



Questions #1-6 of 60

Use the following information to answer Questions 61 through 66.

Chester Brothers, LLC, is an investment management firm with \$200 million in assets under management. Chester's equity style is described to clients as a large-cap core strategy. One year ago, Chester instituted a new compensation plan for its equity portfolio managers. Under this new plan, each portfolio manager receives an annual bonus based upon that manager's quarterly performance relative to the S&P 500 Index. For each quarter of out-performance, the manager receives a bonus in the amount of 20% of his regular annual compensation. Chester has not disclosed this new plan to clients. Portfolio managers at Chester are not bound by non-compete agreements.

James Rogers, CFA, and Karen Pierce, CFA, are both portfolio managers affected by the new policy. Rogers outperformed the S&P 500 Index in each of the last three quarters, largely because he began investing his clients' funds in small-cap securities. Chester has recently been citing Rogers's performance in local media advertising, including claims that "Chester's star manager, James Rogers, has outperformed the S&P 500 Index in each of the last three quarters." The print advertising associated with the media campaign includes a photograph of Rogers, identifying him as James Rogers, CFA. Below his name is a quote apparently attributable to Rogers saying "as a CFA charterholder, I am committed to the highest ethical standards."

A few weeks after the advertising campaign began, Rogers was approached by the Grumpp Foundation, a local charitable endowment with \$3 billion in assets, about serving on its investment advisory committee. The committee meets weekly to review the portfolio and make adjustments as needed. The Grumpp trustees were impressed by the favorable mention of Rogers in the marketing campaign. In making their offer, they even suggested that Rogers could mention his position on the advisory committee in future Chester marketing material. Rogers has not informed Chester about the Grumpp offer, but he has not yet accepted the position.

Pierce has not fared as well as Rogers. She also shifted into smaller-cap securities, but due to two extremely poor performing large-cap stocks, her performance lagged the S&P 500 Index for the first three quarters. After an angry confrontation with her supervisor, Pierce resigned. When she left, Pierce took a copy of a computer model with the permission of the co-worker who developed the model, as well as the most recent list of her buy recommendations, which was created from the output of the computer model. Pierce soon accepted a position at a competing firm, Cheeri Group. On her first day at Cheeri, she contacted each of her five largest former clients, informing them of her new employment and asking that they consider moving their accounts from Chester to Cheeri. During both telephone conversations and emails with her former clients, Pierce mentioned that Chester had a new compensation program that created incentives for managers to shift into smaller-cap securities.

Cheeri has posted Pierce's investment performance for the past five years on its website, excluding the three most recent quarters. The footnotes to the performance information include the following two statements:

- Statement 1: Includes large capitalization portfolios only.
- Statement 2: Results reflect manager's performance at previous employer.

Question #1 of 60

Question ID: 1212714

Chester's new compensation plan for awarding bonuses to individual portfolio managers is consistent with CFA Institute Standards:

- A) and does not require disclosure.
- B) only if fully disclosed to clients.**
- C) but any bonuses awarded under the plan must be fully disclosed to clients.

Explanation

Standard VI(A). The compensation plan is acceptable under Standard VI(A) Conflicts of Interest – Disclosure of Conflicts, but Chester must disclose the plan to clients. The firm's equity strategy is described as "large cap core." The S&P 500 Index is an appropriate benchmark for such a strategy, but the incentive for portfolio managers is to invest outside the index in order to achieve excess returns. Managers may be motivated to invest in securities that would not be consistent with client objectives or risk profiles.

For Further Reference:

(Study Session 1, Module 2.9, LOS 2.a)

Question #2 of 60

Question ID: 1212715

Assuming Rogers would like to accept the offer to serve on the Grumpp investment advisory committee, Rogers's obligations under the CFA Institute Standards require that he:

- A) refuse to serve on the Grumpp committee.
- B) accept the Grumpp committee position only after disclosing the offer to his supervisor.**
- C) accept the Grumpp committee position and disclose his acceptance as soon as possible to his supervisor.

Explanation

Standard VI(A). Rogers must discuss the offer with supervisory personnel at Chester before accepting the offer. His employer then has the opportunity to evaluate the effect of the offer on Rogers's ability to continue to perform his duties for Chester. The foundation is very large, and the position appears likely to consume much of Rogers's time and effort. If compensation is involved, Rogers would have to decline the offer unless Chester consented to the arrangement.

For Further Reference:

(Study Session 1, Module 2.9, LOS 2.a)

Question #3 of 60

Question ID: 1212716

Chester's advertising campaign includes claims about Rogers's investment performance, as well as Rogers's use and reference to the CFA charter. Is Chester's advertising campaign consistent with the CFA Institute Standards?

- A) Chester's performance claims are inconsistent with CFA Institute Standards, but his use and reference to the CFA designation is appropriate.**
- B) Both the performance claim and the reference to the CFA charter are violations.
- C) Neither the performance claims nor the use and reference to the CFA designation are violations.

Explanation

Standard III(D). Chester has violated Standard III(D) Duties to Clients – Performance Presentation. The claim in itself is acceptable. Rogers's superior performance has lasted only a short time, and the advertising does not suggest otherwise. However, the superior performance has been achieved by investing in small cap securities, which is inconsistent with the stated style of Chester's equity management. Unless Chester discloses this change in style, the performance claims do not accurately reflect the firm's performance. Chester has not violated the Standards regarding use of and reference to the CFA designation. Rogers's use of the CFA designation is acceptable, and the quote stating that a CFA charterholder is committed to high ethical standards is acceptable as well.

For Further Reference:

(Study Session 1, Module 2.6, LOS 2.a)

Question #4 of 60

Question ID: 1212717

Under the CFA Institute Standards, Pierce taking the computer model when leaving her position at Chester would be *best* described as a violation:

- A) because she should have obtained written permission from her co-worker.
- B) unless she obtained permission from both her co-worker as well as from Chester.
- C) unless she obtained permission from Chester Brothers, LLC.**

Explanation

Standard IV(A). Pierce should not have taken any employer records, and the computer model was Chester's property, regardless of her co-worker's role in developing the model. Pierce has violated Standard IV(A) Duties to Employers – Loyalty by taking the model without Chester's consent.

For Further Reference:

(Study Session 1, Module 2.7, LOS 2.a)

Question #5 of 60

Question ID: 1212718

Pierce's behavior upon assuming her new position at Cheeri can *best* be described as violating CFA Institute Standards because she:

- A) encouraged her former clients to leave Chester.**

- B)** should not have contacted her former clients at all.
- C) disclosed Chester's new compensation program.**

Explanation

Standard IV(A). Pierce took no client records with her from Chester. It is reasonable to assume that she is using publicly available information to contact her former clients. So long as Pierce did not have a non-compete agreement, the standards do not preclude her from contacting former clients or encouraging them to move their accounts. The violation in this case was disclosing the new compensation plan. This plan should be disclosed to Chester's clients by Chester. Pierce does not have whistleblower status in this case because she stands to receive a personal gain by bringing her former clients to Cheeri. By disclosing the plan, Pierce has violated Standard IV(A) Duties to Employers – Loyalty by attempting to injure her former employer. Note that the compensation plan is not illegal; it is only a policy that should be disclosed. Had there been an illegal activity, Pierce might have had more justification as a whistleblower.

For Further Reference:

(Study Session 1, Module 2.7, LOS 2.a)

Question #6 of 60

Question ID: 1212719

Cheeri's presentation of Pierce's investment performance is inconsistent with CFA Institute Standards because:

- A)** the results were not calculated under GIPS.
- B)** performance from a previous employer should not be included.
- C) the results misrepresent Pierce's large cap performance.**

Explanation

Standard III (D). The problem is that Pierce's performance over the past three quarters arose from large cap securities, not small cap securities. Excluding these results misrepresents her ability as a large cap manager. The Standards do not require compliance with GIPS, nor do they require that previous employer results be excluded. Stating results of a specific style, such as large cap, is acceptable if it is accurate.

For Further Reference:

(Study Session 1, Module 2.6, LOS 2.a)

Questions #7-12 of 60

Use the following information to answer Questions 67 through 72.

Austin Clark, CFA, has been asked to analyze White Goods Corporation, a \$9 billion company that owns a nationwide chain of stores selling appliances and other electronic goods. As part of his analysis of the White Goods Corporation, Clark's supervisor, David Horvath, asks Clark to forecast White Goods's 2019 sales using multiple regression analysis. The following model was developed:

$$\text{sales} = 20.1 + 0.001 \text{ GDP} + 1,000.6 \text{ TR} + 0.1 \text{ CC} - 3.2 \text{ PC} - 40.3 \text{ UR}$$

t -values: (1.1) (2.3) (1.75) (3.2) (−0.48) (−0.9)

Number of observations: 76

Standard error estimate: 15.67

Unadjusted R^2 : 0.96

Regression sum of squares: 412,522

Error sum of squares: 17,188

Independent Variable Descriptions

GDP = gross domestic product

TR = average rate on 5-year U.S. Treasury securities

CC = most recent quarter end consumer confidence index value

PC = previous year's sales of personal computers

UR = most recent quarter end unemployment rate

Variable Estimates for 2019

GDP = 8,000

TR = 0.05

CC = 97

PC = 60,000

UR = 0.055

Critical Values For Student's t -Distribution

Degrees of Freedom	Level of Significance for One-Tailed Test			
	10%	5%	2.5%	1%
	Level of Significance for Two-Tailed Test			
	20%	10%	5%	2%
5	1.476	2.015	2.571	3.365
15	1.341	1.753	2.131	2.602
25	1.316	1.708	2.060	2.485
50	1.299	1.676	2.009	2.403
60	1.296	1.671	2.000	2.390
70	1.294	1.667	1.994	2.381

Clark's supervisor asks him to prepare a report explaining the implications of the regression analysis results. Clark writes the following conclusions concerning regression analysis in his report:

Interpreting the results of regression analysis can be problematic if certain assumptions of the ordinary least squares framework are violated. The regression output for White Goods Corporation is unreliable for the following reasons:

Finding 1: The correlation between regression errors across time is very close to 1.

