Module 9 – Option Replication Using Put–Call Parity, LOS 9a: Explain put-call parity for European options.

Q.66 XYZ Hedge fund charges a management fee of 2% based on assets under management at year-end and a 20% incentive fee. The initial investment is GBP 125 million, and the fund earns a 40 percent return in its first year. Assuming that the incentive fee is computed net of the management fees and that management fees are calculated using end-of-period valuation, the fees earned by XYZ Hedge fund is *closest to:*

A. GBP 5.8 million.

B. GBP 13.5 million.

C. GBP 12.8 million.

The management fee is calculated based on the assets under management at the end of the year. In this case, the initial investment of GBP 125 million earns a 40 percent return, resulting in a total of GBP 175 million (125 million * 1.40) under management at the end of the year. The management fee is 2% of this amount, which equals GBP 3.5 million (175 million * 2%).

Next, the incentive fee is calculated. This fee is based on the net of management fees, meaning it is calculated after the management fee has been deducted from the total assets under management. In this case, the total assets under management at the end of the year (GBP 175 million) minus the management fee (GBP 3.5 million) equals GBP 171.5 million. The incentive fee is 20% of this amount, which equals GBP 9.3 million ([171.5 million -125 million] * 20%).

Finally, the total fees earned by the XYZ Hedge fund are calculated by adding the management fee and the incentive fee. In this case, GBP 3.5 million (management fee) plus GBP 9.3 million (incentive fee) equals GBP 12.8 million.

A is incorrect. A fee of GBP 5.8 million would not account for both the management fee and the incentive fee. The management fee alone is GBP 3.5 million, and the incentive fee, calculated after the management fee has been deducted, is GBP 9.3 million. Therefore, a total fee of GBP 5.8 million would be too low.

B is incorrect. A fee of GBP 13.5 million would be too high. The management fee is GBP 3.5 million, and the incentive fee, calculated after the management fee has been deducted, is GBP 9.3 million. Therefore, a total fee of GBP 13.5 million would exceed the sum of these two fees.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 2 – Alternative Investment Performance and Returns, LOS 2b: Calculate and interpret alternative investment returns both before and after fees.

Q.67 Stocks of Orange Corp. are trading at $60, and the strike price of 6-month put options is $40. Given the price of the 6-months put option on Orange Corp. is $2, and the risk-free rate is 8%, the price of the call option is *closest to*:

A. $23.51.

B. $29.81.

C. $33.32.

The put-call parity is a fundamental principle in financial derivatives that establishes a defined relationship between the price of a European put option and a European call option, both having the same strike price and expiry date.

The formula for put-call parity is:

$$C + \frac{X}{(1 + R_f)^t} = S_0 + P$$

Where:

- **C** is the price of the call option,
- **X** is the strike price,
- **R_f** is the risk-free rate,
- **t** is the time to maturity,
- **S_0** is the current stock price,
- **P** is the price of the put option.

Applying the put-call parity to calculate the call price for a 6-month option on Orange Corp. using the given values:

- Current stock price, **S_0** = \$60,
- Put price, **P** = \$2,
- Strike price, **X** = \$40,
- Risk-free rate, **R_f** = 8% (annual),
- Time to maturity, **t** = 0.5 years.

Substituting these values into the put-call parity formula gives:

$$C = S_0 + P - \frac{X}{(1 + R_f)^t}$$

$$C = \$60 + \$2 - \frac{\$40}{(1 + 0.08)^{0.5}}$$

$$C = \$60 + \$2 - \frac{\$40}{1.039}$$

$$C = \$60 + \$2 - \$38.49$$

$$C = \$23.51$$

B is incorrect. The reasoning behind this is that the calculation using the put-call parity formula does not yield a result of $29.81. Using the same values as in the explanation for option A, we get a call price (C) of $23.51, which is not the value suggested by option B.

C is incorrect. The reasoning behind this is that the calculation using the put-call parity formula does not yield a result of $33.32. Using the same values as in the explanation for options A and B, we get a call price (C) of $23.51, which is not the value suggested by option C.

CFA Level 1, Topic 8 – Derivatives, Learning Module 9– Option Replication Using Put–Call Parity, LOS 9a: Explain put-call parity for European options.

Q.68 Which of the following is/are *most likely* to be characteristic(s) of alternative investments? I. Low level of regulation. II. High use of leverage. III. High correlation to systematic risk.

A. I & II.

B. II & III.

C. I, II & III.

Option A is the correct answer because it correctly identifies the characteristics of alternative investments. Alternative investments are typically characterized by a low level of regulation and a high use of leverage. These types of investments are often less transparent and less regulated than traditional investment vehicles, such as stocks and bonds. This lack of regulation can lead to higher risks, but it can also provide opportunities for higher returns. The high use of leverage in alternative investments can amplify returns, but it can also magnify losses. Therefore, investors in these types of investments must be comfortable with taking on a higher level of risk.

