Questions #1-6 of 60

Use the following information to answer Questions 1 through 6.

For the past 15 years, Susan Luna, CFA, Kyle Lawson, CFA, and Matt Miller, CFA, have worked together as equity analysts and then equity portfolio managers in the investment management division (BIMCO) of Broadway Life Insurance Company. For the past five years, the three associates have worked together managing the BIMCO Aggressive Growth Fund (BAGF). During their management tenure, the BAGF had excellent performance and was well recognized in the financial press.

Just over one year ago, Broadway Life was acquired by a larger company, Gobble Insurance, and as part of the consolidation process, BIMCO was closed. The closure allowed Luna, Lawson, and Miller to start their own investment management firm, Trio Investment Management LLC (TIM). TIM focuses on the small capitalization growth equities area. This is the same investment focus as the BAGF, but TIM will have individually managed accounts. Several cases have arisen calling for interpretation as to consistency with CFA Institute Standards of Professional Conduct.

Case 1

TIM markets its investment management services by contracting with small, local bank trust departments. One of the newest bank trust clients for TIM is Shadow Mountain Bank and Trust. Judy Sampson, CFA, the trust officer for Shadow Mountain, has scheduled a meeting with a potential client. When Lawson arrives for the client meeting, he finds that all the TIM marketing material, including biographies of TIM portfolio managers, has been relabeled by Sampson as the Shadow Mountain Wealth Management Team. Sampson has also added the performance of BAGF into the current TIM Equity Composite Index portfolio and relabeled the resultant combined graph, the Shadow Mountain Equity Composite Index. Sampson states that making such changes would probably please clients and improve the chances of acquiring additional trust management accounts for Shadow Mountain and TIM. Lawson goes along and makes the presentation to the potential client using the Shadow Mountain marketing material and the relabeled BAGF/TIM equity performance record.

Case 2

Susan Luna of TIM is meeting with Sol Wurtzel, an institutional salesman for Turn Byer, a large national brokerage firm. Luna complains that TIM's technology costs are too high, especially their outside software services costs. TIM currently subscribes to two investment-related software services. The first software vendor is StockCal Software Services (StockCal), which provides valuation and stock-charting capabilities that TIM uses in its equity research and selection process. The other vendor is Add-Invest Software (Add-Invest), a software program providing account management and performance evaluation reporting, which TIM uses in developing monthly reports for all clients. In response to Luna, Wurtzel suggests that Turn Byer has an excellent soft dollar trading desk and would be willing to offer to cover TIM's StockCal and Add-Invest expenses through soft dollar commissions. Luna then reviews TIM's projected commission

Questions #1-6 of 60

Questions 61 through 66 relate to Ethical and Professional Standards.

United Partners Case Scenario

Connor Burton, CFA, is the managing partner for United Partners, a small investment advisory firm that employs three investment professionals and currently has approximately $250 million of assets under management. The client base of United Partners is varied, and accounts range in size from small retirement accounts to a $30 million private school endowment. In addition to Burton's administrative responsibilities as the managing partner at United, he also serves as an investment advisor to several clients. Because United Partners is a small firm, the company does not employ any research analysts but instead obtains its investment research products and services from two national brokerage firms, which in turn execute all client trades for United Partners. The arrangement with the two brokers has enabled United to assure its clients that the firm will always seek the best execution for them by having both brokers competitively bid for United's business.

A prospective client, Harold Crossley, has approached Burton about shifting some of his personal assets under management from MoneyCorp to United Partners. Burton provides Crossley with a packet of marketing information that Burton developed himself. The packet contains five years of historical performance data for a value weighted composite of the firm's discretionary accounts. Burton states that the composite's management style and performance results are representative of the management style and returns that United can be expected to achieve for Crossley. Also included in the information packet are brief bios on each of United's three investment professionals. Crossley notices that all three of United's investment professionals are described as "CFA charterholders," but he is not familiar with the designation. In response to Crossley's inquiry, Burton explains the significance of the program by stating that the designation, which is only awarded after passing three rigorous exams and obtaining the requisite years of work experience, represents a commitment to the highest standards of ethical and professional conduct.

As a condition of moving his account to United Partners, Crossley insists that all of his trades be executed through his brother-in-law, a broker for Security Bank. Security Bank is a large, New York-based broker/dealer but is not one of the two brokerage firms with which United currently does business. Burton contacts Crossley's brother-in-law and determines that Security Bank's trade execution is competitive, but Crossley's account alone would not generate enough volume to warrant any soft dollar arrangement for research materials. However, Crossley's brother-in-law does offer for Security Bank to pay a referral fee to Burton for directing any of United's clients to Security Bank's retail banking division. To bring Crossley on as a client, Burton agrees to the arrangement. Going forward, Burton will use Security Bank to execute all of Crossley's trades.

United Partners currently has no formal policy on proxy voting. Burton wants to develop a policy that conforms to the Code and Standards.

Several months later, Burton is invited to a road show for an initial public offering (IPO) for SolutionWare, a software company. Security Bank is serving as lead underwriter on SolutionWare's IPO. Burton attends the meeting, which is led by two investment bankers and one software industry research analyst from Security Bank who covers SolutionWare. Burton notes that the bankers from Security Bank have included detailed financial statements for SolutionWare in the offering prospectus and also disclosed that Security Bank provides a warehouse line of credit to SolutionWare. After the meeting, Burton calls Crossley to recommend the purchase of SolutionWare equity. Crossley heeds Burton's advice and tells him to purchase 5,000 shares. Before placing Crossley's order, Burton reads the SolutionWare marketing materials and performs a detailed analysis of expected future earnings and other key factors for the investment decision. Burton determines that the offering would be a suitable investment for his own retirement portfolio. United Partners, being a small firm, has no formal written policy regarding trade allocation, employee participation in equity offerings, or established blackout periods for employee trading. Burton adds his order to Crossley's order and places a purchase order for the combined number of shares with Security Bank. Burton is later notified that the offering was oversubscribed, and United Partners was only able to obtain roughly 75% of the desired number of shares. To be fair, Burton allocates the shares on a pro-rata basis between Crossley's account and his own retirement account. When Burton notifies Crossley of the situation, Crossley is nonetheless pleased to have a position, though smaller than requested, in such a "hot" offering.

Question #1 of 60

Question ID: 1220742

Did the marketing materials presented to Crossley by Burton violate Standard III(D) Performance Presentation or Standard VII(B) Reference to CFA Institute, the CFA Designation, and the CFA Program?

A) Standard III(D) only.

B) Standard VII(B) only.

C) Both Standard III(D) and Standard VII(B) are violated.

Explanation

By implying that the composite's past performance is representative of future performance, Burton is in violation of Standard III(D) Performance Presentation. A member or candidate should give a fair and complete presentation of performance and not state or imply that clients will obtain a rate of return that was generated in the past.

Burton's references to the CFA program in his marketing materials were acceptable according Standard VII(B) Reference to CFA Institute, the CFA Designation, and the CFA Program. The Standard states that members and candidates may make references to the rigor of the program and the commitment of members and candidates to ethical and professional standards. However, statements must not exaggerate the meaning or implications of the designation, membership in CFA Institute, or candidacy.

For Further Reference:

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

Question #2 of 60

Question ID: 1220743

According to the CFA Institute Standards of Professional Conduct, the trading arrangement between Burton and Security Bank is *most likely*:

A) a violation because the practice of directed brokerage violates the member's duty of loyalty to the client.

B) a violation because although Security Bank's execution is competitive, Burton will not be able to always obtain the best execution for his client.

C) **not a violation because the brokerage is the property of the client.**

Explanation

According to CFA Institute Standards of Professional Conduct, client brokerage is the property of the client; client-directed brokerage does not violate the duty of loyalty to clients. Members should disclose to the clients if such arrangements does not result in best execution for the clients (but this stipulation is not applicable in this case).

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #3 of 60

Question ID: 1220744

According to CFA Institute Standards of Professional Conduct, which of the following statements *best* describes the circumstances under which Burton may enter into the referral agreement with Security Bank? Burton may enter into the agreement:

A) under no circumstances.

B) only after receiving written permission from clients.

C) **only after fully disclosing the referral arrangement to clients and prospective clients.**

Explanation

Standard VI(C) Referral Fees states that members and candidates must disclose to their clients and prospective clients any compensation or benefit received for the recommendation of services. In this case, Burton may accept a referral fee if he discloses it to the client so that the client may evaluate any partiality shown in the recommendation.

For Further Reference:

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

Question #4 of 60

Question ID: 1220745

When formulating the proxy voting policy, which of the following is *least* appropriate for Burton to include?

A) Determine the economic impact of non-routine proxy votes.

B) **Treat all proposals equally as far as proxy voting goes.**

C) If the client preference differs from the proxy voter's preference, defer to client wishes.

Explanation

Standard III(A) Loyalty, Prudence, and Care. Unusual proposals, such as hostile takeovers and executive changes, may require more review than routine matters such as renewing stock-repurchase agreements. Money managers should provide a means to review complex proxies. Establishing evaluation criteria and disclosing the firm's proxy voting policies and procedures to clients are basic elements of a proxy-voting policy. Client wishes regarding proxy voting should always be followed.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #5 of 60

Question ID: 1220746

According to CFA Institute Standards of Professional Conduct, Burton's recommendation to Crossley that he purchase shares of the SolutionWare initial public offering is *most likely*:

A) in violation of Standard III(C) Suitability for not determining the appropriateness of the investment for the portfolio and Standard I(B) Independence and Objectivity for not making the investment recommendation to all of his clients at the same time.

B) **in violation of Standard V(A) Diligence and Reasonable Basis for not thoroughly analyzing the investment before making a recommendation and in violation of Standard III(C) Suitability for not determining the appropriateness of the investment for the portfolio.**

C) in violation of Standard V(A) Diligence and Reasonable Basis for not thoroughly analyzing the investment before making a recommendation and in violation of Standard I(B) Independence and Objectivity for not making the investment recommendation to all of his clients at the same time.

Explanation

Standard V(A) Diligence and Reasonable Basis states that the member or candidate must exercise diligence, independence, and thoroughness before making an investment recommendation. The Standard also requires that members and candidates have a reasonable and adequate basis supported by research and investigation for any investment recommendations or actions. Burton made his purchase recommendation to Crossley purely on the basis of the Security Bank road show and did not perform his own evaluation to determine whether or not the SolutionWare IPO was a good investment opportunity. Burton has therefore violated Standard V(A). Standard III(C) Suitability was also violated because there is no indication that Burton made any effort to determine if the investment was appropriate for Crossley's portfolio. Burton should have determined that the investment was consistent with Crossley's written objectives and constraints before he recommended the investment. Even though he later determined that the investment was suitable, he did not know this was the case before he told Crossley that he should purchase shares in the IPO. Standard III(B) Fair Dealing (and not I(B) Independence and Objectivity) would also be violated if Burton did not afford all the clients for whom the IPO was suitable to participate in the offering. Standard III(B) Fair Dealing (and not standard I(B)) would also be violated if Burton did not extend IPO participation to all portfolios meeting suitability criteria.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a)

Question #6 of 60

Question ID: 1220747

According to CFA Institute Standards of Professional Conduct, Burton's participation in the SolutionWare offering *most likely*:

A) is in violation of the Standards because his actions adversely affected the interests of Crossley.

B) is in violation of the Standards because he did not disclose his participation in the offering to Security Bank.

C) is not in violation of the Standards since the shares obtained in the IPO were distributed equitably on a pro-rata basis.

Explanation

Standard VI(B) Priority of Transactions clearly states that investment transactions for clients must have priority over members' and candidates' transactions. Members and candidates can profit from personal investments as long as the client is not disadvantaged by the trade. By taking a portion of the IPO shares for his own account, Burton has ensured that Crossley's order will not be completely filled. It does not matter that the trade allocation was done on a pro-rata basis; Burton should have placed his client's transaction ahead of his own.

For Further Reference:

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

Questions #7-12 of 60

Questions 67 through 72 relate to Quantitative Methods.

Madison Consultants Case Scenario

Ernie Smith and Jamal Sims are analysts with the firm of Madison Consultants. Madison provides statistical modeling and advice to portfolio managers throughout the United States and Canada.

In an effort to estimate future cash flows and value the Canadian stock market, Smith has been examining the country's aggregate retail sales. He runs two autoregressive regression models in an attempt to determine whether there are any patterns in the data, utilizing nine years of unadjusted monthly retail sales data. One model uses a lag 1 variable and the other adds a lag 12 variable. The results of both regressions are shown in Exhibit 1 and Exhibit 2.

Exhibit 1: Canadian Autoregressive Model With Lag 1

Multiple R	0.91
R-square	0.83
Adjusted R-square	0.83
Standard error	17,252.76
Observations	108.00

ANOVA

	df	SS	MS	F	Significance F
Regression	1.00	150,813,197,793	150,813,197,793	506.67	0.00
Residual	106.00	31,551,711,544	297,657,656		
Total	107.00	182,364,909,338			

	Coefficients	Standard Error	T-stat	P-value
Intercept	21,750.16	10,379.77	2.10	0.04
Lag 1	0.92	0.04	22.51	0.00

Exhibit 2: Canadian Autoregressive Model With Lag 1 and Lag 12

Regression Statistics for 2nd Regression	
Multiple R	0.96
R-square	0.93
Adjusted R-square	0.92
Standard error	11,336.27
Observations	108.00

ANOVA

	df	SS	MS	F	Significance F
Regression	2.00	168,871,246,751	84,435,623,375	657.03	<0.01
Residual	105.00	13,493,662,586	128,511,072		
Total	107.00	182,364,909,338			

	Coefficients	Standard Error	T-stat	P-value
Intercept	–24,861.28	7,872.56	–3.16	<0.01
Lag 1	0.30	0.06	5.22	<0.01
Lag 12	0.84	0.07	11.85	<0.01

Sims has been assigned the task of valuing the U.S. stock market and uses data similar to the data that Smith uses for Canada. He decides, however, that the data should be transformed. He takes the natural log of the data and uses it in the following model:

$$\Delta \ln \text{sales}_t = b_0 + b_1 \Delta \ln \text{sales}_{t-1}$$

Parameter estimates for the autoregressive model and the actual data for the two most recent months are shown in Exhibit 3.

Exhibit 3: U.S. Autoregressive Model

Intercept	0.052
Lag 1 coefficient	0.684
Actual sales one month ago (–1)	6,270
Actual sales two months ago (–2)	6,184

Smith and Sims are concerned that the data for Canadian retail sales may be more appropriately modeled with an ARCH process. Smith states, that in order to find out, he would take the residuals from the original autoregressive model for Canadian retail sales and then square them.

Sims states that these residuals would then be regressed against the Canadian retail sales data using the following equation: $e_t = b_0 + b_1X_t$, where *e* represents the residual terms from the original regression and *X* represents the Canadian retail sales data. If b_1 is statistically different from zero, then the regression model contains an ARCH process.

Smith also examines the quarterly inflation data for an emerging market over the past nine years. He models the data using an autoregressive model with a lag 1 independent variable, which he finds is statistically different from zero. He wonders whether he should also include lag 2 and lag 4 terms, given the magnitude of the autocorrelations of the residuals shown in Exhibit 4, assuming a 5% significance level. The critical *t*-values, assuming a 5% significance level and 35 degrees of freedom, are 2.03 for a two-tail test and 1.69 for a one-tail test.

Exhibit 4: Emerging Market Autoregressive Model

Lag	Autocorrelation
1	0.0829
2	0.1293
3	0.0227
4	0.1882

Sims is investigating the performance of 5-year European and British bonds based on the actions of the U.S. Federal Reserve. He uses the U.S. Federal Funds rate. The two regressions he uses are:

$$BY_{E,t} = b_0 + b_1FF_{US,t}$$

$$BY_{B,t} = b_0 + b_1FF_{US,t}$$

where: FF is the Federal Funds rate in the United States (US), and BY is the bond yield in the European Union (E) and Great Britain (B).

Before he runs this regression, he investigates the characteristics of the dependent and independent variables. He finds that the Federal Funds rate in the United States and the bond yield in Great Britain have a unit root but that the bond yield in the European Union does not. Furthermore, the Federal Funds rate in the United States and the bond yield in Great Britain are cointegrated, but the Federal Funds rate in the United States and the bond yield in the European Union are not.

Question #7 of 60

Question ID: 1220749

Which of the following models would be the *best* formulation for the Canadian retail sales data?

A) $X_t = b_0 + b_1X_{t-1}$.

B) $X_t = b_1X_{t-1} + b_2X_{t-12}$.

C) $\mathbf{X_t = b_0 + b_1X_{t-1} + b_2X_{t-12}}$.

Explanation

The best formulation for Smith's retail sales data would include the intercept, the lag 1 coefficient, and the lag 12 coefficient. First, note that in the second regression, all of these are statistically significant, with a p-value of less than 1%. Also, the second regression that included the lag 12 term has a higher adjusted R-square at 0.92 compared to 0.83 in the first regression that omits the lag 12 term. Lastly, we should suspect that the lag 12 term is appropriate because this is seasonal, monthly data.

We could have also looked at the significance of the autocorrelations if they had been provided. If any are significant in either regression, another lag term would be added to the autoregressive model.

For Further Reference:

(Study Session 2, Module 6.2, LOS 6.d, 6.l)

Question #8 of 60

Question ID: 1220750

The estimate of forecasted sales for the United States this month, using Sims's model, is *closest* to:

A) $6,329.

B) $6,453.

C) **$6,667.**

Explanation

To forecast the sales this month, we first calculate the change in the log of sales last month:

$$\Delta \ln \text{sales}_{t-1} = \ln(6{,}270) - \ln(6{,}184) = 8.7435 - 8.7297 = 0.0138$$

Next, use this change in the regression model to obtain the forecasted change for this month:

$$\Delta \ln \text{sales}_t = 0.052 + 0.684(0.0138) = 0.0614$$

Add the forecasted change to last month's log sales to obtain this month's forecasted log sales:

$$\ln \text{sales}_t = 0.0614 + 8.7435 = 8.8049$$

Lastly, convert the forecasted log value to a dollar value by taking its antilog:

$$\text{sales}_t = e^{8.8049} = \$6{,}667$$

For Further Reference:

(Study Session 2, Module 6.2, LOS 6.d)

Question #9 of 60

Question ID: 1220751

Are the comments of Smith and Sims on the construction of an ARCH model correct?

A) Both comments are correct.

B) Only Smith is correct.

C) Only Sims is correct.

Explanation

Smith is correct. The first step in testing for an ARCH process is to take the residuals from the original autoregressive model and then square them.

Sims is incorrect. The next step in determining whether an ARCH process exists is to regress the squared residuals from this period against the squared residuals from the previous period as follows:

$$\varepsilon_t^2 = b_0 + b_1 \varepsilon_{t-1}^2$$

If b_1 is statistically different from zero, then we conclude that the regression model contains an ARCH process.

For Further Reference:

(Study Session 2, Module 6.5, LOS 6.m)

Question #10 of 60

Question ID: 1220752

Regarding Smith's emerging market regression, should lag 2 and lag 4 terms be included in the regression?

A) Neither lag should be included.

B) Only lag 2 should be included.

C) Only lag 4 should be included.

Explanation

Neither the lag 2 term nor the lag 4 term should be included. To determine the significance of the autocorrelation of the residuals, we need the standard error, which is calculated as one over the square root of the number of observations. There are 36 quarters of inflation data. One quarter is lost because we have a lag 1 term, so there are 35 observations in the regression. Therefore, the standard error is $\frac{1}{\sqrt{35}} = 0.1690.$

The *t*-statistics are the autocorrelations divided by the standard error which results in:

Lag	Autocorrelation	Standard Error	t-Statistic
1	0.0829	0.1690	0.49
2	0.1293	0.1690	0.76
3	0.0227	0.1690	0.13
4	0.1882	0.1690	1.11

The critical *t*-value is 2.03 for a two-tail test, so none of the *t*-statistics indicate that the autocorrelations are significantly different from zero. Therefore, we do not need to include additional lag terms.

For Further Reference:

(Study Session 2, Module 6.2, LOS 6.d)

Question #11 of 60

Question ID: 1220753

Will Sims's regressions of European and British bond yields on the U.S. Federal Funds rate produce valid results?

A) Neither Regression is valid.

B) Only Regression 1 is valid.

C) **Only Regression 2 is valid.**

Explanation

In the first regression, the Federal Funds rate in the United States has a unit root, but the bond yield in the European Union does not. So the former data series is not covariance stationary, but the latter is. In this case, the regression results will not be valid.

In the second regression, both the Federal Funds rate in the United States and the bond yield in Great Britain have a unit root. So both data series are not covariance stationary. However, because they are cointegrated, the regression results will be valid.

To sum up the possibilities you may face on exam day:

- If neither data series has a unit root, the regression results are valid.
- If only one data series has a unit root, the regression results are invalid.
- If both data series have a unit root and they are cointegrated, the regression results are valid.
- If both data series have a unit root and they are not cointegrated, the regression results are not valid.

For Further Reference:

(Study Session 2, Module 6.5, LOS 6.k, 6.n)

Question #12 of 60

Question ID: 1220754

Which of the following is the *appropriate* test for cointegration?

A) Breusch-Pagan.

B) Durbin-Watson.

C) **Engle-Granger.**

Explanation

To test whether two variables are cointegrated, we regress one data series on the other and examine the residuals for a unit root using the Dickey-Fuller/Engle-Granger test. If we reject the null hypothesis, the error terms of the two data series are covariance stationary and cointegrated. The regression results will be valid.

For Further Reference:

(Study Session 2, Module 6.5, LOS 6.n)

Questions #13-18 of 60

Questions 73 through 78 relate to Economics.

Platinum Advisors Case Scenario

Frank Hoskins and Paul Lanning are economists for a large U.S. investment advisory firm, Platinum Advisors. Hoskins and Lanning use their independent research on U.S. stocks and international stocks to provide advice for the firm's network of advisors. As the senior economist at Platinum, Hoskins is a partner in the firm and is Lanning's supervisor. Lanning has worked for Platinum for four years. At a lunch meeting, the two economists discuss the usefulness of economic theory, economic data, and the resulting forecasts of the global economic and stock market activity.

Hoskins is investigating the growth prospects of the country of Maldavia. Maldavia is a formerly communist country with a population of 3 million located in Eastern Europe. The Maldavian government had been aggressive in instituting political reform and encouraging the growth of financial markets. However, due to recent increases in stock market volatility, the Maldavian government is considering reigning-in trading volume by imposing a tax on stock market transactions. Hoskins states that this development is not encouraging for future economic growth.

Lanning is examining the country of Petra. Petra is a country of 25 million located in South America and rich with natural resources, including oil. The recently-elected president of Petra, Carlos Basile, has announced that he would like to ensure that the citizens of Petra enjoy the benefits of its natural resources rather than foreign oil companies, and that the government will nationalize these oil companies. Lanning states that these changes would not be beneficial for the future growth of the Petrian economy.

One of the many items they study when examining an economy or stock market is the economic information released by governments and private organizations. Hoskins and Lanning use this information to adjust their economic growth forecasts and to accordingly adjust portfolio allocations to the bond and stock markets. Examining information for Maldavia, Hoskins has learned that the Maldavian private sector has embarked on an ambitious plan to increase labor productivity by purchasing more machinery for its factories. Plotting the productivity curve for Maldavia, Hoskins states that labor productivity should increase because the productivity curve will shift up.

Lanning is examining the historical record of economic growth in Petra. He has gathered the data in Exhibit 1 to determine potential economic growth.

Exhibit 1: Economic Data for Petra from 20X1 to 20X7

Real GDP growth rate	3.9%
Growth rate in capital	1.4%
Growth rate in labor force	1.9%
Labor cost/total factor cost	0.52

Lanning then turns his attention to the countries of Alicia and Felicia. He notes that the GDP growth rate in both countries is comparable. Alicia's capital to labor ratio is USD 5,000. Felicia's capital to labor ratio is USD 2,800. Alicia has a relatively younger labor force and the labor cost represents 35% of total factor cost. Both countries have extensive restrictions on foreign direct investments in their economy.

It has long been Platinum's policy for its economists to use long-term economic growth trends to forecast future economic growth, stock returns, and dividends in a country. Lanning also examines the economy of Tiberia. Tiberia has a population

of 11 million and is located in northern Africa. Its economy is diversified, and its main exports are agricultural products and heavy machinery. The country's economy has been growing at an annual rate of 6.2% for the past 10 years, in part because of technological advances in the manufacturing of heavy equipment. These advances involve the use of computer-operated welding machines that have made the manufacturing process more efficient. Lanning is worried, however, that the current GDP growth rate may not be sustainable and is considering advising Platinum's portfolio managers to decrease their portfolio allocations to the country. Before doing so, he will consult with Hoskins.

Question #13 of 60

Question ID: 1220756

Are the statements made by Hoskins and Lanning regarding the future growth of the Maldavian and Petrian economies *most likely* to be correct or incorrect?

A) Both are correct.

B) Only Hoskins is correct.

C) Only Lanning is correct.

Explanation

Hoskins's statement is likely to be correct. If the Maldavian government is considering taxing stock market transactions, then this will limit future economic growth. Economic growth is dependent in part on markets, because markets facilitate business transactions between buyers and sellers.

Lanning's statement is also likely to be correct. If the president of Petria nationalizes the oil industry, then private property will be seized and property rights will not have been respected. Without property rights, firms and individuals have little incentive to make investments that could lead to future economic growth.

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.a)

Question #14 of 60

Question ID: 1220757

Hoskins's statement regarding Maldavian labor productivity and its productivity curve is:

A) incorrect, because labor productivity is not affected in this scenario.

B) incorrect, because labor productivity will decrease because of the low skill level of the labor force.

C) incorrect, because although labor productivity will increase, the increase will result from a movement along the productivity curve.

Explanation

Hoskins's reasoning is incorrect because although labor productivity will increase, the increase will result from a movement *along* the productivity curve. An upward shift in the productivity curve requires an advancement in technology.

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.d)

Question #15 of 60

Question ID: 1220758

Which country will experience a higher growth rate in potential GDP due to capital deepening and due to removal of restrictions on inflow of foreign capital?

	Capital deepening	Removal of restrictions on inflow of capital
A)	Alicia	Felicia
B)	**Felicia**	**Felicia**
C)	Felicia	Alicia

Explanation

Felicia has lower capital to labor ratio and would benefit more from capital deepening. Removal of restrictions on the inflow of capital would lead to more investment and hence capital deepening—again benefiting Felicia more.

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.d)

Question #16 of 60

Question ID: 1220759

Petra's GDP growth rate attributable to growth in total factor productivity is *closest* to:

A) 0.6%.

B) 1.6%.

C) **2.2%.**

Explanation

GDP growth rate = growth rate in TFP + α (long-term growth rate of capital) + (1 − α) (long-term growth rate of labor).

$(1 - \alpha) = 0.52$ and thus $\alpha = 0.48$

$3.9\% = \Delta TFP + (0.48)(1.4) + (0.52)(1.9) \rightarrow \Delta TFP = 2.24\%$

For Further Reference:

(Study Session 4, Module 11.2, LOS 11.e)

Question #17 of 60

Question ID: 1220760

The classical growth theory predicts that Tiberia's long-run future GDP per capita is *most likely* to:

A) decline due to diminishing marginal productivity of capital.

B) **settle at subsistence level due to adjustments in the population.**

C) remain unchanged from the current levels unless the government increases the budget deficit.

Explanation

Under the classical growth theory, the Tiberian economy will settle at a subsistence level. The high growth in the economy will result in a higher population. The higher population will eventually result in decreased returns to labor and decreased labor productivity. No permanent increase in labor productivity will result and per capita GDP will settle at a subsistence level.

For Further Reference:

(Study Session 4, Module 11.3, LOS 11.i)

Question #18 of 60

Question ID: 1220761

The endogenous growth theory predicts that the Tiberian GDP growth rate is *most likely* to:

A) settle at a long-run steady state because of diminishing marginal productivity of capital.

B) **continue to increase because technological advances will be shared by many sectors of the economy.**

C) decline because the current GDP growth rate is not sustainable.

Explanation

Under the endogenous growth theory, the Tiberian GDP growth rate can continue to increase because technological advances will be shared by many sectors of the economy. Increasing R&D investment, for example, results in benefits not just to the firm making the investment but also to other firms. As these benefits flow to other firms, the economy becomes more productive and the long-term economic growth rate can continue to increase.

For Further Reference:

(Study Session 4, Module 11.3, LOS 11.i)

Questions #19-24 of 60

Questions 79 through 84 relate to Financial Reporting and Analysis.

Galena Petrovich Case Scenario

Galena Petrovich, CFA, is an analyst in the New York office of TRS Investment Management, Inc. Petrovich is an expert in the industrial electrical equipment sector and is analyzing Fisher Global. Fisher is a global market leader in designing, manufacturing, marketing, and servicing electrical systems and components, including fluid power systems and automotive engine air management systems.

Fisher has generated double-digit growth over the past 10 years, primarily as the result of acquisitions, and has reported positive net income in each year. Fisher reports its financial results using International Financial Reporting Standards

(IFRS).

Petrovich is particularly interested in a transaction that occurred several years ago, before the change in accounting standards, in which Fisher used the pooling method to account for a large acquisition of Dartmouth Industries, an industry competitor. She would like to determine the effect of using the purchase method instead of the pooling method on the financial statements of Fisher. Fisher exchanged common stock for all of the outstanding shares of Dartmouth.

Fisher also has a 50% ownership interest in a joint venture with its major distributor, a U.S. company called Hydro Distribution. She determines that Fisher has reported its ownership interest under the equity method, and that the joint venture has been profitable since it was established three years ago. She decides to adjust the financial statements to show how the financial statements would be affected if Fisher had reported its ownership under the acquisition method. Fisher is also considering acquiring 80% to 100% of Brown and Sons Company. Petrovich must consider the effect of such an acquisition on Fisher's financial statements.

Petrovich determines from the financial statement footnotes that Fisher had an unrealized gain related to debt securities that are classified as fair value through OCI. Competitor firms classify similar debt securities as fair value through profit or loss.

Finally, Petrovich finds a reference in Fisher's footnotes regarding a special purpose entity (SPE). Fisher has reported its investment in the SPE using the equity method, but Petrovich believes that the consolidation method more accurately reflects Fisher's true financial position, so she makes the appropriate adjustments to the financial statements.

Question #19 of 60

Question ID: 1220763

Regarding the prior purchase that was accounted for under the pooling of interests method, had Fisher Global reported this purchase under the acquisition method:

A) the assets and liabilities of the purchased firm would not be included on Fisher's balance sheet.

B) **balance sheet assets and liabilities of the purchased firm would have been reported at fair value.**

C) reported goodwill could be less depending on the fair value of the identifiable assets and liabilities compared to their book values.

Explanation

The assets and liabilities of the purchased firm are included on the balance sheet of the acquiring firm under either method. Under the pooling method, there is no adjustment of balance sheet asset and liability values to their fair values. Under the acquisition method, assets and liabilities acquired are reported at fair value at the time of the purchase. There is no goodwill reported under the pooling method; the purchase price is not reflected on the balance sheet of the acquiring firm.

For Further Reference:

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

Question #20 of 60

Question ID: 1220764

Had Fisher Global reported its investment in the joint venture under the acquisition method rather than under the equity method, it is *most likely* that:

A) reported revenue would have been the same.

B) reported expenses would have been lower.

C) **net income would not have been affected.**

Explanation

Under the acquisition method, the investee firm's revenue and expenses would be reported on Fisher's income statement, increasing both expenses and revenues. Under the equity method, Fisher's revenue and expenses are reported without adjustment, and the proportion of income from the purchased firm is reported separately, so that net income is the same under either method.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.a)

Question #21 of 60

Question ID: 1220765

Regarding any potential goodwill on the acquisition of Brown and Sons being considered by Fisher Global, which of the following statements is *most accurate*? The goodwill will be reported as an asset and:

A) must be reviewed for impairment at least annually, with different test for impairment under IFRS and U.S. GAAP. Impairment losses can be reversed under U.S. GAAP but not under IFRS.

B) amortized, and must be reviewed for impairment at least annually, though impairment losses cannot be reversed under either GAAP or IFRS.

C) **must be reviewed for impairment at least annually with different tests for impairment under IFRS and U.S. GAAP. The losses on impairment cannot be reversed under either U.S. GAAP or under IFRS.**

Explanation

Goodwill is not amortized under IFRS or U.S. GAAP. The test for impairment is different under IFRS than under U.S. GAAP. Impairment losses cannot be reversed under U.S. GAAP nor under IFRS.

For Further Reference:

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

Question #22 of 60

Question ID: 1220766

If Fisher Global decides to purchase only 80% of Brown and Sons, under IFRS they will have the option to:

A) report the acquisition as either a business combination or as an acquisition.