Finding 2: There is a strong relationship between the regression error variance and the regression independent variables.

Question #7 of 60

Question ID: 1212721

Using his multiple linear regression, Clark's sales forecast for 2019 is *closest* to:

- A) **-\$191,914.**
- B) \$180,502.
- C) \$192,090.

Explanation

2019 sales forecast = $20.1 + 0.001 \times 8,000 + 1,000.6 \times 0.05 + 0.1 \times 97 - 3.2 \times 60,000 - 40.3 \times 0.055 = -\$191,914$

For Further Reference:

(Study Session 2, Module 5.2, LOS 5.e)

Question #8 of 60

Question ID: 1212722

Is the regression coefficient of the 5-year U.S. Treasury interest rate statistically significantly different from zero at the 10% level of significance?

- A) Yes, because $1.75 > 1.29$.
- B) **Yes, because $1.75 > 1.67$.**
- C) No, because $1.75 < 1.99$.

Explanation

Using a two-tail test at the 10% significance level, the critical value of the t -statistic equals 1.67 (degrees of freedom equal $N - k - 1 = 76 - 5 - 1 = 70$). The t -statistic (1.75) exceeds its critical value using a 10% significance level.

For Further Reference:

(Study Session 2, Module 5.2, LOS 5.c)

Question #9 of 60

Question ID: 1212723

In this multiple regression equation, a potential statistical issue is:

- A) the coefficient of determination indicates a weak model.
- B) **that sales cannot be statistically modeled.**

C) the PC variable is not a statistically significant variable.

Explanation

As a general rule, any independent variable must have a t -statistic of 2 or more to be statistically significant. There is no indication that sales cannot be modeled. The main weakness in this model is the lack of significance of the PC variable.

For Further Reference:

(Study Session 2, Module 5.1, LOS 5.a)

Question #10 of 60

Question ID: 1212724

What is the F -value that tests the hypothesis that all of the coefficients are equal to zero?

- A) 42.0.
- B) 101.0.
- C) 336.0.**

Explanation

The F -value is calculated as (mean regression sum of squares) / (mean squared error) = $(412,522 / 5) / (17,188 / 70) = 336$.

For Further Reference:

(Study Session 2, Module 5.3, LOS 5.g)

Question #11 of 60

Question ID: 1212725

In his report to his supervisor, Clark's test of serial correlation indicates that the t -statistics for the regression estimates likely are:

- A) biased upward.**
- B) biased downward.
- C) unbiased.

Explanation

Clark finds that the correlation between the regression errors across time was very close to 1, indicating the presence of significant positive serial correlation. Positive serial correlation causes the standard errors to be too small, which then causes the t -statistics to be too large (biased upward).

For Further Reference:

(Study Session 2, Module 5.7, LOS 5.k)

Question #12 of 60

Question ID: 1212726

Clark's two documented findings related to his examination of the regression errors should lead to the conclusion that Clark's regression equation exhibits strong evidence of:

A) conditional heteroskedasticity.

B) multicollinearity.

C) unit roots.

Explanation

A regression exhibits conditional heteroskedasticity if the variance of the regression errors are not constant and are related to the regression independent variables. Clark's Finding 2 indicates that his regression exhibits conditional heteroskedasticity.

For Further Reference:

(Study Session 2, Module 5.6, LOS 5.k)

Questions #13-18 of 60

Use the following information to answer Questions 73 through 78.

Curtis Fox, an equity analyst for Altex Investments, is reviewing financial statements for Hope Manufacturing and Levitt Industries. Hope Manufacturing has recently stated its intention to acquire a 20% stake in Levitt Industries for \$185 million cash. Both companies are U.S. companies that follow U.S. GAAP.

Fox wants to consolidate his pro-forma financial statements for the two companies to see the effects of the proposed acquisition. Following are the most recent balance sheets and the pro-forma income statements developed by Fox before taking into account the acquisition.

Pre-Acquisition Balance Sheets (in million \$)		
December 31, 2010	Hope	Levitt
Current assets	13,900	716
PP&E	<u>26,977</u>	<u>108</u>
Total assets	<u>40,877</u>	<u>824</u>
Current liabilities	10,363	220
Other liabilities	11,121	8
Common stock	6,127	108
Retained earnings	<u>13,266</u>	<u>488</u>
Total liabilities and equity	<u>40,877</u>	<u>824</u>

Pro-Forma Income Statements (in million \$)		
for Year Ending December 31, 2011	Hope	Levitt

Revenue	66,176	2,176
Expenses	<u>63,515</u>	<u>2,068</u>
Net income	<u>2,661</u>	<u>108</u>
Dividends	1,525	0

Fox is concerned about the effect that the choice of accounting method will have on the earnings and financial ratios of Hope. Fox consults with Jeffery Gordon, who tells him, "Since Levitt is profitable and pays no dividends, the equity method will result in higher net income than the acquisition method. Additionally, the equity method will result in lower return on assets (ROA) than the acquisition method with partial goodwill."

Question #13 of 60

Question ID: 1212728

Assuming the acquisition goes through at the beginning of 2011, and that Hope will have a significant influence on Levitt, Hope's total assets after acquisition would be *closest* to:

- A) \$40,877.
- B) \$41,062.
- C) \$41,701.

Explanation

The accounting for an ownership interest of between 20% and 50% in an associate is handled using the equity method. Under the equity method, the initial investment is recorded at cost and reported on the balance sheet as a noncurrent asset. Because the acquisition in this case is fully funded by cash, there will be no change to total assets for Hope.

For Further Reference:

(Study Session 5, Module 13.3, LOS 13.a)

Question #14 of 60

Question ID: 1212729

Fox estimates that the fair value of Levitt's PP&E is \$250 million. The amount allocated to goodwill would be *closest* to:

- A) \$20.2 million.
- B) \$37.4 million.
- C) \$65.8 million.

Explanation

Hope is acquiring a 20% stake in Levitt for \$185 million. The pro-rata book value of Levitt's net assets is \$119.20 million ($= 0.2 \times [\$824 \text{ million} - \$220 \text{ million} - \$8 \text{ million}]$). The amount of excess purchase price that should be allocated to PP&E is \$28.4 million ($= 0.2 \times [\$250 \text{ million} - \$108 \text{ million}]$). Goodwill is then computed as:

Purchase price: \$185.0 million

Less: pro-rata book value of net assets: \$119.2 million

Excess of purchase price:	\$65.8 million
Less: excess allocated to PP&E:	<u>\$28.4 million</u>
Goodwill:	\$37.4 million

For Further Reference:

(Study Session 5, Module 13.7, LOS 13.a)

Question #15 of 60

Question ID: 1212730

For this question only, assume that as a result of the acquisition, Hope must depreciate an additional \$50 million (Hope's share of the FMV adjustment) over a 10-year period to zero salvage value. Levitt's contribution to Hope's net income for 2011 is projected to be *closest* to:

- A) \$16.6 million.
- B) \$18.8 million.
- C) \$21.6 million.

Explanation

Hope's proportionate share of Levitt's net income is \$21.6 million ($= 0.2 \times \108 million). Levitt's contribution to Hope's net income is then computed as:

Hope's proportionate share of Levitt's net income:	\$21.6 million
Less: additional depreciation expenses:	<u>\$5.0 million</u>
Equity income:	\$16.6 million

For Further Reference:

(Study Session 5, Module 13.6, LOS 13.a)

Question #16 of 60

Question ID: 1212731

For this question only, assume the acquisition occurs on December 31, 2010, and that there is no additional depreciation expense as a result of the acquisition. Compared to its beginning of year investment balance, the balance for Hope's investment in Levitt on December 31, 2011, will be:

- A) lower.
- B) higher.
- C) unchanged.

Explanation

No calculations are required to solve this problem. The increase/decrease to Hope's investment balance is equal to the investment balance at the beginning of year plus equity income less dividends paid. The equity income is positive

because Levitt had positive net income, and there is no additional depreciation expense to subtract. Additionally, Levitt is not expected to make any dividend payments for 2011. Based on this, Hope's investment balance will increase.

For Further Reference:

(Study Session 5, Module 13.7, LOS 13.a)

Question #17 of 60

Question ID: 1212732

Is Gordon's statement regarding the effects of the choice of accounting method on net income and ROA correct?

- A) Yes.
- B) No, he is incorrect regarding the effect on ROA.
- C) No, he is incorrect regarding the effect on net income and ROA.**

Explanation

Both the acquisition method and equity method will report the same net income. The acquisition method (under either partial or full goodwill) will report higher assets than the equity method and hence ROA would be lower under the acquisition method compared to under the equity method.

For Further Reference:

(Study Session 5, Module 13.9, LOS 13.c)

Question #18 of 60

Question ID: 1212733

If Fox were to follow IFRS instead of U.S. GAAP, the accounting method prescribed for this type of investment would *most likely* be:

- A) the equity method.**
- B) the acquisition method.
- C) proportionate consolidation.

Explanation

When the investment constitutes 20% to 50% of the associate, and the investor has significant influence on the associate, IFRS prescribes the equity method for accounting for the investment.