B is incorrect. While it is true that alternative investments often employ a high use of leverage, it is not accurate to say that they have a high correlation to systematic risk. Systematic risk refers to the risk inherent to the entire market or market segment. Alternative investments often employ strategies that aim to reduce overall risk or are uncorrelated to market performance. Therefore, they do not necessarily have a high correlation to systematic risk. In fact, one of the key benefits of alternative investments is their potential to provide diversification benefits, as their returns are often uncorrelated with those of traditional asset classes.

C is incorrect. This option incorrectly suggests that alternative investments are characterized by a high correlation to systematic risk. As explained above, alternative investments often employ strategies that aim to reduce overall risk or are uncorrelated to market performance. Therefore, they do not necessarily have a high correlation to systematic risk. Furthermore, while alternative investments are typically characterized by a low level of regulation and a high use of leverage, not all alternative investments share these characteristics. Therefore, it is not accurate to say that all alternative investments are characterized by all three of these characteristics.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 1 – Alternative Investment Features, Methods, and Structures, LOS 1a: Describe features and categories of alternative investments

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Q.69 Which of the following is *not* exhibited by alternative investments in comparison to traditional investments?

A. More liquidity of assets held.

B. Less regulation and transparency.

C. More specialization by investment managers.

Alternative investments are generally less liquid than traditional investments, as they tend to involve less frequently traded assets such as private equity, hedge funds, real estate, and commodities. These assets are often held for longer periods of time and may have limited secondary markets, making it difficult to sell them quickly. This can result in longer lock-up periods and limited opportunities for investors to exit their positions.
B is incorrect. Less regulation and transparency are often exhibited by alternative investments in comparison to traditional investments, as they are typically subject to fewer regulatory requirements and may have less public disclosure.

C is incorrect. More specialization by investment managers is often exhibited by alternative investments in comparison to traditional investments, as they tend to involve more complex and specialized strategies that require a high level of expertise and skill from investment managers.

CFA Level I, Topic 8, Alternative Investments, Learning Module 1: Alternative Investment Features, Methods and Structures, LOS 1a: Describe features and categories of alternative investments.

Q.70 Which of the following is *least likely* accurate regarding the Leveraged buyouts (LBO)?

A. In LBOs, the acquisition of a target company is funded through debt.

B. In LBOs, the acquiring company's cash flows are used to service the debt.

C. After the buyout, the target company becomes or remains a privately owned company.

In a Leveraged Buyout (LBO), the acquisition of a target company is primarily financed through debt. The debt incurred is typically serviced using the cash flows generated by the target company itself, not the acquiring company. This approach is standard in LBOs, as it minimizes the acquiring company's cash outlay and transfers the debt servicing responsibility to the acquired company.

A is incorrect. In an LBO, the acquisition is typically funded by borrowing a substantial amount of money to acquire the target company. This debt is then repaid over time using the target company's cash flows. This financing structure is a core feature of LBOs, making option A accurate and not the least likely statement.

C is incorrect. Following an LBO, the target company generally becomes or remains a privately held entity, especially if it was publicly traded before the acquisition. This "going private" characteristic is a common outcome of LBO transactions. Therefore, option C is accurate and not the least likely statement.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 3– Investments in Private Capital: Equity and Debt, LOS 3a: Explain features of private equity and its investment characteristics

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Q.71 Which of the following is *least likely* a terminology used to identify venture capital investment at different stages of a company's life?

A. Formative Stage.

B. Middle Stage.

C. Later Stage.

Venture capital investment is typically categorized into different stages based on the life cycle of a company. These stages help investors to understand the risk and potential return associated with the investment. The three most commonly used terminologies to identify these stages are the Formative Stage, Later Stage, and Mezzanine Stage Financing.

Middle Stage is not a commonly used term in venture capital investment. The stages of venture capital investment are typically categorized as the Formative Stage, Later Stage, and Mezzanine Stage Financing. The Middle Stage is not recognized as a standard stage in venture capital investment. Therefore, it is the least likely terminology used to identify venture capital investment at different stages of a company's life.

A is incorrect. The Formative Stage is a commonly used term in venture capital investment. This stage refers to the early phase of a company's life cycle, where the company is still in the process of developing its product or service. The risk associated with investing in a company at this stage is high, as the company has yet to generate any revenue or prove the viability of its business model. However, the potential return on investment is also high, as successful companies can grow rapidly and provide significant returns to early-stage investors.

C is incorrect. The Later Stage is a commonly used term in venture capital investment. This stage refers to companies that have established their product or service in the market and are generating consistent revenue. The risk associated with investing in a company at this stage is lower than in the Formative Stage, as the company has already proven the viability of its business model. However, the potential return on investment is also lower, as the company's growth rate is likely to be slower than in the Formative Stage.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 3 – Investments in Private Capital: Equity and Debt, LOS 3a: explain features of private equity and its investment characteristics

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Q.72 Convenience yield *most likely* refers to the benefit of:

I. Holding an asset for sale.
II. Being able to take advantage of volatility in the market to sell high.
III. Using the asset on demand if necessary.

A. I &III only.

B. II only.

C. I, II &III.

Convenience yield refers to the non-monetary advantages or benefits that are derived from owning an asset, rather than merely holding a contract for future delivery of that asset. These benefits can include ensuring the availability of the asset for business operations, taking advantage of market volatility, and having the asset on hand for immediate use if necessary. Therefore, all three options, I, II, and III, are correct, making option C the correct answer.