B) value the identifiable assets and liabilities of Brown and Sons at their current book values or at fair market value.

C) report more or less goodwill depending on the accounting method they choose.

Explanation

All business combinations (e.g., merger, purchase, or consolidation) are reported under the acquisition method. Identifiable assets and liabilities must be reported at fair value at the time of the acquisition. Under IFRS, Fisher has the option of calculating the goodwill for the acquisition under either the full goodwill or partial goodwill methods. Goodwill is less under the partial goodwill method.

For Further Reference:

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

Question #23 of 60

Question ID: 1220767

For comparison purposes, Petrovich decides to reclassify Fisher Global's debt securities as fair value through profit or loss. Ignoring any effect on income taxes, which of the following *best* describes the effects of the necessary adjustments?

A) Net income is higher and asset turnover is higher.

B) Return on assets is lower and debt-to-equity is lower.

C) Return on equity is higher and debt-to-total capital is not affected.

Explanation

Both FVOCI and FVPL classifications report the security at fair value on the balance sheet, and hence, total assets (and asset turnover) would be unchanged. You are given that the debt securities had an unrealized gain, which, under FVPL classification, would be reported in an income statement, resulting in a higher net income (as opposed to FVOCI classification where the unrealized gain is reported in OCI). Stockholders' equity would be the same under either classification, and hence, debt-to-total capital will be unchanged. Because of higher net income, an FVPL classification would result in a higher ROA and ROE as compared to FVOCI classification.

For Further Reference:

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

Question #24 of 60

Question ID: 1220768

What are the *most likely* effects on return on assets (ROA) and net profit margin (ignoring any tax effects) of correctly adjusting for Fisher Global's investment in the SPE using the acquisition method?

	ROA	Net profit margin
A)	No change	Decrease
B)	Decrease	No change
C)	**Decrease**	**Decrease**

Explanation

The acquisition method results in higher assets and higher sales, but the same net income. Therefore, both ROA (net income divided by assets) and net profit margin (net income divided by sales) will decrease.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.c)

Questions #25-30 of 60

Questions 85 through 90 relate to Financial Reporting and Analysis.

John Baragutti Case Scenario

John Baragutti, CFA, works in the transaction services arm of HLBB, a large accountancy firm with a substantial advisory business on the east coast of the United States. He is currently advising on a potential M&A transaction between two airlines. Tarpon Airlines, Inc. (Tarpon), which operates out of the east coast of the United States, is the larger of the two companies and its board has entered into discussions with the smaller Clear Air S.A. (Clear). Clear, based in France, would provide Tarpon access to a significant number of landing slots in major European airports.

Baragutti is currently reviewing the income statement of Clear in order to address some concerns raised by Tarpon's board. Merger discussions had initially progressed rapidly after an initial review of Clear's last five years' income statements, which revealed an operating profit margin that was in line with that of Tarpon. The board has historically been extremely cautious about acquiring any potential target with a profit margin lower than its own. However, further investigation has revealed concerns regarding the treatment of pension costs in the income statement.

Tarpon runs only a defined contribution pension scheme for its employees and an employee incentive stock option scheme. Clear, however, has a defined benefit scheme that is currently overfunded. Extracts from the pension note included in Clear's annual report are shown in Exhibit 1.

Exhibit 1: Pension Note (Extracts)

Present Value of Defined Benefit Obligations		Fair Value of Plan Assets	
	€ million		€ million
As at 1 January 2015	8,110	As at 1 January 2015	8,920
Current service cost	170	Return on plan assets	145
Past service cost	15	Employer contributions	306
Interest cost	365	Benefits paid	(202)
Benefits paid	(202)		
Remeasurement (gains)/loss	218		

As at 31 December 2015	8,676	As at 31 December 2015	9,169

Notes:

- Pension benefit obligation has been calculated using the average yield on high-quality corporate bonds with similar durations to the benefits in the scheme, currently 4.5%.
- Due to turbulent economic conditions in the eurozone, return on plan assets was only 1.63%.
- Remeasurement gains at the start of the year totaled €231 million.

Having never accounted for a defined benefit scheme, in its initial review, the board of Tarpon did not consider the impact of the defined benefit plan on the operating margin. As a result, Baragutti has been asked to address three issues.

First, Clear prepares its financial statements using IFRS whereas Tarpon reports under U.S. GAAP. The board wants to gain an understanding of Clear's pension expense for 2015 as computed under U.S. GAAP. Secondly, the disclosure of certain elements of the pension cost has confused the board. Although the notes to the income statement identify that the pension cost has an interest element, this has been included within operating profit.

Finally, the board is concerned about future adjustments that may be required to deal with the amortization of the remeasurement gains that have accumulated in Clear's pension scheme. Baragutti intends to perform the following calculations to deal with each issue independently:

Issue 1

Recalculate pension expense included in the income statement under U.S. GAAP. Baragutti has observed that companies reporting pension expense under U.S. GAAP have used an average of 3% for the expected return on plan assets and he intends to apply this rate where applicable. He does not intend to amortize any of this year's prior service cost.

Issue 2

Assuming IFRS, recalculate the local currency (€) operating margin excluding any pension scheme interest element. The current income statement before Baragutti's adjustments is shown in Exhibit 2.

Issue 3

Baragutti prepares the following note containing two statements to advise the board on the future amortization of actuarial gains and losses:

Statement 1

> "Under IFRS, when cumulative remeasurement gains/losses are large enough, they will be amortized through the income statement over the average service life of the employees, reducing net income if net losses are amortized, and increasing net income if net gains are amortized."

Statement 2

> "Under U.S. GAAP, the amortization of net actuarial losses will increase leverage (i.e., debt-to-equity ratio), whereas the amortization of net actuarial gains will decrease leverage."

Exhibit 2: Income Statement (Extracts)

	2015
	€ million

Revenue	
Passenger	9,321
Cargo	456
Total	**9,777**
Employee costs	3,654
Depreciation, amortization	894
Aircraft operating lease costs	156
Fuel and oil costs	1,853
Engineering and other aircraft costs	542
Landing fees	1,458
Exchange rate losses	221
Ground equipment costs	765
Total operating costs	**9,543**
Operating profit	**234**
Fuel derivative losses	32
Finance costs	193
Finance income	89
Profit before tax	**98**

Note: Employee costs include the defined benefit pension expense for the period.

Baragutti has also been asked to raise any other points he thinks the board should be aware of surrounding this issue. He intends make the following two observations on cash flow calculations and the impact of Tarpon's employee share option scheme.

Cash Flow Calculations

Baragutti noted that the board has used Clear's operating cash flow as a basis for its valuation of the entity. He intends to notify the board that whenever it encounters a company with a defined benefit scheme, in his opinion, it would be advisable to adjust CFO to reflect the fact that employer contributions are not the same as the cost of the scheme.

Employee Share Option Scheme

Although Tarpon does not have a defined benefit pension scheme, it does have an equivalent employee compensation expense in the form of an employee share option scheme. Just as there is a cost to Clear of its defined benefit scheme, the cost of Tarpon's share option scheme will be charged as an expense to the income statement and hence reduce retained earnings and equity.

Question #25 of 60

Question ID: 1220770

The total periodic pension cost for Clear's defined benefit pension scheme in 2015 is *closest* to:

A) €405 million.

B) €421 million.

C) **€623 million.**

Explanation

Employer contributions	306
Opening funded status	810
Closing funded status	493
Change in funded status	(317)
TPPC = contributions − Δ funded status	€623

For Further Reference:

(Study Session 5, Module 14.3, LOS 14.c)

Question #26 of 60

Question ID: 1220771

In dealing with issue 1 as outlined, Baragutti is likely to calculate a pension expense *closest* to:

A) €149 million.

B) **€267 million.**

C) €390 million.

Explanation

Income statement (U.S. GAAP)

Service cost		170
(+) Interest cost	(4.5%)	365
(−) Expected return on assets	(3%)	(268)
(=) Periodic pension cost in P&L		267

Since beginning actuarial losses were less than 10% of the greater of beginning PBO or beginning plan assets, there would be no amortization.

For Further Reference:

(Study Session 5, Module 14.3, LOS 14.c)

Question #27 of 60

Question ID: 1220772

Using IFRS and Baragutti's suggested adjustments for issue 2, he is likely to calculate an adjusted operating margin *closest* to:

A) 2%.

B) 4%.

C) 6%.

Explanation

Under IFRS interest income/expense is calculated by applying the discount rate to the opening funded status. Since the plan is overfunded, Clear is reporting net interest income.

Opening funded status:	8920 − 8110 = 810
Net interest income:	810 × 0.045 = 36.45
Operating profit as reported:	234
Less net interest income:	(36.45)
Adjusted operating profit:	197.55
Adjusted margin:	197.55/9777 = 2.02%

For Further Reference:

(Study Session 5, Module 14.6, LOS 14.e)

Question #28 of 60

Question ID: 1220773

Baragutti is *most likely* to suggest adjusting the cash flow used by the board as a basis of its valuation by:

A) decreasing it because employer contributions are higher than reported pension expense.

B) decreasing it because employer contributions are lower than total periodic pension cost.

C) increasing it.

Explanation

If the employer contributions are lower than the total periodic pension cost, the company is effectively borrowing from the pension plan. The after-tax difference should be deducted from CFO and added to CFF.

For Further Reference:

(Study Session 5, Module 14.6, LOS 14.f)

Question #29 of 60

Question ID: 1220774

Which of Baragutti's statements on the amortization of actuarial gains and losses in response to issue 3 are *most likely* correct?

A) Both statements are correct.

B) Only statement two is correct.

C) **Neither statement is correct.**

Explanation

Under IFRS, Remeasurement gains/losses are never amortized into the income statement, they remain in other comprehensive income.

Under U.S. GAAP actuarial gains and losses are amortized using the corridor approach. Amortization removes a gain or loss from OCI and shows it in the income statement. Therefore it has no overall impact on equity.

For Further Reference:

(Study Session 5, Module 14.3, LOS 14.c)

Question #30 of 60

Question ID: 1220775

Baragutti's comments regarding Tarpon's employee share option scheme are *most likely*:

A) correct.

B) incorrect because the cost of issuing shares under an employee stock option scheme will be taken directly to equity via OCI and hence not reduce retained earnings.

C) **incorrect as the cost of issuing shares under an employee stock option scheme will not reduce equity.**

Explanation

The expense of the employee stock option scheme will be shown as employee compensation expense in the income statement and hence reduce retained earnings. However, there is an offsetting increase in paid-in capital and hence no overall impact on equity.

For Further Reference:

(Study Session 5, Module 14.7, LOS 14.h)

Questions #31-36 of 60

Questions 91 through 96 relate to Corporate Finance.

Cummings Enterprises, Inc., Case Scenario

Cummings Enterprises, Inc. (CEI), is a U.S. conglomerate that operates in a variety of markets. CEI's marginal tax rate is 40%. One of CEI's divisions manufactures small fiberglass products, such as bird baths and outdoor storage lockers. CEI is currently considering the expansion of its fiberglass product line to include booms and buckets for aerial lift trucks (often called cherry pickers), which are used for applications such as high voltage power line maintenance. The addition of this new product line is expected to increase CEI's sales by $750,000 per year.

Cal Holbrook, CEI's manager of fiberglass operations, is deciding whether to purchase a robotic system to produce cherry picker booms and buckets. The price of the robotic system will be $700,000, plus an additional $100,000 for shipping, site preparation, and installation. The new equipment will require a $50,000 increase in inventory and a $20,000 increase in accounts payable. The company uses MACRS to calculate depreciation for tax purposes and the straight-line method for financial reporting. The project has an expected life of four years, at which time the robot is expected to be sold for $75,000. The project will be funded with the debt/equity mix reflected by the company's current capital structure. CEI's pretax cost of new debt is 7%. Assume a WACC of 8%. Some of the relevant end-of-year cash flows for the robotic project are presented in Exhibit 1.

Exhibit 1: Relevant Cash Flows for Robotics Project

	Year 1	Year 2	Year 3	Year 4
Sales	$750,000	$750,000	$750,000	$750,000
Variable costs	$225,000	$225,000	$225,000	$225,000
Fixed expense	$75,000	$75,000	$75,000	$75,000
Depreciation	$264,000	$360,000	$120,000	$56,000
Earnings before tax (EBT)	$186,000	$90,000	$330,000	$394,000
Total after-tax cash flow	**$375,600**	**$414,000**	**$318,000**	?

Holbrook calculates the NPV of the robotic project and presents his findings to his supervisor, Geoffrey Mans. After reviewing the report, Mans makes the following recommendations:

1. "You forgot to include the $100,000 we have spent so far on consultants and project engineers and who knows what else to evaluate the project's feasibility. Rerun the numbers including that amount and get the revised calculations to me this afternoon."
2. "Rerun the analysis assuming straight-line depreciation for tax purposes. The NPV will be higher, and we'll be more likely to get the project funded."

Cummings has two other projects under consideration that would affect the production of storage lockers. Project 1 relates to changing the production process, and Project 2 relates to expanding the distribution facility. Holbrook estimates the NPV of the expected cash flows for Project 1 at negative $7 million. An additional investment of $3 million would allow management to more rapidly adjust to the demand for a certain type of locker. The value of this flexibility is estimated at $9 million. He estimates that the NPV of the expected cash flows for Project 2 at $3 million. An expansion option would require an additional investment of $2 million. At this time, Cummings does not have any capital rationing restrictions.

Holbrook emails the lead analyst for the budgeting group and indicates that he cannot make a decision on Project 2 without knowing the value the expansion option will provide.

Holbrook calls a capital budgeting meeting with CEI's production and quality control manager. Holbrook opens the meeting by stating: "I think we should accept this project based solely on the fact that it provides great operating margins. Nevertheless, I think we should conduct net present value (NPV) analysis to confirm my opinion." Holbrook then receives the following comments:

Comment 1:	It is important that interest is included in the cash flows used with NPV analysis because interest is a real and very significant expense.
Comment 2:	If applied correctly, the NPV of this project will be higher if we discount economic profits instead

of net after-tax operating cash flows in our analysis. I suggest we calculate economic profit as net operating profit after tax minus the dollar cost of capital.

Question #31 of 60

Question ID: 1220777

Which of the following choices is *closest* to the Year 4 total cash flow for the robotics project in Exhibit 1?

A) $292,400.

B) $345,400.

C) **$367,400.**

Explanation

initial investment outlay

= purchase price + increase in net working capital + shipping and installation costs

= $700,000 + ($50,000 − $20,000) + $100,000 = $830,000

terminal year after-tax non-operating cash flow (TNOCF)

= Sal_T + NWCInv − T(Sal_T − B_T)

= 75,000 + 30,000 − 0.4(75,000 − 0)

= 75,000

after-tax operating cash flow (Year 4)

= (S − C)(1 − T) + DT

= ($750,000 − $225,000 − $75,000)(1 − 0.4) + (0.4)($56,000) = $292,400

The book value at the end of Year 4 is $0 because total depreciation over the four years was $800,000.

total CF (Year 4) = $292,400 + $75,000 = $367,400

For Further Reference:

(Study Session 7, Module 19.1, LOS 19.a)

Question #32 of 60

Question ID: 1220778

Are Mans's recommendations regarding the robotic project correct or incorrect?

A) Both recommendations are correct.

B) Only one of the recommendations is correct.

C) **Both recommendations are incorrect.**

Explanation

Both recommendations are incorrect. The $100,000 is a sunk cost and is thus not a relevant cash flow. Using straight-line depreciation will reduce the present value of the depreciation tax shield and reduce the NPV.

For Further Reference:

(Study Session 7, Module 19.1, LOS 19.a)

Question #33 of 60

Question ID: 1220779

For this question only, assume that the investment in net working capital of $30,000 at the project inception is an inflow and that the amount nets to zero with the outflow that will occur at the end of the project. However, Holbrook does not include a cash flow for net working capital at the beginning or the end of the project. Assuming he correctly analyzes all the other components of the project, has Holbrook correctly estimated the project's net present value?

A) Yes.

B) **No, he underestimated the project's NPV by approximately $7,950.**

C) No, he underestimated the project's NPV by approximately $2,222.

Explanation

By ignoring the initial $30,000 cash inflow (recall that you are asked to assume it is an inflow), he has underestimated project NPV by $30,000. By ignoring the terminal cash outflow of $30,000, he has overestimated the project NPV by

$$\frac{\$30,000}{1.08^4} = \$22,050$$

The net effect is to underestimate NPV by $30,000 − 22,050 = $7,950.

For Further Reference:

(Study Session 7, Module 19.1, LOS 19.a)

Question #34 of 60

Question ID: 1220780

Which of the following choices is *closest* to the overall NPV for Project 1, and is Holbrook correct to wait for more information before deciding on Project 2?

A) The overall NPV is –$1 million, and Holbrook is correct.

B) **The overall NPV is –$1 million, and Holbrook is incorrect.**

C) The overall NPV is $13 million, and Holbrook is incorrect.

Explanation

The overall NPV of Project 1 = project NPV − option cost + option value.

overall NPV = –$7 million − $3 million + $9 million = –$1 million

Without the option, the NPV of the production facility is negative, and the real option does not add enough value to make the overall project profitable.

Holbrook is incorrect that he needs to wait for more information to make the decision on Project 2. If the NPV of the project without the option is positive, the analyst knows that the project with the option must be even more valuable, and determining a specific value for the option is unnecessary. A real option adds value to a project, even if it is difficult to determine the monetary amount of that value.

For Further Reference:

(Study Session 7, Module 19.3, LOS 19.f)

Question #35 of 60

Question ID: 1220781

The economic income for Year 3 for the robotics project from Exhibit 1 is *closest* to:

A) $19,400.

B) **$48,700.**

C) $49,400.

Explanation

economic income = cash flow − economic depreciation

economic depreciation = beginning market value − ending market value

market value at time t = present value of all remaining cash flows discounted at the WACC

$$\text{Year 3 beginning market value} = \frac{\text{CF}_3}{(1+\text{WACC})^1} + \frac{\text{CF}_4}{(1+\text{WACC})^2}$$

$$= \frac{\$318{,}000}{(1.08)^1} + \frac{\$367{,}400}{(1.08)^2} = \$294{,}444 + \$314{,}986 = \$609{,}430$$

$$\text{Year 3 ending market value} = \frac{\text{CF}_4}{(1+\text{WACC})^1} = \frac{\$367{,}400}{(1.08)^1} = \$340{,}185$$

Year 3 after-tax operating cash flow (given) = $318,000

Year 3 economic depreciation = $609,430 − $340,185 = $269,245

Year 3 economic income = $318,000 − $269,245 = $48,755

For Further Reference:

(Study Session 7, Module 19.3, LOS 19.h)

Question #36 of 60

Question ID: 1220782

Are the comments made by the CEI's production and quality assurance manager correct or incorrect?

A) Both comments are correct.

B) Only one of the comments is correct.

C) **Both comments are incorrect.**

Explanation

Comment 1 is incorrect. Interest should not be included in a project's cash flows when conducting NPV analysis because it is a financing cost that is reflected in the discount rate use to compute NPV.

Comment 2 is incorrect. In theory, when discounted at the WACC, the present value of the economic profits from a project equals the NPV of the project. For a given period, economic profit = NOPAT − $WACC, where NOPAT is net operating profit after taxes and $WACC is the dollar cost of the capital used during the period. Economic profit reflects the income earned by all capital providers.

For Further Reference:

(Study Session 7, Module 19.3, LOS 19.i)

Questions #37-42 of 60

Questions 97 through 102 relate to Fixed Income.

Jon Stevenson Case Scenario

Jon Stevenson, CFA, is an experienced equity fund manager who has recently taken a position with Lohsi Clearview, a UK-based hedge fund that has combined a wide range of strategies to deliver impressive returns over the last five years. One of the fund's strategies is to invest in high-credit-risk fixed income instruments. The fund has an excellent track record of identifying bonds in this sector that subsequently outperform the market.

Stevenson wishes to familiarize himself with the fund's strategies and has started by looking at some of the techniques used in analyzing fixed income instruments. Exhibit 1 shows the firm's approach to analyzing credit risk.

Exhibit 1: Credit Analysis Tools

Credit Ratings
Before undertaking any level of detailed analysis, the credit rating from the three major agencies should be obtained. Typically an instrument that is investment grade according to all three agencies will not be worthy of further consideration.
Structural Models
An initial analysis using a simple structural model should be undertaken to calculate the present value of the expected loss.
Reduced Form Models
Detailed analysis should be undertaken using the reduced form models used by the fixed income team. This analysis should only be undertaken once the structural model analysis has been completed.

Stevenson has no experience with structural models and is interested in learning more. He finds an analysis that has been completed for a recent bond issue. The results are shown in Exhibit 2.

Exhibit 2: IMC Bond Issue (ID 062014555612) Structural Model Results

Asset value	A_t	1,200

Expected return on assets	μ	0.04
Risk free rate	r	0.02
Face value	K	850
Time to maturity	T−t	1.5
Return volatility	σ	0.28

d_1	1.26452
d_2	0.92159
$N(-d_1)$	0.1030
$N(-d_2)$	0.1784
e_1	1.35200
e_2	1.00907
$N(-e_1)$	0.0882
$N(-e_2)$	0.1565
Expected loss	22.86
PV expected loss	23.51

Stevenson next turns his attention to DEP Bond, one of the fund's holdings. The bond was purchased today, immediately after it paid its annual coupon. Stevenson obtains the file for DEP and finds out that the bond was evaluated using a risk-neutral probability of default (POD) as shown in Exhibit 3.

Exhibit 3: DEP Bond Issue (ID 071443274112)

Rating	B	Modified duration	2.80	POD	2.50%
Purchase price	$104.85	Coupon (just paid)	5%	Recovery rate	50%
Par value	$100	Maturity	3 years	Risk-free rate	2%

Stevenson also finds in the file current credit spreads applicable to bonds similar (by ratings class) to DEP bond as shown in Exhibit 4.

Exhibit 4: Spreads

Rating	AAA	AA	A	BBB	BB	B	CCC/CC/C
Avg. Spread	0.24%	0.32%	0.49%	0.60%	0.77%	0.95%	1.22%

Question #37 of 60

Question ID: 1220784

Which of the credit analysis models shown in Exhibit 1 can only be used under the assumption that the issuing company's assets trade in a frictionless market?

A) Structural models.

B) Reduced form models.

C) Both structural models and reduced form models.

Explanation

Structural models require that the company's assets trade in a frictionless arbitrage free market.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #38 of 60

Question ID: 1220785

According to the structural model shown in Exhibit 2, the maximum amount an investor holding the bond would pay to a third party to remove the risk of default would be:

A) $0.65.

B) $22.86.

C) $23.51.

Explanation

The maximum amount an investor would to pay to remove the credit risk is the present value of the expected loss.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #39 of 60

Question ID: 1220786

If the volatility estimate is changed to 30% in the structural model shown in Exhibit 2, the calculated value of the IMC Bond would *most likely*:

A) remain the same.

B) decrease.

C) increase.

Explanation

Under the option analogy of the structural model, risky debt can be viewed as a portfolio comprising a long position in risk-free debt and a short put option on the company's asset with a strike price equal to the face value of the risky debt. When the asset volatility increases, the value of the put option increases and the value of the portfolio with short exposure to the put option will decrease. Hence the computed value of risky debt will be lower.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #40 of 60

Question ID: 1220787

Using information in Exhibit 3, if DEP Bond gets downgraded one notch, and assuming that the credit spreads change as shown in Exhibit 4, the rate of return for the hedge fund on account of the change in credit spread is *closest* to:

A) –0.27%.

B) –0.49%.

C) **–0.70%.**

Explanation

% return = (–) modified duration × (Δ spread) = (–) 2.60 × (1.22 – 0.95) = –0.70%.

For Further Reference:

(Study Session 13, Module 35.3, LOS 35.c)

Question #41 of 60

Question ID: 1220788

Based on information in Exhibit 3, if Stevenson determines that the recovery rate appropriate for DEP is 45%, the probability of default (POD) would *most likely*:

A) increase.

B) remain the same.

C) **decrease.**

Explanation

In general, given the market price of the bond, the estimated risk neutral probabilities of default and recovery rates are positively correlated. In this instance, we are given in the question that the recovery rate of 45% is determined to be appropriate (as opposed to the 50% rate used) to estimate the risk-neutral probability of default of 2.50% given in Exhibit 3. The lower the recovery rate assumed, the lower the risk-neutral probability of default (POD).

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #42 of 60

Question ID: 1220789

Based on the information in Exhibit 3, if the bond defaults 2 years after purchase, the IRR for the investment in the bond would be *closest* to:

A) –16.67%.

B) –18.43%.

C) **–25.83%.**

Explanation

After two years, exposure = $5 + 105 / 1.02 = $107.94. Recovery rate (given in Exhibit 3) = 50%. Hence, recovery = 50% of $107.94 = $53.97. CF0 = –104.85, C01 = 5.0, C02 = $53.97. IRR = –25.83%

For Further Reference:

(Study Session 13, Module 35.2, LOS 35.a)

Questions #43-48 of 60

Questions 103 through 108 relate to Alternative Investments.

Parkway Terrace Case Scenario

Rita Larson, CFA, is an investment analyst for Siprah Properties, Inc. A group of wealthy investors, Ken Lundy, Chun Park, and Kareem Shabaz, are interested in purchasing Parkway Terrace, a 120-unit luxury apartment complex in Southeastern Florida. The current owners of Parkway Terrace have agreed to sell the property for $40,000,000.

Siprah represents both the existing owners and the potential new owners and are privy to additional information. Exhibit 1 and Exhibit 2 show the information Larson has collected during her due diligence.

Exhibit 1: Parkway Terrace Specifics

Parkway Terrace	
Projected first year net operating income	$3.3 million
Location/condition	Prime/good
LTV	75.0%
Loan term	25 years
Loan interest rate	4.5%
Monthly debt service	$166,750
Square footage	240,000
Expected holding period	10 years

Parkway Terrace	Cost Estimates
Effective age of building	10 years
Total economic life	50 years
Estimated value of land	$12,500,000
Replacement cost (p.s.f.)	$175.00
Developer's profit (p.s.f.)	$15.00
Curable deterioration	$5,000,000
Total obsolescence	$4,000,000
Expected selling price in 10 yrs	$60,000,000

Loan balance at end of 10 yrs	$21,797,543

Exhibit 2: Recent Transactions of Luxury Apartment Buildings in Southeastern Florida

Building	Craig Court	Kenton Place	Hester Oasis
Size in square feet	200,000	150,000	300,000
Age in years	7	10	13
Condition	Fair	Good	Good
Location	Prime	Secondary	Secondary
Age of transaction (in months)	9	5	16
Sales price	$32,000,000	$24,000,000	$45,000,000
Projected NOI	$2,560,000	$1,800,000	$3,150,000

Additional information:

- Depreciation is 1.5% per year.
- Condition can be good, fair, or bad. 7.5% is the adjustment needed per classification.
- Location can be prime, secondary, or tertiary. Prime locations are the most sought-after and 7.5% is the adjustment needed per classification.
- Market prices have been increasing at a rate of 0.50% per month.

Lundy states that all returns and ratios must exceed the minimum standards as listed below.

Minimum Requirements	
Levered required rate of return	20.0%
Debt service coverage ratio	1.50X
Equity dividend rate	25.0%

Economic Outlook for Southeast Florida

- Home prices are expected to rise.
- Interest rates are expected to increase.
- Population growth is expected to be higher than in other areas as more wealthy retirees are moving to the region.

The investors make the following statements about how to best approach this investment:

Ken Lundy:	"After we buy Parkway Terrace, we should offer shorter leases to take advantage of market conditions."
Chun Park:	"I think that after we buy, we should offer long leases to lock-in tenants and maximize profitability."
Kareem Shabaz:	"If we buy, we should take advantage of the low interest rates by using as much leverage as possible."

Larson is interested in using a real estate index in her analysis of suitability of real estate as an asset class for several of Siprah's clients. She notes that the firm subscribes to a proprietary index provided by REIQ. The REIQ index is an appraisal-based index that is very popular among real estate professionals. Larson is concerned about appraisal lag in the index and wants to adjust the index to remove this lag.

Question #43 of 60

Question ID: 1220791

The estimated value of the property using the direct capitalization approach is *closest* to:

A) $41.3 million.

B) $42.0 million.

C) **$44.0 million.**

Explanation

Using direct capitalization:

Cap rate data:

Office Building	Craig Court	Kenton Place	Hester Oasis
Cap rate	$2.56 / $32.0 = 8.0%	$1.80 / $24.0 = 7.5%	$3.15 / $45.0 = 7.0%

The average cap rate for the three apartment buildings is 7.5%. The estimated value of Parkway Terrance is calculated as the NOI of $3,300,000 divided by the cap rate of 7.5%, or $44.0 million.

For Further Reference:

(Study Session 15, Module 39.2, LOS 39.g)

Question #44 of 60

Question ID: 1220792

The estimated value of the property using the sales comparison approach is *closest* to:

A) $37.6 million.

B) **$42.2 million.**

C) $43.2 million.

Explanation

Using the sales comparison approach:

Variable	Craig Court	Kenton Place	Hester Oasis
Sale price	$32,000,000	$24,000,000	$45,000,000
Size	200,000	150,000	300,000

Sale price per sq ft	$160.00	$160.00	$150.00
Age adjustment	-4.5%	0.0%	+4.5%
Condition adjustment	+7.5%	0.0%	0.0%
Location adjustment	0.0%	+7.5%	+7.5%
Date of sale adjustment	+4.5%	+2.5%	+8.0%
Total adjustments	+7.5%	+10.0%	+20.0%
Adjusted sales price psf	$160 × (1 + 0.075) = $172.00	$160 × (1 + 0.100) = $176.00	$150 × (1 + 0.200) = $180.00

Average sales price per square foot is $176.00. The sales comparison method estimates the value of the property at 240,000 square feet × $176.00 = $42.2 million.

For Further Reference:

(Study Session 15, Module 39.4, LOS 39.i)

Question #45 of 60

Question ID: 1220793

For this question only, assume that the NOI growth rate is 0%. Based on Lundy's minimum requirements, the Parkway Terrace project is:

A) not worth pursuing because the equity dividend rate is below the minimum required.

B) worth pursuing because all three standards are met.

C) not worth pursuing because the debt service coverage ratio is below the minimum required.

Explanation

	Parkway Terrace	Standards
NOI	$3,300,000	
Equity[1]	$10,000,000	
Annual debt service	$166,750 × 12 = $2,001,000	
Equity dividend rate	= ($3,300,000 − $2,001,000) / $10,000,000 = 13.0%	13.0% is less than 25.0%
DSCR	$3,300,000/$2,001,000 = 1.65X	1.65X exceeds 1.50X
Cash flows (PMT)	$3,300,000 − $2,001,000 = $1,299,000	
Equity (PV)	$10,000,000	
Sales price − outstanding loan in 10 years (FV)	$60,000,000 − $21,797,543 = $38,202,457	

Sales date (N)	10	
Levered IRR[2]	22.6%	22.6% exceeds 20.0%

[1] LTV = 75% (given), equity = 25% of 40 million

[2] Levered IRR calculation: N = 10; PV = –10,000,000; PMT = 1,299,000; FV = 38,202,457; CPT → I/Y = 22.56%

For Further Reference:

(Study Session 15, Module 39.5, LOS 39.m)

Question #46 of 60

Question ID: 1220794

The estimated value of the property using the cost approach is *closest* to:

A) $28.5 million.

B) **$41.0 million.**

C) $45.0 million.

Explanation

Value of land (given)			$12,500,000
Replacement cost, including constructor's profit			
Building costs (psf)	$175		
Total area	240,000	$42,000,000	
Developer's profit	$15	$3,600,000	
		$45,600,000	
Reduction for curable deterioration		–$5,000,000	
		$40,600,000	
Reduction for incurable deterioration			
Total economic life	50		
Remaining economic life	40		
Effective age	10		
Ratio of effective to total	20.0%		
Reduction for incurable deterioration		–$8,120,000	
		$32,480,000	
Reduction for total obsolescence		–$4,000,000	
Total building value			$28,480,000
Total cost estimate			$40,980,000

For Further Reference:

(Study Session 15, Module 39.4, LOS 39.i)

Question #47 of 60

Question ID: 1220795

Which stated approach is *least likely* to result in an increase in potential returns?

A) Chun Park's.

B) Ken Lundy's.

C) Kareem Shabaz's.

Explanation

The economic outlook on home prices and population trends indicate favorable conditions going forward. Shorter leases would allow rents to be adjusted upwards as demand for rentals increase, so Lundy's comment is correct. For a buyer of real estate, low interest rates along with a high loan-to-value (LTV) will maximize the potential for high levered returns. Tenants will benefit from longer leases in a high demand environment; this would not benefit the investors so Park's comment is incorrect.