For Further Reference:

(Study Session 5, Module 13.1, LOS 13.b)

Questions #19-24 of 60

Use the following information to answer Questions 79 through 84.

Fashion, Inc., is a major U.S. distributor of high-quality women's jewelry and accessories. The company's growth in recent years has been moderately above the industry average. However, competition is intensifying as a number of overseas competitors have entered this mature market. Although Fashion has been a publicly held company for many years, members of senior management and their families control 20% of the outstanding common stock. Martin Silver, the chief executive officer, has been under intense pressure from both internal and external large shareholders to find ways to increase the company's future growth.

Silver has consulted with the company's investment bankers concerning possible merger targets. The most promising merger target is Flavoring International, a distributor of a broad line of gourmet spices in the United States and numerous other countries. In recent years, Flavoring's earnings growth rate has been above competitors' and also has exceeded Fashion's experience. Superior income growth is projected to continue over at least the next five years. Silver is impressed with the appeal of the company's products to upscale customers, its strong operating and financial performance, and Flavoring's dynamic management team. He is contemplating retirement in three years and believes that Flavoring's younger, more aggressive senior managers could boost the combined company's growth through increasing Fashion's operating efficiency and expanding Fashion's product line in countries outside the United States. Alan Smith, who is Silver's key contact at the investment banking firm, indicates that a key appeal of this merger to Flavoring would be Fashion's greater financial flexibility and access to lower cost sources of financing for expansion of its products in new geographic areas. Fashion has a very attractive performance based stock option plan. Flavoring's incentive plan is entirely based on cash compensation for achieving performance goals. Additionally, the 80% of Fashion's stock not controlled by management interests is very widely held and trades actively. Flavoring became a publicly held company three years ago and doesn't trade as actively.

Silver has asked Smith to prepare a report summarizing key points favoring the acquisition and an acceptable acquisition price. In preparing his report, Smith relies on the following financial data on Fashion, Flavoring, and four recently acquired food and beverage companies.

Exhibit 1: Financial and Market Data for Fashion, Inc., and Flavoring International

Financial/Price Data	Fashion	Flavoring
Sales	\$400 million	\$105 million
Net income	\$80 million	\$22 million
Cash flow	\$140 million	\$42 million
Book value	\$320 million	\$72 million
Number of common shares outstanding	50 million	20 million
Current market price of common stock	\$30.50	\$20.00
Recent market price range	\$34–26	\$22–18

Exhibit 2: Transaction Data for Food and Beverage Industry

Valuation Variables	Jones Foods	Dale, Inc.	Hill Brands	Lane Co.	Mean Multiple
Acquisition stock price	\$24	\$32	\$40	\$46	—
Price/sales per share	5.0	3.7	4.0	3.8	4.13
Price/book value per share	6.9	5.5	5.8	5.6	5.95

Price/earnings per share	20.0	22.1	18.0	19.0	19.78
Price/cash flow per share	11.8	13.0	10.5	11.0	11.58

Question #19 of 60

Question ID: 1212735

The strongest motivations for Fashion to acquire Flavoring would *most likely* be:

- A) the potential to increase Fashion's growth and market power.
- B) the potential to create synergies and increase market power.
- C) Fashion management's incentives and diversification.**

Explanation

Management incentives are a key factor in light of Mr. Silver's desire to retire in three years and his interest in Flavoring management's capabilities to help guide the combined firm. Diversification is another key motivation because Flavoring's products are consumer based but serve a different market than Fashion's focus on consumer accessories. Because the companies have different product lines, synergies in the form of cost savings or revenue enhancement are unlikely to occur. In addition, the companies are in very different industries, making increased market power in either industry unlikely to occur as a result of the merger.

For Further Reference:

(Study Session 8, Module 23.1, LOS 23.b, 23.d)

Question #20 of 60

Question ID: 1212736

The *least likely* reason that Flavoring's management would favor an acquisition by Fashion would be:

- A) Flavoring management's incentives.
- B) opportunities to utilize Fashion's larger financial resources to increase market share of both companies.
- C) opportunities to utilize Fashion's financial resources to expand the combined company's product line into the higher volume moderately priced market segment.**

Explanation

Opportunities to expand its products into different segments of the market for spices are not indicated in the vignette. Flavoring's management appears more interested in geographic expansion of its existing product line.

For Further Reference:

(Study Session 8, Module 23.1, LOS 23.b)

Question #21 of 60

Question ID: 1212737

If Fashion issues common stock at the current market price and uses the proceeds to acquire Flavoring's outstanding common stock, the bootstrap earnings effect on post merger earnings would *most likely* occur if Flavoring's acquisition price is \$20 or:

- A) lower.
- B) higher.
- C) lower and Fashion's post merger P/E remains at the current level.

Explanation

The bootstrap effect will only occur when Fashion's P/E ratio is higher than Flavoring's and Fashion's P/E post merger does not decline. At the current market price of \$30.50, Fashion's P/E is 19.1, based on earnings per share of \$1.60 (\$80 million earnings / 50 million shares). At its current market price of \$20 and earnings per share of \$1.10 (\$22 million earnings/20 million shares), Flavoring's stock's P/E is 18.2x. Therefore, the combined earnings per share after the merger would be higher if Fashion issued stock at the current price and bought Flavoring at \$20 or less per share.

For Further Reference:

(Study Session 8, Module 23.1, LOS 23.c)

Question #22 of 60

Question ID: 1212738

Using the comparable transaction approach based on the four recently acquired companies, Smith determines an estimated takeover value based on equally weighted key valuation variables. The estimated takeover value would be *closest* to:

- A) \$20.27.
- B) \$21.76.
- C) \$22.30.

Explanation

The following statistics show calculations of estimated takeover value using equal weighting.

Estimated Takeover Value	Flavoring	Mean Multiple	Price/Share	Equal Weight	Est. Value
Sales per share	\$5.25	4.13	\$21.68	0.25	\$5.42
Book value per share	\$3.60	5.95	\$21.42	0.25	\$5.36
Earnings per share	\$1.10	19.78	\$21.76	0.25	\$5.44
Cash flow per share	\$2.10	11.58	\$24.32	0.25	\$6.08
Total estimated value					\$22.30

For Further Reference:

(Study Session 8, Module 23.3, LOS 23.j)

Question #23 of 60

Question ID: 1212739

Based on pre-acquisition prices of \$20 for Jones Foods, \$26 for Dale, Inc., \$35 for Hill Brands, and \$40 for Lane Co., the mean takeover premium for Flavoring would be *closest* to:

- A) 12.50%.
- B) 15.25%.
- C) **18.10%.**

Explanation

The takeover premium can be based on various statistics (mean, median, mode) of takeover premiums observed for comparable companies. In this case, the takeover premium is based on equally weighting the takeover premium for the four recently acquired companies.

	Jones Foods	Dale, Inc.	Hill Brands	Lane Co.	Mean
Preacquisition price (A)	\$20	\$26	\$35	\$40	—
Acquisition price (B)	\$24	\$32	\$40	\$46	—
Takeover premium = (B – A) / A	20.0%	23.1%	14.3%	15.0%	18.1%

For Further Reference:

(Study Session 8, Module 23.3, LOS 23.j)

Question #24 of 60

Question ID: 1212740

To justify his use of the comparable transaction approach to establish a fair acquisition for Flavoring, Smith would like to conclude his report with the most important reason for choosing this approach. Which of the following rationales would Smith *most likely* use?

- A) **The fair acquisition price developed for Flavoring reflects a market based valuation approach, an advantage compared to discounted cash flow valuations, which are based on assumptions that do not incorporate market valuations.**
- B) The acquisition prices for recently acquired companies provide a reasonable approximation of their realistic intrinsic values.
- C) The fair acquisition price developed for Flavoring is a realistic estimate of potential value to Fashion given that forecasts of future performance are unavailable.

Explanation

This is a key reason to use the comparable value method, particularly when contrasted with the use of discounted cash flow valuations. Acquisition prices are not necessarily approximations of intrinsic values. A price developed based on comparable transactions does not always indicate the potential value of the acquisition to the purchaser.

For Further Reference:

(Study Session 8, Module 23.3, LOS 23.h)

Questions #25-30 of 60

Use the following information to answer Questions 85 through 90.

James Kelley is the CFO of X-Sport, Inc., a manufacturer of high-end outdoor sporting equipment. Using both debt and equity, X-Sport has been acquiring small competitor companies rather rapidly over the past few years, leading Kelley to believe that the firm's capital structure may have drifted from its optimal mix. Kelley has been asked by the board of directors to evaluate the situation and provide a presentation that includes details of the firm's capital structure as well as a risk assessment. In order to assist with his analysis, Kelley has collected information on the current financial situation of X-Sport. He has also projected the financial information for alternative financing plans. This information is presented in Exhibit 1.

Exhibit 1: Selected X-Sport, Inc., Financing Plans

	X-Sport, Inc.					Industry Average
	Current	Plan A	Plan B	Plan C	Plan D	
Debt/equity	1.50	2.33	1.86	1.22	0.82	1.27
K_d (after-tax)	5.0%	8.5%	6.2%	4.4%	3.9%	5.9%
K_e	12.0%	16.0%	13.5%	11.2%	10.9%	12.8%
Expected EPS	\$5.67	\$6.00	\$6.33	\$5.47	\$4.89	\$6.31
Payout ratio	45%					42%
Growth rate	6.1%					5.9%
Stock price	\$43					

After carefully analyzing the data, Kelley writes his analysis and proposal and submits the report to Richard Haywood, the chairman and CEO of X-Sport. Excerpts from the analysis and proposal follow:

- In selecting a refinancing plan, we must not push our leverage ratio too high. An overly aggressive leverage ratio will likely cause debt rating agencies to downgrade our debt rating from its current Baa rating, causing our cost of debt to rise dramatically. This effect is explained using the static trade-off capital structure theory, which states that if our debt usage becomes high enough, the marginal increase in the interest tax shield will be more than the marginal increase in the costs of financial distress. However, using some additional leverage will benefit the company by reducing the net agency costs of equity required to align the interests of X-Sport management with its shareholders.
- In the event that X-Sport decides to proceed with a recapitalization plan, I recommend Plan D because it is the most consistent with the shareholders' interests.