A is incorrect. This option suggests that convenience yield refers to the benefits of holding an asset for sale and using the asset on demand if necessary. While these are indeed aspects of convenience yield, this option omits the benefit of being able to take advantage of market volatility to sell high. The ability to sell an asset at a high price during periods of market volatility is a significant benefit of holding an asset, and is a key component of convenience yield. By excluding this aspect, option A provides an incomplete definition of convenience yield.

B is incorrect. This option suggests that convenience yield refers only to the benefit of being able to take advantage of market volatility to sell high. While this is indeed a benefit of holding an asset, it is not the only benefit. Convenience yield also refers to the benefits of holding an asset for sale and using the asset on demand if necessary. By focusing solely on the benefit of selling high during periods of market volatility, option B provides a narrow and incomplete definition of convenience yield.

CFA Level 1, Topic 8 – Derivatives, Learning Module 4 – Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives, LOS 4b: Explain the difference between the spot and expected future price of an underlying and the cost of carry associated with holding the underlying asset.

Q.73 Which of the following statement is *least likely* correct regarding hedge funds? They:

A. have high investment restrictions and have a goal of generating high returns, either in an absolute sense or over a specified market benchmark.

B. are set up as private investment partnerships open to a limited number of investors.

C. have an aggressively managed portfolio of investments across asset classes and regions that is leveraged and/or use derivatives.

Hedge funds do not have high investment restrictions; in fact, they are characterized by their flexibility and low restrictions compared to traditional investment vehicles. This allows them to pursue various investment strategies, often employing leverage and derivatives.

B is incorrect. Hedge funds are typically set up as private investment partnerships and are available only to a limited number of accredited investors or qualified institutional investors.

C is incorrect. Hedge funds often employ aggressive investment strategies, such as leveraging, short selling, and using derivatives, to generate returns across various asset classes and regions.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 6 – Hedge Funds, LOS 6a: Explain investment features of hedge funds and contrast them with other asset classes.

Q.74 According to the put-call parity, a long position in a put option can be replicated by going:

A. long a call option, short the underlying, and long a risk-free bond.

B. short a call option, long the underlying, and short a risk-free bond.

C. long a call option, short the underlying, and short a risk-free bond.

The put-call parity is a fundamental concept in options pricing which states that the price of a put option (p_0), implies a certain fair price for the corresponding call option (c_0) and vice versa. The equation representing the put-call parity is:

$$S_0 + p_0 = c_0 + \frac{X}{(1+r)^T}$$

Where S_0 is the price of the underlying asset, p_0 is the price of the put option, c_0 is the price of the call option, X is the strike price of the options, r is the risk-free interest rate, and T is the time to maturity of the options.

By rearranging the equation, we can express the price of a put option (p_0) in terms of the other variables:

$$p_0 = c_0 + \frac{X}{(1+r)^T} - S_0$$

This equation tells us that a long position in a put option can be synthetically created by going long a call option, short the underlying asset, and long a risk-free bond. This is because the right side of the equation represents the cost of these three positions.

B is incorrect. It suggests going short a call option, long the underlying, and short a risk-free bond. This does not align with the put-call parity equation. Going short on a call option would mean you are betting on the price of the underlying asset to decrease, which is contrary to the concept of put-call parity. Similarly, going short a risk-free bond is not part of the synthetic replication of a long put option position.

C is incorrect. It suggests going long a call option, short the underlying, and short a risk-free bond. This is also not in line with the put-call parity equation. Going short a risk-free bond would mean you are betting on interest rates to rise, which is not part of the synthetic replication of a long put option position. The correct position for the risk-free bond according to the put-call parity equation is long, not short.

CFA Level 1, Topic 8 – Derivatives, Learning Module 9 –Option Replication Using Put–Call Parity, LOS 9a: explain put–call parity for European options.

Q.75 Which of the following is *least likely* a compensation structure used in alternative investments?

A. Dividends.

B. Soft-hurdle rate.

C. High watermark.

Alternative investments are typically non-traditional investments, such as private equity, hedge funds, real estate, and venture capital. These types of investments do not have the same characteristics as traditional investments, such as stocks or bonds. The compensation structures used in alternative investments are usually more complex and varied than those used in traditional investments. They often involve performance-based fees and other incentive structures that are designed to align the interests of the fund managers with those of the investors.

Dividends are a form of compensation structure that is typically associated with traditional investments, such as stocks. When a company earns a profit, it can choose to distribute a portion of these earnings to its shareholders in the form of dividends. However, this type of compensation structure is less common in alternative investments. This is because alternative investments often involve assets that do not generate regular income, such as private equity or venture capital investments in start-up companies. These types of investments are typically more focused on capital appreciation, rather than income generation.