For Further Reference:

(Study Session 15, Module 39.1, LOS 39.c, 39.d)

Question #48 of 60

Question ID: 1220796

To correct for appraisal lag in the REIQ index, which of the following is the *least appropriate* course of action for Larson?

A) 'Unsmooth' the index.

B) Use a transaction-based index.

C) Use more-recent appraisals.

Explanation

Appraisal lag tends to smooth the reported returns of real estate indices, resulting in an artificially low correlation with other asset classes. Appraisal lag can be mitigated by unsmoothing the index or by using a transaction-based index. Using more-recent appraisals still relies on appraisal-based data.

For Further Reference:

(Study Session 15, Module 39.5, LOS 39.k)

Questions #49-52 of 60

Questions 109 through 112 relate to Portfolio Management.

Seva Wolff Case Scenario

Seva Wolff has just inherited $1.2 million. She meets with Roberta Gomez, her financial advisor, about changes to her investment policy statement—and hence, her portfolio—due to this major life event.

Gomez recommends that Wolff consider exchange-traded funds (ETFs) for her portfolio and suggests that she can compile a list of ETFs suitable for Wolff.

Wolff is uncertain about this class of investment product and asks several questions. In her response, Gomez makes the following statements:

Statement 1:	ETFs represent shares in a portfolio. The fund manager must disclose the holdings on an annual basis.
Statement 2:	ETFs trade on both primary and secondary markets.
Statement 3:	Market makers known as *authorized participants* keep ETF prices in line with a fund's NAV per share through a process known as *creation/redemption*. The costs of creation/redemption are borne by all of the fund's shareholders.
Statement 4:	Relative to traditional mutual funds, ETFs tend to distribute less in capital gains to their shareholders.

Gomez then mentions that Wolff should consider other asset classes that form part of a well-diversified portfolio. She says the expected return on an asset is affected by the investor's intertemporal rate of substitution. She makes the following statements:

Statement 5:	Typically, the covariance between a risk-averse investor's intertemporal rate of substitution and the current asset price is negative.
Statement 6:	An investor's breakeven inflation rate is the expected future inflation minus the risk premium for future inflation.

Question #49 of 60

Question ID: 1220798

Considering Gomez's statements 1 and 2:

A) only statement 1 is accurate.

B) **only statement 2 is accurate.**

C) both statements are accurate.

Explanation

ETFs trade on both primary and secondary markets. Primary market trades occur between authorized participants and an ETF sponsor or manager. The ETF manager discloses a list of securities on a *daily basis* as part of the creation basket.

For Further Reference:

(Study Session 16, Module 43.1, LOS 43.a)

Question #50 of 60

Question ID: 1220799

Considering Gomez's statements 3 and 4:

A) only statement 3 is accurate.

B) **only statement 4 is accurate.**

C) neither statement is accurate.

Explanation

Authorized participants pass on the creation/redemption costs in the form of bid-ask spreads, which means that only transacting shareholders pay these costs, unlike with mutual funds where all shareholders bear this cost. Similarly, unlike mutual funds, ETFs are tax fair because redemptions are in-kind and do not affect the nontransacting shareholders; hence, capital gains distributions tend to be lower for ETFs compared to traditional mutual funds.

For Further Reference:

(Study Session 16, Module 43.1, LOS 43.a)

Question #51 of 60

Question ID: 1220800

Gomez's statement 5 is *best* described as:

A) correct.

B) **incorrect about the covariance between the intertemporal rate of substitution and the current asset price.**

C) incorrect about covariance being a factor in the pricing of securities.

Explanation

The covariance between a risk-averse investor's intertemporal rate of substitution and *expected future price* is negative.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.c)

Question #52 of 60

Question ID: 1220801

Gomez's statement 6 is *best* described as:

A) correct.

B) **incorrect, because breakeven inflation is equal to expected inflation plus a risk premium for inflation uncertainty.**

C) incorrect, because breakeven inflation is equal to expected inflation minus actual inflation.

Explanation

The breakeven inflation rate equals expected inflation plus a risk premium for inflation uncertainty.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.e)

Questions #53-56 of 60

Questions 113 through 116 relate to Portfolio Management.

Faver Asset Management Case Scenario

Brendan Mollie is a summer intern at Faver Asset Management. He is currently learning about the trading systems used at Faver. As part of his orientation, Sean McDermott, the head trader at Faver, provides a printout to Mollie as shown in **Limit order book for SIVP** .

Limit order book for SIVP

Bids				Asks			
Dealer	**Time Entered**	**Price**	**Size**	**Dealer**	**Time Entered**	**Price**	**Size**
A	11:29 am	12.22	2,500	C	9:31 am	12.26	1,500
B	11:39 am	12.21	2,000	A	9:31 am	12.28	2,500
C	11:43 am	12.20	3,000	B	9:41 am	12.31	3,000

McDermott states that Faver evaluates execution quality using effective spread and volume weighted average price (VWAP) benchmarks. McDermott makes the following statements:

Statement 1:	VWAP is the weighted average price of all the trades executed during the time interval between the order being placed and executed. The weights used are based on the number of shares in each trade.
Statement 2:	VWAP is not useful if the trade being evaluated is a significant part of the trading volume. VWAP, however, does account for the price impact cost.

Question #53 of 60

Question ID: 1220803

Using information in **Limit order book for SIVP** , the inside spread per share is *closest* to:

A) $0.04.

B) $0.08.

C) $0.12.

Explanation

The best (i.e., highest) bid is $12.22, and the best (i.e., lowest) ask is $12.26.

inside spread = best ask – best bid = $12.26 – $12.22 = $0.04.

For Further Reference:

(Study Session 17, Module 48.1, LOS 48.b)

Question #54 of 60

Question ID: 1220804

For a purchase transaction at a price of $12.27, and using dealer B quotes, the effective spread per share on the trade is *closest* to:

A) $0.01.

B) **$0.02.**

C) $0.04.

Explanation

Dealer B's quotes are $12.21–$12.31 for a midquote of $12.26.

per share effective spread transaction cost

= (side) × (transaction price – midquote price)

= (+1) × (12.27 − 12.26) = $0.01

effective spread = 2 × (per share effective spread transaction cost)

= 2 × 0.01 = $0.02

For Further Reference:

(Study Session 17, Module 48.1, LOS 48.b)

Question #55 of 60

Question ID: 1220805

McDermott's statement 1 is *most likely*:

A) correct.

B) incorrect about weighted average price during the time interval between the order being placed and executed.

C) **incorrect about weights being based on the number of shares of each trade.**

Explanation

VWAP is the weighted average price at which all trades were executed during the time interval between the order being placed and executed. The weights used are based on the dollar volume of each trade.

For Further Reference:

(Study Session 17, Module 48.1, LOS 48.b)

Question #56 of 60

Question ID: 1220806

McDermott's statement 2 is *best* described as:

A) correct.

B) incorrect about VWAP not being useful if the trade being evaluated is a significant part of the trading volume.

C) incorrect about VWAP accounting for the price impact cost.

Explanation

VWAP is not useful if the trade being evaluated is a significant part of the trading volume. In such cases, the benchmark VWAP and the trade VWAP will be close to each other, and the measured transaction cost will be skewed toward zero. VWAP *does not* capture the price impact cost. For example, if a large buy order was the only trade that was executed during a time interval at a price above the normal trading price, the benchmark VWAP will then be identical to the trade VWAP, and the calculated transaction cost will be zero. However, the trade was not executed at a good price.

For Further Reference:

(Study Session 17, Module 48.1, LOS 48.b)

Questions #57-60 of 60

Questions 117 through 120 relate to Portfolio Management.

Molenaar Asset Management Case Scenario

Rose Dongen is the chief risk officer at Molenaar Asset Management. Dongen is concerned about the risk metrics the firm is currently using, so she meets with Dan Kuiper, the firm's portfolio manager, and Dirk Schipper, the head trader. Kuiper explains that the firm has been using a Value at Risk (VaR) metric over the past year, and it seems to communicate downside risk very well. Kuiper makes the following statements:

Statement 1:	A 5% VaR measures the maximum loss with a 95% confidence level.
Statement 2:	Parametric VaR is more suitable than historical VaR if we expect fundamental changes in the economy.

Kuiper states that the expected return of the firm's portfolios over the next year is 11.20%, with annual standard deviation of 14.80%. Currently, the firm has $332 million in assets under management.

Schipper states that electronic trading has introduced new risks that are not currently measured. He says the firm's broker provides valuable algorithms, such as liquidity aggregators, and that he refrains from using standing limit orders even if they reduce the overall trading cost.

Question #57 of 60

Question ID: 1220808

Regarding Kuiper's statement 1 and statement 2:

A) only statement 1 is accurate.

B) only statement 2 is accurate.

C) both statements are accurate.

Explanation

Both statements are accurate. Five percent VaR is the minimum loss 5% of the time, or maximum loss with a 95% confidence level. Historical VaR is suitable only when past data is a good representation of the future. If we expect changes in the economic environment, updated parameters can be used with parametric VaR estimation to obtain robust estimates of VaR.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.a)

Question #58 of 60

Question ID: 1220809

The 5% annual $VaR using the parametric approach is *closest* to:

A) $44 Million.

B) $56 million.

C) $150 million.

Explanation

VaR% = 11.20% − (1.65 × 14.80%) = –13.22%.

$VaR = $332 million × 0.1322 = $43,890,400.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.b)

Question #59 of 60

Question ID: 1220810

The algorithm discussed by Schipper is *most likely* to be used in the presence of:

A) market manipulators.

B) hidden orders.

C) market fragmentation.

Explanation

Smart order routing and liquidity aggregators are algorithms used to counter market fragmentation. Liquidity aggregation algorithms create a super order book that exposes liquidity across all markets. Smart order routing algorithms send orders to the markets with the best prices and liquidity.

For Further Reference:

(Study Session 17, Module 48.2, LOS 48.e)

Question #60 of 60

Question ID: 1220811

Schipper's position on standing limit orders is *most likely* due to concerns about:

A) quote matchers.

B) quote stuffers.

C) front runners.

Explanation

Standing limit orders provide valuable information to other traders; they disclose the intent of the trader posting the order to buy or sell the specified quantity. Electronic quote matchers exploit their awareness of standing orders by using them as options to limit their trading risk.

For Further Reference:

(Study Session 17, Module 48.2, LOS 48.f)

Questions #1-6 of 60

Questions 1 through 6 relate to Ethical and Professional Standards.

Blanchard Investments Case Scenario

Carol Blackwell, CFA, has been hired into the research department of Blanchard Investments. Blanchard's manager, Thaddeus Baldwin, CFA, has worked in the securities business for more than 50 years. On Blackwell's first day at the office, Baldwin gives her an incomplete research report on Tops Groceries, Inc., to finish up.

Upon researching Tops, information about the financial instability of Tops Groceries' largest customer surfaces. Blackwell revises the research report by lowering the earnings projections. The day the report is to be released, Blackwell learns that Baldwin has replaced the lower, revised earnings projections with his earlier estimates.

Baldwin realizes that many of the firm's practices and policies would benefit from a compliance check. Baldwin wants Blackwell to ensure that the policies and procedures at the firm are in compliance.

While reviewing a draft research report on Patel, Inc., Blackwell notices that the research analyst responsible for authoring the report had used neural networks in forecasting revenues and earnings. Since that analyst was no longer employed at the firm, and Blackwell is not familiar with that specific quantitative tool, he deletes the segment pertaining to neural networks but otherwise does not change the report before signing off on it.

Blanchard's investment banking department recently announced that they were successful in obtaining the account of Teos Toys, Inc. In light of this announcement, Baldwin wants to know whether he can continue to rate Teos' stock favorably.

During a local society luncheon, Blackwell is seated next to CFA candidate Lucas Walters, who has been assigned the task of creating a compliance manual for Borchard & Sons, a small brokerage firm. Walters asks for her advice.

When Walters returns to work, he is apprised of the following situation: Borchard & Sons purchased 25,000 shares of CBX Corp. for equity manager Quintux Quantitative just minutes before the money manager called back and said it meant to buy 25,000 shares of CDX Corp. Borchard then purchased CDX shares for Quintux, but not before shares of CBX Corp. declined by 1.5%. The broker is holding the CBX shares in its own inventory.

Borchard proposes three methods for dealing with the trading error.

Method 1:	Quintux directs additional trades to Borchard worth a dollar value equal to the amount of the trading loss.
Method 2:	Borchard receives investment research from Quintux in exchange for Borchard covering the costs of the trading error.

Method 3: Borchard transfers the ordered CBX shares in its inventory to Quintux, which allocates them to all of its clients on a pro-rata basis.

Question #1 of 60

Question ID: 1220672

Blackwell's *most appropriate* course of action to remain in compliance with the Code and Standards is to:

A) include a disclosure indicating that lower earnings estimates are available.

B) follow up the first report with a second report emphasizing lower earnings projections.

C) **remove her name from the report if they release the report with higher earnings estimates.**

Explanation

Standard V(A) Diligence and Reasonable Basis requires that appropriate due diligence be performed and that recommendations be substantiated. Moreover, the Standards require that supervisory procedures must be in place to ensure compliance with the policy. If the report is released with the supervisor's revision, Blackwell should insist that her name be removed.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a)

Question #2 of 60

Question ID: 1220673

When updating the proxy-voting policy to conform to CFA Institute recommendations, which of the following recommendations is *least appropriate* for Blanchard to adopt?

A) Determine the economic impact of non-routine proxy votes.

B) **Follow the same proxy-voting procedures regardless of the nature of the proposal.**

C) If the proxy voter’s preference differs from the preference of a client who has delegated his voting powers, go with the client’s preference.

Explanation

Standard III(A) Loyalty, Prudence, and Care. Unusual proposals, such as hostile takeovers and executive changes, may require more review than routine matters such as renewing stock-repurchase agreements. Money managers should provide a means to review complex proxies. Establishing evaluation criteria and disclosing the firm's proxy voting policies and procedures to clients are basic elements of a proxy-voting policy. Client wishes regarding proxy voting should always be followed.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #3 of 60

Question ID: 1220674

According to the Standards of Professional Conduct, Baldwin's *most appropriate* action regarding Teos Toys would be to:

A) refuse to have any involvement with Teos because of a conflict of interest arising from the firm's other relationships with the company.

B) **complete an independent and objective analysis of Teos and issue a report disclosing the nature of business relationship with Teos Toys.**

C) provide a copy of the research report to analysts at reputable research outfits and ask for some input.

Explanation

Analysts may undertake research related to firms with which they also have an investment banking relationship. The research must remain objective and unbiased to avoid violating the Code and Standards. Furthermore, the research report must fully disclose the nature of the investment banking relationship and any potential conflict of interest.

For Further Reference:

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

Question #4 of 60

Question ID: 1220675

Does Blackwell violate any standard through his actions related to the research report on Patel, Inc.?

A) No.

B) **Yes, pertaining to diligence and reasonable basis.**

C) Yes, pertaining to disclosure of conflicts.

Explanation

By removing the section pertaining to quantitative tools that Blackwell is not familiar with, the research report may not be grounded in adequate basis for recommendation. If Blackwell would have concluded that the output of the model did not contribute to the overall report, then he could have removed that model from analysis without violating the diligence and adequate basis standards. However, no such information is given in the case.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a)

Question #5 of 60

Question ID: 1220676

If Walters wants the manual to satisfy the requirements and recommendations of the Code and Standards, which of the following instructions is *least appropriate* to include in the section on fair dealing?

A) Whenever possible, disseminate investment recommendations to all clients at the same time.

B) **Execute all clients' requested trades promptly and without comment, regardless of the company's opinion on the stock being traded.**

C) Members of the investment-policy committee should not discuss possible changes in investment recommendations with anyone else in the firm until after an official decision has been made.

Explanation

Standard III(B) Fair Dealing requires firms to notify clients of changes in investment advice before executing trades that go counter to that advice. While equal dissemination is usually impossible, it is an admirable goal. Firms should establish dissemination guidelines that are fair to all clients. Trading disclosures and confidentiality regarding investment rating changes are sensible precautions that meet the spirit of the fair dealing Standard. Maintaining client lists that detail client holdings will simplify the process of deciding how to best disseminate a change in investment recommendation.

For Further Reference:

(Study Session 1, Module 2.5, LOS 2.a)

Question #6 of 60

Question ID: 1220677

Which method for dealing with the trading error is *most* consistent with the Code and Standards?

A) Method 1.

B) **Method 2.**

C) Method 3.

Explanation

Method 2 is the best answer. Quintux should cover the cost of the trading error, and if Borchard is willing to accept investment research in lieu of cash, that's all the better for Quintux. If Quintux compensates Borchard with extra trades, its clients are covering the costs of the error, which may violate Standard III(A) Loyalty, Prudence, and Care if directing future trades to Borchard is not in the clients' best interest. By accepting the CBX shares it did not request and allocating the shares to all client accounts rather than paying for the error, Quintux is violating Standard III(C) Suitability, since the shares are not likely to be appropriate for all of its client accounts and may not be suitable for any accounts since the shares were obtained as a result of a trading error, not an intentional investment action. Passing on client names is a violation of Standard III(E) Preservation of Confidentiality.

For Further Reference:

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

Questions #7-12 of 60

Questions 7 through 12 relate to Quantitative Methods.

Lead Equity, LLP, Case Scenario

Mihir Kotak, CFA, is the managing partner at Lead Equity, LLP, a private equity firm based in southern California. Kotak has decided to revise the model the firm uses to identify attractive investment opportunities by supplementing the model

with big data analysis. Kotak sets up a meeting with Ketan Mehta, the lead analyst with Big Solutions, Inc., a consulting company providing solutions related to big data.

During the meeting, Mehta makes the following statements about the steps involved in big data analysis.

Statement 1:	The same steps are used in big data analysis whether we are using structured or unstructured data.
Statement 2:	The data exploration step is critical; it includes exploratory data analysis, feature selection, and engineering.

Kotak states that the model is intended to identify companies that would be likely takeover targets over the subsequent 12 months. Kotak says he is concerned that while the analysis may look attractive on paper, it could be inaccurate in making predictions. Specifically, Kotak wants to avoid the scenario where the model incorrectly identifies a company as a target.

Mehta illustrates the type of analytics that can be performed before the model is implemented in business operations. **Confusion matrixes** shows an excerpt of the report that Mehta provides for illustration.

Confusion matrixes

Model A				**Model B**		
	Actual: Takeover Target	**Actual: Not Target**			**Actual: Takeover Target**	**Actual: Not Target**
Prediction: takeover target	14	9		**Prediction: takeover target**	13	4
Prediction: not target	5	246		**Prediction: not target**	4	253

Mehta then discusses one of the possible approaches to applying big data analysis to the task at hand as shown in **Steps in Data Analysis**.

Steps in Data Analysis

Step 1:	We start with a sample consisting of the companies in the Russell 2000 Index and then assign them to 50 heterogeneous (based on financial characteristics) buckets.
Step 2:	We then randomly select 10 stocks from each of the buckets to assign to one of two classes: *takeover target* and *not a takeover target*, based on financial, nonfinancial, and textual data.

Upon further discussion, Mehta makes the following comments about machine learning.

Comment 1:	Overfitting is an issue with unsupervised ML. Overfitting results when a large number of features are included in the data sample.
Comment 2:	A learning curve plots the error rate in the validation or test sample versus the size of the training sample.

Question #7 of 60

Question ID: 1220679

Regarding Mehta's statements about steps in big data analysis:

A) only statement 1 is correct.

B) **only statement 2 is correct.**

C) both statements are correct.

Explanation

Statement 1 is incorrect. The first several steps in data analysis for unstructured and structured data differ. Statement 2 is correct. Data exploration includes exploratory data analysis, feature selection, and feature engineering.

For Further Reference:

(Study Session 3, Module 8.1, 8.2, LOS 8.a, 8.c)

Question #8 of 60

Question ID: 1220680

Based on Kotak's concerns about using the model to identify takeover targets, Kotak is *most likely* interested in increasing the model's:

A) accuracy score.

B) F1 score.

C) **precision.**

Explanation

Kotak wants to minimize false positives (i.e., classifying companies that are not takeover targets as takeover targets), and hence, wants to minimize type I errors. An increase in a model's precision reduces its type I errors. A model's accuracy score generally minimizes overall type I and type II errors, and hence, is not the best answer choice.

For Further Reference:

(Study Session 3, Module 8.3, LOS 8.g)

Question #9 of 60

Question ID: 1220681

Using information in **Confusion matrixes**, the model with highest precision and highest accuracy are respectively:

	Highest precision	Highest accuracy
A)	Model A	Model B
B)	Model A	Model A
C)	**Model B**	**Model B**

Explanation

Precision (Model A) = 14 / (14 + 9) = 0.61

Precision (Model B) = 13 / (13 + 4) = 0.76

Accuracy (Model A) = (14 + 246) / (14 + 246 + 5 + 9) = 0.95

Accuracy (Model B) = (13 + 253) / (13 + 253 + 4 + 4) = 0.97

For Further Reference:

(Study Session 3, Module 8.3, LOS 8.g)

Question #10 of 60

Question ID: 1220682

Based on information in Exhibit 2, the value of the hyperparameter specified in **Steps in Data Analysis** is:

A) 10.

B) **50.**

C) 2,000.

Explanation

The hyperparameter *k* in the k-means clustering algorithm refers to the number of buckets (50, in this case) used to create heterogeneous clusters of companies for analysis.

For Further Reference:

(Study Session 3, Module 7.3, LOS 7.d)

Question #11 of 60

Question ID: 1220683

The approach identified in step 2 of Exhibit 2 is *most likely* to represent:

A) **supervised learning to predict a categorical target variable.**

B) unsupervised learning to predict a categorical target variable.

C) supervised learning to predict a continuous target variable.

Explanation

Supervised learning is appropriate when a target variable is specified. This target variable is categorical (i.e., *takeover target* or *not a takeover target*).

For Further Reference:

(Study Session 3, Module 7.1, LOS 7.a)

Question #12 of 60

Question ID: 1220684

Regarding Mehta's comments about machine learning:

A) both comments are accurate.

B) only one comment is accurate.

C) neither comment is accurate.

Explanation

Both comments are inaccurate. Overfitting is an issue with *supervised* ML and results when a large number of features (i.e., independent variables) are included in the data sample. A learning curve plots the accuracy rate (i.e., 1 – error rate) in the validation or test sample versus the size of the training sample.

For Further Reference:

(Study Session 3, Module 7.1, LOS 7.b)

Questions #13-18 of 60

Questions 13 through 18 relate to Financial Reporting and Analysis.

JJK Holdings, Inc., Case Scenario

Ali Saminder, CFA, has recently been hired by JJK Holdings, Inc. (JJK), a U.S.-based financial services holding company. JJK has global operations in commercial and investment banking alongside a significant wealth management division, JJK BMD. Saminder is currently on a six-month rotation working in the risk management division of JJK. She is seeking to become familiar with JKK's approach to risk management and the maintenance of an adequate capital base.

Saminder has reviewed an internal document outlining JJK's approach to meeting regulatory requirements and has made a note of two fundamental rules that she believes are used to help analyze capital adequacy.

Rule 1:	When assessing the tier 1 capital ratio, assets should be weighted according to their risk, with riskier assets assigned a lower value than risk-free assets such as cash.
Rule 2:	Off-balance-sheet assets should be excluded from the asset base of the bank when assessing capital adequacy.

The document provided to Saminder outlines JJK's approach to calculating regulatory capital. Extracts from the document are shown in Exhibit 1.

Exhibit 1: Internal Memo—Regulatory Capital Calculation (extracts)

- Tier 1 capital is defined in accordance with global regulatory standards and is appropriately adjusted for intangible and deferred tax assets resulting from losses carried forward.
- Other tier 1 capital consists of irredeemable non-cumulative preferred stock with a fixed divided of 4.3%.
- Consistent with local regulatory standards, Tier 2 capital is comprised of $18,047m of subordinated debt maturing in five years, and a convertible bond issue convertible only at maturity at the end of 20X9 (convertible into common stock).
- JJK Holding has a target tier 1 ratio of 15% and total capital ratio of 20%.
- 20X8 year-end figures are forecast as follows:

	20X8 ($m)
Regulatory capital	

Common equity tier 1 capital	87,390
Additional tier 1 capital	16,401
Tier 2 capital	25,447
Total assets	510,948
Risk-weighted assets	601,312

Saminder is particularly interested in two elements of JJK's total capital. First, she is aware that the deferred tax asset referred to in Exhibit 1 totals $7,002m and is carried on the balance sheet without a valuation allowance. She wishes to calculate the impact on the common equity tier 1 ratio if the deferred tax asset was fully written down.

Secondly, Saminder notes that the convertible bond is due for conversion in 20X9. She intends to recalculate the 20X8 tier 1 ratio as if the bonds had been converted already.

Saminder has also reviewed an internal memo outlining some key trends over the last three years that were labeled 'Possible concerns?' by a previous employee. However, it was not clear from the document which trends if any were actual cause for concern. The trends included in the documents are shown in **Exhibit 2: Internal Memo—Three-Year Trends**.

Exhibit 2: Internal Memo—Three-Year Trends

	20X5	**20X6**	**20X7**
	$m	**$m**	**$m**
Assets under management[1]	139,398	118,957	108,086
Net outflows[2]	100,483	112,482	196,429
High quality liquid assets	111,432	127,352	198,393
Available stable funding	376,092	376,653	388,624
Required stable funding	327,043	301,275	303,182

[1] Represents client assets managed by JJK BMD Trusts

[2] 30-day liquidity needs in a stress scenario

Saminder makes the following note using the data in **Exhibit 2: Internal Memo—Three-Year Trends**:

> "Assets under management have decreased by a total of 22.5% over the three-year period, but these are client assets, require no capital funding, and hence are not a consideration for the risk analysis of the bank."

Question #13 of 60

Question ID: 1220686

Which of Saminder's fundamental rules is *most likely* to be accurate?

A) Only rule 1 is accurate.

B) Only rule 2 is accurate.

C) **Neither rule is accurate.**

Explanation

Rule 1 is incorrect because riskier assets are assigned a higher weighting. Risk-free assets such as cash are typically assigned a weighting of zero, because their risk-free nature means that they do not need to be supported by capital. Riskier assets require more capital funding, hence the higher weighting and risk adjusted value.

Rule 2 is also incorrect because off-balance sheet assets also require capital funding and hence should be included using the same risk weighting approach.

For Further Reference:

(Study Session 5, Module 16.1, LOS 16.b)

Question #14 of 60

Question ID: 1220687

Using the forecasted data and explicit targets given in **Exhibit 1: Internal Memo—Regulatory Capital Calculation (extracts)**, Saminder is *most likely* to conclude that JJK Holdings would:

A) meet its targeted tier 1 ratio and total capital ratio.

B) meet its targeted tier 1 ratio but not its targeted total capital ratio.

C) fail to meet either target.

Explanation

Risk-weighted assets	601,312
Common equity tier 1 capital	87,390
Additional tier 1 capital	16,401
Tier 1 capital	103,791
Tier 2 capital	25,447
Total regulatory capital	129,238

$$\text{Tier 1 ratio} = \frac{103{,}791}{601{,}312} = 17.3\%$$

$$\text{Total capital ratio} = \frac{129{,}238}{601{,}312} = 21.5\%$$

For Further Reference:

(Study Session 5, Module 16.5, LOS 16.e)

Question #15 of 60

Question ID: 1220688

When Saminder makes the adjustment related to the deferred tax asset, the common equity tier 1 ratio is *most likely* to:

A) increase.

B) decrease.

C) remain unchanged.

Explanation

The internal document states that tier 1 capital is calculated in accordance with global standards, meaning that a deferred tax asset resulting from tax losses would already be excluded from tier 1 capital. A writedown would therefore not alter common tier 1 capital or the ratio.

For Further Reference:

(Study Session 5, Module 16.5, LOS 16.e)

Question #16 of 60

Question ID: 1220689

How are tier 1 capital and total capital *most likely* to change when Saminder makes her stated adjustment for the convertible bonds?

A) Common equity tier 1 capital and total capital will both remain unchanged.

B) Tier 1 capital will increase and tier 2 capital will decrease.

C) Other tier 1 capital will decrease and total capital will remain unchanged.

Explanation

Per **Exhibit 1: Internal Memo—Regulatory Capital Calculation (extracts)**, convertible bonds are currently part of tier 2 capital. On conversion they would become common stock and part of common tier 1 capital, hence tier 2 capital would decrease and common tier 1 capital would increase.

For Further Reference:

(Study Session 5, Module 16.5, LOS 16.e)

Question #17 of 60

Question ID: 1220690

Saminder's note regarding assets under management is *best* described as:

A) accurate.

B) inaccurate, as the assets do require capital funding.

C) inaccurate, as assets should be considered in the risk analysis.

Explanation

Although client assets are client-owned and separate from the bank, and they do not require capital funding, the fees generated may be material to the earnings of the bank. Hence a significant decrease could impact the stability of the bank.

For Further Reference:

(Study Session 5, Module 16.5, LOS 16.d)

Question #18 of 60

Using the data in **Exhibit 2: Internal Memo—Three-Year Trends**, which of the following statements is *most accurate*?

A) The number of days JJK can withstand a stress-level-volume of cash outflows decreased by three days from 2015 to 2017.

B) The liquidity coverage ratio decreased in each of the two years.

C) The trend in net stable funding ratio indicates an increase from 2015 to 2017 in highly liquid funding available, compared to the level of funding required.

Explanation

	2015	2016	2017
High quality liquid assets	111,432	127,352	198,393
Net outflows	100,483	112,482	196,429
Liquidity coverage ratio = $\frac{\text{High quality liquid assets}}{\text{Net outflows}}$	111%	113%	101%

The liquidity coverage ratio actually increased from 2015 to 2016, hence choice B is incorrect.

The net cash outflows are given for 30 days. An LCR ratio of 100% would mean JJK could withstand 30 days of stress-level outflows. To calculate the number of days JJK can withstand, multiply the LCR by 30.

	2015	2016	2017
	30 × 1.11	30 × 1.13	30 × 1.01
Number of days of stress volume of cash outflows	**33.3**	**34.0**	**30.3**

Hence A is correct; the number of days decreased by 3 days from 33.3 to 30.3

Available net stable funding excludes highly liquid assets, hence C is incorrect.

For Further Reference:

(Study Session 5, Module 16.5, LOS 16.e)

Questions #19-24 of 60

Questions 19 through 24 relate to Corporate Finance.

Dan Andrews Case Scenario

Dan Andrews, CFA, is the equity analyst for a large pension fund. One of the fund's holdings is Debian Corporation. After a period of rapid growth, Debian has underperformed its peers over the past two years. Debian's management has announced a change in ownership structure for part of its business, or possibly a disposal of part of the business. Several options are under consideration: a spin-off, a carve-out, or an asset sale. Andrews decides to research each of these

options to understand the impact on Debian's business and their shareholders. He has read the following comments regarding the various methods:

Statement 1:	Involves shares being issued to the general public.
Statement 2:	Shareholders have a choice of holding onto the new shares automatically issued to them or disposing of the shares on the open market.
Statement 3:	Shareholders will be more easily able to link executive compensation to the performance of the business involved.
Statement 4:	The firm separates a portion of its operations from the parent company.
Statement 5:	A new independent entity will be created that is completely distinct from the parent; the parent will lose all control of the business.

Debian's management announced in the last conference call that a potential buyer, Fedora, Inc., is interested in buying Ubuntu, one of Debian's divisions. Fedora has offered to pay $90 million cash to buy Ubuntu. Relevant information is provided in Exhibit 1.

Exhibit 1

Value of Ubuntu as a stand-alone business	$78 million
Value of Ubuntu to Debian	$85 million
Value of Fedora (5 million shares, $10 par)	$132 million
Value of Fedora and Ubuntu as a combined entity (post cash acquisition of Ubuntu)	$135 million

Alternatively, Fedora is prepared to offer to buy Ubuntu by directly issuing to the shareholders of Debian a total of 3 million $10 par value shares that will rank equally with its existing shares.

Andrews frequents continuing education seminars offered by his local CFA society. During one of these seminars, Andrews meets Jason Arnold, a corporate finance specialist. Andrews agrees with Arnold that a comprehensive equity analysis should include an analysis of payout policies. Andrews, however, is unsure of his recollection from graduate school. Arnold states that he could recall two specific principles:

Principle 1:	Stock dividends and splits do not create wealth for shareholders.
Principle 2:	Irregular cash dividends, stock splits, and stock dividends do not represent a commitment to pay cash to stockholders periodically.

Among other companies that Andrews is researching, he has identified a potential acquisition target, Mandriva, Inc. Mandriva has enjoyed good growth over the past few years and is expected to continue to do so in the near future. Andrews wants to value Mandriva using both the comparable company method and the comparable transaction approach. Andrews obtains data on recent acquisitions of similar companies. **Exhibit 2** summarizes this data.