Haywood reviews the report and calls Kelley into his office to discuss the proposal. Haywood suggests that Plan B would be the most appropriate choice for adjusting X-Sport's capital structure. Before Kelley can argue, however, the two are interrupted by a previously scheduled meeting with a supplier.

Haywood takes Kelley's data and proposes to the board of directors that X-Sport pursue one of three alternatives to restructure the company. The first alternative is Plan B from Kelley's analysis. The second alternative involves separating GearTech, one of the companies acquired over the last few years, from the rest of the company by issuing new GearTech shares to X-Sport common shareholders. The third alternative involves creating a new company, Euro-Sport, out of the

firm's European operations and selling 35% of the new Euro-Sport shares to the public while retaining 65% of the shares within X-Sport. After some persuading, Haywood convinces the 7-member board (two of whom were former executives at GearTech) to accept the second alternative, which he had favored from the beginning. The board puts together an announcement to its shareholders as well as the general public, detailing the terms and goals of the plan.

One of the board members, Michael Ponting, points out that there are several theories of optimal capital structure. Ponting makes the following statements:

- Statement 1: Miller and Modigliani Proposition II (without taxes) states that cost of equity is not affected by capital structure changes.
- Statement 2: Pecking order theory states that debt financing is preferable to all equity financing.
- Statement 3: Static trade-off theory states that all firms have an optimal level of debt.

A group of shareholders, upset about the board's plan, submit a formal objection to X-Sport's board as well as to the SEC. In the objection, the shareholders state that the independence of the board has been compromised to the detriment of the company and its shareholders. The objection also states that:

- The value of X-Sport's common stock has been impaired as a result of the poor corporate governance system.
- X-Sport's management has violated stewardship codes.
- The executives in the supervisory board should ideally be the same as those in the management board.

Question #25 of 60

Question ID: 1212742

Using the information in Exhibit 1, calculate X-Sport's weighted average cost of capital for the optimal capital structure.

- A) 7.46%.
- B) 7.75%.
- C) 8.76%.

Explanation

Begin by calculating the capital structure of each plan and then multiply the percentage of debt and equity by their component costs and add the results to find the weighted average cost of capital (WACC). The plan with the lowest WACC maximizes the firm's stock price and thus reflects the optimal capital structure. In this case, Plan C meets all the criteria for optimizing X-Sport's capital structure. Plan C's debt-to-equity ratio is 1.22. Thus, there are 1.22 units of debt for every one unit of equity for a total of 2.22 units of capital. Therefore, the percentage of debt is $1.22 / 2.22 = 55\%$, leaving 45% equity. Thus, the WACC for Plan C is: $(0.55 \times 4.4\%) + (0.45 \times 11.2\%) = 7.46\%$.

Repeating these calculations for Plans A, B, and D, we find that the WACCs are 10.75%, 8.76%, and 7.75%, respectively.

For Further Reference:

(Study Session 7, Module 20.2, LOS 20.b)

Question #26 of 60

Question ID: 1212743

Determine whether Kelley's report is correct with regard to the statements made about the static trade-off theory of capital structure and the net agency costs of equity.

- A) Kelley is only correct with respect to the static trade-off theory.
- B) Kelley is only correct with respect to the net agency cost of equity.**
- C) Kelley is incorrect with respect to the static trade-off theory and the net agency cost of equity.

Explanation

Kelley's report is incorrect regarding the static trade-off theory of capital structure, which states that a company should lever up to the point at which the additional increase in the costs of financial distress exceeds the additional increase in the tax shield from interest rate payments. Once this point is reached, adding more leverage to the company will decrease its value. Kelley's report is correct regarding the net agency costs of equity. Agency costs include equity holders' cost to monitor the firm's executives, management's bonding costs to assure owners that their best interests are guiding the company's actions, and residual losses that result even when sufficient monitoring and bonding exists. Adding additional debt reduces the agency costs to equity holders because less of their capital is at risk. The leverage effectively shifts some agency costs to bondholders. Additionally, managers have less cash to squander when higher leverage is employed because higher interest costs will restrict discretionary free cash flow.

For Further Reference:

(Study Session 7, Module 20.1, LOS 20.a)

Question #27 of 60

Question ID: 1212744

Which of the following *best* explains the difference between X-Sport's current cost of debt and the cost of debt associated with Plan A?

- A) Decreased tax advantage with Plan A.
- B) Increased liquidity risk for Plan A bond purchasers.
- C) Increased probability of bankruptcy with Plan A.**

Explanation

The most likely difference in the cost of debt financing between the current level of 5.0% and the 8.5% for Plan A is that there is a greater probability of bankruptcy. Using the debt-to-equity ratio, we observe that Plan A calls for $2.33 / (2.33 + 1) = 70\%$ debt financing, which is a very large proportion of the capital structure. The chances of bankruptcy are much greater with this heavy reliance on debt financing.

For Further Reference:

(Study Session 7, Module 20.2, LOS 20.a)

Question #28 of 60

Question ID: 1212745

Which of the statements made by Ponting is correct?

- A) Only Statement 1 is correct.
- B) Only Statement 2 is correct.**

C) Only Statement 3 is correct.

Explanation

Miller and Modigliani Proposition II states that the cost of equity is a linear function of a company's debt/equity ratio. Pecking-order theory prefers internally generated equity (retained earnings) over new debt and new debt over new equity. Static trade-off theory states that the optimal level of debt is achieved when the extra cost of financial distress equals the tax benefit of debt.

For Further Reference:

(Study Session 7, Module 20.1, LOS 20.a)

Question #29 of 60

Question ID: 1212746

Which of the following statements with regard to the alternative plans proposed to X-Sport's board of directors by Haywood is correct?

- A) The GearTech plan is an example of a spin-off transaction, while the Euro-Sport plan is an example of a carve-out transaction.**
- B) The GearTech plan is an example of a carve-out transaction, while the Euro-Sport plan is an example of a spin-off transaction.
- C) Both the GearTech plan and the Euro-Sport plans are examples of spin-off transactions.

Explanation

Spin-off transactions involve creating a new entity out of a company's business line or one of its subsidiaries and then granting shares in the new entity to the existing shareholders of the parent company. The shareholders are then free to sell their shares in the spin-off company in the marketplace. Spin-offs are generally viewed as a favorable sign in the market because they often result in greater efficiency for the spin-off company and the parent company. In a carve-out transaction, a new entity is created in a similar manner to the spin-off transaction. The main difference is that a minority of shares is sold to the public while the majority portion of the new shares are held by the parent company (they are not distributed to existing shareholders).

For Further Reference:

(Study Session 8, Module 23.4, LOS 23.n)

Question #30 of 60

Question ID: 1212747

Evaluate the three statements in the shareholders' formal objection submitted to X-Sport's board of directors. The objection is *most likely* to be correct with regard to:

- A) the value impact.
- B) the stewardship codes.
- C) the supervisory and management board.**

Explanation

X-Sport's board of directors suffers from a lack of independence from management. The most pressing issue is that the CEO of the company, Richard Haywood, is also the chairman of the board. Judging by his ability to convince the board of his plan to spin off GearTech, Haywood exerts an excessive degree of influence over the board. This lack of independence could negatively impact the value of X-Sport common stock because investors will demand a higher risk premium for holding the stock because there is significant risk that management will not act in the shareholders' best interest. Specifically, there is a great risk (as evidenced by their quick decision to spin off GearTech) that management will enter into future transactions (such as mergers, acquisitions, and divestitures) and assume business risks that are in management's interest but not in the shareholders' best interest. Countries with stewardship code compel some investors, (e.g., institutional investors) to "comply or explain" investor corporate governance engagement with respect to the stewardship code. There is no clear evidence here of a violation of stewardship codes. Countries with dual tier boards have independent (non-executive) members on a supervisory board.

For Further Reference:

(Study Session 8, Module 22.1, LOS 22.a)

Questions #31-36 of 60

Use the following information to answer Questions 91 through 96.

Marie Williams, CFA, and David Pacious, CFA, are portfolio managers for Stillwell Managers. Williams and Pacious are attending a conference held by Henri Financial Education on the fundamentals of valuation for common stock, preferred stock, and other assets.

During the conference, the presenter uses an example of four different companies to illustrate the valuation of common stock from the perspective of a minority shareholder.

- Firm A is a noncyclical consumer products firm with a 50-year history. The firm pays a \$1.80 dividend per share and attempts to increase dividends by 4% a year. Earnings and dividends have steadily increased for the past 20 years.
- Firm B is a technology firm. It has never paid a dividend and does not expect to in the near future. Furthermore, due to large investments in new factories and equipment, the firm is not expected to generate positive free cash flow in the foreseeable future.
- Firm C is an industrial firm with currently very little competition and a dividend growth rate of 9% a year. However, the profits in its product market have started to attract competitors and it is expected that Firm C's profits will slowly decline such that the dividend growth steadily falls each year until it reaches a growth rate of 4% a year.
- Firm D is a pharmaceutical firm that is currently enjoying high profits and paying dividends. However, the firm's strongest selling drug is coming off patent in three years. With no other drugs in the pipeline, the firm's dividend growth rate is expected to drop abruptly in three years and settle at a lower growth rate.