B is incorrect. A soft-hurdle rate is a compensation structure that is commonly used in hedge funds and private equity funds. Under this structure, the fund manager is only eligible to earn a performance (incentive) fee if the fund's returns exceed a certain "hurdle" rate, usually the benchmark rate of return. This type of compensation structure is designed to incentivize the fund manager to generate high returns for the investors. If the fund's returns do not exceed the hurdle rate, the manager does not earn a performance fee. This aligns the interests of the manager with those of the investors, as the manager is incentivized to generate high returns in order to earn their fee.

C is incorrect. A high watermark is another compensation structure that is commonly used in alternative investments. Under this structure, the fund manager must recover any decrease in the fund's value from its highest historical level before they can charge a performance fee on any new profits earned. This ensures that the manager is not rewarded for simply recovering losses, but must generate new profits in order to earn their performance fee. This again aligns the interests of the manager with those of the investors, as the manager is incentivized to generate consistent, positive returns for the fund.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 1 – Alternative Investment Features, Methods, and Structures, LOS 1c: Describe investment ownership and compensation structures commonly used in alternative investments.

Q.76 Which of the following conditions will *most likely* decrease the value of a call option?

A. Increase in volatility.

B. Increase in stock price.

C. Decrease in the risk-free rate.

The value of a call option before its maturity is given by the formula: $c_t = \max(0, S_t - X(1 + r)^{-(T-t)})$. In this formula, c_t is the value of the call option at time t, S_t is the spot price of the underlying asset at time t, X is the exercise price of the option, r is the risk-free rate, and T is the time to maturity of the option. A decrease in the risk-free rate (r) increases the present value of the exercise price (X), provided the option is in the money. This is because the present value of any future cash flow is inversely related to the discount rate, which in this case is the risk-free rate. Therefore, a decrease in the risk-free rate increases the present value of the exercise price, which in turn decreases the value of the call option. This is why a decrease in the risk-free rate will most likely decrease the value of a call option.

A is incorrect. This option suggests that an increase in volatility will decrease the value of a call option. However, this is not the case. Volatility refers to the degree of fluctuation in the price of the underlying asset. A higher volatility means that the price of the underlying asset is more likely to move in a wider range. This increases the likelihood that the option will be in the money, making it more valuable. Therefore, an increase in volatility will actually increase the value of a call option, not decrease it.

B is incorrect. This option suggests that an increase in the stock price will decrease the value of a call option. However, this is not the case. For a call option, it is exercisable if the spot price of the underlying asset (S_T) is greater than the exercise price (X). Therefore, the value of the call option appreciates when the spot price of the underlying increases. This means that an increase in the stock price will actually increase the value of a call option, not decrease it.

CFA Level 1, Topic 8 – Derivatives, Learning Module 8 – Pricing and Valuation of Options, LOS 8c: Identify the factors that determine the value of an option and describe how each factor affects the value of an option.

Q.77 In the context of macro hedge fund strategies and managed futures funds, which of the following statements is *most accurate*?

A. Both Macro strategies and Managed futures funds are more likely to profit during periods of higher volatility.

B. Managed futures funds are more likely to profit during periods of higher volatility, while Macro strategies are more likely to profit during periods of strong trending market conditions.

C. Macro strategies are more likely to profit during periods of higher volatility, while Managed futures funds are more likely to profit during periods of strong trending market conditions.

Macro strategies are more likely to profit during periods of higher volatility, while Managed futures funds are more likely to profit during periods of strong trending market conditions. Macro strategies use a top-down approach to identify economic trends and make trades based on expected movements in economic variables. These strategies are designed to take advantage of volatility in the market, as they can adjust their positions based on changes in economic indicators and market conditions. Therefore, they are more likely to profit during periods of higher volatility.

On the other hand, Managed futures funds make diversified directional investments primarily in the futures markets based on technical and fundamental strategies. These funds typically profit from strong trending market conditions, as they can take long or short positions in various futures contracts based on their analysis of market trends. Therefore, they are more likely to profit during periods of strong trending market conditions.

A is incorrect. Both Macro strategies and Managed futures funds are not more likely to profit during periods of higher volatility. While Macro strategies can profit from higher volatility, Managed futures funds are more focused on profiting from strong trending market conditions. Therefore, it is not accurate to say that both types of funds are more likely to profit during periods of higher volatility.

B is incorrect. Managed futures funds are not more likely to profit during periods of higher volatility. While these funds can take advantage of volatility to some extent, their primary focus is on identifying and profiting from market trends. Therefore, they are more likely to profit during periods of strong trending market conditions, not during periods of higher volatility.

CFA Level I, Alternative Investments, Learning Module 6: Hedge Funds. LOS (b): Describe investment forms and vehicles used in hedge fund investments.

Q.78 Which of the following is *most likely* to be (a) key reason(s) for investing in real estate?

I. Potential to provide an inflation hedge if rents can be adjusted quickly for inflation.
II. The prospect that multiple-year leases with fixed rents for some property types may lessen cash flow impact from economic shocks.
III. Potential for competitive long-term total returns-driven by both income generation and capital appreciation.

A. I, II and III.

B. I & III only.

C. II & III only.

Option A is the correct answer as it includes all three key reasons for investing in real estate: potential to provide an inflation hedge, the prospect that multiple-year leases with fixed rents may lessen cash flow impact from economic shocks, and potential for competitive long-term total returns driven by both income generation and capital appreciation.