Exhibit 2

- The mean price-to-book ratio of comparable firms is estimated to be 2 times, and the mean price-to-earnings ratio of the same comparable firms is 25 times.

- The mean acquisition price-to-book ratio of recent targets is estimated to be 2.80 times, and the mean price-to-earnings ratio of the same firms is 30 times.
- Mandriva's book value per share is $18, and EPS is $1.50.
- The mean takeover premium of recent acquisitions in the same industry as Mandriva is estimated to be 30%.

Question #19 of 60

Question ID: 1220693

Which of the statements correctly reflect aspects of a carve-out?

A) Statements 1, 4, and 5 only.

B) **Statements 1, 3, and 4 only.**

C) Statements 2, 3, and 4 only.

Explanation

Statement 1:	Correct, although not all the shares will be offered.
Statement 2:	Incorrect because shares are not automatically issued to existing shareholders under a carve-out.
Statement 3:	Correct since the results of the business sector will be more easily identifiable once the sector represents a separate company.
Statement 4:	Correct for all strategies under consideration.
Statement 5:	Incorrect—with a carve-out the "selling" corporation may (usually does) maintain some control of the business that has been split out into a separate company.

For Further Reference:

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

Question #20 of 60

Question ID: 1220694

If Fedora pays $90 million cash for the purchase of Ubuntu from Debian, what will be the gain to Debian's and Fedora's shareholders?

	Debian's S/H	Fedora's S/H
A)	**$5 million**	**$3 million**
B)	$12 million	$5 million
C)	$12 million	$7 million

Explanation

$$\text{Debian s/h gain} = \text{gain}_T = TP = P_T - V_T = \$90\text{m} - \$85\text{m} = \$5\text{m}$$

Fedora s/h gain = $gain_A$ = S − TP = 8 − 5 = $3m

Synergies are not directly given, but you are given that Fedora's value post merger (after paying the $5m takeover premium) increases by $3 million. Synergies must then be $5m + $3m = $8m.

Alternatively, the change in Fedora's value post merger, ($135m − $132m) = $3m, would give the gains to the acquirer in the case of a cash merger.

Note: The total gains = value of combined entity − value of both companies prior to merger

($135m + $90m) − ($85m + $132m) = $8m

Note: The value of the combined entity in a stock merger must include the $90 million in cash that was paid by Fedora to Debian. For computing the total gains to merger in a cash transaction, we need to add the $90 million that would be paid out to the seller.

For Further Reference:

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

Question #21 of 60

Question ID: 1220695

If Debian shareholders accept the stock offer by Fedora, the economic impact on them would be *closest* to:

A) a gain of $630,000.

B) **a loss of $630,000.**

C) a loss of $1,612,500.

Explanation

$V_{AT} = V_A + V_T + S – C$

Given V_{AT} = 135 and C = 90. Hence 135 = $V_A + V_T + S – 90$ or $V_A + V_T + S = 225$.

For a stock acquisition, C = 0. $V_{AT} = V_A + V_T + S – C = 225 – 0 = 225$.

Value of Fedora and Ubunta post cash acquisition (given) = $135 million.

Value of Fedora and Ubunta post stock acquisition = $135 million + $90 million cash = $225 million.

Number of shares outstanding post stock acquisition = 5 + 3 = 8 million.

Value of shares received based on their likely post-acquisition price = [(225m) / 8m] × 3m = $84,375,000.

Gain to Debian's shareholders is therefore $84,375,000 − $85,000,000 = –$625,000.

For Further Reference:

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

Question #22 of 60

Question ID: 1220696

Under Fedora's stock offer, the economic impact on the current shareholders of Fedora is *closest* to:

A) a loss of $7.5 million.

B) **a gain of $8.6 million.**

C) a gain of $1.6 million.

Explanation

New value of their 5m shares = ($225m / 8m) × 5m	= $140,625,000
Old value of their 5m shares	= $132,000,000
Gain	= $8,625,000

For Further Reference:

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

Question #23 of 60

Question ID: 1220697

Are Arnold's principles 1 and 2 of corporate payout policy correct?

A) Both of these principles are incorrect.

B) Only one of these principles is correct.

C) **Both of these principles are correct.**

Explanation

Stock dividends and splits merely carve stockholders' equity into smaller pieces and do not create wealth for shareholders. Only cash dividends represent a commitment to pay cash to stockholders periodically. Irregular cash dividends, stock splits, and stock dividends do not.

For Further Reference:

(Study Session 7, Module 21.1, LOS 21.a)

Question #24 of 60

Question ID: 1220698

Using the data collected by Andrews, the target takeover price per share of Mandriva under the comparable company analysis and under the comparable transaction analysis is *closest* to:

	Comparable company	Comparable transaction
A)	$24	$48
B)	$24	$50
C)	**$48**	**$48**

Explanation

Using comparable company analysis:

Using P/E ratio: 25 × 1.50 =	37.50
Using P/B ratio: 2 ×18 =	36.00
Average	36.75
Add: 30% premium	11.03
Estimated takeover price	$47.78

Using comparable transaction analysis:

Using P/E ratio: 30 × 1.50 =	$45.00
Using P/B ratio: 2.80 × 18 =	50.40
Average	$47.70

Note: No additional premium is applied for comparable transactions.

For Further Reference:

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

Questions #25-30 of 60

Questions 25 through 30 relate to Equity Valuation.

Global Drug World Case Scenario

Carl Warner, CFA, has been asked to review the financial information of Global Drug World (GDW) in preparation for a possible takeover bid by rival competitor Consolidated Drugstores International (Consolidated). GDW has produced impressive results since going public via an initial public offering in 2008. Through a program of aggressive growth by acquisition, GDW is currently seen as a major player and a threat to Consolidated's own plans for growth and profitability. In preparation for his analysis, Warner has gathered the following financial data from GDW's year-end statements.

GDW Statement of Income for Year Ended May 31, 2018	
Sales	4,052,173
Expenses	
Cost of goods sold, general and operating expenses	3,735,397
Noncash charges	56,293
Interest on long-term debt	20,265
Other interest	5,223
	3,817,178
Income before income taxes	234,995

Income taxes	70,499
Net income	164,497
Earnings per share	0.72

Partial GDW Balance Sheet on May 31, 2018	
Assets	
Current assets (excluding cash)	
Accounts receivable	284,762
Inventories	490,755
Prepaid expenses	23,743
Total current assets (excluding cash)	799,260
Property, plant, and equipment	687,890
Other assets	236,417
Liabilities	
Current liabilities (excluding notes payable)	
Accounts payable and accrued liabilities	296,564
Other	100,039
Total current liabilities (excluding notes payable)	396,603
Long-term debt	262,981
Other liabilities	15,484

Additional Information	
Risk-free rate	4.5%
WACC	7.5%
2018 working capital investment	$7,325
2018 dividends	$82,248
Beta	1.10
Investment in fixed capital in 2018	$143,579
Market risk premium	5%
Total equity May 31, 2017	$1,019,869
Principal repayment of long-term debt in 2018	$33,275
Notes payable issued in 2018	$5,866
2018 change in liabilities	$27,409

Tax rate	30%

As part of his analysis, Warner needs to forecast the free cash flow to the firm (FCFF) for 2019. The best information he has points to an increase in sales of 6%. The earnings before interest and tax (EBIT) margin is not expected to change from the rate of 6.4% achieved in 2018. Fixed capital spending is expected to be $36,470. Investment in net working capital is expected to be $24,313. Moreover, Warner notes that the only noncash charge is depreciation, which he estimates will be $60,000.

Warner has been asked to analyze the effect each of the following corporate events, if taken during 2019, would have on GDW's free cash flow to equity (FCFE):

- 20% increase in dividends per share.
- Repurchase of 25% of the firm's outstanding shares using cash.
- New common share offering that would increase shares outstanding by 30%.
- New issue of convertible bonds that are not callable for five years and would increase the level of debt by 10%.

Question #25 of 60

Question ID: 1220707

The 2018 free cash flow to the firm (FCFF) for Global Drug World (GDW) in dollars is *closest* to:

A) $87,728.

B) $95,374.

C) $102,378.

Explanation

Free cash flow to the firm can be calculated in various ways. One approach to calculate FCFF is to start with net income:

FCFF = NI + NCC + Int(1 − tax rate) − FCInv − WCInv	
NI = $164,497	(income statement)
NCC = noncash charges = $56,293	(income statement)
Int = interest = $20,265 + $5,223 = $25,488	(income statement)
FCInv = fixed capital investment = $143,579	(additional information)
WCInv = working capital investment = $7,325	(additional information)

Putting it all together:

$$FCFF = \$164{,}497 + \$56{,}293 + \$25{,}488(1 - 0.3) - \$143{,}579 - \$7{,}325 = \$87{,}728$$

For Further Reference:

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

Question #26 of 60

Question ID: 1220708

By how much (in dollars) does GDW's FCFF exceed its free cash flow to equity (FCFE) in 2018?

A) $9,567.

B) **$45,251.**

C) $52,897.

Explanation

FCFE can be expressed in terms of FCFF as follows:

FCFE = FCFF − Int(1 − tax rate) + net borrowing

Therefore, the amount by which FCFF exceeds FCFE can be written as:

FCFF − FCFE = Int(1 − tax rate) − net borrowing

Int = $25,488

Net borrowing = $5,866 − $33,275 = –$27,409 (additional information)

Therefore: FCFF − FCFE = $25,488(1 − 0.3) − (–$27,409) = $45,251

For Further Reference:

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

Question #27 of 60

Question ID: 1220709

The cost of equity and the sustainable growth rate (using beginning equity) are *closest* to:

	Cost of equity	Sustainable growth rate
A)	6%	16%
B)	**10%**	**8%**
C)	10%	16%

Explanation

The cost of equity can be determined from the capital asset pricing model. We get:

$r = R_f$ + beta[market risk premium] = 4.5% + 1.10[5%] = 10%.

The sustainable growth rate can be found from: g = ROE × b

$$\text{ROE} = \frac{\text{net income}}{\text{beginning total equity}} = \frac{\$164{,}497}{\$1{,}019{,}869} = 0.16129$$

b = retention rate = 1 − ($82,248.50 / $164,497) = 0.5

g = 0.16129 × 0.5 = 0.0806 = 8.06%

For Further Reference:

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

Question #28 of 60

Question ID: 1220710

The 2019 estimate of FCFF is *closest* to:

A) $191,646.

B) $210,329.

C) $215,329.

Explanation

When depreciation is the only noncash charge, FCFF can be estimated from:

FCFF = EBIT(1 − tax rate) + Dep − FCInv − WCInv

$EBIT_{2019}$ = $4,052,173 × 1.06 × 0.064 = $274,899

Therefore: $FCFF_{2019}$ = $274,899 (1 − 0.3) + $60,000 − $36,470 − $24,313 = $191,646

For Further Reference:

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

Question #29 of 60

Question ID: 1220711

Warner determines that on a per-share basis, the FCFE for GDW in 2018 is $0.19. Further analysis suggests that FCFE per share will grow by $0.02 in each of the next two years before leveling off to a long-term growth rate of 5%. The current value of one share of GDW's equity is *closest* to:

A) $4.37.

B) $7.15.

C) $13.49.

Explanation

This is a two-stage FCFE model. The required return on equity is 10% (from previous problem), and the long-term growth rate after 2 years is 5%.

$$\begin{aligned}\text{value of equity} &= \frac{\$0.21}{1.1} + \frac{\$0.23}{1.1^2} + \left(\frac{\$0.23 \times 1.05}{0.1 - 0.05} \times \frac{1}{1.1^2}\right) \\ &= \frac{\$0.21}{1.1} + \frac{\$0.23}{1.1^2} + \left(\$4.83 \times \frac{1}{1.1^2}\right) = \$4.37\end{aligned}$$

Financial calculators can perform this calculation more quickly and accurately. The appropriate keystrokes are:

CFO = 0; C01 = $0.21; C02 = $0.23 + $4.83 = $5.06; I = 10.0; CPT → NPV = $4.37

Notice that the second cash flow combines the FCFE for the second year with the present value of the series of constantly growing FCFE terms that begin at the end of the third year. This approach is valid since the timing of these two cash flows is the same (i.e., the end of the second year).

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.j)

Question #30 of 60

Question ID: 1220712

Which corporate event that Warner is analyzing is *likely* to have the largest effect on FCFE in 2019?

A) Share repurchase.

B) Share offering.

C) **Convertible bond issue.**

Explanation

Dividends, share repurchases, and changes in the number of shares outstanding do not have an effect on either FCFE or FCFF. Therefore, only the new convertible debt offering will have a significant influence on the current level of FCFE because net borrowing changes FCFE.

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.i)

Questions #31-36 of 60

Questions 31 through 36 relate to Equity Valuation.

Lee Nguyen Investments Case Scenario

Marie LeBlanc, CFA, is an analyst at Lee Nguyen Investments, an international equities investment firm. LeBlanc has been asked to value two European cosmetics companies, Schön AG and Hermosa S.A.

The beauty products industry is a mature industry with few competitors. One segment that is growing is luxury skin care; while the cosmetics industry is expected to grow at a steady rate of 3.5%, the luxury skin care segment is expected to grow at 5.5%.

Schön AG, based in Frankfurt, Germany, is the largest company in the luxury skin care segment of the cosmetics industry. Schön is considered a very stable company within the cosmetics industry and the luxury skin care segment. Schön's equity beta is 1.00.

LeBlanc collects selected financial information from Schön's income statement and cash flow statement (for the last fiscal year) and from Schön's balance sheet (for the last two fiscal year ends). The information is shown in Exhibit 1. Negative numbers are indicated in parentheses. There is no preferred stock, and no long-term asset sales occurred in 20X9.

Exhibit 1: Selected Schön Financial Information (€ millions except for rates and ratios)

Income Statement	20X9	Balance Sheet	20X8	20X9
Revenue	4,250	Total current assets	2,408	2,577
EBITDA	1,461	Net PPE	3,794	4,150
Operating income	1,169	Notes payable	600	644

Interest expense	150	Long-term debt	2,020	2,070
Income tax rate	30%	Total liabilities	3,210	3,378
Dividends	357	Total equity	2,992	3,349

Other Information	20X9
CF from operations	1,042
CF from investing	(648)
Risk-free rate	2.50%
After-tax cost of debt	4.50%
Cost of equity	8.50%
Target D/E ratio	1.00

Hermosa S.A., based in Barcelona, Spain, is the third largest company in the luxury skin care segment of the cosmetics industry. Hermosa is considered a growth company within the cosmetics industry and the luxury skin care segment. Hermosa has not issued bonds and all of Hermosa's debt is considered short and intermediate term. For the fiscal year 20X9, FCFF is €143 million and FCFE is €136.23 million. Hermosa pays no dividends. Hermosa's earnings are expected to grow at 14.0% for three years and then at the expected overall rate of growth in the luxury skin care segment. Hermosa's equity beta is 1.20. The risk-free rate is 2.5%. Hermosa's target weight for debt is 25.0%.

LeBlanc gathers additional information on the various companies in luxury skin care industry as shown in Exhibit 2.

Exhibit 2: Luxury Skin Care Stocks

Company	Price Per Share	Shares Outstanding (in Millions)	Earnings (trailing 12 Months) (in Millions)
Schön	€15.42	1,000	€713
Epiderm	€14.95	500	€345
Hermosa	€22.78	200	€193
Radiance	€18.50	100	€75
Bello	€24.78	50	€24

The trailing price-to-earnings ratio for the luxury skin care segment is 22.9X.

Elizabeth Nguyen, one of the partners at Lee Nguyen Investments, approaches LeBlanc about a client interested in buying Hermosa S.A. Nguyen asks LeBlanc about the different methods LeBlanc used to value Hermosa as a buyout possibility.

LeBlanc states that she used three different approaches in her report:

Approach 1:	Dividend discount model.
Approach 2:	Free cash flow to the firm model.
Approach 3:	Trailing price-to-earnings multiples.

Question #31 of 60

Question ID: 1220714

The free cash flow to equity for Schön AG for 20X9 is *closest* to:

A) €439 million.

B) **€488 million.**

C) €499 million.

Explanation

FCFE = CFO − FCInv + net borrowings

CFO = 1042 (given), net borrowings is change in long-term debt and notes payable

FCInv = CF from investing = 648

FCFE = 1042 − 648 + [(2,070 + 644) − (2,020 + 600)] = €488 million

Please note that CF from investing activities and FCInv may not be always the same, but in the curriculum (and for this question), they are treated as same.

For Further Reference:

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

Question #32 of 60

Question ID: 1220715

Assuming that the growth rate of Schön earnings is equal to the overall cosmetics industry growth rate, the value of the firm is *closest* to:

A) **€17.2 billion.**

B) €33.6 billion.

C) €49.9 billion.

Explanation

FCFF = CFO + Int(1 − tax rate) − FCInv = 1042 + 150(0.7) − 648 = €499

Overall growth rate for cosmetics industry = 3.5%

	Percentage	Cost
Debt	50%	4.50%
Equity	50%	8.50%
WACC		6.50%
Cosmetics industry growth rate		3.50%

$$\frac{€499 \times (1+0.035)}{0.065-0.035} = €17{,}216 \text{ million}$$

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.i, 28.j)

Question #33 of 60

Question ID: 1220716

The estimated value of Hermosa stock using FCFE valuation is *closest* to:

A) €19.70.

B) **€21.40.**

C) €22.10.

Explanation

To value Hermosa stock, use the following information and apply the two-stage growth model. FCFE for the fiscal year is €136 million. Growth rate for the first 3 years is 14.0%; growth rate after 3 years is 5.5%. For CAPM, expected return on market = 8.5% (since Schön with a beta of 1 should have the same expected rate of return as the market).

Cost of equity (Hermosa) = 0.025 + 1.2 × (0.085 − 0.025) = 9.70%.

	Yr 1	Yr 2	Yr 3
FCFE (in € millions)[1]	155.3	177.0	201.8
Terminal value			5,069[2]
Total cash flow (in € millions)	155.3	177.0	5,270.8
Cost of equity		9.70%	

[1]$FCFE_1 = FCFE_0(1 + g) = 136.23(1 + 0.14) = 155.3$

[2]$$\text{Terminal value} = \frac{201.8(1.055)}{(0.097-0.055)} = 5{,}069$$

For the calculator inputs for NPV function, CF0 = 0, CF1 = 155.3, CF2 = 177.0, CF3 = 5,270.5, I/Y = 9.7.

Estimated value is €4,281.26 million. Divide this value by 200 million shares for €21.40 per share.

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.j)

Question #34 of 60

Question ID: 1220717

If the estimated value of Schön's equity based on free cash flow to equity is €17.1 billion, then based on current market price, Schön's stock is:

A) overvalued.

B) **undervalued.**

C) fairly valued.

Explanation

Free cash flow to equity values Schön's stock at €17,100,000,000 / 1,000,000,000 or €17.10 per share. This is greater than the market price per share of €15.42; the stock is selling at a price below the implied value which means the stock is undervalued.

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.m)

Question #35 of 60

Question ID: 1220718

Using the luxury skin care P/E ratio as the benchmark, Hermosa is *best described* as:

A) overvalued.

B) undervalued.

C) fairly valued.

Explanation

The luxury skin care segment's price-to-earnings ratio is 22.9X. The trailing P/E ratio for Hermosa is €22.78 divided by the earnings per share of €193 / 200 or €0.97. Trailing P/E = €22.78 / €0.97 = 23.6X. Hermosa seems to be slightly overvalued relative to the segment.

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.a)

Question #36 of 60

Question ID: 1220719

The best approach to valuing Hermosa for a potential acquirer is *most likely*:

A) Approach #1—Dividend discount model.

B) Approach #2—Free cash flow to the firm model.

C) Approach #3—Trailing price-to-earnings multiples.

Explanation

Approach #2 is the best. The free cash flow to firm approach takes a control perspective in valuation as is appropriate in a buyout. Dividend discount models take a minority perspective, and Hermosa does not pay dividends so Approach #1 is unsuitable. Relative valuation approaches, such as trailing P/E, also focus on market price and hence are based on minority investor perspective.

For Further Reference:

(Study Session 11, Module 28.1, LOS 28.a)

Questions #37-42 of 60

Questions 37 through 42 relate to Equity Valuation.

Amie Lear Case Scenario

Amie Lear, CFA, is a quantitative analyst employed by a brokerage firm. She has been assigned by her supervisor to cover a number of different equity and debt investments. One of the investments is Taylor, Inc. (Taylor), a manufacturer of a wide range of children's toys. Based on her extensive analysis, she determines that her expected return on the stock, given Taylor's risks, is 10%. In applying the capital asset pricing model (CAPM), the result is a 12% rate of return.

For her analysis of the returns of Devon, Inc. (Devon), a manufacturer of high-end sports apparel, Lear intends to use the Fama-French model (FFM). Devon is a small-cap growth stock that has traded at a low market-to-book value in recent years. Lear's analysis has provided a wealth of quantitative information to consider. The return on a value-weighted market index minus the risk-free rate is 5.5%, the small-cap return premium is 3.1%, the value return premium is 2.2%, and the liquidity premium is 3.3%. The risk-free rate is 3.4%. The market, size, relative value, and liquidity betas for Devon are 0.7, –0.3, 1.4, and 1.2, respectively. In estimating the appropriate equity risk premium, Lear has chosen to use the Gordon growth model.

Lear's assistant, Doug Saunders, presents her with a report on macroeconomic multifactor models that includes the following two statements:

Statement 1:	Business cycle risk represents the unexpected change in the difference between the return of risky corporate bonds and government bonds.
Statement 2:	Confidence risk represents the unexpected change in the level of real business activity.

Lear is also attempting to determine the most appropriate method for determining the required return for Densmore, Inc. (Densmore), a closely held company that is considering a debt issue within the next year. The company has not previously issued debt securities to the public, relying instead on bank financing. She realizes that there are a number of models to consider, including the CAPM, multifactor models, and build-up models.

Question #37 of 60

Question ID: 1220700

Based on Lear's analysis, Taylor's stock is *most likely* to be:

A) correctly valued.

B) **overvalued.**

C) undervalued.

Explanation

Since the required return (12%) as determined by CAPM is greater than Lear's expected return (10%), then Taylor's stock is overvalued.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.a)

Question #38 of 60

Question ID: 1220701

According to the FFM, the estimate of the required return for Devon is *closest* to:

A) 9.4%.

B) 11.8%.

C) 13.4%.

Explanation

Required return under FFM = risk-free rate + market beta (equity risk premium) + size beta (small-cap return premium) + value beta (value-return premium)

= 3.4% + 0.7(5.5%) + –0.3(3.1%) + 1.4(2.2%) = 9.4%

Note: The liquidity factor is only applicable to the Pastor-Stambaugh (PS) model. The PS model is otherwise the same as the FFM, save for the addition of the liquidity factor.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.d)

Question #39 of 60

Question ID: 1220702

Lear's choice of the Gordon growth model is an example of which of the following types of estimates of the equity risk premium?

A) Historical estimate.

B) Forward-looking estimate.

C) Macroeconomic model estimate.

Explanation

The Gordon growth model is a popular method to generate forward-looking estimates using current information and expectations concerning economic and financial variables.

A historical estimate of the equity risk premium consists of the difference between the historical mean return for a broad-based equity market index and a risk-free rate over a given time period.

A macroeconomic model estimate of the equity risk premium is based on the relationships between macroeconomic variables and financial variables.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.b, 25.c, 25.d)

Question #40 of 60

Question ID: 1220703

Which of the following approaches/methods is *most appropriate* for Lear to consider in determining the required return for Densmore?

A) Build-up method.

B) Risk premium approach.

C) Bond-yield plus risk premium method.

Explanation

The build-up method is usually applied to closely held companies (such as Densmore) where betas are not readily obtainable.

The risk premium approach requires betas for its calculations; betas are generally not readily available for closely held companies.

The bond-yield plus risk premium method is appropriate only if the company has publicly traded debt. The method simply adds a risk premium to the yield to maturity of the company's long-term debt.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.d)

Question #41 of 60

Question ID: 1220704

Are Saunders's statements regarding the macroeconomic multifactor models correct?

A) **Both statements are incorrect.**

B) Only Statement 1 is correct.

C) Only Statement 2 is correct.

Explanation

Neither of Saunder's statements is correct. *Confidence risk* represents the unexpected change in the difference between the return of risky corporate bonds and government bonds. *Business cycle risk* represents the unexpected change in the level of real business activity.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.d)

Question #42 of 60

Question ID: 1220705

Which of the following statements regarding the models used to estimate the required return is *most accurate*?

A) A strength of the capital asset pricing model (CAPM) is that it usually has high explanatory power.

B) A strength of multifactor models is their relative simplicity and ease of calculation.

C) **A weakness of build-up models is that they typically use historical values as estimates that may not be relevant to current market conditions.**

Explanation

A weakness (not strength) of the CAPM is its low explanatory power in some cases. Multifactor models usually have higher explanatory power than the CAPM since they use more than one factor, whereas CAPM uses only one factor.

A weakness (not strength) of multifactor models is that they are typically more complex to use.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.f)

Questions #43-48 of 60

Questions 43 through 48 relate to Fixed Income.

Apex Bank NA Case Scenario

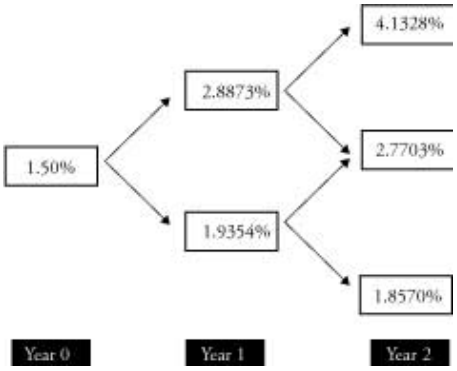
Ranjit Dhami has just joined Apex Bank NA as an intern in the bond trading department. Sue Jorgenson, Dhami's immediate supervisor, provides him with the current par rate curve for government bonds shown in Exhibit 1.

Exhibit 1: Selected Par Rates

Maturity	Par Rate
1	1.50%
2	2.00%
3	2.25%

A binomial interest rate tree with a 20% volatility assumption is shown in Exhibit 2.

Exhibit 2: Binomial Interest Rate Tree



Paul Stamper, one of the bond traders at Apex, shows Dhami information about several trades currently being evaluated. Exhibit 3 shows information on two of the bonds.

Exhibit 3: Selected Information on Potential Trades

Characteristic	Bond A	Bond B
Maturity	3 years	2 years
Option	Callable at par at t = 1 year	Putable at par at t = 1 year
Coupon	2%	1.50%
Par Value	$100	$100

Stamper asks Dhami the following questions:

Question 1: Which bond in Exhibit 3 is most likely to exhibit negative convexity?

Question 2: For a given decline in interest rate, which bond is most likely to have lower upside potential?

Question #43 of 60

Question ID: 1220721

Using the information in Exhibit 1, the three-year spot rate is *closest* to:

A) 2.26%.

B) 2.56%.

C) 2.62%.

Explanation

We have to bootstrap the three-year spot rate (S_3) given the par curve.

S_1 = par rate for a one-year bond = 1.50%.

$$\begin{aligned}\text{Value of two-year (par) bond} &= 100 = \frac{2}{(1+S_1)} + \frac{102}{(1+S_2)^2} \\ &= \frac{2}{(1.015)} + \frac{102}{(1+S_2)^2}\end{aligned}$$

Hence, $(1 + S_2)^2 = 102 / 98.03 = 1.04$ and $S_2 = 2.005\%$

$$\begin{aligned}\text{Value of a three-year (par) bond} &= 100 \\ &= \frac{2.25}{(1+S_1)} + \frac{2.25}{(1+S_2)^2} + \frac{2.25}{(1+S_3)^3} \\ &= \frac{2.25}{(1.015)} + \frac{2.25}{(1.02005)^2} + \frac{102.25}{(1+S_3)^3}\end{aligned}$$

Hence, $(1+S_3)^3 = 102.25 / 95.62 = 1.0693$ and $S_3 = 2.259\%$

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.c)

Question #44 of 60

Question ID: 1220722

Using the information in Exhibit 1, the one-year forward rate two years from now is *closest* to:

A) 2.25%.

B) 2.39%.

C) 2.77%.

Explanation

From the earlier computations, we know that $S_2 = 2.005\%$ and $S_3 = 2.259\%$.

$$[1+f(2,1)]^1 = (1 + S_3)^3 / (1 + S_2)^2$$

$[1+f(2,1)]^1 = (1.02259)^3 / (1.02005)^2 = 1.0277 \rightarrow f(2,1) = 2.77\%$

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.c)

Question #45 of 60

Question ID: 1220723

If the three-year forward price of a three-year zero-coupon bond is $0.9151 (per $1 par), the price today of a six-year zero-coupon bond should be *closest* to:

A) $0.7899.

B) **$0.8558.**

C) $0.9311.

Explanation

$F_{(3,3)}$ = $0.9151 (given)

$P_3 = 1 / (1 + S_3)^3 = 1 / (1.02259)^3 = \$0.9352$

$P_6 = F_{(3,3)} \times P_3 = 0.9151 \times 0.9352 = \$0.8558$

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.b)

Question #46 of 60

Question ID: 1220724

The price of bond A in Exhibit 3 is *most accurately* described as being sensitive to shifts in:

A) the one-year par rate only.

B) the three-year par rate only.

C) **both the one-year and three-year par rates.**

Explanation

Bond A is a three-year bond, callable in one year. Callable bonds are sensitive to par rates corresponding to their call date (particularly if their coupon rate is relatively high) and to the par rates corresponding to their maturity date (especially if the coupon rate is relatively low).

For Further Reference:

(Study Session 13, Module 34.6, LOS 34.k)

Question #47 of 60

Question ID: 1220725

The *most accurate* answers to Stamper's questions are:

Question 1	Question 2

A)	**Bond A**	**Bond A**
B)	Bond A	Bond B
C)	Bond B	Bond A

Explanation

Callable bonds exhibit negative convexity due to price compression that occurs when the call option is in the money. Hence, bond A would exhibit negative convexity. Also, the upside potential for a callable bond (that is realized when interest rates fall) is limited due to the embedded short call.

For Further Reference:

(Study Session 13, Module 34.6, LOS 34.k, 34.l)

Question #48 of 60

Question ID: 1220726

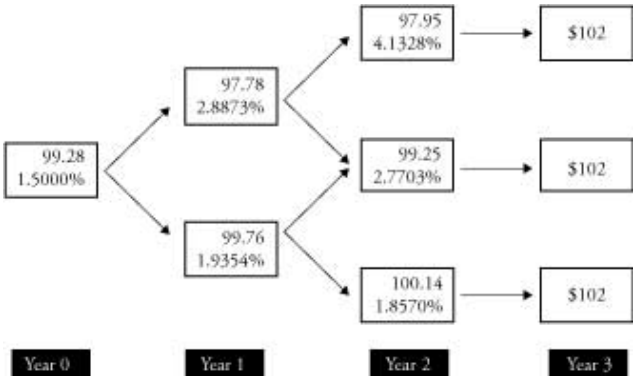
Using the rates in Exhibit 2 and the information in Exhibit 3, the value of bond A is *closest* to:

A) $90.63.

B) $95.68.

C) **$99.28.**

Explanation



$$V_{2,UU} = \frac{102}{(1.041328)} = \$97.95$$

$$V_{2,UL} = \frac{102}{(1.027703)} = \$99.25$$

$$V_{2,LL} = \frac{102}{(1.01857)} = \$100.14$$

$$V_{1,L} = 0.5\left(\frac{99.25+2+100.14+2}{(1.019354)}\right) = \$99.76$$

$$V_{1,U} = 0.5\left(\frac{99.25+2+97.95+2}{(1.028873)}\right) = \$97.78$$

$$V_0 = 0.5\left(\frac{99.78+2+99.76+2}{(1.015)}\right) = \$99.28$$

Note that the option was never exercised.

For Further Reference:

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

Questions #49-54 of 60

Questions 49 through 54 relate to Derivatives.

Zion Investments, LLC, Case Scenario

Randy Carson is the chief information officer of Zion Investments, LLC, an independent investment company. Carson has asked Jane Walsinzki, a senior derivatives analyst for Zion, for information on several outstanding contract positions. Walsinzki prepares a report outlining relevant information about the various derivatives.

Walsinzki's report first identifies that the firm has a payer positon in a two-year, semiannual, 3.25% fixed interest rate swap with a notional of $15 million. The second settlement just occurred. Current 180-day and 360-day LIBOR are 3.25% and 3.50%, respectively.