The next day, Pacious decides to put what he learned into practice. The stock he is valuing, Maple Goods and Services, currently pays a dividend of \$3.00. The dividend growth rate is 25% and is expected to steadily decline over the next eight years to a stable rate of 7% thereafter. Given its risk, Pacious estimates that the required return is 15%.

Williams analyzes the value of Mataka Plastics stock. Its dividend is expected to grow at a rate of 18% for the next four years, after which it will grow at 4%. This year's dividend is \$5.00 and Williams estimates the required return at 15%.

From the seminar, Pacious learned that a firm's health can be gauged by the present value of its future investment opportunities (PVGO). Tackling a calculation, he uses the following example for Wood Athletic Supplies:

Stock price	\$90.00
Current earnings	\$5.50
Expected earnings	\$6.00
Required return on stock	15%

Pacious and Williams discuss the characteristics of firms in various stages of growth, where firms experience an initial growth phase, a transitional phase, and a maturity phase in their life. They both agree that the Gordon Growth Model (GGM) is not always appropriate. Pacious makes the following statements.

- Statement 1: For firms in the initial growth phase, earnings are rapidly increasing, there are little or no dividends, and there is heavy reinvestment. The return on equity is, however, higher than the required return on the stock, the free cash flows to equity are positive, and the profit margin is high.
- Statement 2: When estimating the terminal value in the 3-stage dividend growth model, it can be estimated using the Gordon Growth Model or a price-multiple approach.

Question #31 of 60

Question ID: 1212749

Which of the following *best* describes the appropriate valuation models for the Henri presentation scenarios?

- A) Firm A should be valued using a free cash flow model. Firm B should be valued using a free cash flow model.
- B) Firm A should be valued using a dividend discount model. Firm B should be valued using a residual income model.**
- C) Firm A can be valued using either a free cash flow model or a dividend discount model. Firm B should be valued using a residual income model.

Explanation

Firm A should be valued using the one-period dividend discount model. The firm has a history of dividend payments, the dividend policy is clear and related to the earnings of the firm, and (as stated in the presentation) the perspective is that of a minority shareholder. A free cash flow model is more appropriate when examining the perspective of a controlling shareholder.

Firm B should be valued using a residual income model. The residual income approach is most appropriate for firms that do not have dividend histories, have transparent financial reporting, and have negative free cash flow for the foreseeable future (usually due to capital demands).

For Further Reference:

(Study Session 10, Module 27.1, LOS 27.a)

Question #32 of 60

Question ID: 1212750

Which of the following *best* describes the appropriate valuation techniques for the Henri presentation scenarios?

- A) Firm C should be valued using a 2-stage dividend discount model. Firm D should be valued using an H dividend discount model.
- B) Firm C should be valued using an H dividend discount model. Firm D should be valued using a 2-stage dividend discount model.**
- C) Both Firms C and D should be valued using the H dividend discount model.

Explanation

Firm C should be valued using an H dividend discount model. A firm that has little competition now, but has competition that is expected to increase, is a candidate for the H-model. Growth can be expected to decline as competitors enter the market. Growth then stabilizes as the industry matures.

Firm D should be valued using a two-stage dividend discount model. A firm that is expected to have a high rate of growth until patents expire, for example, should be modeled by the two-stage model, with one rate of growth before the patent expires and another rate thereafter.

For Further Reference:

(Study Session 10, Module 27.3, LOS 27.i)

Question #33 of 60

Question ID: 1212751

Which of the following is *closest* to the current value for Maple Goods and Services stock?

- A) \$15.90.
- B) \$49.13.
- C) \$67.13.**

Explanation

The firm should be valued using an H dividend discount model given that an initially high rate of growth declines linearly over a specified period. The formula is:

$$V_0 = \frac{[D_0 \times (1 + g_L)] + [D_0 \times H(g_S - g_L)]}{r - g_L}$$

where:

$$H = \left(\frac{t}{2} \right) = \text{half-life (in years) of high-growth period}$$

where:

t = length of high-growth period

g_S = short-term growth rate

g_L = long-term growth rate

r = required return

Using the figures for Maple:

$$V_0 = \frac{[\$3.00 \times (1 + 0.07)] + [\$3.00 \times \left(\frac{8}{2}\right) \times (0.25 - 0.07)]}{0.15 - 0.07} = \$67.13$$

For Further Reference:

(Study Session 10, Module 27.3, LOS 27.I)

Question #34 of 60

Question ID: 1212752

Which of the following is *closest* to the current value for Mataka Plastics stock?

- A) \$62.49.
- B) \$73.73.**
- C) \$81.60.

Explanation

If you grow the \$5.00 dividend out for four years at 18%, the first four dividends are:

D_1	D_2	D_3	D_4
\$5.90	\$6.96	\$8.22	\$9.69

D_5 is then $D_4 \times 1.04 = \$10.0816$. Discounting the first four dividends at 15%, you obtain:

$PV(D_1)$	$PV(D_2)$	$PV(D_3)$	$PV(D_4)$
\$5.13	\$5.26	\$5.40	\$5.54

Discounting the dividends from the end of Year 4 to perpetuity using the dividend discount model, you obtain:

$10.0816 / (0.15 - 0.04) = \91.65 . Discounting this figure back to the present, you have $91.65 / (1.15^4) = \$52.40$.

Summing up the present values of all the above ($5.13 + 5.26 + 5.40 + 5.54 + 52.40$), you have a total price of \$73.73.

Note that your answer may differ slightly from the answer above due to rounding.

For Further Reference:

(Study Session 10, Module 27.3, LOS 27.I)

Question #35 of 60

Question ID: 1212753

Which of the following is *closest* to the percent of Wood Athletic Supplies leading P/E related to PVGO?

- A) 56%.**
- B) 59%.
- C) 69%.

Explanation

The stock price represents the present value of the future dividends (on a no-growth basis) and the present value of the growth opportunities (PVGO):

$$\text{value} = \frac{E_1}{r} + \text{PVGO}$$

Thus the value of a firm's equity has two components: the value of its assets in place (E_1/r) and the present value of its future investment opportunities (PVGO).

$$90 = \frac{6}{0.15} + \text{PVGO}$$

$$\text{PVGO} = 50$$

The P/E for the firm is $90 / 6 = 15.00$.

The P/E of the PVGO is $50 / 6 = 8.33$.

The percentage of Wood Athletic Supplies leading P/E related to PVGO is then $8.33 / 15.00 = 56\%$.

For Further Reference:

(Study Session 10, Module 27.2, LOS 27.e)

Question #36 of 60

Question ID: 1212754

Regarding Pacious's statements on the stages of growth and the Gordon Growth Model, are both statements correct?

- A) Yes.
- B) No, only Statement 2 is correct.
- C) No, both statements are incorrect.

Explanation

Statement 1 is incorrect. All of Pacious's description of the initial growth phase is correct except that, in this stage, the free cash flows to equity are actually negative. This is due to the heavy capital investment. Statement 2 is correct. The terminal value in the three-stage dividend growth model can be estimated using either approach.

For Further Reference:

(Study Session 10, Module 27.3, LOS 27.j, 27.k)

Questions #37-42 of 60

Use the following information to answer Questions 97 through 102.

Asante Bizou is an equity analyst for Alpha, Inc., a boutique consulting firm in San Jose, CA. Alpha is providing consulting services to Prizm's board in evaluating the performance of Prizm's management. Bizou reviews Prizm's key financial data for the past three years.

Selected information from Prizm's financial statements is given in Exhibit 1.

Exhibit 1: Selected Prizm Financial Data

	20X4	20X5	20X6
Income Statement	\$m	\$m	\$m
Sales	40.2	42.3	43.9
Cost of goods sold	(11.6)	(12.3)	(12.8)
Gross profit	28.6	30.0	31.1
Administrative expenses	(10.0)	(10.0)	(3.0)
Earnings before interest and tax	18.6	20.0	28.1
Interest	(6.3)	(6.3)	(4.2)
Earnings before tax	12.3	13.7	23.9
Tax	(5.1)	(5.6)	(11.4)
Net income	7.2	8.1	12.5
Dividends	(3.0)	(3.1)	(3.2)
Retained income	4.2	5.0	9.3

Exhibit 1: Selected Prizm Financial Data (continued)

	20X3	20X4	20X5	20X6
Balance Sheet at 31 December	\$m	\$m	\$m	\$m
Working capital	24.0	25.6	27.2	32.4
Fixed assets	<u>76.0</u>	<u>78.6</u>	<u>82.0</u>	<u>78.1</u>
Total assets	<u>100.0</u>	<u>104.2</u>	<u>109.2</u>	<u>110.5</u>
Liabilities	24.0	24.0	24.0	16.0
Common stock	20.0	20.0	20.0	20.0
Additional paid up capital	10.0	10.0	10.0	10.0
Retained income	<u>46.0</u>	<u>50.2</u>	<u>55.2</u>	<u>64.5</u>
	<u>100.0</u>	<u>104.2</u>	<u>109.2</u>	<u>110.5</u>
Market value of equity				
(31 December)	167	203	199	145

Other information:

- Beta of firm = 1.

- Debtholders' required rate of return: 5%.
- Equity holders' required rate of return: 15%.
- After tax WACC: 12.5%.
- Tax rate: 45%.