Real estate investment can serve as an inflation hedge if rents can be adjusted quickly for inflation. This is because as the general price level in an economy increases (inflation), the nominal value of a real estate investment tends to rise. The rents that are charged to tenants are also generally increased in line with inflation, which can provide a steady stream of income that keeps pace with the general increase in prices. This is a key reason for investing in real estate, and it is correctly identified in statement I.

Statement II also provides a valid reason for investing in real estate. The prospect that multiple-year leases with fixed rents for some property types may lessen cash flow impact from economic shocks is a significant advantage of real estate investment. Fixed rents can provide a steady and predictable cash flow, which can be particularly beneficial during periods of economic uncertainty or volatility. This stability can help to mitigate the impact of economic shocks and provide a level of financial security for investors.

Finally, statement III identifies the potential for competitive long-term total returns as a key reason for investing in real estate. Real estate investments can generate income through rental payments and can also appreciate in value over time, leading to capital gains. This combination of income generation and capital appreciation can result in competitive long-term total returns, making real estate a potentially lucrative investment option.

CFA Level 1, Topic 8 – Alternative Investments, Learning Module 4 – Real Estate and Infrastructure, LOS 4a: Explain features and characteristics of real estate.

Q.79 The line that represents the combination of the optimal risky portfolio and the risk-free asset is *most accurately* known as:

A. efficient Frontier.

B. indifference curve.

C. capital allocation Line.

The capital allocation line (CAL) is the line that represents the combination of the optimal risky portfolio and the risk-free asset. The CAL is a line created on a graph of all possible combinations of risky and risk-free assets. The y-axis represents the expected return of the portfolio, while the x-axis represents the standard deviation of the portfolio's returns, which is a measure of risk. The slope of the CAL, known as the reward-to-variability ratio, indicates the additional amount of expected return that an investor can obtain per additional unit of risk. The point where the CAL is tangent to the efficient frontier is the optimal risky portfolio, as it offers the highest possible expected return for a given level of risk.

A is incorrect. The efficient frontier is a concept derived from modern portfolio theory and it represents the set of optimal portfolios that offer the highest expected return for a defined level of risk or the lowest risk for a given level of expected return. It is a graphical representation of all the portfolios that maximize expected return for a given level of risk or minimize risk for a given level of expected return. Portfolios that lie below the efficient frontier are considered sub-optimal because they do not provide enough return for the level of risk. The efficient frontier does not represent a combination of the optimal risky portfolio and the risk-free asset.

B is incorrect. An indifference curve is a concept from microeconomics, which shows a combination of two goods that give a consumer equal satisfaction and utility, making the consumer indifferent. It is used to illustrate the consumer's preferences and the trade-offs they are willing to make between two goods. Along the curve, the consumer has an equal preference for the combinations of goods shown—i.e., is indifferent about any combination of goods on the curve. This concept is not related to the combination of the optimal risky portfolio and the risk-free asset.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 1– Portfolio Risk and Return: Part I, LOS 1c: Explain the selection of an optimal portfolio, given an investor's utility (or risk aversion) and the capital allocation line.

Q.80 Four portfolios have the following expected returns and risk:

Portfolio	Expected Return	Standard deviation
A	5%	12%
B	7%	15%
C	9%	15%
D	8%	16%

A risk-neutral agent choosing from these portfolios would *most likely* select:

A. portfolio A

B. portfolio B

C. portfolio C

A risk-neutral investor is primarily concerned with maximizing expected return and is indifferent to the level of risk (volatility) associated with the investment. Among the portfolios listed, Portfolio C offers the highest expected return at 9%. This is the highest return among all the portfolios. The standard deviation of Portfolio C is 15%, which is the same as Portfolio B. However, the return of Portfolio C is higher than that of Portfolio B. This makes Portfolio C the most attractive option for a risk-neutral investor. The risk-neutral investor does not consider the risk factor, and hence, the standard deviation does not affect the decision. The only factor that affects the decision of a risk-neutral investor is the expected return, and since Portfolio C has the highest expected return, it is the most likely choice for a risk-neutral investor.

Portfolio A is incorrect. The expected return of Portfolio A is 5%, which is the lowest among all the portfolios. Even though the standard deviation of Portfolio A is 12%, which is lower than the other portfolios, a risk-neutral investor does not consider the risk factor. Therefore, the lower standard deviation does not make Portfolio A a more attractive option for a risk-neutral investor. The only factor that affects the decision of a risk-neutral investor is the expected return, and since Portfolio A has the lowest expected return, it is the least likely choice for a risk-neutral investor.

Portfolio B is incorrect. The expected return of Portfolio B is 7%, which is higher than Portfolio A but lower than Portfolio C. The standard deviation of Portfolio B is 15%, which is the same as Portfolio C. However, the return of Portfolio B is lower than that of Portfolio C. Therefore, even though Portfolio B has a higher return than Portfolio A and the same risk level as Portfolio C, it is still not the most attractive option for a risk-neutral investor. The only factor that affects the decision of a risk-neutral investor is the expected return, and since Portfolio B does not have the highest expected return, it is not the most likely choice for a risk-neutral investor.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 1 – Portfolio Risk and Return: Part I, LOS 1b: Explain risk aversion and its implications for portfolio selection.