The report also identifies a two-year, semi-annual USD-for-EUR currency swap with a notional of €1 million. When the swap was initiated, the USD and EUR fixed rates were 3% and 2%, respectively. The exchange rate has changed from €/$ 0.9091 at inception to €/$ 0.8929 currently.

Furthermore, the report outlines that the firm holds a call option on a Eurodollar futures contract. This position was established to hedge another position of the firm, but Walsinzki could not identify the position that was being hedged.

Finally, the report identifies a long position in a forward contract on 10,000 shares of Specialty Retail, Inc.

Carson and Walsinzki then discuss the mechanics of forward pricing and the possibility of arbitrage involving foreign currencies. Walsinzki uses the Hungarian forint (Ft) versus the euro (€) as an example. The spot rate is Ft/€ 325.61 while the 90-day forward price is Ft/€ 329.40. Exhibit 1 provides additional information.

Exhibit 1: Hungary and eurozone outlook over the next 90 days (rates are annualized)

	Hungary	Eurozone
Expected inflation	2.30%	0.25%
Risk-free interest rate	3.45%	1.25%

Question #49 of 60

Question ID: 1220728

The value of the interest rate swap is *closest to:*

A) $31,600.

B) $47,500.

C) $63,300.

Explanation

new 180-day discount factor = 1 / [1 + (0.0325 × 180 / 360)] = 1 / 1.01625 = 0.9840.

new 360-day discount factor = 1 / [1 + (0.035 × 360 / 360)] = 1 / 1.035 = 0.9662.

sum of the discount factors = 0.9840 + 0.9662 = 1.9502

new SFR = [(1 – 0.9662) / 1.9502] × (360/180) = 3.47%

value (payer) = (0.0347 – 0.0325) × (180 / 360) × (1.9502) × ($15,000,000) = $31,639.

For Further Reference:

(Study Session 14, Module 37.7, LOS 37.d)

Question #50 of 60

Question ID: 1220729

The fixed USD payment in the currency swap is *closest to*:

A) **$16,500.**

B) $17,900.

C) $33,000.

Explanation

USD notional = EUR 1,000,000 / 0.9091 = 1,099,989

USD fixed rate = 3% (semiannual). USD payment = 0.03 / 2 × 1,099,989 = $16,500

For Further Reference:

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

Question #51 of 60

Question ID: 1220730

The call option on Eurodollar futures is *most likely* being used to hedge:

A) a floating rate liability.

B) **a long position in a floating rate note.**

C) a long position in a fixed rate bond.

Explanation

Eurodollar futures contracts are cash settled contracts on LIBOR. Futures prices are inversely related to LIBOR. Call options on Eurodollar futures increase in value when interest rates fall, and hence, can be used to hedge a floating rate asset.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.i)

Question #52 of 60

Question ID: 1220731

Regarding the long forward position in Specialty Retail, Inc., the position is *most likely* to lose value as a result of:

A) an increase in the risk-free rate.

B) an increase in the current stock price of Specialty Retail.

C) **an extra dividend payment during the contract interval.**

Explanation

Long forward contract positions increase in value when the forward price increases. Forward price is positively related to the spot price, time to maturity, and risk-free rate. Equity forward price is negatively related to dividend yield. An extra dividend payment during the contract interval would reduce the forward price and lead to a decline in the value of a long forward position.

For Further Reference:

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

Question #53 of 60

Question ID: 1220732

Regarding the forint/euro forward contract, an arbitrage profit:

A) cannot be earned.

B) can be earned by lending forint.

C) **can be earned by borrowing forint.**

Explanation

Using CIP, the forward price of the euro should be $= 325.61 \times \left[\frac{1.0345}{1.0125}\right]^{90/365} = 327.34$

The EUR is overpriced in the forward market (quoted at 329.40), and hence, we sell EUR forward and buy EUR at the spot—using borrowed forint.

For Further Reference:

(Study Session 14, Module 37.6, LOS 37.b)

Question #54 of 60

Question ID: 1220733

Regarding Carson's question about mechanics of forward pricing, Walsinzki would *most accurately* state that forward prices are set such that:

A) **the market value of the contract at inception is 0.**

B) the forward price is higher than the spot price by the expected return on the underlying.

C) the forward price is lower than the spot price by the dividend yield on the underlying.

Explanation

Forward prices are set so the market value of the contract at inception is zero. Using the cost of carry model, forward price equals spot price plus net cost of carry. For an equity forward contract, net cost of carry equals risk-free rate minus dividend yield.

For Further Reference:

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

Questions #55-60 of 60

Questions 55 through 60 relate to Derivatives.

Stan Loper Case Scenario

Stan Loper is unfamiliar with the Black-Scholes-Merton (BSM) option pricing model and plans to use a two-period binomial model to value some call options. The stock of Arbor Industries pays no dividends and currently trades for $45. The up-move factor for the stock is 1.15, while the down factor is 0.87, and the risk-free rate is 4%. He is considering buying two-period European style options on Arbor Industries with a strike price of $40. The delta of these options over the first period is 0.83.

Loper is curious about the effect of time on the value of the calls in the binomial model, so he also calculates the value of a one-period European style call option on Arbor stock with a strike price of 40.

Loper is also interested in using the BSM model to price European and American call and put options. He is concerned, however, whether the assumptions necessary to derive the model are realistic. The assumptions he is particularly concerned about are:

- The volatility of the option value is known and constant.
- Stock returns are lognormally distributed.
- The continuous risk-free rate is known and constant.

Loper would also like to value options on Rapid Repair, Inc., common stock, but Rapid pays dividends, so Loper is uncertain what the effect will be on the value of the options. Loper uses the two-period model to value long positions in the Rapid Repair call and put options without accounting for the fact that Rapid Repair pays common dividends.

Question #55 of 60

Question ID: 1220735

The value of a two-period 40 call on Arbor Industries stock is *closest* to:

A) $6.65.

B) **$8.86.**

C) $9.21.

Explanation

For two up-moves, $45(1.15)^2$ = \$59.51. For two down-moves, $45(0.87)^2$ = 34.06.

For two up-moves, the intrinsic call value is \$59.51 − \$40 = \$19.51.

For two down-moves, the call is out-of-the-money, intrinsic value = \$0. For an up and a down-move the stock price is unchanged at 45, so the intrinsic value of the calls is \$45.00 − \$40.00 = \$5.

The risk neutral probabilities for the decision tree: $\pi_U = \frac{1.04-0.87}{1.15-0.87}$ = 0.607 and $\pi_D = 1 - \pi_U$ = 0.393.

The probability weighted present value of the option payoff if there are two up-moves is $\frac{0.607^2(19.51)}{1.04^2} = \$6.65$.

For up-down and down-up (which are equal probabilities), the probability weighted present value of the payoff is $\frac{(2)(0.607)(0.393)(\$5.00)}{1.04^2} = \$2.21$.

Sum these to get the option value, \$8.86.

For Further Reference:

(Study Session 14, Module 38.2, LOS 38.b)

Question #56 of 60

Question ID: 1220736

The position in calls necessary to hedge a long position in 1,000 shares of stock over the first period is *closest* to:

A) short 830 calls.

B) short 1,150 calls.

C) **short 1,205 calls.**

Explanation

To form a delta neutral portfolio Loper needs to write $\frac{1,000}{0.83}$ = 1,204.82, or 1,205 calls.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.l)

Question #57 of 60

Question ID: 1220737

The value of the one-period 40 call on Arbor stock is *closest* to:

A) \$6.65.

B) **\$6.86.**

C) \$7.15.

Explanation

The payoff is zero for a down-move and 11.75 for an up-move. Since the probability of an up-move is 0.607, the present value is $\frac{(0.607)11.75}{1.04} = \$6.86.$

For Further Reference:

(Study Session 14, Module 38.1, LOS 38.b)

Question #58 of 60

Question ID: 1220738

The difference in value between the European 40 calls and otherwise identical American 40 calls is *closest* to:

A) –$1.43.

B) **$0.00.**

C) $1.92.

Explanation

The possibility of early exercise is not valuable for call options on non-dividend paying stocks, so the value of the American call is the same as the value of the European call, and the difference in value is zero.

For Further Reference:

(Study Session 14, Module 38.3, LOS 38.b)

Question #59 of 60

Question ID: 1220739

Are the BSM assumptions listed correctly?

A) No, because stock prices are assumed to be normally distributed.

B) No, because the expected return on the stock is assumed to be known and constant.

C) **No, because the volatility of the return on the underlying stock is assumed to be known and constant.**

Explanation

The first assumption listed in the vignette should read, "The volatility of the return on the underlying stock is known and constant." The other listed assumptions are correct.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.f)

Question #60 of 60

Question ID: 1220740

When Loper failed to account for Rapid Repair dividends, did he *likely* overvalue the calls or the puts?

A) The calls and the puts are overvalued.

B) Only the calls are overvalued.

C) Only the puts are overvalued.

Explanation

Dividends on the underlying stock decrease the value of call options and increase the value of put options, all else equal. By ignoring them in his valuation, Loper will likely overvalue a long call option and undervalue a long put.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.h)

Questions #1-6 of 60

Questions 61 through 66 relate to Ethical and Professional Standards.

Blue Lotus LP Case Scenario

Mikale Natschavin, CFA, is the managing director of Blue Lotus LP, a boutique investment bank specializing in M&A consulting in the professional services arena. Blue Lotus also manages a fund (Xeta fund) for several institutional clients. The fund was run by a team of four managers. During the recent downturn, commensurate with the decline in the size of the fund, Blue Lotus downsized the firm.

Paul Vakil, CFA, one of the managers of Xeta, was laid off by Blue Lotus. During his exit interview Natschavin wished Vakil well and, on behalf of the firm, gave him permission to use Xeta fund's past performance when seeking new employment opportunities. Vakil included the performance of the fund to demonstrate his success but did not give any indication of a team approach. Vakil also did not mention to Natschavin or the personnel manager that he was still in possession of the company-issued laptop. Vakil had stored several models the team had developed in pursuing investment strategies on that laptop's hard disk.

Within a few months, Vakil joined the equity research department of Patarsby and Singly, a brokerage firm. Vakil, with the help of a quant specialist at Patarsby, improved the models and started using them in his new role. Things turned out very well for Vakil at Patarsby, and clients waited eagerly for release of his monthly recommendations. During a society event, Vakil ran into Alia Dutt, CFA, one of the other team managers of Xeta fund. Dutt congratulated Vakil. Later in the evening, Vakil spoke to Dutt about one of the companies he is following—Sandhirst, Inc. Vakil stated that his preliminary research indicates that the short-term outlook for Sandhirst is very promising. Dutt also met Neil Savin, Frapco, Inc.'s controller at the event. Frapco is a national grocery chain and a long-time client of Blue Lotus. Savin informed Dutt that the new layout in the stores has been a hit, and that he expects revenues and earnings for the current quarter to be well above consensus forecast.

The next day, Dutt placed a large order for Sandhirst stock for the Xeta fund. Dutt also placed a large order for a retail ETF. Dutt is a member of an online forum where she discusses investments under a pseudonym. Dutt has formed a very loyal following over time as others realized that her posts were very articulate and, therefore, the work of a professional. Dutt recommended Frapco stock in the forum but attributed the recommendation to a general uptick in grocery store margins nationwide—a known fact based on recent earnings announcements of other grocers.

The following week at a charity golf tournament, Vakil met with Bob Snead, his college roommate. Snead was a very successful hedge fund manager. Both of the funds run by Smead were currently closed to new investment, though Snead was considering reopening the investments in the near future. At Vakil's insistence, Snead agreed to allow new investments into the two funds using a newly started intermediary fund as long as Vakil is the fund's manager. Vakil quickly convinced his bosses at Patarsby to open an intermediary fund and marketed the fund to existing Patarsby clients

as a way into Snead hedge funds. Not knowing how long the deal with Snead would hold up, and wanting to quickly ramp up assets under management, Vakil accepted deposits from all Patarsby clients, even some that were relatively new accounts.

Question #1 of 60

Question ID: 1220609

Regarding Vakil's reference to Xeta fund's performance in his resume, which of the following is *most accurate* regarding compliance with the Code and Standards? Vakil violated:

A) Standard III(D) − Performance Presentation.

B) Standard IV(A) − Duties to Employer: Loyalty.

C) Standard IIID − Performance Presentation as well as Standard IV(A) − Duties to Employer: Loyalty.

Explanation

Vakil obtained permission from Blue Lotus to use the past performance and, therefore, is not violating the Standard IV(A): Duties to Employer: Loyalty. By not crediting the entire team in the management of Xeta fund, Vakil violated Standard III(D): Performance Presentation.

For Further Reference:

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

Question #2 of 60

Question ID: 1220610

Vakil's use of the Blue Lotus models at Patarsby is *least likely* to be a violation under:

A) Standard I(C) − Professionalism: Misrepresentation.

B) Standard II(A) − Integrity of Capital Markets: Material Nonpublic Information.

C) Standard IV(A) − Duties to Employer: Loyalty.

Explanation

By taking the models without permission from his past employer, Vakil violated Standard IV(A) − Duties to Employer: Loyalty. Vakil also failed to disclose using his past employer's model, violating Standard I(C) − Professionalism: Misrepresentation. The models are proprietary but do not constitute material nonpublic information (insider information).

For Further Reference:

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

Question #3 of 60

Question ID: 1220611

Vakil's conversation with Dutt regarding Sandhirst stock is *most likely* a violation of:

A) Standard IV(A) - Duties to Employer: Loyalty.

B) Standard II(A) - Integrity of Capital Markets: Material Nonpublic Information.

C) Standard III(C) - Duties to Clients: Suitability.

Explanation

By discussing his research with Dutt, including recommending a specific stock, Vakil violated his duty to his employer by disclosing sensitive business information to outsiders. However, the information is not material nonpublic information and, thus, is not a violation under Standard II(A) – Integrity of Capital Markets: Material Nonpublic Information.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #4 of 60

Question ID: 1220612

With regards to investments in Sandhirst stock and retail ETF, Dutt *most likely* violated:

A) Standard II(A) − Material and Nonpublic Information by investing in Sandhirst stock but not by investing in the retail ETF.

B) **Standard II(A) - Material and Nonpublic Information by investing in the retail ETF but not by investing in Sandhirst stock.**

C) Standard II(A) - Material and Nonpublic Information in both instances.

Explanation

By transacting in Sandhirst stock, Dutt did not rely on any material nonpublic information and, therefore, is not in violation of Standard II(A) – Material and Nonpublic Information. However, her investment in the retail ETF relies on material nonpublic information about Frapco.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #5 of 60

Question ID: 1220613

Dutt's recommendation of Frapco stock in the online forum is *most likely*:

A) **a violation of Standard II(A) – Material and Nonpublic Information even though she attributed the recommendation to publicly available information.**

B) not a violation under Standard II(A) – Material and Nonpublic Information.

C) violation of Standard III(E): Preservation of Confidentiality.

Explanation

Trading for oneself or causing others to trade based on material nonpublic information is a violation under Standard II(A) – Material and Nonpublic Information.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #6 of 60

Question ID: 1220614

Vakil's conduct regarding the intermediary fund to channel investments into Snead funds is *most likely* a violation under:

A) Standard II(B) Integrity of Capital Markets: Market Manipulation.

B) **Standard III(D) Duties to Clients: Suitability.**

C) Standard III(D) Duties to Clients: Fair Dealing.

Explanation

Because the Snead hedge funds may not be suitable for all clients, Vakil violated Standard III(D) Duties to Clients: Suitability. No clients were treated unfairly and there was no market manipulation.

For Further Reference:

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

Questions #7-12 of 60

Questions 67 through 72 relate to Quantitative Methods.

Kate Sawyer Case Scenario

Research associate Kate Sawyer is responsible for identifying the determinants of performance for her firm's Progressive Fund (PF). All tests performed at Sawyer's firm are examined at the 0.05 level of significance. Sawyer examines the following regressions using monthly data observed for a 36 month period:

(1) $R_{PF,t} = b_0 + b_1R_{M,t} + b_2VMG_t + e_{PF,t}$

(2) $\hat{e}^2_{PF,t} = a_0 + a_1R_{M,t} + a_2VMG_t + u_{PF,t}$

where:

$R_{PF,t}$ = the return on the Progressive Fund in month *t*

$R_{M,t}$ = the return on the Wilshire 5000 stock market index in month *t*

VMG_t = the return on value stocks minus the return on growth stocks in month *t*

$\hat{e}^2_{PF,t}$ = the estimated squared regression errors derived from (1)

Exhibit 1: Equation (1) Regression Results

Variable	Coefficient	p-values
Constant	–0.005	0.030
R_M	1.250	0.001
VMG	0.200	0.980

The R^2 from equation (1) equals 0.80. A colleague, Jack Lockhart, makes two recommendations to Sawyer:

Recommendation 1:	My research indicates that inflation-rate changes are highly correlated with the Wilshire 5000 stock index returns. Therefore, I recommend adding the inflation change variable to your regression.
Recommendation 2:	My research indicates that the slope coefficients of your regression changed significantly after the passage of Regulation Fair Disclosure, which took place in the middle of your 3-year sample period. Your regression pools across two distinct sample periods. Therefore, I recommend correcting your current regression equation for model misspecification.

In her conversation with Lockhart, Sawyer explains that she is concerned that her regression equation (1) may ignore other important determinants of performance for the Progressive Fund. Sawyer explains that she is aware that the omission of important independent variables affects the quality of the parameter estimates of the regression. She makes the following claims, assuming the omitted variables are correlated with the included variables:

Claim 1:	The parameter estimates of equation (1) are unbiased.
Claim 2:	The parameter estimates of equation (1) are inconsistent.

Question #7 of 60

Question ID: 1220616

Of the slopes for the two independent variables, R_M and VMG, determine which are statistically significant at the 0.05 level?

A) Both slopes are statistically significant.

B) **Only the slope for R_M is statistically significant.**

C) Only the slope for VMG is statistically significant.

Explanation

The p-value is the probability that the null hypothesis, H_0: slope = zero, is true. The decision rule is to reject the null hypothesis if the p-value is less than the significance level (i.e., there is only a very small chance that the null hypothesis is correct). The p-value for the R_M slope is less than the significance level, and the p-value for the VMG slope is greater than the significance level. Therefore, the R_M slope is statistically significant (reject the null hypothesis that the R_M slope equals zero) and the VMG slope is not statistically significant (cannot reject the null hypothesis that the VMG slope equals zero).

For Further Reference:

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

Question #8 of 60

Question ID: 1220617

The R^2 derived for equation (1) indicates which of the following for equation (1)?

A) **Regression sum of squares exceeds the error sum of squares.**

B) Regression sum of squares exceeds the total sum of squares.

C) Mean regression sum of squares is less than the mean total sum of squares.

Explanation

The equation for the R^2 equals the regression sum of squares divided by the total sum of squares. The total sum of squares equals the regression sum of squares plus the error sum of squares. Therefore, the R^2 equals:

$$R^2 = \frac{\text{regression sum of squares}}{\text{regression sum of squares} + \text{error sum of squares}}$$

The problem states that the R^2 equals 0.80. Because the R^2 exceeds 50%, the regression sum of squares must exceed the error sum of squares.

For Further Reference:

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

Question #9 of 60

Question ID: 1220618

Sawyer decides to test regression equation (1) for the existence of conditional heteroskedasticity. Sawyer is likely to conclude that her regression does not exhibit conditional heteroskedasticity if the R^2 from equation (2) is:

A) close to 0.

B) close to 1.

C) close to 0.80.

Explanation

Conditional heteroskedasticity refers to regression errors whose variance is not constant. If there is conditional heteroskedasticity, the variance changes as function of the independent variables. The squared residual (i.e., residual is the estimated error) is used to proxy the error variance. A low R^2 in equation (2) indicates that the slopes in equation (2) are very close to zero, indicating that the error variance is unaffected by the independent variables. For instance, if all the slopes in equation (2) equal zero, then the error variance equals the intercept (a_0, which is constant over time).

For Further Reference:

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

Question #10 of 60

Question ID: 1220619

Regarding Lockhart's Recommendation 1, the econometric problem that is *most likely* to be introduced by including the inflation change variable in regression equation (1) is:

A) model misspecification.

B) serial correlation.

C) multicollinearity.

Explanation

According to Recommendation 1 provided by Lockhart, the inflation change variable is highly correlated with the Wilshire index returns (one of the independent variables). If Sawyer includes the inflation change variable along with the Wilshire index returns, the regression will be plagued by multicollinearity (the inclusion of correlated independent variables).

Multicollinearity causes the standard errors for the regression parameter estimates to be biased upward, which, in turn, causes the *t*-statistics to be biased downward (deflated).

For Further Reference:

(Study Session 2, Module 5.8, LOS 5.l)

Question #11 of 60

Question ID: 1220620

Regarding Lockhart's Recommendation 2, the *most likely* form of model misspecification to which he refers is:

A) stationarity model misspecification.

B) time-series model misspecification.

C) **functional form model misspecification.**

Explanation

According to Recommendation 2, the data should not be pooled across all 36 months. The sample clearly is split into two parts: pre-Reg FD and post-Reg FD. Sawyer should run separate regressions for each subperiod, or should employ dummy variables to control for the structural shift related to the passage of Reg FD. In either case, by pooling across the two very different sample periods, Sawyer's regression is an example of a misspecified functional form.

For Further Reference:

(Study Session 2, Module 5.9, LOS 5.m)

Question #12 of 60

Question ID: 1220621

Regarding Claim 1 and Claim 2 made by Sawyer about the effects of omitted variables, which claims are correct?

A) Claim 1 only.

B) **Claim 2 only.**

C) Both Claim 1 and Claim 2.

Explanation

Sawyer is incorrect with respect to Claim 1 and is correct with respect to Claim 2. If the omitted variables are correlated with the included variables, then the omitted variable regression parameter estimates [i.e., from equation (1)] will be biased and inconsistent. Desirable properties, on the other hand, are unbiasedness and consistency. An estimator is unbiased if the expected value of the estimate equals the true population value. An estimator is consistent if the estimate approaches the true population value as the sample size increases. The existence of omitted variables (that are correlated with the included variables) destroys both of these desirable properties.

For Further Reference:

(Study Session 2, Module 5.9, LOS 5.m)

Questions #13-18 of 60

Questions 73 through 78 relate to Financial Reporting and Analysis.

Whitmore Corporation Case Scenario

Gary Smith, CFA, has been hired to analyze a specialty tool and machinery manufacturer, Whitmore Corporation (WMC). WMC is a leading producer of specialty machinery in the United States. At the end of 2014, WMC purchased York Tool Company (YTC), an Australian firm in a similar line of business. YTC has partially integrated its marketing functions within WMC but still maintains control of its operations and secures its own financing. Following is a summary of the income statement and balance sheet for YTC (in millions of Australian dollars – AUD) for the past three years as well as exchange rate data over the same period.

Income Statement (AUD millions)	2014	2015	2016
Revenues	765	820	870
COGS	484	520	580
SG&A	171	183	200
Depreciation expense	50	50	50
Interest expense	18	17	16
Income before tax	42	50	24
Taxes	21	25	12
Net income	**21**	**25**	**12**

Balance Sheet (AUD millions)

	2014	2015	2016		2014	2015	2016
Cash	22	25	20	Current liabilities	616	593	584
Accounts receivable	400	422	460	Long-term debt	180	170	160
Inventories	20	25	30				
Prepaid expenses	8	20	25	Common stock	50	50	50
Net fixed assets	500	450	400	Retained earnings	104	129	141
Total assets	950	942	935	Total liabilities & equity	950	942	935

Exchange rates (AUD / USD)	2014	2015	2016
Average exchange rate	1.40	1.30	1.45
Year-end exchange rate	1.20	1.40	1.50
Historical exchange rate	1.20	1.20	1.20

Smith has discovered that WMC has a small subsidiary in Ukraine. The subsidiary follows IAS accounting rules and uses FIFO inventory accounting. The Ukrainian subsidiary was acquired 10 years ago and has been fully integrated into WMC's operations. WMC obtains funding for the subsidiary whenever the company finds profitable investments within Ukraine or

surrounding countries. According to forecasts from economists, the Ukrainian currency is expected to depreciate relative to the U.S. dollar over the next few years. Local currency prices are forecasted to remain stable, however.

One of the managers at WMC asks Smith to analyze a third subsidiary located in India. The manager has explained that real interest rates in India over the past three years have been 2.00%, 2.50%, and 3.00%, respectively, while nominal interest rates have been 34.64%, 29.15%, and 25.66%, respectively. Smith requests more time to analyze the Indian subsidiary.

Question #13 of 60

Question ID: 1220623

Calculate the percent change in YTC net income shown on the WMC financial statements from 2015 to 2016.

A) –52.0%.

B) –55.2%.

C) **–56.9%.**

Explanation

Because YTC operates independently and makes its own financing decisions, the local currency (AUD) should be the functional currency. When the local currency is the functional currency, the subsidiary's financial statements are consolidated with the parent's financial statements using the current rate method. Under the current rate method, all of the income statement items are translated using the average rate for the year. To calculate the percent change in net income, we must translate these items for 2016 and 2015 and then calculate the rate of change.

2015 translated net income = 25 / 1.30 = 19.23

2016 translated net income = 12 / 1.45 = 8.28

growth in net income = (8.28 / 19.23) − 1 = –56.94%

For Further Reference:

(Study Session 5, Module 15.4, LOS 15.d)

Question #14 of 60

Question ID: 1220624

If WMC uses the temporal method, YTC's net monetary liabilities leave WMC exposed to loss in the event of:

A) currency (AUD) depreciation.

B) **currency (AUD) appreciation.**

C) either currency depreciation or currency appreciation.

Explanation

Under the temporal method, the nonmonetary assets and liabilities are remeasured at historical rates. Thus, only the monetary assets and liabilities are exposed to changing exchange rates. Therefore, under the temporal method, exposure is defined as the subsidiary's net monetary asset or net monetary liability position. A firm has net monetary assets if its monetary assets exceed its monetary liabilities. If the monetary liabilities exceed the monetary assets, the firm has a net monetary liability exposure.

Since very few assets are considered to be monetary (mainly cash and receivables), most firms have net monetary liability exposures. If the parent has a net monetary liability exposure when the foreign currency (AUD) is appreciating, the result is a loss. Conversely, a net monetary liability exposure coupled with a depreciating currency will result in a gain.

For Further Reference:

(Study Session 5, Module 15.3, LOS 15.d)

Question #15 of 60

Question ID: 1220625

Determine whether the translated total asset turnover for YTC for 2016 would be higher under the current rate method or under the temporal method.

A) Temporal method.

B) **Current rate method.**

C) No difference between temporal and current rate methods.

Explanation

Note that no calculations are necessary to answer this question. Revenues are translated using the same average exchange rate in the temporal and current rate methods. The only difference in the total asset turnover ratio must therefore be in the denominator (i.e., total assets). Under the current rate method, assets are translated using the current rate. Under the temporal method, monetary assets are translated using the current rate, and nonmonetary assets are translated using the historical rate. Because the historical rate is lower than the current rate, the nonmonetary assets (and therefore total assets) will have a higher value under the temporal method. A higher asset value means a lower total asset turnover ratio under the temporal method. The calculation of the total asset turnover ratio using both methods is provided for reference below:

total asset turnover = revenue / total assets

	Temporal		Current Rate	
Cash	20 / 1.50 =	13.33	20 / 1.50 =	13.33
Accounts receivable	460 / 1.50 =	306.67	460 / 1.50 =	306.67
Inventories	30 / 1.20 =	25.00	30 / 1.50 =	20.00
Prepaid expenses	25 / 1.20 =	20.83	25 / 1.50 =	16.67
Fixed assets	400 / 1.20 =	333.33	400 / 1.50 =	266.67
Total assets		699.16		623.34
Revenues	870 / 1.45 =	600.00	870 / 1.45 =	600.00
Total asset turnover	600.00 / 699.16 =	0.86	600.00 / 623.34 =	0.96

For Further Reference:

(Study Session 5, Module 15.5, LOS 15.d)

Question #16 of 60

Question ID: 1220626

For the period 2014–2016, WMC's annual USD revenue growth rate attributable to its Australian subsidiary is *most likely*:

A) 1.85% lower than the local currency revenue growth rate.

B) 3.62% higher than the local currency revenue growth rate.

C) 3.45% lower than the local currency revenue growth rate.

Explanation

AUD revenue growth rate = $(870 / 765)^{1/2} - 1 = 6.64\%$

Revenues are translated at average rate:

2014 USD revenues = 765 / 1.40 = 546.43; 2016 USD revenues = 870 / 1.45 = 600

USD revenue growth rate = $(600 / 546.43)^{1/2} - 1 = 4.79\%$

The USD revenue growth rate is 1.85% lower than the local currency (AUD) revenue growth rate.

For Further Reference:

(Study Session 5, Module 15.8, LOS 15.i)

Question #17 of 60

Question ID: 1220627

Which of the following statements regarding the consolidation of WMC's Ukrainian subsidiary for the next year is *least likely* correct? Compared to the temporal method, the Ukrainian subsidiary's translated:

A) net income before translation gains or losses would be higher using the current rate method.

B) debt-to-equity ratio would be higher using the current rate method.

C) gross profit margin would be lower using the current rate method.

Explanation

Under both the current rate and temporal methods, the revenues for the Ukrainian subsidiary would be translated using the average rate. Cost of goods sold (COGS) would be translated using the historical rate for the temporal method and the average rate for the current rate method. Note that because local currency prices are expected to be constant in Ukraine, there will be no difference between LIFO and FIFO since all beginning, purchased, sold, and ending inventory will have the same cost. When a currency is depreciating, the COGS based on historical cost (temporal method) will be higher than COGS translated at the average rate (current rate method) since the average rate will incorporate the historical exchange rate and the most recent (depreciated) exchange rate, decreasing the COGS. For instance, if COGS in the local currency is 10 and the historical and average exchange rates are 1 and 1.5 (local currency per reporting currency), then COGS under the temporal method will be 10 and under the current rate method will be 6.67. Since translated sales are the same under both methods, gross profit and the gross profit margin will be higher under the current rate method.

For Further Reference:

(Study Session 5, Module 15.6, LOS 15.f)

Question #18 of 60

Question ID: 1220628

Which of the following statements related to the consolidation of WMC's Indian subsidiary is *least likely* correct?

A) The Indian economic environment meets the criteria to be classified as a hyperinflationary economy.

B) IFRS would allow WMC to translate the inflation-indexed value of nonmonetary assets of the Indian subsidiary at the current exchange rate.

C) **WMC can reduce potential translation losses from the Indian subsidiary by issuing debt denominated in U.S. currency and purchasing fixed assets for the subsidiary.**

Explanation

U.S. accounting standards define a hyperinflationary economy as one in which the 3-year cumulative inflation rate exceeds 100%. The Indian economy can be characterized as hyperinflationary. The inflation rate over the past three years can be calculated as follows:

year 1 inflation = [(1 + 0.3464) / (1 + 0.020)] − 1 = 32%

year 2 inflation = [(1 + 0.2915) / (1 + 0.025)] − 1 = 26%

year 3 inflation = [(1 + 0.2566) / (1 + 0.030)] − 1 = 22%

cumulative 3-year inflation = (1.32)(1.26)(1.22) − 1 = 103%

U.S. accounting standards allow the use of the temporal method, with the functional currency being the parent's reporting currency, when a foreign subsidiary is operating in a hyperinflationary environment. IFRS accounting standards allow the parent to translate an inflation-adjusted value of the nonmonetary assets and liabilities of the foreign subsidiary at the current inflation rate, removing most of the effects of high inflation on the value of the nonmonetary assets and liabilities in the reporting currency. In a hyperinflationary environment, the parent company can reduce translation losses by reducing its net monetary assets or increasing its net monetary liabilities. In order to do this, the parent should issue debt denominated in the subsidiary's local currency and invest the proceeds in fixed assets for the subsidiary to use in its operations.

For Further Reference:

(Study Session 5, Module 15.7, LOS 15.g)

Questions #19-24 of 60

Questions 79 through 84 relate to Corporate Finance.

Voyager, Inc., Case Scenario

Voyager, Inc., a primarily internet-based media company, is buying The Daily, a media company with exposure to newspapers, television, and the internet.

Company Descriptions

Voyager, Inc., is organized into two segments: internet and newspaper publishing. The internet segment operates websites that offer news, entertainment, and advertising content in text and video format. The internet segment represents 75% of the company's total revenues. The newspaper publishing segment publishes 10 daily newspapers. The newspaper publishing segment represents 25% of the company's total revenues.

The Daily is organized into three segments: newspaper publishing (60% of revenues), broadcasting (35% of revenues), and internet (5% of revenues). The newspaper publishing segment publishes 101 daily newspapers. The broadcasting segment owns and operates 25 television stations. The internet segment consists of an internet advertising service. The Daily's newspaper publishing and broadcasting segments cover the 20 largest markets in the United States.