Notes:

1. Depreciation included in cost of goods sold and administrative expenses is 12m, 10.5m, and 9.6m for 20X6, 20X5, and 20X4, respectively.
2. \$8m of debt was redeemed at the end of 20X6.
3. Other than the debt redeemed in 20X6, Prizm's liabilities consist mostly of long-term debt valued approximately at book value.
4. Replacement value of assets is roughly equal to book value minus 4%.

Question #37 of 60

Question ID: 1212756

In computing EVA®, which of the following adjustments made by an analyst would be *least appropriate*?

- A) Add LIFO reserve to total capital.
- B) Expense R&D instead of capitalizing it.**
- C) Eliminate deferred taxes and consider only cash taxes as an expense.

Explanation

R&D should be capitalized and amortized rather than expensing when incurred. The other adjustments are appropriate.

For Further Reference:

(Study Session 11, Module 30.1, LOS 30.a)

Question #38 of 60

Question ID: 1212757

Prizm's EVA® for 20X6 is *closest* to:

- A) negative \$1.3 million.
- B) negative \$1.2 million.
- C) positive \$1.8 million.**

Explanation

$$\text{EVA} = \text{NOPAT} - \$\text{WACC}$$

$$\text{NOPAT} = \text{EBIT} \times (1 - t) = 28.1 \times (1 - 0.45) = 15.455$$

$$\$WACC = \text{WACC} \times \text{total capital} = 12.5\% \times 109.2 = \$13.65\text{m}$$

For EVA computation, we need beginning 20X6 total capital (i.e., 20X5 ending).

$$\text{EVA} = 15.455 - 13.65 = \$1.805\text{m}$$

For Further Reference:

(Study Session 11, Module 30.1, LOS 30.a)

Question #39 of 60

Question ID: 1212758

Prizm's residual income for 20X6 is *closest* to:

- A) **−\$0.3 million.**
- B) \$0.7 million.
- C) \$2.5 million.

Explanation

Residual income = accounting profit (after tax and interest) minus a charge for equity capital employed.

Net income for 20X6	12.5
Beg. stockholders' equity	85.2 ¹
(−)Cost of equity @ 15%	<u>(12.78)</u>
(=) Residual income	<u>(0.28)</u>

¹Beginning stockholders' equity = 20X5 ending stockholders' equity = common stock + additional paid-in capital + retained income = 20 + 10 + 55.2 = 85.2.

For Further Reference:

(Study Session 11, Module 30.1, LOS 30.a)

Question #40 of 60

Question ID: 1212759

Prizm's Market Value Added (MVA) as of fiscal year-end 20X6 is *closest* to:

- A) \$9.3 million.
- B) \$12.5 million.
- C) **\$50.5 million.**

Explanation

$$\begin{aligned}
 \text{market value added} &= \text{market value of (total) capital} - \text{book value of capital} \\
 &= (145 + 16) - (94.5 + 16) \\
 &= \$50.5\text{m}
 \end{aligned}$$

For Further Reference:

(Study Session 11, Module 30.1, LOS 30.a)

Question #41 of 60

Question ID: 1212760

Prizm's free cash flow to equity (FCFE) for 20X6 is *closest* to:

- A) 3 million.
- B) 13 million.
- C) 15 million.

Explanation

$$\text{WCInv} = 32.4 - 27.2 = 5.2$$

$$\text{FCInv} = (\text{ending FA} - \text{beginning FA} + \text{depreciation}) = 78.1 - 82.0 + 12 = 8.1$$

$$\text{Net borrowing} = 16 - 24 = -8$$

$$\begin{aligned} \text{FCFE} &= \text{NI} + \text{depreciation} - \text{WCInv} - \text{FCInv} + \text{net borrowing} \\ &= 12.5 + 12 - 5.2 - 8.1 - 8 = 3.2 \end{aligned}$$

For Further Reference:

(Study Session 11, Module 28.4, LOS 28.d)

Question #42 of 60

Question ID: 1212761

For this question only, assume that the chairman has drawn up budgetary forecasts for 20X7 that suggest that residual income will be \$5m for the year ahead. You believe that this will increase by 5% per year for the foreseeable future.

Using the residual income method, the value of Prizm's equity as of 31st December 20X6 is *closest* to:

- A) \$144.5 million.
- B) \$147.0 million.
- C) \$177.2 million.

Explanation

Value of equity = book value of equity + PV of residual income

Value as of 31 December 20X6:

$$= 94.5 + [5 / (0.15 - 0.05)]$$

$$= \$144.5\text{m}$$

For Further Reference:

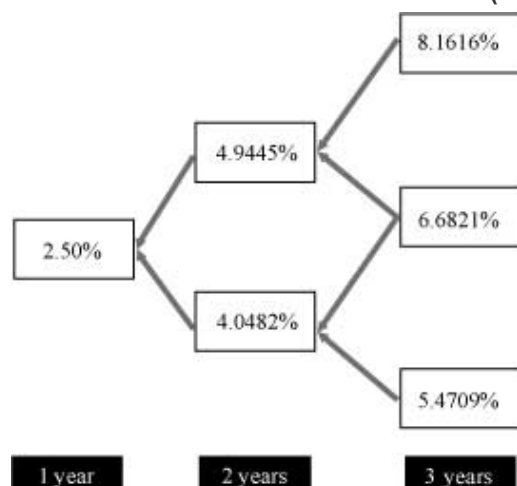
(Study Session 11, Module 30.1, LOS 30.a)

Questions #43-48 of 60

Use the following information to answer Questions 103 through 108.

Juanita Joplin has just begun her summer internship in the bond trading department of Bearclaw Bank NA. Joplin is assigned to Suzanne Thomas who specializes in AA-rated corporate bonds. Thomas explains to Joplin that she relies on binomial interest rate trees to value bonds with embedded options. Thomas provides Joplin with a binomial interest rate tree derived from current swap rates using an interest rate volatility assumption of 10% as shown in Exhibit 1.

Exhibit 1: Binomial Interest Rate Tree ($\sigma = 10\%$, Annual Pay)



Thomas then illustrates valuation of two bonds issued by Dxon Corp. Thomas states that the credit risk of the two bonds is similar to the credit risk premium embedded in the swap rate. Selected data for the two bonds is provided in Exhibit 2.

Exhibit 2: Selected Data on Two Dxon Bonds

Bond	A	B
Coupon	5%, annual pay	5% annual pay
Par Value	\$100	\$100
Type	Option-Free	Extendible*
Maturity	3 years	2 years

*Bond B has an investor option to extend its maturity for an additional year at the same coupon rate.

Thomas states that pathwise valuation can also be used for the bonds instead of the binomial tree approach. She highlights one of the interest rate paths (labeled Path X) as 2.50% in Year 1, 4.9445% in Year 2, and 6.6821% in Year 3.

Joplin feels that the default risk of Dxon Corp. is higher than the default risk of the surveyed banks reflected in the rates used to generate the interest rate tree in Exhibit 1. Accordingly, a spread should be added to the interest rate tree used in Exhibit 1. She learns that such a spread is called the OAS.

During lunch, Joplin sits next to Rex Briar, another intern. Briar notes that Bond B has an OAS of 28 basis points. Another bond, issued by Geneva, Inc., has the same credit quality and other features as Bond B, except it is option free. The OAS for the Geneva, Inc., bond is 24 basis points.

Joplin read a report prepared by Thomas for the risk management department of the bank. She underlines the following statement in the report:

"The effective duration of a callable bond is greater than the effective duration of a comparable option-free bond. Furthermore, a bond with an embedded at- or near-the-money call option would have a lower one-sided down duration as compared to the one-sided down duration for a comparable option-free bond."

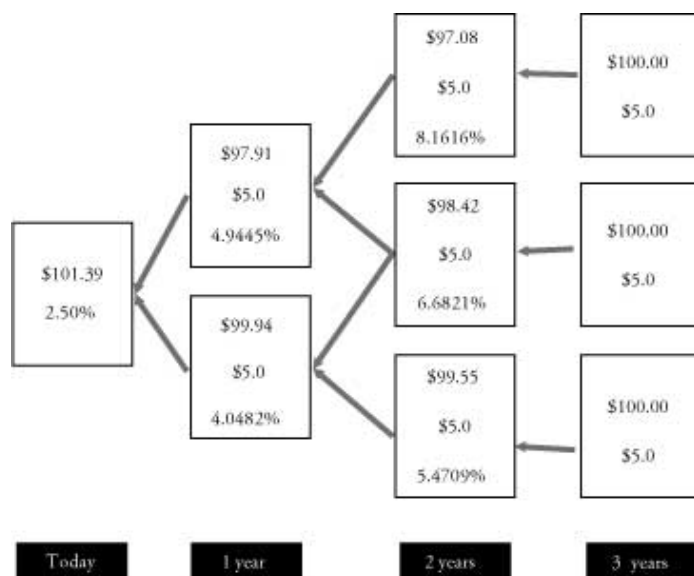
Question #43 of 60

Using the information in Exhibit 1 and Exhibit 2, the value of bond A is *closest* to:

- A) \$98.96.
- B) \$100.16.
- C) **\$101.39.**

Explanation

The completed binomial tree is as follows:



$$V_{2,UU} = \frac{105}{(1.081616)} = \$97.08$$

$$V_{2,UL} = \frac{105}{(1.066821)} = \$98.42$$

$$V_{2,LL} = \frac{105}{(1.054709)} = \$99.55$$

$$V_{1,U} = \left[\frac{[(97.08 + 98.42)/2] + 5}{1.049445} \right] = \$97.91$$

$$V_{1,L} = \left[\frac{[(98.42 + 99.55)/2] + 5}{1.040482} \right] = \$99.94$$

$$V_0 = \left[\frac{(97.91 + 99.94)/2 + 5}{1.025} \right] = \$101.39$$

For Further Reference:

(Study Session 12, Module 33.1, LOS 33.d)

Question #44 of 60

The value of Bond A under path X is *closest* to:

- A) \$98.02.
 B) \$99.63.
 C) **\$101.02.**

Explanation

The value of bond A under interest rate scenario of path X is determined as:

$$\text{Value} = \frac{5}{(1.025)} + \frac{5}{(1.025)(1.049445)} + \frac{105}{(1.025)(1.049445)(1.066821)} = \$101.02$$

For Further Reference:

(Study Session 12, Module 33.2, LOS 33.g)

Question #45 of 60

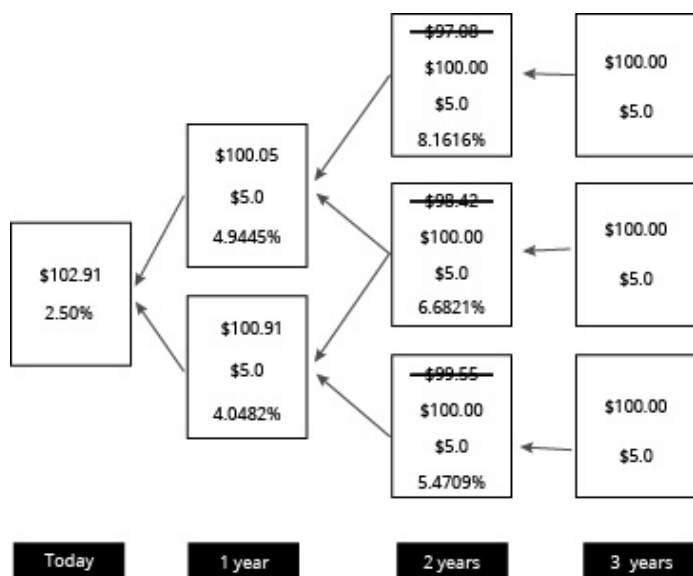
Question ID: 1212765

Using the information in Exhibit 1 and Exhibit 2, the value of bond B is *closest* to:

- A) \$98.96.
 B) \$101.16.
 C) **\$102.91.**

Explanation

An extendible bond is valued identically to a putable bond. Bond B would be identical to a 3-year putable bond where the underlying option is a European put option exercisable in 2 years at par. The completed binomial tree is given below.



$$V_{2,UU} = \frac{105}{(1.081616)} = \$97.08. \text{ Investor will not extend the bond.}$$

$$\text{Value} = \$100$$

$$V_{2,UL} = \frac{105}{(1.066821)} = \$98.42. \text{ Investor will not extend the bond.}$$

$$\text{Value} = \$100$$

$$V_{2,LL} = \frac{105}{(1.054709)} = \$99.55. \text{ Investor will not extend the bond.}$$

$$\text{Value} = \$100$$

$$V_{1,U} = \left[\frac{[(100.00+100.00)/2]+5}{1.049445} \right] = \$100.05$$

$$V_{1,L} = \left[\frac{[(100.00+100.00)/2]+5}{1.040482} \right] = \$100.91$$

$$V_0 = \left[\frac{(100.05+100.91)/2+5}{1.025} \right] = \$102.91$$

For Further Reference:

(Study Session 13, Module 34.2, LOS 34.f)

Question #46 of 60

Question ID: 1212766

For this question only, assume that Joplin is right about the credit risk of Dxon bonds. If the volatility estimate used in generating the interest rate tree is less than the true volatility, which of the following choices *most accurately* describes the impact on the calculated value of bond B and the estimated OAS of bond B?

Value of bond B

Estimated OAS of bond B

- | | |
|--------------------------|-----------------|
| A) Underestimated | Too low |
| B) Underestimated | Too high |
| C) Overestimated | Too high |

Explanation

Bond B is identical to a 3-year putable bond with the put option exercisable in Year 2. If the volatility estimate used to generate the interest rate tree is lower than the actual volatility, the value of the put option and, thus, the value of the putable bond would be underestimated. A lower volatility estimate would underestimate the OAS computed for the putable bond. When the assumed level of interest rate volatility is underestimated, the computed value of the bond using backward induction methodology will be too low; therefore, the OAS needed to force the model price to be equal to the market price will be lower as well.

For Further Reference:

(Study Session 13, Module 34.4, LOS 34.d, 34.h)

Question #47 of 60

Relative to Bond B, the Geneva, Inc., bond is *most likely* to be:

- A) underpriced.
- B) overpriced.**
- C) correctly priced.

Explanation

Bond B and Geneva, Inc., bonds are of the same credit quality, but Geneva Inc.'s bond offers a lower OAS and, hence, offers lower compensation for taking the same credit risk. Hence, the Geneva, Inc., bond is overpriced. The difference in option feature is not relevant, as OAS is computed after adjusting for option risk.

For Further Reference:

(Study Session 13, Module 34.4, LOS 34.g)

Question #48 of 60

Question ID: 1212768

Thomas's statement in the report to the risk management department is *most likely*:

- A) correct.
- B) incorrect about effective duration only.**
- C) incorrect about effective duration and about one-sided duration.

Explanation

Both callable and puttable bonds have an effective duration that is less than or equal to the effective duration of an option-free bond. When the underlying call option is deep out of money, the effective duration of a callable bond and that of an option-free bond will be same. As a result, the statement about effective duration is incorrect. Thomas's statement about one-sided down duration is correct. Due to the limited upside for a callable bond, the change in price of a callable bond for a decrease in interest rates is lower than the change in price for an option-free bond.

For Further Reference:

(Study Session 13, Module 34.5, LOS 34.j, 34.k)

Questions #49-54 of 60

Use the following information to answer Questions 109 through 114.

Michelle Norris, CFA, manages assets for individual investors in the United States as well as in other countries. Norris limits the scope of her practice to equity securities traded on U.S. stock exchanges. Her partner, John Witkowski, handles any requests for international securities. Recently, one of Norris's wealthiest clients suffered a substantial decline in the value of his international portfolio. Worried that his U.S. allocation might suffer the same fate, he has asked Norris to implement a hedge on his portfolio. Norris has agreed to her client's request and is currently in the process of evaluating several futures contracts. Her primary interest is in a futures contract on a broad equity index that will expire 240 days

from today. The closing price as of yesterday, January 17, for the equity index was 1,050. The expected dividends from the index yield 2% (continuously compounded annual rate). The continuously compounded risk-free rate is 4%. Norris decides that this equity index futures contract is the appropriate hedge for her client's portfolio and enters into the contract.

Sixty days after entering into the futures contract, the equity index reached a level of 1,015. The futures contract that Norris purchased is now trading on the Chicago Mercantile Exchange for a price of 1,035. Interest rates have not changed. After performing some calculations, Norris calls her client to let him know of an arbitrage opportunity related to his futures position. Over the phone, Norris makes the following comments to her client:

"We have an excellent opportunity to earn a riskless profit by engaging in arbitrage using the equity index, risk-free assets, and futures contracts. My recommended strategy is as follows: We should sell the equity index short, buy the futures contract, and pay any dividends occurring over the life of the contract. By pursuing this strategy, we can generate profits for your portfolio without incurring any risk."

Sixty days ago when the Swiss franc/euro exchange rate was SF1.12 per euro, Witkowski entered into (on behalf of a client) a 1-year, quarterly settlement euro-Swiss franc swap paying €1 million at inception. The fixed-for-fixed swap had the franc fixed rate at 0.96% and the euro fixed rate at 0.78%. Currently, the euro position has a value of €1.0014 per €1 notional and the exchange rate is SF 1.10 per euro. Exhibit 1 provides information about Swiss interest rates.

Exhibit 1: Swiss Interest Rates

Term	Rate	DF
30	0.50%	0.9996
60	0.54%	0.9991
90	0.48%	0.9988
120	0.65%	0.9978
180	0.77%	0.9962
210	0.67%	0.9961
300	0.82%	0.9932
360	1%	0.9901

Question #49 of 60

Question ID: 1212770

The price of the futures contract on the equity index as of the inception date, January 18, is *closest* to:

- A) 1,064.
- B) 1,071.
- C) 1,078.

Explanation

The futures price can be calculated by growing the spot price at the difference between the continuously compounded risk-free rate and the dividend yield as a continuously compounded rate. The continuously compounded risk-free rate is

$\ln(1.040811) = 4\%$, so the futures price for a 240-day future is:

$$FP = S_0 e^{(r-d)t} = 1,050 e^{(0.04-0.02)(240/365)} = 1,064$$

For Further Reference:

(Study Session 14, Module 37.2, LOS 37.a)

Question #50 of 60

Question ID: 1212771

Which of the following *best* describes the movement of the futures price on the 240-day equity index futures contract as the contract moves toward the expiration date?

- A) The futures price will move toward zero as expiration nears.
- B) The futures price will move toward the (at inception) expected spot price as expiration nears.
- C) The futures price will move toward the spot price as expiration nears.**

Explanation

The futures price for a given contract maturity must converge to the spot price as the contract moves toward expiration. Otherwise, arbitrage opportunities would exist.