Q.81 An analyst gathered this information about two stocks:

	Variance of returns
Stock A	1.5%
Stock B	2.0%

What is the covariance between A and B if their correlation coefficient is 0.4?

A. 0.00012

B. 0.0069

C. 0.043

The covariance between two stocks is calculated using the formula:

Covariance = Correlation Coefficient × Standard Deviation of Stock A × Standard Deviation of Sto

The correlation coefficient is given as 0.4. The variances provided for Stock A and Stock B are 1.5% and 2.0%, respectively. To convert these percentages into decimals, they should be divided by 100:

$$\text{Variance of Stock A} = 0.015 \quad \text{and} \quad \text{Variance of Stock B} = 0.02$$

The standard deviations are the square roots of the variances:

$$\text{Standard Deviation of Stock A} = \sqrt{0.015} \approx 0.1225$$

$$\text{Standard Deviation of Stock B} = \sqrt{0.02} \approx 0.1414$$

Multiplying these values with the correlation coefficient gives:

$$\text{Covariance} = 0.4 \times 0.1225 \times 0.1414 \approx 0.0069$$

A is incorrect. The value 0.00012 is far too small to be the covariance between the two stocks. This would imply a very weak relationship between the two stocks, which is not consistent with the given correlation coefficient of 0.4. A correlation coefficient of 0.4 indicates a moderate positive relationship, which would result in a higher covariance. Therefore, this option is not correct.

C is incorrect. The value 0.043 is too large to be the covariance between the two stocks. This would imply a very strong relationship between the two stocks, which is not consistent with the given correlation coefficient of 0.4. A correlation coefficient of 0.4 indicates a moderate positive relationship, which would result in a lower covariance. Therefore, this option is not correct.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 1 – Portfolio Risk and Return: Part I, LOS 1d: Calculate and interpret the mean, variance, and covariance (or correlation) of asset returns based on historical data.

Q.82 Which of the following sections of an Investment Policy Statement (IPS) provides relevant information on specific types of assets that have been excluded from the portfolio?

A. Investment guidelines.

B. Investment objectives.

C. Investment constraints.

The **Investment Guidelines** section of an Investment Policy Statement (IPS) specifically addresses how the policy should be executed and details the types of assets that are excluded from the portfolio. This section is crucial for ensuring that the investments align with the ethical and strategic criteria set by the policyholder.

B is incorrect. The investment objectives section of an IPS outlines the financial goals and return expectations of the client. While it provides a broad overview of what the investment strategy aims to achieve, it does not typically detail specific exclusions or restrictions on asset classes. The focus here is more on the desired outcomes, such as capital preservation, income generation, or growth, rather than on the means of achieving these outcomes through specific investment choices.

C is incorrect. Investment constraints detail the various limitations and considerations that must be taken into account when managing the portfolio. These can include liquidity needs, time horizon, tax considerations, legal requirements, and unique circumstances. While investment constraints can influence which assets may be deemed suitable or unsuitable for the portfolio, they do not directly specify excluded assets. Instead, they provide a framework for making investment decisions that accommodate the client's specific situation and requirements.

CFA Level I, Topic 9, Portfolio Management, Learning Module 4: Basics of Portfolio Planning & Construction. LOS 4e: Describe the investment constraints of liquidity, time horizon, tax concerns, legal and regulatory factors, and unique circumstances and their implications for the choice of portfolio assets.

Q.83 Which of the following is/are the *most likely* similarity(ies) between exchange-traded funds and closed-end funds? I. Both types of funds are passively managed to match a particular index. II. In both types of funds, the market price of shares and the net asset value (NAV) can differ significantly. III. Both types of funds can be sold and purchased on the open market.

A. III.

B. I and II.

C. I and III.

Exchange-traded funds (ETFs) and closed-end funds share the similarity that both can be sold and purchased on the open market. This is a key characteristic of these types of funds, as it allows investors to buy and sell shares in the fund throughout the trading day, just like individual stocks. This is in contrast to open-end funds, which are only bought and sold at the end of the trading day at the net asset value (NAV) price. The ability to trade throughout the day provides investors with greater flexibility and the opportunity to respond to market changes in real time.

B is incorrect. While it is true that both ETFs and closed-end funds can have a difference between the market price of shares and the NAV, this is not a similarity between the two. ETFs are designed to keep their share price close to the NAV. This is achieved through a mechanism known as creation and redemption, which allows large institutional investors to create or redeem shares in the ETF in response to supply and demand imbalances, thereby keeping the share price in line with the NAV. On the other hand, closed-end funds do not have this mechanism, and as a result, their share price can deviate significantly from the NAV. This is due to the fact that the number of shares in a closed-end fund is fixed and does not change in response to investor demand.