Voyager's acquisition of The Daily is the company's second major acquisition in its history. The previous acquisition was at the height of the merger boom in the year 2000. Voyager purchased the Dragon Company at a premium-to-net-asset value, thereby doubling the company's size. Voyager used the pooling method to account for the acquisition of Dragon; however, because of FASB changes to the Business Combination Standard, Voyager will use the acquisition method to account for the Daily acquisition.

(in millions, except per share data)	Voyager, Inc. (before merger)	The Daily (before merger)
Revenues	$1,800	$7,600
Operating income	$415	$998
Earnings	$200	$650
Assets	$1,900	$14,700
Debt	$200	$2,500
Equity	$1,100	$7,600
Number of shares	117.6 million	213.1 million
Stock price per share	$68	$35
Earnings per share	$1.70	$3.05
PE ratio	40.0x	11.5x

Voyager has made an all-cash offer of $45 per share to acquire The Daily. Wall Street is skeptical about the merger. While Voyager has been growing its revenues by 40% per year, The Daily's revenue growth has been less than 2% per year. Michael Renner, the CFO of Voyager, defends the acquisition by stating that The Daily has accumulated a large amount of tax losses and that the combined company can benefit by immediately increasing net income after the merger. In addition, Renner states that the new Voyager will eliminate the inefficiencies of its internet operations and thereby boost future earnings. Renner believes that the merged companies will have a value of $17.5 billion.

In the past, The Daily's management has publicly stated its opposition to merging with any company, a position management still maintains. As a result of this situation, Voyager submitted its merger proposal directly to The Daily's board of directors, while the firm's CEO was on vacation. Upon returning from vacation, The Daily's CEO issued a public statement claiming that the proposed merger was unacceptable under any circumstances.

Question #19 of 60

Question ID: 1220630

Voyager used the pooling of interests method when accounting for the 2000 acquisition of Dragon, rather than the acquisition method it would use today. Which of the following is *least likely* a feature of the pooling of interests method?

A) Operating results for prior periods are restated as though the two firms were always combined.

B) **The pooling of interests method combines historic book values and fair values.**

C) The pooling of interests method combines historic book values.

Explanation

Historically, two accounting methods have been used for business combinations: (1) the purchase method and (2) the pooling-of-interests method. However, over the last few years, the pooling method has been eliminated from U.S. GAAP and IFRS. Now, the acquisition method is required.

The pooling-of-interests method, also known as uniting-of-interests method under IFRS, combined the ownership interests of the two firms and viewed the participants as equals—neither firm acquired the other. The assets and liabilities of the two firms were simply combined. Key attributes of the pooling method include the following:

- The two firms are combined using historical book values.
- Operating results for prior periods are restated as though the two firms were always combined.
- Ownership interests continue, and former accounting bases are maintained.

Note that fair values played no role in accounting for a business combination using the pooling method—the actual price paid was suppressed from the balance sheet and income statement.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.c)

Question #20 of 60

Question ID: 1220631

Based on Renner's comments defending Voyager's acquisition of The Daily, indicate whether his comments about net income and elimination of inefficiencies are *most likely* correct.

A) **Only Renner's comment that unused tax losses will immediately translate into higher net income is correct.**

B) Only Renner's comment that the elimination of inefficiencies within the internet operations will create additional value is correct.

C) Both comments are correct.

Explanation

If the target of a merger has unused tax losses accumulated, the merged company can use the tax losses to immediately lower its tax liability, thus increasing its net income (Correct). The internet operation of The Daily is insignificant compared to the overall merger value. Any improvement in the cost structure of the internet operation will not have a significant impact on overall earnings. In addition, the high-growth characteristics of the internet segment would not warrant a cost restructuring of the operations (Incorrect).

For Further Reference:

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

Question #21 of 60

Question ID: 1220632

Assuming that Renner's estimate of the value of the merged companies is correct, calculate the acquirer's gain from the merger.

A) $7,910.5 million.

B) **$9,503.2 million.**

C) $11,634.2 million.

Explanation

First, we must separate the synergistic value from the combined value of the firm as follows:

$$V_{AT} = V_A + V_T + S - C$$

where:

V_{AT} = the combined value of the firm

V_A = the value of the acquirer before the merger

V_T = the value of the target before the merger

S = the synergistic value from the merger

C = the cash paid to the target

Rearranging the formula, the synergistic value can be isolated as follows:

$$\begin{aligned} S &= V_{AT} - V_A - V_T + C \\ &= 17{,}500 - (68 \times 117.6) - (35 \times 213.1) + (45 \times 213.1) \\ &= 17{,}500 - 7{,}996.8 - 7{,}458.5 + 9{,}589.5 \\ &= \$11{,}634.2 \text{ million} \end{aligned}$$

Next, calculate the acquirer's gain as follows:

$$\text{acquirer's gain} = S - (P_T - V_T)$$

where:

S = the synergistic value from the merger

P_T = the price paid for the target

V_T = the value of the target before the merger

$$\begin{aligned} \text{acquirer's gain} &= 11{,}634.2 - [(45 \times 213.1) - (35 \times 213.1)] \\ &= 11{,}634.2 - (9{,}589.5 - 7{,}458.5) \\ &= \$9{,}503.2 \text{ million} \end{aligned}$$

For Further Reference:

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

Question #22 of 60

Question ID: 1220633

Assume that Voyager offers 63 million shares of its stock, rather than cash, to acquire The Daily. The share price of the combined company is *closest* to:

A) $145 per share.

B) **$150 per share.**

C) $155 per share.

Explanation

total shares = 63.0 + 117.6 = 180.6 million

V_{AT} = 7,996.8 + 7,458.5 + 11,634.2 − 0 = 27,089.5

new share price = 27,089.5 / 180.6 = 150.0

For Further Reference:

(Study Session 8, Module 23.4, LOS 23.k, 23.l)

Question #23 of 60

Question ID: 1220634

The management of The Daily is not pleased with the $45 per share offering price. Which of the following is the *most likely* takeover defense The Daily would consider in an effort to stop the acquisition?

A) Immediately amend The Daily bylaws to establish a staggered board.

B) **File suit against Voyager for antitrust violations.**

C) Restrict the voting rights of shareholders owning more than 10% of The Daily stock.

Explanation

The legal action based on antitrust is the only choice given that is a post-offer defense. Staggered boards, restricted voting rights, and poison puts are all pre-offer defenses that would not be possible after the tender offer has been made.

For Further Reference:

(Study Session 8, Module 23.2, LOS 23.f)

Question #24 of 60

Question ID: 1220635

Which of the following *best* characterizes Voyager's proposal to merge with The Daily?

A) **Bear hug.**

B) Proxy fight.

C) White knight.

Explanation

A hostile merger occurs when the management of a merger target is opposed to the proposed merger. In such a situation, the acquiring company may initiate a bear hug in which the merger proposal is delivered directly to the board of directors of the target company. Voyager has initiated a bear hug in the hopes of gaining board support for the proposed merger before management can react to the proposal. If the bear hug is unsuccessful, the acquirer may appeal directly to the target's shareholders through a tender offer in which the acquirer offers to buy shares directly from shareholders or through a proxy fight in which a proxy solicitation is used to convince shareholders to elect a board of directors chosen by the acquirer. The board of directors would then replace the target's management and allow the merger to move forward. A white knight is a takeover defense, not a type of merger.

For Further Reference:

(Study Session 8, Module 23.2, LOS 23.e)

Questions #25-30 of 60

Questions 85 through 90 relate to Equity Valuation.

Yummy Doughnuts Case Scenario

Yummy Doughnuts (YD) sells a variety of doughnuts and other related items through both company-owned locations and franchise locations. YD has experienced significant growth over the past five years. However, barriers to entry are low and competition is increasing.

Linda Haas, CFA, follows YD for Gibraltar Capital. Gibraltar Capital prides itself on its thorough fundamental analysis of investment opportunities. The company uses a bottom-up approach to the investment process. Haas's security selection process utilizes residual income models to determine a stock's intrinsic value. Haas obtains YD's 2018 financial statements shown in Exhibit 1. In addition, Haas provides supporting information about YD's financials and other related material found in Exhibit 2.

Exhibit 1: Yummy Doughnuts's 2018 Income Statement and Balance Sheet

In millions, except for per share items	2018
Revenue	$300
Cost of goods sold	$205
SG&A	$40
Depreciation expense	$6
Income from operations	$49
Interest expense	$1
Pretax income	$48
Income tax (40% tax rate)	$19
Net income	$29

Shares outstanding	18.6
EPS	$1.56

In millions	**2018**		**2018**
Assets		**Liabilities and equity**	
Cash	$15	Accounts payable	$12
Accounts receivable	$27	Accrued expenses	$26
Inventory	$16	Current liabilities	$38
Current assets	$58		
Property and equipment	$113	Total long-term debt (7% coupon, at par value)	$12
Long-term investments	$10	Equity	$131
Total assets	**$181**	**Total liabilities & equity**	**$181**

Exhibit 2: Additional Information

- YD uses the FIFO method of inventory valuation.
- 2018 cash operating taxes equal $15 million. This amount includes all appropriate tax adjustments. 2018 NOPAT was estimated to be $42 million.
- Haas believes that YD will have a 17% ROE and a 10% long-term growth rate over the foreseeable future.
- Haas estimates YD's cost of equity to be 15.0%.
- YD expects annual capital expenditures to remain at about $37 million.
- YD's stock currently trades at $15.50 per share.
- YD's bonds are currently trading at par value.
- YD's total adjusted capital base was $200 million at the end of 2017.

Haas makes the following statements during her YD presentation to the investment committee:

Statement 1:	Based on ROE mean reversion, YD's continuing residual income is assumed to decline to zero over time.
Statement 2:	The residual income model states that if YD's ROE equals its equity cost of capital, then YD's intrinsic value will equal its book value per share.

Question #25 of 60

Question ID: 1220637

For this question only, a careful evaluation of YD's financial statement reveals that the decrease in value of available-for-sale securities has been reported in the other comprehensive income (OCI) section of stockholder's equity. The *most likely* impact on the computation of residual income due to accounting for available-for-sale securities would be:

A) a reduction in residual income due to lower ROE.

B) a reduction in residual income due to lower ROE and book value.

C) **an increase in residual income due to higher ROE.**

Explanation

A decrease in the value of available-for-sale securities that bypasses the income statement would artificially increase net income and, consequently, ROE. Book value is unaffected as the decrease is accounted for in the OCI section of shareholders' equity.

For Further Reference:

(Study Session 11, Module 30.5, LOS 30.k)

Question #26 of 60

Question ID: 1220638

Based on Exhibit 1 and Exhibit 2, YD's weighted average cost of capital (WACC) is *closest* to:

A) 12%.

B) 13%.

C) **15%.**

Explanation

$$\mathrm{WACC} = \left(\frac{\mathrm{MVD}}{\mathrm{MVD+MVCE}}\right) \times [\mathrm{r_d}\,(1 - \text{tax rate})] + \left(\frac{\mathrm{MVCE}}{\mathrm{MVD+MVCE}}\right)\mathrm{r}$$

r_d= debt coupon given as 7.0%

tax rate = 40% (given in Exhibit 1)

r = equity cost = 0.15 (given in Exhibit 2)

MVD = market value of debt = book value of debt for YD = 12

MVCE = market value of common equity = $15.50 × 18.6 = $288.3

$$\mathrm{WACC} = \left(\frac{12}{12+288.3}\right) \times [0.07\,(1 - 0.40)] + \left(\frac{288.3}{12+288.3}\right) \times 0.15 = 0.146$$

For Further Reference:

(Study Session 6, Module 18.1, LOS 18.a and Study Session 9, Module 25.1, LOS 25.g)

Question #27 of 60

Question ID: 1220639

For this question only, assume a weighted average cost of capital (WACC) of 12.0%. YD's economic value added (EVA) during the year 2018 is *closest* to:

A) $6 million.

B) **$18 million.**

C) $24 million.

Explanation

$WACC = WACC × capital = 0.12 × 200 = 24

EVA = NOPAT − $WACC = 42 − 24 = 18

For Further Reference:

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

Question #28 of 60

Question ID: 1220640

Based on Exhibit 1, Exhibit 2, and the single-stage residual in come model, YD's intrinsic value is *closest* to:

A) $8.00 per share.

B) **$10.00 per share.**

C) $12.00 per share.

Explanation

$$V_0 = B_0 + [(ROE - r) \times B_0] / (r - g)$$

book value = equity / total shares

book value = 131 / 18.6 = 7.04 (from Exhibit 1)

r = cost of equity = 0.15 (given in Exhibit 2)

ROE = 0.17 (given in Exhibit 2)

g = 0.10 (given in Exhibit 2)

$V_0 = 7.04 + [(0.17 - 0.15) \times 7.04] / (0.15 - 0.10) = 9.86$

For Further Reference:

(Study Session 11, Module 30.3, LOS 30.f)

Question #29 of 60

Question ID: 1220641

Haas notes that the multi-stage residual equity income model captures more detail in calculating YD's intrinsic value. An assumption of the model is that ROE fades to the cost of equity over time, which is known as a persistence factor (varying from 0 to 1). Identify which characteristic indicates a higher persistence of abnormal earnings.

A) **Low dividend payout.**

B) Low price-to-earnings ratio.

C) High dividend yield.

Explanation

It is difficult for a company to maintain a high ROE because of competition. The persistence factor will be lower for those companies. A company that has a low dividend payout has greater growth opportunities than a company with a high dividend payout. The greater growth opportunities should support a higher persistence factor.

For Further Reference:

(Study Session 11, Module 30.4, LOS 30.h)

Question #30 of 60

Question ID: 1220642

Haas makes a statement about an assumption concerning residual income (Statement 1) and the residual income model (Statement 2). Which of the statements is correct?

A) Only Statement 1 is correct.

B) Only Statement 2 is correct.

C) **Both Statements 1 and 2 are correct.**

Explanation

Statement 1 is correct. The multistage residual income model uses continuing residual income to denote the long-run residual income. Based on reversion to the mean, and increasing competition for YD, continuing residual income would be expected to decline to zero over time. Statement 2 is correct. Based on the residual income model formula, $V_0 = B_0 + (ROE - r) \times B_0 / (r - g)$. If ROE = r, then $V_0 = B_0$.

For Further Reference:

(Study Session 11, Module 30.2, LOS 30.d, 30.j)

Questions #31-36 of 60

Questions 91 through 96 relate to Fixed Income.

TFC Investments Case Scenario

Michael Thomas, CFA, is a fixed-income portfolio manager for TFC Investments. As part of his portfolio strategy for the Prosperity Fund, Thomas seeks out bonds that he expects to be upgraded or downgraded. Potential upgrades that Thomas identifies are added to the portfolio (or, if already in the portfolio, are increased in proportion to other holdings). Potential downgrades are sold from the portfolio. Thomas's portfolio's current holdings include several bonds issued by companies in the oil and gas exploration and refining industries. Year-end rating updates are expected to occur in a few days, and Thomas is preparing to adjust his portfolio in advance of expected changes in credit ratings.

Thomas has been discussing his fixed-income strategies with fellow portfolio manager Shawna Reese. Reese suggests that while Thomas's general approach is suitable, the overall credit-analysis strategy could be improved. Reese recommends using the credit valuation adjustment as a metric in credit analysis.

Reese makes the following statement to Thomas:

Reese's statement:	"Credit valuation adjustment is the sum of the expected loss for each period based on the risk-neutral probability of default."

Reese provides information about 4% Pistar, Inc., bonds, which are currently rated AA with a negative outlook. The bonds have a modified duration of 7.8, and the credit spread on the bonds is expected to be the same as the average for that rating category. Reese wants to calculate the impact of a downgrade on Pistar, Inc.'s bonds given the information in Exhibit 1.

Exhibit 1: Average Credit Spreads by Ratings Category

AAA	AA	A	BBB	BB	B	CCC
0.24%	0.29%	0.39%	0.58%	0.89%	1.12%	1.78%

As part of his portfolio analysis, Thomas also compares ABS to corporate bonds and makes the following statements:

Statement 1:	Securitization allows for higher leverage and lower cost to the issuer.
Statement 2:	A highly granular pool would have hundreds of clearly defined loans, allowing for use of summary statistics as opposed to investigating each borrower.
Statement 3:	ABS investors earn a lower risk premium relative to similarly rated general obligation bonds.

Thomas concludes his analysis by comparing the swap rate curve to a government bond yield curve.

Question #31 of 60

Question ID: 1220651

Reese's statement about credit valuation adjustment is *most likely*:

A) correct.

B) incorrect about the use of risk-neutral probability of default.

C) **incorrect about the sum of expected losses.**

Explanation

Credit valuation adjustment (CVA) is the sum of the *present value* of the expected loss for each period (and not simply just the sum of the expected losses).

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #32 of 60

Question ID: 1220652

Under the option analogy of the structural model, owning a company's debt is economically equivalent to owning a riskless bond and simultaneously:

A) buying an American put option on the assets of the company.

B) **selling a European put option on the assets of the company.**

C) buying a European put option on the assets of the company.

Explanation

Under the structural model's debt option analogy, owning a company's debt is economically equivalent to owning a riskless bond that pays K dollars at time T, plus simultaneously selling a European put option on the assets of the company with maturity T and strike price K.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #33 of 60

Question ID: 1220653

If Reese uses the risk-neutral probabilities of default to value the Pistar, Inc., bonds, she is *most likely* to conclude that the bond is:

A) fairly valued.

B) overvalued.

C) undervalued.

Explanation

Risk neutral probability of default is the probability of default implied in the current market price. If CVA is calculated using risk-neutral probability, the value of risky bond will be estimated to be equal to its market price.

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #34 of 60

Question ID: 1220654

What is the expected change in price of Pistar, Inc., bonds on account of credit migration?

A) –0.29%.

B) –0.39%.

C) –0.78%.

Explanation

$\Delta\%P$ = – (modified duration of the bond) × (Δ spread).

= – (7.8) × (0.0039 – 0.0029) = –0.0078 or –0.78%.

For Further Reference:

(Study Session 13, Module 35.3, LOS 35.c)

Question #35 of 60

Question ID: 1220655

Regarding Thomas's statements about ABS, which statement is *least* accurate?

A) Statement 1.

B) Statement 2.

C) Statement 3.

Explanation

Statement 3 is inaccurate. Due to the higher complexity of collateralized debt, ABS investors earn a higher risk premium relative to similarly rated general obligation bonds.

For Further Reference:

(Study Session 13, Module 35.7, LOS 35.h)

Question #36 of 60

Question ID: 1220656

Which of the following statements regarding the choice between government bond yield curves and swap-rate curves as a benchmark interest rate curve is *most accurate*?

A) The swap-rate curve is preferred because swap curves are comparable across countries since they reflect similar levels of credit risk.

B) Government bond yield curves are preferred because they are based on a more complete set of market yields.

C) Government bond yield curves are preferred because the lack of a liquid secondary market can distort swap yields compared with government bond yields.

Explanation

Market participants typically prefer to use the swap-rate curve as a benchmark (rather than a government bond yield curve) for the following reasons:

- The availability of swaps and the equilibrium pricing are driven only by the interaction of supply and demand. It is not affected by technical market factors that can affect government bond yields.
- The swap market is not regulated by any government, which makes swap rates across different countries more comparable.
- Swap curves across countries are also more comparable than sovereign bond yield curves because swap curves reflect similar levels of credit risk, while sovereign bond yield curves also reflect credit risk unique to each country's government bonds.
- The swap curve typically has yield quotes at 11 maturities between 2 and 30 years. The U.S. government bond yield curve typically only has on-the-run issues trading at four maturities between 2 and 30 years.

For Further Reference:

(Study Session 12, Module 32.3, LOS 32.f)

Questions #37-42 of 60

Questions 97 through 102 relate to Fixed Income.

MediSoft, Inc., Case Scenario

MediSoft, Inc., develops and distributes high-tech medical software used in hospitals and clinics across the United States and Canada. The firm's software provides an integrated solution to monitoring, analyzing, and managing output from a variety of diagnostic medical equipment including MRIs, CT scans, and EKG machines. MediSoft has grown rapidly since

its inception 10 years ago, averaging 25% growth in sales over the past decade. Twelve months after its IPO, MediSoft made two bond offerings, the first of which was a convertible bond.

At the time of issuance, the convertible bond had a coupon rate of 7.25%, a par value of $1,000, a conversion price of $55.56, and 10 years until maturity. Two years after issuance, the bond became callable at 102% of par value. Soon after the issuance of the convertible bond, the company issued another series of bonds, which were putable but contained no conversion or call features. The putable bonds were issued with a coupon of 8.0%, a par value of $1,000, and 15 years until maturity. The putable bond has a European-style option exercisable 10 years after issuance at par. The bonds were issued three years ago.

MediSoft's convertible bonds are now trading in the market for a price of $947 with an estimated straight value of $917. The company's putable bonds are trading at a price of $1,052. Volatility in the price of MediSoft's common stock has been relatively high over the past few months. Currently, the stock is priced at $50 on the New York Stock Exchange and is expected to continue its annual dividend in the amount of $1.80 per share.

High-tech industry analysts for Brown & Associates, a money management firm specializing in fixed-income investments, have been closely following MediSoft ever since it went public three years ago. In general, portfolio managers at Brown & Associates do not participate in initial offerings of debt investments, preferring instead to see how the issue trades before considering taking a position in the issue. Because MediSoft's bonds have had ample time to trade in the marketplace, analysts and portfolio managers have taken an interest in the company's bonds. At a meeting to discuss the merits of MediSoft's bonds, the following comments were made by various portfolio managers and analysts at Brown & Associates:

> "Choosing to invest in MediSoft's convertible bond would benefit our portfolios in many ways, but the primary benefit is the limited downside risk associated with the bond. Because the straight value will provide a floor for the value of the convertible bond, downside risk is limited to the difference between the market price of the bond and the straight value."

> "Decreasing volatility in the price of MediSoft's common stock as well as increasing volatility in the level of interest rates are expected in the near future. The combined effects of these changes in volatility will be a decrease in the price of MediSoft's putable bonds and an increase in the price of the convertible bonds. Therefore, only the convertible bonds would be a suitable purchase."

Question #37 of 60

Question ID: 1220644

Calculate the market conversion premium per share for MediSoft's convertible bonds.

A) **$2.61.**

B) $2.95.

C) $5.56.

Explanation

First, calculate the conversion ratio:

$$\text{conversion ratio} = \frac{\text{par value}}{\text{conversion price}} = \frac{1{,}000}{55.56} = 18$$

Now, calculate market conversion price:

$$\text{market conversion price} = \frac{\text{market bond price}}{\text{conversion ratio}} = \frac{947}{18} = 52.61$$

Finally, calculate the market conversion premium per share as the difference between the market conversion price and the market price of the stock:

market conversion premium = 52.61 − 50.00 = 2.61

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.o)

Question #38 of 60

Question ID: 1220645

The minimum value of the convertible bond today is *closest* to:

A) $900.

B) **$917.**

C) $947.

Explanation

Minimum value of a convertible = Max (straight value, conversion value)

Straight value = $917 (given)

Conversion value = 18 × $50 = $900

Minimum value of the convertible = $917

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.o)

Question #39 of 60

Question ID: 1220646

Suppose that MediSoft wants to issue new bonds but wants to issue the bonds at-or-above par value. Which of the following bonds would *most closely* match their criteria?

A) 7-year, 7.25% convertible bond with a conversion price of $56.

B) 7-year, 7.25% callable bond, callable in two years at 102% of par.

C) **7-year, 8% coupon bond extendible for five years at the same coupon rate.**

Explanation

The 7-year, 7.25% convertible bond has a market price of $947 (given) and, therefore, does not qualify (as it is below par). A similar option-free bond would be worth less (given in the case as $917). A similar callable bond would be worth even less. This value is not given but would be below $917 and, therefore, below par. A 7-year bond extendible by five years would be valued the same as an equivalent 12-year putable bond with an European put option that is exercisable in seven years. The value of the putable bond is given as $1,052; this bond meets the criteria.

For Further Reference:

(Study Session 13, Module 34.1, LOS 34.a)

Question #40 of 60

Question ID: 1220647

Under what circumstances will the analyst's comments regarding the limited downside risk of MediSoft's convertible bonds be accurate?

A) Short-term and long-term interest rates are expected to remain the same.

B) The Federal Reserve Bank decides to pursue a restrictive monetary policy.

C) The convertible bond is trading in the market as a common stock equivalent.

Explanation

If interest rates are not expected to change then the straight value of the bond will not change (ignoring the change in value resulting from the passage of time). If the straight value does not change, then downside risk is indeed limited to the difference between the price paid for the bond and the straight value. If, however, interest rates rise as the price of the common stock falls, the conversion value will fall and the straight value will fall, exposing the holder of the convertible bond to more downside risk.

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.q)

Question #41 of 60

Question ID: 1220648

If the OAS on MediSoft's straight bond was estimated to be 48bps, which of the following statements is *most accurate*?

A) The OAS of callable bond will be greater than 48bps, and the OAS of the convertible bond will be less than 48bps.

B) The OAS of the convertible bond will be less than 48bps, while the OAS of the putable bond will be greater than 48bps.

C) The OAS of the callable, putable and convertible bond should be equal to 48bps.

Explanation

OAS, or option-adjusted spread, is the constant spread that is added to each node in an interest rate tree to force the model value to equal the market price of the bond. OAS might be more appropriately called the "option-removed spread" (i.e., the spread added after the option feature is removed). Because the option feature is removed via adjustment to cash flows, bonds with similar credit and liquidity risk should have similar OAS.

For Further Reference:

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

Question #42 of 60

Question ID: 1220649

Evaluate the portfolio managers' comments regarding the changes in the values of MediSoft's bonds resulting from changes in the volatility of the company's common stock and the volatility of interest rates. The managers were:

A) correct only with regard to the convertible bonds.

B) correct only with regard to the putable bonds.

C) **incorrect with regard to both securities.**

Explanation

Decreasing volatility of common stock prices would devalue any options related to the stock. The convertible bond contains an embedded call option on the stock, which would experience a decrease in value. Increasing interest rate volatility would increase the value of options related to interest rates. MediSoft's convertible bond is also callable and the value of the call on the bond would increase. The total value of the convertible bond is as follows: convertible bond value = straight value + call on stock – call on bond. The combined effect of the changes in the values of the options is a decrease in the value of the convertible bond. Thus the statement regarding the volatility effects on MediSoft's convertible bonds is incorrect. The value of the putable bond can be summarized as follows: putable bond value = option-free value + put on bond. The increase in put option value resulting from the increase in interest rate volatility would increase the value of the putable bond. Therefore, the statement regarding the volatility effects on MediSoft's putable bonds is also incorrect.

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.p)

Questions #43-48 of 60

Questions 103 through 108 relate to Derivatives.

Lothar Corporation Case Scenario

James Walker is the chief financial officer for Lothar Corporation, a U.S. mining company that specializes in worldwide exploration for and excavation of precious metals. Lothar Corporation generally tries to maintain a debt-to-capital ratio of approximately 45% and has successfully done so for the past seven years. Due to the time lag between the discovery of an extractable vein of metal and the eventual sale of the excavated material, the company frequently must issue short-term debt to fund its operations. Issuing these one- to six-month notes sometimes pushes Lothar's debt-to-capital ratio above its long-term target, but the cash provided from the short-term financing is necessary to complete the majority of the company's mining projects.

Walker has estimated that extraction of silver deposits in southern Australia has eight months until project completion. However, funding for the project will run out in approximately six months. In order to cover the funding gap, Walker will have to issue short-term notes with a principal value of $1,275,000 at an unknown future interest rate. To mitigate the interest rate uncertainty, Walker has decided to enter into a forward rate agreement (FRA) based on LIBOR which currently has a term structure as shown in Exhibit 1.

Exhibit 1	Exhibit 2
LIBOR Rates (t = 0)	*LIBOR Rates (t = 90)*

	LIBOR		LIBOR
90-day	4.28%	90-day	5.12%
180-day	4.52%	150-day	5.96%
240-day	5.11%	210-day	6.03%
360-day	5.92%	300-day	6.41%

Three months after establishing the position in the forward rate agreement, LIBOR interest rates have shifted, causing the value of Lothar's FRA position to change as well. The new LIBOR term structure is shown in Exhibit 2.

While Walker is estimating the change in the value of the original FRA position, he receives a memo from the chief operating officer of Lothar, Maria Steiner, informing him of a major delay in one of the company's South African mining projects. In the memo, Steiner states the following:

> "As usual, the project delay will require a short-term loan to cover the funding shortage that will accompany the extra time until project completion. I have estimated that in 210 days, we will require a 90-day project loan in the amount of $2,350,000. I would like you to establish another FRA position, this time with a contract rate of 6.95%."

Walker discusses some of these strategies with Pete Barka, partner at the brokerage firm that clears derivatives trades for Lothar. Barka suggests options on the Nasdaq 100 index futures as a use for Lothar's excess cash. September futures price on the Nasdaq 100 index is currently at 4243. Three-month calls and puts with a strike price of 4200 are available. Exhibit 3 shows information about the options.

Exhibit 3: Three-Month Options on Nasdaq 100

Strike price (for both calls and puts)	$4200
Call premium	$243
Put premium	$196
Implied volatility	26%
Continuously compounded risk-free rate	0.35%
$N(d_1)$	0.5597
$N(d_2)$	0.5080

Question #43 of 60

Question ID: 1220658

Given data in Exhibit 1, which of the following was *closest* to the price of the FRA on the date of the contract's inception?

A) 4.7%.

B) **6.8%.**

C) 7.2%.

Explanation

Walker is entering into a 6 × 8 forward rate agreement (FRA), which represents a 2-month (60-day) loan that will begin six months (180 days) from now. The relevant LIBOR rates for this contract are 180-day and 240-day LIBOR. To calculate the contract rate on the 6 × 8 FRA, first un-annualize the 180- and 240-day rates as follows:

R180=0.0452(180360)=0.0226R240=0.0511(240360)=0.0341

Next, calculate the rate on the 6 × 8 FRA as follows (note we are using the 180-day and 240-day LIBOR rates to find the 60-day rate that lies between them):

$$\mathrm{FRA}_{6\times 8} = \left(\frac{1+\mathrm{R}_{240}}{1+\mathrm{R}_{180}}\right) - 1 = \left(\frac{1.0341}{1.0226}\right) - 1 = 0.0112$$

The 0.0112 or 1.12% rate represents a 60-day rate. Annualizing the rate will yield the following:

$$\mathrm{FRA}_{6\times 8} = 0.0112\left(\frac{360}{60}\right) = 0.0675 = 6.75\% \approx 6.8\%$$

For Further Reference:

(Study Session 14, Module 37.4, LOS 37.a)

Question #44 of 60

Question ID: 1220659

Which of the following is *closest* to the value of the forward rate agreement three months after the inception of the contract (from Walker's perspective)? For this question only, assume that the interest rate at inception was 6.0%.

A) **$2,340.**

B) –$3,266.

C) $3,266.

Explanation

For this question, we must find the value of the FRA three months (90 days) after the inception of the contract. First find the contract rate on a new FRA. Since we are 90 days past the inception of the original contract an equivalent new contract would be a 3 × 5 FRA, which would represent a 2-month (60-day) loan that would begin three months (90 days) from now. Thus, the relevant LIBOR rates are going to be 90-day and 150-day LIBOR. Calculate the FRA rate the same way as in the previous question:

$$\mathrm{R}_{90} = 0.0512\left(\frac{90}{360}\right) = 0.012800 \quad \mathrm{R}_{150} = 0.0596\left(\frac{150}{360}\right) = 0.024833$$

$$\mathrm{FRA}_{3\times 5} = \left(\frac{1+\mathrm{R}_{150}}{1+\mathrm{R}_{90}}\right) - 1 = \left(\frac{1.024833}{1.012800}\right) - 1 = 0.011881$$

$$\mathrm{FRA}_{3\times 5} = 0.011881\left(\frac{360}{60}\right) = 0.07129 = 7.129\%$$

Now take the difference between the new FRA rate and the original rate (given as 6.0% in the question) on an un-annualized basis and multiply by the notional principal (i.e., the amount that will be borrowed).

$$\left[(0.07129 - 0.06)\left(\frac{60}{360}\right)\right] \times \$1{,}275{,}000 = \$2{,}399$$

Finally, discount this difference to the present using the 150-day LIBOR rate.

$$\frac{\$2{,}399}{\left[1+\left(0.0596\times\frac{150}{360}\right)\right]} = \$2{,}340$$

For Further Reference:

(Study Session 14, Module 37.5, LOS 37.b)

Question #45 of 60

Question ID: 1220660

Using the Black model, the call option on the index futures is *best* valued as:

A) the present value of the difference between the strike rate multiplied by 0.5597 and the current futures price multiplied by 0.508.