For Further Reference:

(Study Session 14, Module 37.2, LOS 37.a)

Question #51 of 60

Question ID: 1212772

Sixty days after the inception of the futures contract on the equity index, Norris has suggested an arbitrage strategy. Regarding the appropriateness of the strategy, the strategy is *best* described as:

- A) appropriate since the futures contract is underpriced.
- B) inappropriate since the futures contract is overpriced.**
- C) inappropriate since the futures contract is properly priced in the market.

Explanation

First, calculate the continuously compounded risk-free rate as $\ln(1.040811) = 4\%$ and then calculate the theoretically correct futures price as follows:

$$FP = S_0 e^{(r-d)t} = 1,015 e^{(4.0-2.0)(180/365)} = 1,025$$

Then, compare the theoretical price to the observed market price: $1,035 - 1,025 = 10$. The futures contract is overpriced. To take advantage of the arbitrage opportunity, the investor should sell the (overpriced) futures contract and buy the underlying asset (the equity index) using borrowed funds. Norris has suggested the opposite.

For Further Reference:

(Study Session 14, Module 37.2, LOS 37.a)

Question #52 of 60

Question ID: 1212773

If the expected growth rate in dividends for stocks increases by 75 basis points due to an improvement in economic conditions, who among the following would benefit the most? An investor who:

- A) is short futures contracts on the equity index.
- B) is long futures contracts on the equity index.**
- C) has a long position in put options on the equity index.

Explanation

An increase in the growth rate in dividends for stocks would increase the spot price of the equity index. As the spot price increases, the futures price for a given maturity also increases (holding interest rates constant). Higher dividends during the short period of time until maturity of the futures contract would have only a minimal negative impact on the futures price.

For Further Reference:

(Study Session 14, Module 37.2, LOS 37.a)

Question #53 of 60

Question ID: 1212774

Sixty days after entering into the equity index futures contract, the value to the short party under the futures contract as compared to the value under an otherwise identical forward contract would *most likely* be:

- A) lower.**
- B) the same.
- C) higher.

Explanation

Given the decrease in the index level, the value of the short party's position in a forward contract should be positive. Because the futures contracts are marked to market, the value to the short (or long) party only reflects the change in futures price since the last mark to market. Hence, the value of the futures contract should be lower than the value of the forward contract.

For Further Reference:

(Study Session 14, Module 37.2, LOS 37.a)

Question #54 of 60

Question ID: 1212775

Sixty days after inception, the value of the currency swap to Witkowski's client is *closest* to:

- A) –€19,633.**
- B) –€141,584.
- C) –€1,021,033.

Explanation

Based on the exchange rate at initiation, the notional principals were €1,000,000 and SF 1,120,000. Sixty days after initiation, the remaining settlement days are 30, 120, 210, and 300 days into the future. The value of the Swiss franc position (per 1 SF notional) is calculated as: $(0.0096 / 4) \times (0.9996 + 0.9978 + 0.9961 + 0.9932) + 1 \times 0.9932 = \text{SF } 1.0028$. For the notional principal of SF 1,120,000, the value is SF 1,123,136. Based on the current exchange rate, this translates into $(1,123,136 / 1.10)$ euros or €1,021,033.

The euro position value is given as €1.0014 per €1 notional. For €1 million notional, this translates into a value of €1,001,400. Because Witkowski's client paid the euro notional at initiation, they will receive the euros and have a value of $\text{€}1,001,400 - \text{€}1,021,033 = -\text{€}19,633$.

For Further Reference:

(Study Session 14, Module 37.8, LOS 37.d)

Questions #55-60 of 60

Use the following information to answer Questions 115 through 120.

Tamara Ogle, CFA, and Isaac Segovia, CAIA, are portfolio managers for Lucas Investment Management (Lucas). Ogle and Segovia both manage large institutional investment portfolios and are working together to research portfolio optimization strategies. Ogle mentions the Premier fund. Exhibit 1 shows the Premier fund's exposures and expected return, as well as benchmark specifications.

Exhibit 1: Premier Fund Characteristics

Security (i)	Portfolio Weight (w_{Pi})	Benchmark Weight (w_{Bi})	Return $E(R_i)$
X	35%	40%	11.20%
Y	20%	25%	4.25%
Z	45%	35%	14.00%
Total	100%	100%	

Ogle states that the information ratio for a manager is a good indicator of relative performance. Ogle also makes the following statements:

- Statement 1: "Unlike the Sharpe ratio, the information ratio can be affected by the addition of cash or leverage."
- Statement 2: "The information ratio of an unconstrained portfolio is unaffected by aggressiveness of the active weights."
- Statement 3: "Among active portfolios, the portfolio with the highest information ratio need not have the highest Sharpe ratio."
- Statement 4: "The optimal active risk for an unconstrained portfolio is less than the optimal active risk for a constrained portfolio."

Ogle then considers the Dena and Orient funds. Exhibit 2 shows selected data for the two funds.

Exhibit 2: Selected Information for Dena and Orient Funds

	Dena	Orient
Information coefficient	0.20	0.25
Transfer coefficient	0.99	0.80
Independent bets/year	12	X

Segovia also considers three funds that specialize in market timing. Information about the funds is given in Exhibit 3.

Exhibit 3: Selected Fund Data

	A	B	C
Frequency of bets per year	12	4	2
Number of independent stocks followed	2	3	2
Probability of correct call	0.52	0.58	0.59

Question #55 of 60

Question ID: 1212777

Based on the information in Exhibit 1, the ex-ante active return for the Premier fund is *closest* to:

- A) 0.63%.
- B) 1.05%.
- C) 2.92%.

Explanation

$$E(R_A) = \sum w_{P,j} E(R_{P,j}) - \sum w_{B,j} E(R_{B,j}) = 11.07\% - 10.44\% = 0.63\%$$

For Further Reference:

(Study Session 17, Module 47.1, LOS 47.a)

Question #56 of 60

Question ID: 1212778

Regarding Ogle's Statements 1 and 2:

- A) both statements are incorrect.
- B) one statement is correct and one is incorrect.
- C) both statements are correct.

Explanation

Both statements are correct. Information ratio, unlike the Sharpe ratio, is affected by an allocation to cash or by the use of leverage. For an unconstrained optimization, a change in aggressiveness in active weights changes both the active return

and active risk proportionally, leaving the information ratio unchanged.

For Further Reference:

(Study Session 17, Module 47.2, LOS 47.b)

Question #57 of 60

Question ID: 1212779

Assuming that Dena Fund and Orient Fund both have the same information ratio, the value of "X" in Exhibit 2 must be *closest* to:

- A) 10.
- B) 12.
- C) 16.

Explanation

$$IR(\text{Dena}) = IR(\text{Orient})$$

$$(0.2) \times (0.99) \times \sqrt{12} = (0.25) \times (0.80) \times \sqrt{X}$$

$$\sqrt{X} = 3.429; X = 11.76$$

For Further Reference:

(Study Session 17, Module 47.3, LOS 47.c)

Question #58 of 60

Question ID: 1212780

Based on the information in Exhibit 3, an investor that wishes to construct a portfolio with an active risk of 4% would *most appropriately* choose to combine the benchmark with:

- A) fund A.
- B) fund B.
- C) fund C.

Explanation

$$IC = 2(\% \text{ correct}) - 1$$

$$IC_A = 2(0.52) - 1 = 0.04$$

$$IC_B = 2(0.58) - 1 = 0.16$$

$$IC_C = 2(0.59) - 1 = 0.18$$

$$IR = IC\sqrt{BR}$$

$$IR_A = 0.04\sqrt{12 \times 2} = 0.20$$

$$IR_B = 0.16\sqrt{4 \times 3} = 0.55$$

$$IR_C = 0.18\sqrt{2 \times 2} = 0.36$$

Any investor should always choose the fund with the highest information ratio. The amount of active risk can then be adjusted by changing the allocation of portfolio to the benchmark versus the active fund.

For Further Reference:

(Study Session 17, Module 47.3, LOS 47.c, 47.d, 47.e)

Question #59 of 60

Question ID: 1212781

Regarding Ogle's Statements 3 and 4:

- A) both statements are incorrect.**
- B) one of the statements is correct and the other is incorrect.**
- C) both statements are correct.**

Explanation

Both statements are incorrect. The portfolio with the highest information ratio will have the highest Sharpe ratio. Recall that the Sharpe ratio of the portfolio is computed as $SR_P^2 = SR_B^2 + IR_P^2$. Given that benchmark Sharpe ratio (SR_B) is the same for all similar active portfolios, the active portfolio with the highest information ratio will also be the portfolio with the highest Sharpe ratio. The optimal active risk for a constrained portfolio = $TC \times$ optimal active risk for an unconstrained portfolio. Given that $TC < 1$ for constrained portfolio, the optimal active risk for a constrained portfolio will be lower than the optimal active risk for an unconstrained portfolio.

For Further Reference:

(Study Session 17, Module 47.3, LOS 47.c, 47.d)

Question #60 of 60

Question ID: 1212782

As the uncertainty of the information coefficient increases, we are *most likely* to observe an increase in the:

- A) expected active return.**
- B) ex-ante information ratio.**
- C) active risks.**

Explanation

Active risk is comprised of the uncertainty from benchmark tracking risk and uncertainty about the true information coefficient (σ_{IC}). Hence, an increase in uncertainty about the information coefficient will increase active risk.

The basic fundamental law relates expected active return to the information coefficient as follows:

$$E(R_A) = \frac{IC}{\sigma_{IC}} \sqrt{BR} \sigma_A$$

Hence, an increase in the uncertainty of the information coefficient leads to a decrease in the expected active return and a decrease in the information ratio.

For Further Reference:

(Study Session 17, Module 47.4, LOS 47.f)