C is incorrect. While it is true that both ETFs and closed-end funds can be sold and purchased on the open market, the assertion that both types of funds are passively managed to match a particular index is incorrect. ETFs are often passively managed to match a particular index, but this is not always the case. There are also actively managed ETFs. Closed-end funds, on the other hand, are typically actively managed. This means that the fund manager makes investment decisions in an attempt to outperform a specific benchmark index. This active management is one of the key differences between ETFs and closed-end funds.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 3 – Portfolio Management: An Overview, LOS 3f: Describe mutual funds and compare them with other pooled investment products.

Q.84 Which of the following is *most likely* the first-order risk measure of the change in the option price for a change in the underlying asset's volatility?

A. Rho.

B. Vega.

C. Gamma.

Vega is a first-order risk measure because it directly measures the impact of a change in volatility on the option's price. When the volatility of the underlying asset increases, the price of the option also increases, and vice versa. This is because higher volatility implies a greater range of potential outcomes for the underlying asset's price, which increases the probability that the option will be in the money at expiration. Therefore, options are more valuable when volatility is high. Vega is a crucial risk measure for options traders, who need to understand how changes in volatility will affect the value of their positions.

A is incorrect. Rho is a measure of the sensitivity of an option's price to changes in the interest rate. While interest rates can indeed affect the price of an option, they are not the primary driver of option prices. Furthermore, Rho is not a measure of the impact of changes in the underlying asset's volatility on the option's price. It's important to understand that while Rho can be a useful risk measure for certain types of options, particularly long-term options, it is not the primary risk measure for changes in the underlying asset's volatility.

B is incorrect. Gamma is a measure of the rate of change of an option's delta for a one-unit change in the price of the underlying asset. In other words, it measures the acceleration of the option's price. While Gamma does provide important information about the risk of an option position, it is a second-order risk measure, not a first-order risk measure. This is because Gamma measures the rate of change of the option's delta, not the direct impact of changes in the underlying asset's volatility on the option's price.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 4 – Introduction to Risk Management: LOS 4g: Describe methods for measuring and modifying risk exposures and factors to consider in choosing among the methods.

Q.85 ABC Investments Ltd is an investment firm that handles a portfolio of investments for its clients and prides itself in recruiting CFA charterholders. On a recent open day, CEO Kyle Walker stated, *"On average most CFA charterholders work at investment firms."*
The statement by the CEO *most appropriately* indicates which behavioral bias?

A. Framing bias.

B. Availability bias.

C. Representativeness bias.

The CEO is basing his observation on a limited range of experience, which is a form of availability bias, by recruiting CFA charterholders at Kyle and Myles Investment Ltd compared to the entire cluster of CFA charterholders recruited in other sectors.
A is incorrect. Framing bias is an information-processing bias that occurs when an individual responds to an inquiry differently based on the context in which it was asked. It is practically possible to explain a justification to an inquiry in more than one option. Framing bias is not applicable in the case of the CEO statement since he was not responding to an inquiry, for example, why the firm only prefers recruiting CFA Charterholders.

C is incorrect. Representation bias refers to the act of categorizing new information based on prior practices. The CEO's claim that the sample size, i.e., the number of CFA Charterholders employed at the investment firm, cannot be proven since data representing the population of CFA Charterholders employed in other sectors is unavailable.

CFA Level I, Topic 9, Portfolio Management, Learning Module 5: The Behavioral Biases of Individuals, LOS 5b: Discuss commonly recognized behavioral biases and their implications for financial decision-making.

Q.86 BCG Bank has a one month Value at Risk (VaR) of $400 million with a probability of 5%. This *most likely* means implies a:

A. loss of $20 million will occur one month from now.

B. one month maximum loss of $400 million will occur 5% of the time.

C. one month minimum loss of $400 million will occur 5% of the time.

Value at Risk (VaR) is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over a specific time frame. This metric is most commonly used by investment and commercial banks to determine the extent and occurrence ratio of potential losses in their institutional portfolios. VaR calculations can be applied to specific positions or portfolios as a whole or to measure firm-wide risk exposure.

In the context of the question, BCG Bank has a one month VaR of $400 million with a probability of 5%. This implies that there is a 5% chance that the bank will experience a minimum loss of $400 million in a month. This is a measure of the worst expected loss over a month that can be experienced with a 5% probability.

A is incorrect. The statement that a loss of $20 million will occur one month from now is not accurate. VaR does not predict a specific loss amount that will definitely occur in the future. Instead, it provides a statistical estimate of the potential loss based on historical data and statistical models. Therefore, option A does not correctly interpret the meaning of a VaR of $400 million at a 5% probability.

B is incorrect. The statement that a one month maximum loss of $400 million will occur 5% of the time is also not accurate. VaR does not measure the maximum loss. Instead, it measures the minimum loss that could occur with a certain probability. Therefore, option B does not correctly interpret the meaning of a VaR of $400 million at a 5% probability.

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 6 – Introduction to Risk Management, LOS 6g: Describe methods for measuring and modifying risk exposures and factors to consider in choosing among the methods.

Q.87 Investor A has a lower risk aversion than Investor B, and Investor C has a lower risk tolerance than Investor B. Which investor's optimal portfolio will *most likely* have the highest expected return on the capital allocation line?