B) **the present value of the difference between the current futures price times 0.5597 and the exercise price multiplied by 0.508.**

C) the future value of the difference between the current spot price multiplied by 0.5597 and the exercise price multiplied by 0.508.

Explanation

Using the Black model, the call option is valued as $C_0 = e^{-rT}[F_T N(d_1) - XN(d_2)]$.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.i)

Question #46 of 60

Question ID: 1220661

When the silver is removed from the mine, it will be sold to an Australian subsidiary before being exported. Walker is concerned that the price of silver and the Australian dollar will both depreciate over the next eight months. Which of the following strategies will be *most* appropriate given Walker's expectations? Establish:

A) a short position in a silver forward contract and a short position in a U.S. dollar currency forward contract.

B) a long position in a silver forward contract and a short position in an Australian dollar currency forward contract.

C) **a short position in a silver forward contract and a long position in a U.S. dollar currency forward contract.**

Explanation

The company will need to sell silver in eight months. Thus, if the price of silver is expected to fall over that time frame, Walker should be short a forward contract on the price of silver to lock in a higher selling price now. Walker will also need to convert Australian dollars to U.S. dollars after the extracted Australian silver is sold. Thus, he is effectively long

Australian dollars and will need either a short currency forward contract on Australian dollars or equivalently a long currency forward contract on U.S. dollars if he expects the Australian dollar to depreciate.

For Further Reference:

(Study Session 14, Module 37.6, LOS 37.a)

Question #47 of 60

Question ID: 1220662

Which of the following is the *most accurate* way to replicate a payer swap?

A) A zero-cost portfolio consisting of a long cap and a short floor with the same strike rate.

B) A short cap and long floor with strike rate equal to the swap fixed rate.

C) A long FRA with maturity equal to the swap tenor.

Explanation

If the exercise rate on a cap and floor is same, a long cap and short floor can be used to replicate a payer swap. If the value of such long cap and short floor is same, their (common) exercise rate should be equal to the swap fixed rate.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.j)

Question #48 of 60

Question ID: 1220663

Which of the following transactions should Walker initiate in order to comply with Steiner's request regarding the funding shortage at the South African gold mine? Establish:

A) a long position in an off-market FRA by making a payment to the short position.

B) a short position in an off-market FRA by receiving a payment from the long position.

C) a long position in an off-market FRA by receiving a payment from the short position.

Explanation

In answering this question, you must first compute the contract rate for a zero value (arbitrage free) 7 × 10 FRA (i.e., the FRA expires in 210 days and the underlying loan expires in 300 days). The contract rate for the 7 × 10 FRA is computed as follows:

$$R_{210} = 0.0603\left(\frac{210}{360}\right) = 0.0352 \quad R_{300} = 0.0641\left(\frac{300}{360}\right) = 0.0534$$

$$FRA_{7\times10} = \left(\frac{1+R_{300}}{1+R_{210}}\right) - 1 = \left(\frac{1.0534}{1.0352}\right) - 1 = 0.0176$$

$$\text{FRA}_{7\times10} = 0.0176\left(\frac{360}{90}\right) = 0.0704 = 7.04\%$$

Since the contract rate on an arbitrage free is higher than the desired rate of 6.95%, Walker must establish a position in an off-market FRA. He will need a long position because he will be borrowing at the contract rate, not lending. Since having a contract rate that is lower than the market rate (6.95% < 7.04%) is valuable to the long, Walker will have to make a payment to the short position at the contract inception.

For Further Reference:

(Study Session 14, Module 37.5, LOS 37.b)

Questions #49-54 of 60

Questions 109 through 114 relate to Portfolio Management.

Pearl Asset Management Case Scenario

Hong Zhou, Jianguo Yeung, and Jm Leor Joeng work for Pearl Asset Management, a large private wealth advisory firm. During lunch they discuss various unique client situations they face and how they plan to resolve them.

Yeung mentions that yesterday, he met one of his clients who was very concerned about current market volatility and its impact on his portfolio. Specifically, the client is concerned about the impact of extreme stress events.

Zhou, Yeung, and Joeng are all developing multifactor models to attempt to explain asset price returns. Zhou has built his model based on standardized sensitivities of asset returns to intrinsic valuation model inputs. When Zhou asks Yeung about factors that his model uses to explain the differences in returns of different asset classes, Yeung replies that he can't define exactly what the factors are but insists that his model uses statistical relationships that have been proven to hold over time. Joeng discounts both Zhou and Yeung's approaches and instead insists that surprises cause stock prices to move. Hence, he has built his model based on surprises rather than sensitivities to absolute factors.

Zhou wishes to combine the actively managed Lincoln investment fund with a passively managed fund that tracks the Russell 2000 (which is the benchmark for the Lincoln fund). Expected risk and return data is as follows:

	Lincoln Fund	Russell 2000
Expected annual return	7.6%	6.5%
Return standard deviation	19.0%	11.0%
Active risk	5.0%	0.0%
The risk-free rate is 3.0%		

Joeng asks Zhou about risk premium on an asset. Specifically, Joeng wants to know the impact on the risk premium if an asset's future value is negatively correlated with investors' utility from future consumption. Joeng also wants to know the relationship between a country's growth rate and the real risk-free rate.

Question #49 of 60

Question ID: 1220665

To address the client's concerns about extreme stress events on the portfolio value, Yeung is *most likely* to communicate the portfolio's:

A) VaR.

B) relative VaR.

C) **conditional VaR.**

Explanation

Yeung should present the portfolio's conditional VaR, which is the expected loss in the tail (given that VaR is exceeded). VaR just communicates the maximum loss a certain percentage of the time. Relative VaR is appropriate only for clients concerned about performance relative to a benchmark.

For Further Reference:

(Study Session 16, Module 45.2, LOS 45.e)

Question #50 of 60

Question ID: 1220666

Regarding the use of multifactor models, which of the following statements is *most likely* to be correct?

A) Zhou is using a macroeconomic model, Yeung is using a fundamental factor model, and Joeng is using principal component analysis.

B) **Zhou is using a fundamental factor model, Yeung is using principal component analysis, and Joeng is using a macroeconomic model.**

C) Zhou is using principal component analysis, Yeung is using a macroeconomic model, and Joeng is using a fundamental factor model.

Explanation

Macroeconomic models are based on surprises in macroeconomic data. Principal component analysis is used to identify the factors of a statistical factor model, which cannot necessarily be described using conventional economic variables. Fundamental factor models use firm-specific valuation metrics such as PE with standardized sensitivities.

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #51 of 60

Question ID: 1220667

To achieve the optimal level of active risk, what proportion of funds would Zhou allocate to the Lincoln fund?

A) 53%.

B) 82%.

C) **151%.**

Explanation

Information ratio for Lincoln fund = IR = active return/active risk = (7.6% − 6.5%) / 5% = 0.22

Sharpe ratio of benchmark = SR_B = (6.5% − 3%) / 11% = 0.32

The optimal amount of active risk can be calculated as:

$\sigma^*_A = (IR/SR_B) \times \sigma_B = (0.22 / 0.32) \times 11.0\% = 7.56\%$

The weight of the active Lincoln portfolio should be 7.56% / 5.0% = 1.51, and the weight on the benchmark portfolio would be 1 − 1.51 = –0.51.

For Further Reference:

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

Question #52 of 60

Question ID: 1220668

The highest Sharpe ratio that Zhou can achieve by combining the Lincoln fund and the Russell 2000 is *closest* to:

A) 0.39.

B) 0.42.

C) 1.12.

Explanation

The highest Sharpe ratio can be calculated using the relation $SR_P^2 = SR_B^2 + IR^2$:

$$\mathrm{SR_P} = \sqrt{\mathrm{SR_B^2} + \mathrm{IR}^2} = \sqrt{0.32^2 + 0.22^2} = 0.388$$

Thus, the highest Sharpe ratio that can be achieved by combining the active and passive portfolios is approximately 0.39.

For Further Reference:

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

Question #53 of 60

Question ID: 1220669

With regard to Joeng's question, Zhou would *most appropriately* reply that the risk premium would be:

A) lower.

B) higher.

C) unaffected by the correlation.

Explanation

An asset whose value is negatively correlated to the investor's utility from future consumption provides a poor hedge against bad consumption outcomes. That is, the asset pays off more when the investor's utility is low. Such assets would command a higher risk premium.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.c)

Question #54 of 60

Question ID: 1220670

For countries with high expected economic growth, it is *least likely* that:

A) real risk-free rates will be high.

B) **inter-temporal rate of substitution will be high.**

C) investors will save less.

Explanation

For countries with high expected economic growth rates, real rates will be high. Investors will be less concerned about the future, and the inter-temporal rate of substitution will be *low*. Also, investors will want to increase current consumption and, hence, will borrow more and save less.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.c)

Questions #55-60 of 60

Questions 115 through 120 relate to Portfolio Management.

Millennium Investments Case Scenario

Millennium Investments (MI), an investment advisory firm, provides asset allocation recommendations for its clients. Richie Shepard, senior analyst at MI, is using a two-factor macroeconomic model to evaluate a portfolio of two stocks: WMB and REL. The two factors in the model are surprises in inflation and in real GDP growth rate (both given in percentages). The portfolio is invested 60% in WMB. Factor sensitivity and other information for the two stocks are shown in Exhibit 1.

Exhibit 1: WMB and REL

Stock	E(R)	Inflation	GDP Growth Rate
WMB	9%	–2.2	+3.0
REL	10.8%	–1.0	+3.3

Another stock (not in the portfolio), PSL, has a factor sensitivity of –0.9 to inflation and +1.2 to GDP growth rate.

Shepard is also looking at evaluating three portfolios using a single-factor model. Information about the three portfolios is shown in Exhibit 2.

Exhibit 2: Portfolio Factor Sensitivity and Expected Return

Portfolio	Expected Return	Factor Sensitivity
X	0.10	1.00
Y	0.12	1.25

Z	0.15	1.50

Shepard is meeting with a client to discuss inclusion of actively managed funds in that client's portfolio. To prepare for the meeting, Shepard prepares a presentation to illustrate the merits and risks of this change. Shepard cannot recall the term that is used to capture the sum of active factor risk and active specific risk.

Shepard feels that the economy is finally out of recession and poised for robust growth over the next three to five years.

Question #55 of 60

Question ID: 1214413

Using the information in Exhibit 1, the expected return on the portfolio is *closest* to:

A) 8.4%.

B) 9.2%.

C) **9.7%.**

Explanation

$E(R_P) = 0.6E(R_{WMB}) + 0.4E(R_{REL}) = 0.6(9\%) + 0.4(10.8\%) = 9.72\%$

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #56 of 60

Question ID: 1214414

Using information in Exhibit 1, the portfolio's sensitivity to inflation is *closest* to:

A) –1.1.

B) **–1.7.**

C) –2.2.

Explanation

$\beta_{P,INF} = 0.6\beta_{WMB,INF} + 0.4\beta_{REL,INF} = 0.6(-2.2) + 0.4(-1.0) = -1.72$

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #57 of 60

Question ID: 1214415

Last year, PSL's actual return was 8% (0.5% unexplained by the model). Inflation surprise, as well as GDP growth rate surprise, was +0.5%. PSL's expected return was *closest* to:

A) **7.35%.**

B) 7.50%.

C) 8.50%.

Explanation

8 = E(R) + (–0.9 × 0.5) + (1.2 × 0.5) + (0.5)

E(R) = 7.35%

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #58 of 60

Question ID: 1214416

Using information in Exhibit 2, taking advantage of an arbitrage opportunity would *most likely* require shorting:

A) portfolio X.

B) **portfolio Y.**

C) portfolio Z.

Explanation

Consider portfolio A comprising 50% portfolio X and 50% portfolio Z. Portfolio A will have an expected return of 12.5% and a factor sensitivity of 1.25. A long position in portfolio A and short position in portfolio Y will have an expected return of 0.5% with zero factor sensitivity.

For Further Reference:

(Study Session 16, Module 44.1, LOS 44.b)

Question #59 of 60

Question ID: 1214417

The term that Shepard cannot recall is *most likely*:

A) active total risk.

B) **active risk squared.**

C) alpha risk.

Explanation

Active risk squared = active factor risk + active specific risk

For Further Reference:

(Study Session 16, Module 44.3, LOS 44.e)

Question #60 of 60

Question ID: 1214418

Based on Shepard's economic outlook, it can be *most appropriately* concluded that:

A) government bonds will outperform corporate bonds.

B) higher-rated corporate bonds will outperform lower-rated corporate bonds.

C) lower-rated corporate bonds will outperform higher-rated corporate bonds.

Explanation

Credit spreads tighten during times of economic expansions. During such times, lower-rated bonds outperform higher-rated bonds.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.f)

Questions #1-6 of 60

Questions 61 through 66 relate to Ethical and Professional Standards.

Blue Lotus LP Case Scenario

Mikale Natschavin, CFA, is the managing director of Blue Lotus LP, a boutique investment bank specializing in M&A consulting in the professional services arena. Blue Lotus also manages a fund (Xeta fund) for several institutional clients. The fund was run by a team of four managers. During the recent downturn, commensurate with the decline in the size of the fund, Blue Lotus downsized the firm.

Paul Vakil, CFA, one of the managers of Xeta, was laid off by Blue Lotus. During his exit interview Natschavin wished Vakil well and, on behalf of the firm, gave him permission to use Xeta fund's past performance when seeking new employment opportunities. Vakil included the performance of the fund to demonstrate his success but did not give any indication of a team approach. Vakil also did not mention to Natschavin or the personnel manager that he was still in possession of the company-issued laptop. Vakil had stored several models the team had developed in pursuing investment strategies on that laptop's hard disk.

Within a few months, Vakil joined the equity research department of Patarsby and Singly, a brokerage firm. Vakil, with the help of a quant specialist at Patarsby, improved the models and started using them in his new role. Things turned out very well for Vakil at Patarsby, and clients waited eagerly for release of his monthly recommendations. During a society event, Vakil ran into Alia Dutt, CFA, one of the other team managers of Xeta fund. Dutt congratulated Vakil. Later in the evening, Vakil spoke to Dutt about one of the companies he is following—Sandhirst, Inc. Vakil stated that his preliminary research indicates that the short-term outlook for Sandhirst is very promising. Dutt also met Neil Savin, Frapco, Inc.'s controller at the event. Frapco is a national grocery chain and a long-time client of Blue Lotus. Savin informed Dutt that the new layout in the stores has been a hit, and that he expects revenues and earnings for the current quarter to be well above consensus forecast.

The next day, Dutt placed a large order for Sandhirst stock for the Xeta fund. Dutt also placed a large order for a retail ETF. Dutt is a member of an online forum where she discusses investments under a pseudonym. Dutt has formed a very loyal following over time as others realized that her posts were very articulate and, therefore, the work of a professional. Dutt recommended Frapco stock in the forum but attributed the recommendation to a general uptick in grocery store margins nationwide—a known fact based on recent earnings announcements of other grocers.

The following week at a charity golf tournament, Vakil met with Bob Snead, his college roommate. Snead was a very successful hedge fund manager. Both of the funds run by Smead were currently closed to new investment, though Snead was considering reopening the investments in the near future. At Vakil's insistence, Snead agreed to allow new investments into the two funds using a newly started intermediary fund as long as Vakil is the fund's manager. Vakil quickly convinced his bosses at Patarsby to open an intermediary fund and marketed the fund to existing Patarsby clients

as a way into Snead hedge funds. Not knowing how long the deal with Snead would hold up, and wanting to quickly ramp up assets under management, Vakil accepted deposits from all Patarsby clients, even some that were relatively new accounts.

Question #1 of 60

Question ID: 1220609

Regarding Vakil's reference to Xeta fund's performance in his resume, which of the following is *most accurate* regarding compliance with the Code and Standards? Vakil violated:

A) Standard III(D) − Performance Presentation.

B) Standard IV(A) − Duties to Employer: Loyalty.

C) Standard IIID − Performance Presentation as well as Standard IV(A) − Duties to Employer: Loyalty.

Explanation

Vakil obtained permission from Blue Lotus to use the past performance and, therefore, is not violating the Standard IV(A): Duties to Employer: Loyalty. By not crediting the entire team in the management of Xeta fund, Vakil violated Standard III(D): Performance Presentation.

For Further Reference:

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

Question #2 of 60

Question ID: 1220610

Vakil's use of the Blue Lotus models at Patarsby is *least likely* to be a violation under:

A) Standard I(C) − Professionalism: Misrepresentation.

B) Standard II(A) − Integrity of Capital Markets: Material Nonpublic Information.

C) Standard IV(A) − Duties to Employer: Loyalty.

Explanation

By taking the models without permission from his past employer, Vakil violated Standard IV(A) − Duties to Employer: Loyalty. Vakil also failed to disclose using his past employer's model, violating Standard I(C) − Professionalism: Misrepresentation. The models are proprietary but do not constitute material nonpublic information (insider information).

For Further Reference:

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

Question #3 of 60

Question ID: 1220611

Vakil's conversation with Dutt regarding Sandhirst stock is *most likely* a violation of:

A) Standard IV(A) - Duties to Employer: Loyalty.

B) Standard II(A) - Integrity of Capital Markets: Material Nonpublic Information.

C) Standard III(C) - Duties to Clients: Suitability.

Explanation

By discussing his research with Dutt, including recommending a specific stock, Vakil violated his duty to his employer by disclosing sensitive business information to outsiders. However, the information is not material nonpublic information and, thus, is not a violation under Standard II(A) – Integrity of Capital Markets: Material Nonpublic Information.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #4 of 60

Question ID: 1220612

With regards to investments in Sandhirst stock and retail ETF, Dutt *most likely* violated:

A) Standard II(A) − Material and Nonpublic Information by investing in Sandhirst stock but not by investing in the retail ETF.

B) **Standard II(A) - Material and Nonpublic Information by investing in the retail ETF but not by investing in Sandhirst stock.**

C) Standard II(A) - Material and Nonpublic Information in both instances.

Explanation

By transacting in Sandhirst stock, Dutt did not rely on any material nonpublic information and, therefore, is not in violation of Standard II(A) – Material and Nonpublic Information. However, her investment in the retail ETF relies on material nonpublic information about Frapco.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #5 of 60

Question ID: 1220613

Dutt's recommendation of Frapco stock in the online forum is *most likely*:

A) **a violation of Standard II(A) – Material and Nonpublic Information even though she attributed the recommendation to publicly available information.**

B) not a violation under Standard II(A) – Material and Nonpublic Information.

C) violation of Standard III(E): Preservation of Confidentiality.

Explanation

Trading for oneself or causing others to trade based on material nonpublic information is a violation under Standard II(A) – Material and Nonpublic Information.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #6 of 60

Question ID: 1220614

Vakil's conduct regarding the intermediary fund to channel investments into Snead funds is *most likely* a violation under:

A) Standard II(B) Integrity of Capital Markets: Market Manipulation.

B) **Standard III(D) Duties to Clients: Suitability.**

C) Standard III(D) Duties to Clients: Fair Dealing.

Explanation

Because the Snead hedge funds may not be suitable for all clients, Vakil violated Standard III(D) Duties to Clients: Suitability. No clients were treated unfairly and there was no market manipulation.

For Further Reference:

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

Questions #7-12 of 60

Questions 67 through 72 relate to Quantitative Methods.

Kate Sawyer Case Scenario

Research associate Kate Sawyer is responsible for identifying the determinants of performance for her firm's Progressive Fund (PF). All tests performed at Sawyer's firm are examined at the 0.05 level of significance. Sawyer examines the following regressions using monthly data observed for a 36 month period:

(1) $R_{PF,t} = b_0 + b_1R_{M,t} + b_2VMG_t + e_{PF,t}$

(2) $\hat{e}^2_{PF,t} = a_0 + a_1R_{M,t} + a_2VMG_t + u_{PF,t}$

where:

$R_{PF,t}$ = the return on the Progressive Fund in month *t*

$R_{M,t}$ = the return on the Wilshire 5000 stock market index in month *t*

VMG_t = the return on value stocks minus the return on growth stocks in month *t*

$\hat{e}^2_{PF,t}$ = the estimated squared regression errors derived from (1)

Exhibit 1: Equation (1) Regression Results

Variable	Coefficient	p-values
Constant	–0.005	0.030
R_M	1.250	0.001
VMG	0.200	0.980

The R^2 from equation (1) equals 0.80. A colleague, Jack Lockhart, makes two recommendations to Sawyer:

Recommendation 1:	My research indicates that inflation-rate changes are highly correlated with the Wilshire 5000 stock index returns. Therefore, I recommend adding the inflation change variable to your regression.
Recommendation 2:	My research indicates that the slope coefficients of your regression changed significantly after the passage of Regulation Fair Disclosure, which took place in the middle of your 3-year sample period. Your regression pools across two distinct sample periods. Therefore, I recommend correcting your current regression equation for model misspecification.

In her conversation with Lockhart, Sawyer explains that she is concerned that her regression equation (1) may ignore other important determinants of performance for the Progressive Fund. Sawyer explains that she is aware that the omission of important independent variables affects the quality of the parameter estimates of the regression. She makes the following claims, assuming the omitted variables are correlated with the included variables:

Claim 1:	The parameter estimates of equation (1) are unbiased.
Claim 2:	The parameter estimates of equation (1) are inconsistent.

Question #7 of 60

Question ID: 1220616

Of the slopes for the two independent variables, R_M and VMG, determine which are statistically significant at the 0.05 level?

A) Both slopes are statistically significant.

B) **Only the slope for R_M is statistically significant.**

C) Only the slope for VMG is statistically significant.

Explanation

The p-value is the probability that the null hypothesis, H_0: slope = zero, is true. The decision rule is to reject the null hypothesis if the p-value is less than the significance level (i.e., there is only a very small chance that the null hypothesis is correct). The p-value for the R_M slope is less than the significance level, and the p-value for the VMG slope is greater than the significance level. Therefore, the R_M slope is statistically significant (reject the null hypothesis that the R_M slope equals zero) and the VMG slope is not statistically significant (cannot reject the null hypothesis that the VMG slope equals zero).

For Further Reference:

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

Question #8 of 60

Question ID: 1220617

The R^2 derived for equation (1) indicates which of the following for equation (1)?

A) **Regression sum of squares exceeds the error sum of squares.**

B) Regression sum of squares exceeds the total sum of squares.

C) Mean regression sum of squares is less than the mean total sum of squares.

Explanation

The equation for the R^2 equals the regression sum of squares divided by the total sum of squares. The total sum of squares equals the regression sum of squares plus the error sum of squares. Therefore, the R^2 equals:

$$R^2 = \frac{\text{regression sum of squares}}{\text{regression sum of squares} + \text{error sum of squares}}$$

The problem states that the R^2 equals 0.80. Because the R^2 exceeds 50%, the regression sum of squares must exceed the error sum of squares.

For Further Reference:

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

Question #9 of 60

Question ID: 1220618

Sawyer decides to test regression equation (1) for the existence of conditional heteroskedasticity. Sawyer is likely to conclude that her regression does not exhibit conditional heteroskedasticity if the R^2 from equation (2) is:

A) close to 0.

B) close to 1.

C) close to 0.80.

Explanation

Conditional heteroskedasticity refers to regression errors whose variance is not constant. If there is conditional heteroskedasticity, the variance changes as function of the independent variables. The squared residual (i.e., residual is the estimated error) is used to proxy the error variance. A low R^2 in equation (2) indicates that the slopes in equation (2) are very close to zero, indicating that the error variance is unaffected by the independent variables. For instance, if all the slopes in equation (2) equal zero, then the error variance equals the intercept (a_0, which is constant over time).

For Further Reference:

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

Question #10 of 60

Question ID: 1220619

Regarding Lockhart's Recommendation 1, the econometric problem that is *most likely* to be introduced by including the inflation change variable in regression equation (1) is:

A) model misspecification.

B) serial correlation.

C) multicollinearity.

Explanation

According to Recommendation 1 provided by Lockhart, the inflation change variable is highly correlated with the Wilshire index returns (one of the independent variables). If Sawyer includes the inflation change variable along with the Wilshire index returns, the regression will be plagued by multicollinearity (the inclusion of correlated independent variables).

Multicollinearity causes the standard errors for the regression parameter estimates to be biased upward, which, in turn, causes the *t*-statistics to be biased downward (deflated).

For Further Reference:

(Study Session 2, Module 5.8, LOS 5.l)

Question #11 of 60

Question ID: 1220620

Regarding Lockhart's Recommendation 2, the *most likely* form of model misspecification to which he refers is:

A) stationarity model misspecification.

B) time-series model misspecification.

C) **functional form model misspecification.**

Explanation

According to Recommendation 2, the data should not be pooled across all 36 months. The sample clearly is split into two parts: pre-Reg FD and post-Reg FD. Sawyer should run separate regressions for each subperiod, or should employ dummy variables to control for the structural shift related to the passage of Reg FD. In either case, by pooling across the two very different sample periods, Sawyer's regression is an example of a misspecified functional form.

For Further Reference:

(Study Session 2, Module 5.9, LOS 5.m)

Question #12 of 60

Question ID: 1220621

Regarding Claim 1 and Claim 2 made by Sawyer about the effects of omitted variables, which claims are correct?

A) Claim 1 only.

B) **Claim 2 only.**

C) Both Claim 1 and Claim 2.

Explanation

Sawyer is incorrect with respect to Claim 1 and is correct with respect to Claim 2. If the omitted variables are correlated with the included variables, then the omitted variable regression parameter estimates [i.e., from equation (1)] will be biased and inconsistent. Desirable properties, on the other hand, are unbiasedness and consistency. An estimator is unbiased if the expected value of the estimate equals the true population value. An estimator is consistent if the estimate approaches the true population value as the sample size increases. The existence of omitted variables (that are correlated with the included variables) destroys both of these desirable properties.

For Further Reference:

(Study Session 2, Module 5.9, LOS 5.m)

Questions #13-18 of 60

Questions 73 through 78 relate to Financial Reporting and Analysis.

Whitmore Corporation Case Scenario

Gary Smith, CFA, has been hired to analyze a specialty tool and machinery manufacturer, Whitmore Corporation (WMC). WMC is a leading producer of specialty machinery in the United States. At the end of 2014, WMC purchased York Tool Company (YTC), an Australian firm in a similar line of business. YTC has partially integrated its marketing functions within WMC but still maintains control of its operations and secures its own financing. Following is a summary of the income statement and balance sheet for YTC (in millions of Australian dollars – AUD) for the past three years as well as exchange rate data over the same period.

Income Statement (AUD millions)	2014	2015	2016
Revenues	765	820	870
COGS	484	520	580
SG&A	171	183	200
Depreciation expense	50	50	50
Interest expense	18	17	16
Income before tax	42	50	24
Taxes	21	25	12
Net income	**21**	**25**	**12**

Balance Sheet (AUD millions)

	2014	2015	2016		2014	2015	2016
Cash	22	25	20	Current liabilities	616	593	584
Accounts receivable	400	422	460	Long-term debt	180	170	160
Inventories	20	25	30				
Prepaid expenses	8	20	25	Common stock	50	50	50
Net fixed assets	500	450	400	Retained earnings	104	129	141
Total assets	950	942	935	Total liabilities & equity	950	942	935

Exchange rates (AUD / USD)	2014	2015	2016
Average exchange rate	1.40	1.30	1.45
Year-end exchange rate	1.20	1.40	1.50
Historical exchange rate	1.20	1.20	1.20

Smith has discovered that WMC has a small subsidiary in Ukraine. The subsidiary follows IAS accounting rules and uses FIFO inventory accounting. The Ukrainian subsidiary was acquired 10 years ago and has been fully integrated into WMC's operations. WMC obtains funding for the subsidiary whenever the company finds profitable investments within Ukraine or

surrounding countries. According to forecasts from economists, the Ukrainian currency is expected to depreciate relative to the U.S. dollar over the next few years. Local currency prices are forecasted to remain stable, however.

One of the managers at WMC asks Smith to analyze a third subsidiary located in India. The manager has explained that real interest rates in India over the past three years have been 2.00%, 2.50%, and 3.00%, respectively, while nominal interest rates have been 34.64%, 29.15%, and 25.66%, respectively. Smith requests more time to analyze the Indian subsidiary.

Question #13 of 60

Question ID: 1220623

Calculate the percent change in YTC net income shown on the WMC financial statements from 2015 to 2016.

A) –52.0%.

B) –55.2%.

C) **–56.9%.**

Explanation

Because YTC operates independently and makes its own financing decisions, the local currency (AUD) should be the functional currency. When the local currency is the functional currency, the subsidiary's financial statements are consolidated with the parent's financial statements using the current rate method. Under the current rate method, all of the income statement items are translated using the average rate for the year. To calculate the percent change in net income, we must translate these items for 2016 and 2015 and then calculate the rate of change.

2015 translated net income = 25 / 1.30 = 19.23

2016 translated net income = 12 / 1.45 = 8.28

growth in net income = (8.28 / 19.23) − 1 = –56.94%

For Further Reference:

(Study Session 5, Module 15.4, LOS 15.d)

Question #14 of 60

Question ID: 1220624

If WMC uses the temporal method, YTC's net monetary liabilities leave WMC exposed to loss in the event of:

A) currency (AUD) depreciation.

B) **currency (AUD) appreciation.**

C) either currency depreciation or currency appreciation.

Explanation

Under the temporal method, the nonmonetary assets and liabilities are remeasured at historical rates. Thus, only the monetary assets and liabilities are exposed to changing exchange rates. Therefore, under the temporal method, exposure is defined as the subsidiary's net monetary asset or net monetary liability position. A firm has net monetary assets if its monetary assets exceed its monetary liabilities. If the monetary liabilities exceed the monetary assets, the firm has a net monetary liability exposure.

Since very few assets are considered to be monetary (mainly cash and receivables), most firms have net monetary liability exposures. If the parent has a net monetary liability exposure when the foreign currency (AUD) is appreciating, the result is a loss. Conversely, a net monetary liability exposure coupled with a depreciating currency will result in a gain.

For Further Reference:

(Study Session 5, Module 15.3, LOS 15.d)

Question #15 of 60

Question ID: 1220625

Determine whether the translated total asset turnover for YTC for 2016 would be higher under the current rate method or under the temporal method.

A) Temporal method.

B) **Current rate method.**

C) No difference between temporal and current rate methods.

Explanation

Note that no calculations are necessary to answer this question. Revenues are translated using the same average exchange rate in the temporal and current rate methods. The only difference in the total asset turnover ratio must therefore be in the denominator (i.e., total assets). Under the current rate method, assets are translated using the current rate. Under the temporal method, monetary assets are translated using the current rate, and nonmonetary assets are translated using the historical rate. Because the historical rate is lower than the current rate, the nonmonetary assets (and therefore total assets) will have a higher value under the temporal method. A higher asset value means a lower total asset turnover ratio under the temporal method. The calculation of the total asset turnover ratio using both methods is provided for reference below:

total asset turnover = revenue / total assets

	Temporal		Current Rate	
Cash	20 / 1.50 =	13.33	20 / 1.50 =	13.33
Accounts receivable	460 / 1.50 =	306.67	460 / 1.50 =	306.67
Inventories	30 / 1.20 =	25.00	30 / 1.50 =	20.00
Prepaid expenses	25 / 1.20 =	20.83	25 / 1.50 =	16.67
Fixed assets	400 / 1.20 =	333.33	400 / 1.50 =	266.67
Total assets		699.16		623.34
Revenues	870 / 1.45 =	600.00	870 / 1.45 =	600.00
Total asset turnover	600.00 / 699.16 =	0.86	600.00 / 623.34 =	0.96

For Further Reference:

(Study Session 5, Module 15.5, LOS 15.d)

Question #16 of 60

Question ID: 1220626

For the period 2014–2016, WMC's annual USD revenue growth rate attributable to its Australian subsidiary is *most likely*:

A) 1.85% lower than the local currency revenue growth rate.

B) 3.62% higher than the local currency revenue growth rate.

C) 3.45% lower than the local currency revenue growth rate.

Explanation

AUD revenue growth rate = $(870 / 765)^{1/2} - 1 = 6.64\%$

Revenues are translated at average rate:

2014 USD revenues = 765 / 1.40 = 546.43; 2016 USD revenues = 870 / 1.45 = 600

USD revenue growth rate = $(600 / 546.43)^{1/2} - 1 = 4.79\%$

The USD revenue growth rate is 1.85% lower than the local currency (AUD) revenue growth rate.

For Further Reference:

(Study Session 5, Module 15.8, LOS 15.i)

Question #17 of 60

Question ID: 1220627

Which of the following statements regarding the consolidation of WMC's Ukrainian subsidiary for the next year is *least likely* correct? Compared to the temporal method, the Ukrainian subsidiary's translated:

A) net income before translation gains or losses would be higher using the current rate method.