A. Investor A's optimal portfolio.

B. Investor B's optimal portfolio.

C. Investor C's optimal portfolio.

Investor A will most likely take more risk than Investor B, and Investor B will most likely take more risk than Investor C. Therefore, Investor A's optimal portfolio will have the highest expected return.
B is incorrect. While Investor B is more risk-averse than Investor A but less so than Investor C, this middle position in terms of risk tolerance does not necessarily mean their optimal portfolio will have the highest expected return. The relationship between risk aversion and expected return is such that lower risk aversion is associated with a willingness to invest in portfolios with higher expected returns despite the increased risk. Therefore, Investor B, being more risk-averse than Investor A, is less likely to choose a portfolio with the highest expected return compared to Investor A.

C is incorrect. Given that Investor C has the lowest risk tolerance among the three, they are most likely to opt for a portfolio with lower expected returns that align with their lower tolerance for risk. The principle of risk aversion in investment theory suggests that investors with lower risk tolerance prefer to minimize risk, even at the expense of forgoing potentially higher returns. Thus, Investor C's optimal portfolio would be positioned towards the left on the CAL, where portfolios offer lower expected returns in exchange for reduced risk, making it unlikely for their portfolio to have the highest expected return.

CFA Level 1, Topic 9, Portfolio Management, Learning Module 1: Portfolio Risk and Return: Part I, LOS 1b: Explain risk aversion and its implications for portfolio selection.

Q.88 An analyst gathered this information about two stocks:

Time period	Stock A Return	Stock B return
1	15%	12%
2	−10%	2%
3	−2%	15%
4	22%	12%

The covariance between A and B is *closest to*:

A. 0.004221.

B. 0.004321.

C. 0.004592.

The formula for covariance:

$$\text{Cov}_{A,B} = \frac{\sum_{i=1}^{n}(A_i - \bar{A})(B_i - \bar{B})}{n-1}$$

In this formula, $\bar{A}$ and $\bar{B}$ represent the mean returns of Stock A and Stock B respectively. These are calculated as follows:

$$\bar{A} = \frac{0.15 - 0.10 - 0.02 + 0.22}{4} = 0.0625$$

$$\bar{B} = \frac{0.12 + 0.02 + 0.15 + 0.12}{4} = 0.1025$$

Substituting these values into the covariance formula, we get:

$$\begin{aligned} \Rightarrow \text{Cov}_{A,B} &= \frac{\begin{array}{l}(0.15 - 0.0625)(0.12 - 0.1025) + (-0.10 - 0.0625)(0.02 - 0.1025) + \\ (-0.02 - 0.0625)(0.15 - 0.1025) + (0.22 - 0.0625)(0.12 - 0.1025)\end{array}}{4-1} \\ &= \frac{0.0875 \times 0.0175 + 0.1625 \times 0.0825 - 0.0825 \times 0.0475 + 0.1575 \times 0.01753}{3} = 0.004592 \end{aligned}$$

CFA Level 1, Topic 9 – Portfolio Management, Learning Module 1 – Portfolio Risk and Return: Part I, LOS 1d: Calculate and interpret the mean, variance, and covariance (or correlation) of asset returns based on historical data.

Q.89 Which of the following is *least likely* a characteristic of open-ended mutual funds?

A. An open-end structure makes it easy to grow in size but creates pressure on the portfolio manager to manage the cash inflows and outflows.

B. New shares are created and sold at a premium or a discount to net assets values depending on the demand for the shares in open-end funds.

C. Open-end funds accept new investment money and issue additional shares to existing or new investors. Therefore, the number of outstanding shares changes after every new investment.

In open-end funds, new shares are issued at the net asset value of the fund at the time of investment. An open-end fund is a collective investment scheme that can issue and redeem shares at any time. An investor will generally purchase shares in the fund directly from the fund itself rather than from the existing shareholders.

It contrasts with a closed-end fund, which typically issues all the shares it will issue at the outset, with such shares usually being tradable between investors thereafter. Unlike open-end funds in which new shares are created and sold at the current net asset value per share, closed-end funds can sell for a premium or discount to net asset value depending on the demand for the shares.
A is incorrect. The open-end structure allows for the fund to grow in size as new investments are made, with the fund issuing new shares to accommodate this growth. However, this can indeed create challenges for the portfolio manager, who must manage cash inflows and outflows effectively to maintain the fund's investment strategy and performance. Managing these cash flows is a critical aspect of operating an open-ended fund, as significant inflows or outflows can impact the fund's asset allocation and potentially its returns.

C is incorrect. This option also accurately describes a feature of open-ended mutual funds. Open-end funds are designed to accept new investment money at any time, issuing additional shares to accommodate new or existing investors. This flexibility is a key advantage of open-ended funds, allowing investors to enter or exit the fund according to their investment needs. The number of outstanding shares in an open-ended fund is not fixed and changes with each new investment or redemption, reflecting the fund's ability to adapt to investor demand while maintaining its investment objectives.

CFA Level I, Topic 9, Portfolio Management, Learning Module 3: Portfolio Management: An Overview. LOS 1f: Describe mutual funds and compare them with other pooled investment products.