B) debt-to-equity ratio would be higher using the current rate method.

C) gross profit margin would be lower using the current rate method.

Explanation

Under both the current rate and temporal methods, the revenues for the Ukrainian subsidiary would be translated using the average rate. Cost of goods sold (COGS) would be translated using the historical rate for the temporal method and the average rate for the current rate method. Note that because local currency prices are expected to be constant in Ukraine, there will be no difference between LIFO and FIFO since all beginning, purchased, sold, and ending inventory will have the same cost. When a currency is depreciating, the COGS based on historical cost (temporal method) will be higher than COGS translated at the average rate (current rate method) since the average rate will incorporate the historical exchange rate and the most recent (depreciated) exchange rate, decreasing the COGS. For instance, if COGS in the local currency is 10 and the historical and average exchange rates are 1 and 1.5 (local currency per reporting currency), then COGS under the temporal method will be 10 and under the current rate method will be 6.67. Since translated sales are the same under both methods, gross profit and the gross profit margin will be higher under the current rate method.

For Further Reference:

(Study Session 5, Module 15.6, LOS 15.f)

Question #18 of 60

Question ID: 1220628

Which of the following statements related to the consolidation of WMC's Indian subsidiary is *least likely* correct?

A) The Indian economic environment meets the criteria to be classified as a hyperinflationary economy.

B) IFRS would allow WMC to translate the inflation-indexed value of nonmonetary assets of the Indian subsidiary at the current exchange rate.

C) **WMC can reduce potential translation losses from the Indian subsidiary by issuing debt denominated in U.S. currency and purchasing fixed assets for the subsidiary.**

Explanation

U.S. accounting standards define a hyperinflationary economy as one in which the 3-year cumulative inflation rate exceeds 100%. The Indian economy can be characterized as hyperinflationary. The inflation rate over the past three years can be calculated as follows:

year 1 inflation = [(1 + 0.3464) / (1 + 0.020)] − 1 = 32%

year 2 inflation = [(1 + 0.2915) / (1 + 0.025)] − 1 = 26%

year 3 inflation = [(1 + 0.2566) / (1 + 0.030)] − 1 = 22%

cumulative 3-year inflation = (1.32)(1.26)(1.22) − 1 = 103%

U.S. accounting standards allow the use of the temporal method, with the functional currency being the parent's reporting currency, when a foreign subsidiary is operating in a hyperinflationary environment. IFRS accounting standards allow the parent to translate an inflation-adjusted value of the nonmonetary assets and liabilities of the foreign subsidiary at the current inflation rate, removing most of the effects of high inflation on the value of the nonmonetary assets and liabilities in the reporting currency. In a hyperinflationary environment, the parent company can reduce translation losses by reducing its net monetary assets or increasing its net monetary liabilities. In order to do this, the parent should issue debt denominated in the subsidiary's local currency and invest the proceeds in fixed assets for the subsidiary to use in its operations.

For Further Reference:

(Study Session 5, Module 15.7, LOS 15.g)

Questions #19-24 of 60

Questions 79 through 84 relate to Corporate Finance.

Voyager, Inc., Case Scenario

Voyager, Inc., a primarily internet-based media company, is buying The Daily, a media company with exposure to newspapers, television, and the internet.

Company Descriptions

Voyager, Inc., is organized into two segments: internet and newspaper publishing. The internet segment operates websites that offer news, entertainment, and advertising content in text and video format. The internet segment represents 75% of the company's total revenues. The newspaper publishing segment publishes 10 daily newspapers. The newspaper publishing segment represents 25% of the company's total revenues.

The Daily is organized into three segments: newspaper publishing (60% of revenues), broadcasting (35% of revenues), and internet (5% of revenues). The newspaper publishing segment publishes 101 daily newspapers. The broadcasting segment owns and operates 25 television stations. The internet segment consists of an internet advertising service. The Daily's newspaper publishing and broadcasting segments cover the 20 largest markets in the United States.

Voyager's acquisition of The Daily is the company's second major acquisition in its history. The previous acquisition was at the height of the merger boom in the year 2000. Voyager purchased the Dragon Company at a premium-to-net-asset value, thereby doubling the company's size. Voyager used the pooling method to account for the acquisition of Dragon; however, because of FASB changes to the Business Combination Standard, Voyager will use the acquisition method to account for the Daily acquisition.

(in millions, except per share data)	Voyager, Inc. (before merger)	The Daily (before merger)
Revenues	$1,800	$7,600
Operating income	$415	$998
Earnings	$200	$650
Assets	$1,900	$14,700
Debt	$200	$2,500
Equity	$1,100	$7,600
Number of shares	117.6 million	213.1 million
Stock price per share	$68	$35
Earnings per share	$1.70	$3.05
PE ratio	40.0x	11.5x

Voyager has made an all-cash offer of $45 per share to acquire The Daily. Wall Street is skeptical about the merger. While Voyager has been growing its revenues by 40% per year, The Daily's revenue growth has been less than 2% per year. Michael Renner, the CFO of Voyager, defends the acquisition by stating that The Daily has accumulated a large amount of tax losses and that the combined company can benefit by immediately increasing net income after the merger. In addition, Renner states that the new Voyager will eliminate the inefficiencies of its internet operations and thereby boost future earnings. Renner believes that the merged companies will have a value of $17.5 billion.

In the past, The Daily's management has publicly stated its opposition to merging with any company, a position management still maintains. As a result of this situation, Voyager submitted its merger proposal directly to The Daily's board of directors, while the firm's CEO was on vacation. Upon returning from vacation, The Daily's CEO issued a public statement claiming that the proposed merger was unacceptable under any circumstances.

Question #19 of 60

Question ID: 1220630

Voyager used the pooling of interests method when accounting for the 2000 acquisition of Dragon, rather than the acquisition method it would use today. Which of the following is *least likely* a feature of the pooling of interests method?

A) Operating results for prior periods are restated as though the two firms were always combined.

B) **The pooling of interests method combines historic book values and fair values.**

C) The pooling of interests method combines historic book values.

Explanation

Historically, two accounting methods have been used for business combinations: (1) the purchase method and (2) the pooling-of-interests method. However, over the last few years, the pooling method has been eliminated from U.S. GAAP and IFRS. Now, the acquisition method is required.

The pooling-of-interests method, also known as uniting-of-interests method under IFRS, combined the ownership interests of the two firms and viewed the participants as equals—neither firm acquired the other. The assets and liabilities of the two firms were simply combined. Key attributes of the pooling method include the following:

- The two firms are combined using historical book values.
- Operating results for prior periods are restated as though the two firms were always combined.
- Ownership interests continue, and former accounting bases are maintained.

Note that fair values played no role in accounting for a business combination using the pooling method—the actual price paid was suppressed from the balance sheet and income statement.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.c)

Question #20 of 60

Question ID: 1220631

Based on Renner's comments defending Voyager's acquisition of The Daily, indicate whether his comments about net income and elimination of inefficiencies are *most likely* correct.

A) **Only Renner's comment that unused tax losses will immediately translate into higher net income is correct.**

B) Only Renner's comment that the elimination of inefficiencies within the internet operations will create additional value is correct.

C) Both comments are correct.

Explanation

If the target of a merger has unused tax losses accumulated, the merged company can use the tax losses to immediately lower its tax liability, thus increasing its net income (Correct). The internet operation of The Daily is insignificant compared to the overall merger value. Any improvement in the cost structure of the internet operation will not have a significant impact on overall earnings. In addition, the high-growth characteristics of the internet segment would not warrant a cost restructuring of the operations (Incorrect).

For Further Reference:

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

Question #21 of 60

Question ID: 1220632

Assuming that Renner's estimate of the value of the merged companies is correct, calculate the acquirer's gain from the merger.

A) $7,910.5 million.

B) **$9,503.2 million.**

C) $11,634.2 million.

Explanation

First, we must separate the synergistic value from the combined value of the firm as follows:

$$V_{AT} = V_A + V_T + S - C$$

where:

V_{AT} = the combined value of the firm

V_A = the value of the acquirer before the merger

V_T = the value of the target before the merger

S = the synergistic value from the merger

C = the cash paid to the target

Rearranging the formula, the synergistic value can be isolated as follows:

$$\begin{aligned} S &= V_{AT} - V_A - V_T + C \\ &= 17{,}500 - (68 \times 117.6) - (35 \times 213.1) + (45 \times 213.1) \\ &= 17{,}500 - 7{,}996.8 - 7{,}458.5 + 9{,}589.5 \\ &= \$11{,}634.2 \text{ million} \end{aligned}$$

Next, calculate the acquirer's gain as follows:

$$\text{acquirer's gain} = S - (P_T - V_T)$$

where:

S = the synergistic value from the merger

P_T = the price paid for the target

V_T = the value of the target before the merger

$$\begin{aligned} \text{acquirer's gain} &= 11{,}634.2 - [(45 \times 213.1) - (35 \times 213.1)] \\ &= 11{,}634.2 - (9{,}589.5 - 7{,}458.5) \\ &= \$9{,}503.2 \text{ million} \end{aligned}$$

For Further Reference:

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

Question #22 of 60

Question ID: 1220633

Assume that Voyager offers 63 million shares of its stock, rather than cash, to acquire The Daily. The share price of the combined company is *closest* to:

A) $145 per share.

B) **$150 per share.**

C) $155 per share.

Explanation

total shares = 63.0 + 117.6 = 180.6 million

V_{AT} = 7,996.8 + 7,458.5 + 11,634.2 − 0 = 27,089.5

new share price = 27,089.5 / 180.6 = 150.0

For Further Reference:

(Study Session 8, Module 23.4, LOS 23.k, 23.l)

Question #23 of 60

Question ID: 1220634

The management of The Daily is not pleased with the $45 per share offering price. Which of the following is the *most likely* takeover defense The Daily would consider in an effort to stop the acquisition?

A) Immediately amend The Daily bylaws to establish a staggered board.

B) **File suit against Voyager for antitrust violations.**

C) Restrict the voting rights of shareholders owning more than 10% of The Daily stock.

Explanation

The legal action based on antitrust is the only choice given that is a post-offer defense. Staggered boards, restricted voting rights, and poison puts are all pre-offer defenses that would not be possible after the tender offer has been made.

For Further Reference:

(Study Session 8, Module 23.2, LOS 23.f)

Question #24 of 60

Question ID: 1220635

Which of the following *best* characterizes Voyager's proposal to merge with The Daily?

A) **Bear hug.**

B) Proxy fight.

C) White knight.

Explanation

A hostile merger occurs when the management of a merger target is opposed to the proposed merger. In such a situation, the acquiring company may initiate a bear hug in which the merger proposal is delivered directly to the board of directors of the target company. Voyager has initiated a bear hug in the hopes of gaining board support for the proposed merger before management can react to the proposal. If the bear hug is unsuccessful, the acquirer may appeal directly to the target's shareholders through a tender offer in which the acquirer offers to buy shares directly from shareholders or through a proxy fight in which a proxy solicitation is used to convince shareholders to elect a board of directors chosen by the acquirer. The board of directors would then replace the target's management and allow the merger to move forward. A white knight is a takeover defense, not a type of merger.

For Further Reference:

(Study Session 8, Module 23.2, LOS 23.e)

Questions #25-30 of 60

Questions 85 through 90 relate to Equity Valuation.

Yummy Doughnuts Case Scenario

Yummy Doughnuts (YD) sells a variety of doughnuts and other related items through both company-owned locations and franchise locations. YD has experienced significant growth over the past five years. However, barriers to entry are low and competition is increasing.

Linda Haas, CFA, follows YD for Gibraltar Capital. Gibraltar Capital prides itself on its thorough fundamental analysis of investment opportunities. The company uses a bottom-up approach to the investment process. Haas's security selection process utilizes residual income models to determine a stock's intrinsic value. Haas obtains YD's 2018 financial statements shown in Exhibit 1. In addition, Haas provides supporting information about YD's financials and other related material found in Exhibit 2.

Exhibit 1: Yummy Doughnuts's 2018 Income Statement and Balance Sheet

In millions, except for per share items	2018
Revenue	$300
Cost of goods sold	$205
SG&A	$40
Depreciation expense	$6
Income from operations	$49
Interest expense	$1
Pretax income	$48
Income tax (40% tax rate)	$19
Net income	$29

Shares outstanding	18.6
EPS	$1.56

In millions	**2018**		**2018**
Assets		**Liabilities and equity**	
Cash	$15	Accounts payable	$12
Accounts receivable	$27	Accrued expenses	$26
Inventory	$16	Current liabilities	$38
Current assets	$58		
Property and equipment	$113	Total long-term debt (7% coupon, at par value)	$12
Long-term investments	$10	Equity	$131
Total assets	**$181**	**Total liabilities & equity**	**$181**

Exhibit 2: Additional Information

- YD uses the FIFO method of inventory valuation.
- 2018 cash operating taxes equal $15 million. This amount includes all appropriate tax adjustments. 2018 NOPAT was estimated to be $42 million.
- Haas believes that YD will have a 17% ROE and a 10% long-term growth rate over the foreseeable future.
- Haas estimates YD's cost of equity to be 15.0%.
- YD expects annual capital expenditures to remain at about $37 million.
- YD's stock currently trades at $15.50 per share.
- YD's bonds are currently trading at par value.
- YD's total adjusted capital base was $200 million at the end of 2017.

Haas makes the following statements during her YD presentation to the investment committee:

Statement 1:	Based on ROE mean reversion, YD's continuing residual income is assumed to decline to zero over time.
Statement 2:	The residual income model states that if YD's ROE equals its equity cost of capital, then YD's intrinsic value will equal its book value per share.

Question #25 of 60

Question ID: 1220637

For this question only, a careful evaluation of YD's financial statement reveals that the decrease in value of available-for-sale securities has been reported in the other comprehensive income (OCI) section of stockholder's equity. The *most likely* impact on the computation of residual income due to accounting for available-for-sale securities would be:

A) a reduction in residual income due to lower ROE.

B) a reduction in residual income due to lower ROE and book value.

C) **an increase in residual income due to higher ROE.**

Explanation

A decrease in the value of available-for-sale securities that bypasses the income statement would artificially increase net income and, consequently, ROE. Book value is unaffected as the decrease is accounted for in the OCI section of shareholders' equity.

For Further Reference:

(Study Session 11, Module 30.5, LOS 30.k)

Question #26 of 60

Question ID: 1220638

Based on Exhibit 1 and Exhibit 2, YD's weighted average cost of capital (WACC) is *closest* to:

A) 12%.

B) 13%.

C) **15%.**

Explanation

$$\mathrm{WACC} = \left(\frac{\mathrm{MVD}}{\mathrm{MVD+MVCE}}\right) \times [\mathrm{r_d}\,(1 - \text{tax rate})] + \left(\frac{\mathrm{MVCE}}{\mathrm{MVD+MVCE}}\right)\mathrm{r}$$

r_d= debt coupon given as 7.0%

tax rate = 40% (given in Exhibit 1)

r = equity cost = 0.15 (given in Exhibit 2)

MVD = market value of debt = book value of debt for YD = 12

MVCE = market value of common equity = $15.50 × 18.6 = $288.3

$$\mathrm{WACC} = \left(\frac{12}{12+288.3}\right) \times [0.07\,(1 - 0.40)] + \left(\frac{288.3}{12+288.3}\right) \times 0.15 = 0.146$$

For Further Reference:

(Study Session 6, Module 18.1, LOS 18.a and Study Session 9, Module 25.1, LOS 25.g)

Question #27 of 60

Question ID: 1220639

For this question only, assume a weighted average cost of capital (WACC) of 12.0%. YD's economic value added (EVA) during the year 2018 is *closest* to:

A) $6 million.

B) **$18 million.**

C) $24 million.

Explanation

$WACC = WACC × capital = 0.12 × 200 = 24

EVA = NOPAT − $WACC = 42 − 24 = 18

For Further Reference:

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

Question #28 of 60

Question ID: 1220640

Based on Exhibit 1, Exhibit 2, and the single-stage residual in come model, YD's intrinsic value is *closest* to:

A) $8.00 per share.

B) **$10.00 per share.**

C) $12.00 per share.

Explanation

$$V_0 = B_0 + [(ROE - r) \times B_0] / (r - g)$$

book value = equity / total shares

book value = 131 / 18.6 = 7.04 (from Exhibit 1)

r = cost of equity = 0.15 (given in Exhibit 2)

ROE = 0.17 (given in Exhibit 2)

g = 0.10 (given in Exhibit 2)

$V_0 = 7.04 + [(0.17 - 0.15) \times 7.04] / (0.15 - 0.10) = 9.86$

For Further Reference:

(Study Session 11, Module 30.3, LOS 30.f)

Question #29 of 60

Question ID: 1220641

Haas notes that the multi-stage residual equity income model captures more detail in calculating YD's intrinsic value. An assumption of the model is that ROE fades to the cost of equity over time, which is known as a persistence factor (varying from 0 to 1). Identify which characteristic indicates a higher persistence of abnormal earnings.

A) **Low dividend payout.**

B) Low price-to-earnings ratio.

C) High dividend yield.

Explanation

It is difficult for a company to maintain a high ROE because of competition. The persistence factor will be lower for those companies. A company that has a low dividend payout has greater growth opportunities than a company with a high dividend payout. The greater growth opportunities should support a higher persistence factor.

For Further Reference:

(Study Session 11, Module 30.4, LOS 30.h)

Question #30 of 60

Question ID: 1220642

Haas makes a statement about an assumption concerning residual income (Statement 1) and the residual income model (Statement 2). Which of the statements is correct?

A) Only Statement 1 is correct.

B) Only Statement 2 is correct.

C) **Both Statements 1 and 2 are correct.**

Explanation

Statement 1 is correct. The multistage residual income model uses continuing residual income to denote the long-run residual income. Based on reversion to the mean, and increasing competition for YD, continuing residual income would be expected to decline to zero over time. Statement 2 is correct. Based on the residual income model formula, $V_0 = B_0 + (ROE - r) \times B_0 / (r - g)$. If ROE = r, then $V_0 = B_0$.

For Further Reference:

(Study Session 11, Module 30.2, LOS 30.d, 30.j)

Questions #31-36 of 60

Questions 91 through 96 relate to Fixed Income.

TFC Investments Case Scenario

Michael Thomas, CFA, is a fixed-income portfolio manager for TFC Investments. As part of his portfolio strategy for the Prosperity Fund, Thomas seeks out bonds that he expects to be upgraded or downgraded. Potential upgrades that Thomas identifies are added to the portfolio (or, if already in the portfolio, are increased in proportion to other holdings). Potential downgrades are sold from the portfolio. Thomas's portfolio's current holdings include several bonds issued by companies in the oil and gas exploration and refining industries. Year-end rating updates are expected to occur in a few days, and Thomas is preparing to adjust his portfolio in advance of expected changes in credit ratings.

Thomas has been discussing his fixed-income strategies with fellow portfolio manager Shawna Reese. Reese suggests that while Thomas's general approach is suitable, the overall credit-analysis strategy could be improved. Reese recommends using the credit valuation adjustment as a metric in credit analysis.

Reese makes the following statement to Thomas:

Reese's statement:	"Credit valuation adjustment is the sum of the expected loss for each period based on the risk-neutral probability of default."

Reese provides information about 4% Pistar, Inc., bonds, which are currently rated AA with a negative outlook. The bonds have a modified duration of 7.8, and the credit spread on the bonds is expected to be the same as the average for that rating category. Reese wants to calculate the impact of a downgrade on Pistar, Inc.'s bonds given the information in Exhibit 1.

Exhibit 1: Average Credit Spreads by Ratings Category

AAA	AA	A	BBB	BB	B	CCC
0.24%	0.29%	0.39%	0.58%	0.89%	1.12%	1.78%

As part of his portfolio analysis, Thomas also compares ABS to corporate bonds and makes the following statements:

Statement 1:	Securitization allows for higher leverage and lower cost to the issuer.
Statement 2:	A highly granular pool would have hundreds of clearly defined loans, allowing for use of summary statistics as opposed to investigating each borrower.
Statement 3:	ABS investors earn a lower risk premium relative to similarly rated general obligation bonds.

Thomas concludes his analysis by comparing the swap rate curve to a government bond yield curve.

Question #31 of 60

Question ID: 1220651

Reese's statement about credit valuation adjustment is *most likely*:

A) correct.

B) incorrect about the use of risk-neutral probability of default.

C) **incorrect about the sum of expected losses.**

Explanation

Credit valuation adjustment (CVA) is the sum of the *present value* of the expected loss for each period (and not simply just the sum of the expected losses).

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #32 of 60

Question ID: 1220652

Under the option analogy of the structural model, owning a company's debt is economically equivalent to owning a riskless bond and simultaneously:

A) buying an American put option on the assets of the company.

B) **selling a European put option on the assets of the company.**

C) buying a European put option on the assets of the company.

Explanation

Under the structural model's debt option analogy, owning a company's debt is economically equivalent to owning a riskless bond that pays K dollars at time T, plus simultaneously selling a European put option on the assets of the company with maturity T and strike price K.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #33 of 60

Question ID: 1220653

If Reese uses the risk-neutral probabilities of default to value the Pistar, Inc., bonds, she is *most likely* to conclude that the bond is:

A) fairly valued.

B) overvalued.

C) undervalued.

Explanation

Risk neutral probability of default is the probability of default implied in the current market price. If CVA is calculated using risk-neutral probability, the value of risky bond will be estimated to be equal to its market price.

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #34 of 60

Question ID: 1220654

What is the expected change in price of Pistar, Inc., bonds on account of credit migration?

A) –0.29%.

B) –0.39%.

C) –0.78%.

Explanation

$\Delta\%P$ = – (modified duration of the bond) × (Δ spread).

= – (7.8) × (0.0039 – 0.0029) = –0.0078 or –0.78%.

For Further Reference:

(Study Session 13, Module 35.3, LOS 35.c)

Question #35 of 60

Question ID: 1220655

Regarding Thomas's statements about ABS, which statement is *least* accurate?

A) Statement 1.

B) Statement 2.

C) Statement 3.

Explanation

Statement 3 is inaccurate. Due to the higher complexity of collateralized debt, ABS investors earn a higher risk premium relative to similarly rated general obligation bonds.

For Further Reference:

(Study Session 13, Module 35.7, LOS 35.h)

Question #36 of 60

Question ID: 1220656

Which of the following statements regarding the choice between government bond yield curves and swap-rate curves as a benchmark interest rate curve is *most accurate*?

A) The swap-rate curve is preferred because swap curves are comparable across countries since they reflect similar levels of credit risk.

B) Government bond yield curves are preferred because they are based on a more complete set of market yields.

C) Government bond yield curves are preferred because the lack of a liquid secondary market can distort swap yields compared with government bond yields.

Explanation

Market participants typically prefer to use the swap-rate curve as a benchmark (rather than a government bond yield curve) for the following reasons:

- The availability of swaps and the equilibrium pricing are driven only by the interaction of supply and demand. It is not affected by technical market factors that can affect government bond yields.
- The swap market is not regulated by any government, which makes swap rates across different countries more comparable.
- Swap curves across countries are also more comparable than sovereign bond yield curves because swap curves reflect similar levels of credit risk, while sovereign bond yield curves also reflect credit risk unique to each country's government bonds.
- The swap curve typically has yield quotes at 11 maturities between 2 and 30 years. The U.S. government bond yield curve typically only has on-the-run issues trading at four maturities between 2 and 30 years.

For Further Reference:

(Study Session 12, Module 32.3, LOS 32.f)

Questions #37-42 of 60

Questions 97 through 102 relate to Fixed Income.

MediSoft, Inc., Case Scenario

MediSoft, Inc., develops and distributes high-tech medical software used in hospitals and clinics across the United States and Canada. The firm's software provides an integrated solution to monitoring, analyzing, and managing output from a variety of diagnostic medical equipment including MRIs, CT scans, and EKG machines. MediSoft has grown rapidly since

its inception 10 years ago, averaging 25% growth in sales over the past decade. Twelve months after its IPO, MediSoft made two bond offerings, the first of which was a convertible bond.

At the time of issuance, the convertible bond had a coupon rate of 7.25%, a par value of $1,000, a conversion price of $55.56, and 10 years until maturity. Two years after issuance, the bond became callable at 102% of par value. Soon after the issuance of the convertible bond, the company issued another series of bonds, which were putable but contained no conversion or call features. The putable bonds were issued with a coupon of 8.0%, a par value of $1,000, and 15 years until maturity. The putable bond has a European-style option exercisable 10 years after issuance at par. The bonds were issued three years ago.

MediSoft's convertible bonds are now trading in the market for a price of $947 with an estimated straight value of $917. The company's putable bonds are trading at a price of $1,052. Volatility in the price of MediSoft's common stock has been relatively high over the past few months. Currently, the stock is priced at $50 on the New York Stock Exchange and is expected to continue its annual dividend in the amount of $1.80 per share.

High-tech industry analysts for Brown & Associates, a money management firm specializing in fixed-income investments, have been closely following MediSoft ever since it went public three years ago. In general, portfolio managers at Brown & Associates do not participate in initial offerings of debt investments, preferring instead to see how the issue trades before considering taking a position in the issue. Because MediSoft's bonds have had ample time to trade in the marketplace, analysts and portfolio managers have taken an interest in the company's bonds. At a meeting to discuss the merits of MediSoft's bonds, the following comments were made by various portfolio managers and analysts at Brown & Associates:

> "Choosing to invest in MediSoft's convertible bond would benefit our portfolios in many ways, but the primary benefit is the limited downside risk associated with the bond. Because the straight value will provide a floor for the value of the convertible bond, downside risk is limited to the difference between the market price of the bond and the straight value."

> "Decreasing volatility in the price of MediSoft's common stock as well as increasing volatility in the level of interest rates are expected in the near future. The combined effects of these changes in volatility will be a decrease in the price of MediSoft's putable bonds and an increase in the price of the convertible bonds. Therefore, only the convertible bonds would be a suitable purchase."

Question #37 of 60

Question ID: 1220644

Calculate the market conversion premium per share for MediSoft's convertible bonds.

A) **$2.61.**

B) $2.95.

C) $5.56.

Explanation

First, calculate the conversion ratio:

$$\text{conversion ratio} = \frac{\text{par value}}{\text{conversion price}} = \frac{1{,}000}{55.56} = 18$$

Now, calculate market conversion price:

$$\text{market conversion price} = \frac{\text{market bond price}}{\text{conversion ratio}} = \frac{947}{18} = 52.61$$

Finally, calculate the market conversion premium per share as the difference between the market conversion price and the market price of the stock:

market conversion premium = 52.61 − 50.00 = 2.61

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.o)

Question #38 of 60

Question ID: 1220645

The minimum value of the convertible bond today is *closest* to:

A) $900.

B) **$917.**

C) $947.

Explanation

Minimum value of a convertible = Max (straight value, conversion value)

Straight value = $917 (given)

Conversion value = 18 × $50 = $900

Minimum value of the convertible = $917

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.o)

Question #39 of 60

Question ID: 1220646

Suppose that MediSoft wants to issue new bonds but wants to issue the bonds at-or-above par value. Which of the following bonds would *most closely* match their criteria?

A) 7-year, 7.25% convertible bond with a conversion price of $56.

B) 7-year, 7.25% callable bond, callable in two years at 102% of par.

C) **7-year, 8% coupon bond extendible for five years at the same coupon rate.**

Explanation

The 7-year, 7.25% convertible bond has a market price of $947 (given) and, therefore, does not qualify (as it is below par). A similar option-free bond would be worth less (given in the case as $917). A similar callable bond would be worth even less. This value is not given but would be below $917 and, therefore, below par. A 7-year bond extendible by five years would be valued the same as an equivalent 12-year putable bond with an European put option that is exercisable in seven years. The value of the putable bond is given as $1,052; this bond meets the criteria.

For Further Reference:

(Study Session 13, Module 34.1, LOS 34.a)

Question #40 of 60

Question ID: 1220647

Under what circumstances will the analyst's comments regarding the limited downside risk of MediSoft's convertible bonds be accurate?

A) Short-term and long-term interest rates are expected to remain the same.

B) The Federal Reserve Bank decides to pursue a restrictive monetary policy.

C) The convertible bond is trading in the market as a common stock equivalent.

Explanation

If interest rates are not expected to change then the straight value of the bond will not change (ignoring the change in value resulting from the passage of time). If the straight value does not change, then downside risk is indeed limited to the difference between the price paid for the bond and the straight value. If, however, interest rates rise as the price of the common stock falls, the conversion value will fall and the straight value will fall, exposing the holder of the convertible bond to more downside risk.

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.q)

Question #41 of 60

Question ID: 1220648

If the OAS on MediSoft's straight bond was estimated to be 48bps, which of the following statements is *most accurate*?

A) The OAS of callable bond will be greater than 48bps, and the OAS of the convertible bond will be less than 48bps.

B) The OAS of the convertible bond will be less than 48bps, while the OAS of the putable bond will be greater than 48bps.

C) The OAS of the callable, putable and convertible bond should be equal to 48bps.

Explanation

OAS, or option-adjusted spread, is the constant spread that is added to each node in an interest rate tree to force the model value to equal the market price of the bond. OAS might be more appropriately called the "option-removed spread" (i.e., the spread added after the option feature is removed). Because the option feature is removed via adjustment to cash flows, bonds with similar credit and liquidity risk should have similar OAS.

For Further Reference:

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

Question #42 of 60

Question ID: 1220649

Evaluate the portfolio managers' comments regarding the changes in the values of MediSoft's bonds resulting from changes in the volatility of the company's common stock and the volatility of interest rates. The managers were:

A) correct only with regard to the convertible bonds.

B) correct only with regard to the putable bonds.

C) **incorrect with regard to both securities.**

Explanation

Decreasing volatility of common stock prices would devalue any options related to the stock. The convertible bond contains an embedded call option on the stock, which would experience a decrease in value. Increasing interest rate volatility would increase the value of options related to interest rates. MediSoft's convertible bond is also callable and the value of the call on the bond would increase. The total value of the convertible bond is as follows: convertible bond value = straight value + call on stock – call on bond. The combined effect of the changes in the values of the options is a decrease in the value of the convertible bond. Thus the statement regarding the volatility effects on MediSoft's convertible bonds is incorrect. The value of the putable bond can be summarized as follows: putable bond value = option-free value + put on bond. The increase in put option value resulting from the increase in interest rate volatility would increase the value of the putable bond. Therefore, the statement regarding the volatility effects on MediSoft's putable bonds is also incorrect.

For Further Reference:

(Study Session 13, Module 34.8, LOS 34.p)

Questions #43-48 of 60

Questions 103 through 108 relate to Derivatives.

Lothar Corporation Case Scenario

James Walker is the chief financial officer for Lothar Corporation, a U.S. mining company that specializes in worldwide exploration for and excavation of precious metals. Lothar Corporation generally tries to maintain a debt-to-capital ratio of approximately 45% and has successfully done so for the past seven years. Due to the time lag between the discovery of an extractable vein of metal and the eventual sale of the excavated material, the company frequently must issue short-term debt to fund its operations. Issuing these one- to six-month notes sometimes pushes Lothar's debt-to-capital ratio above its long-term target, but the cash provided from the short-term financing is necessary to complete the majority of the company's mining projects.

Walker has estimated that extraction of silver deposits in southern Australia has eight months until project completion. However, funding for the project will run out in approximately six months. In order to cover the funding gap, Walker will have to issue short-term notes with a principal value of $1,275,000 at an unknown future interest rate. To mitigate the interest rate uncertainty, Walker has decided to enter into a forward rate agreement (FRA) based on LIBOR which currently has a term structure as shown in Exhibit 1.

Exhibit 1	Exhibit 2
LIBOR Rates (t = 0)	*LIBOR Rates (t = 90)*

	LIBOR		LIBOR
90-day	4.28%	90-day	5.12%
180-day	4.52%	150-day	5.96%
240-day	5.11%	210-day	6.03%
360-day	5.92%	300-day	6.41%

Three months after establishing the position in the forward rate agreement, LIBOR interest rates have shifted, causing the value of Lothar's FRA position to change as well. The new LIBOR term structure is shown in Exhibit 2.

While Walker is estimating the change in the value of the original FRA position, he receives a memo from the chief operating officer of Lothar, Maria Steiner, informing him of a major delay in one of the company's South African mining projects. In the memo, Steiner states the following:

> "As usual, the project delay will require a short-term loan to cover the funding shortage that will accompany the extra time until project completion. I have estimated that in 210 days, we will require a 90-day project loan in the amount of $2,350,000. I would like you to establish another FRA position, this time with a contract rate of 6.95%."

Walker discusses some of these strategies with Pete Barka, partner at the brokerage firm that clears derivatives trades for Lothar. Barka suggests options on the Nasdaq 100 index futures as a use for Lothar's excess cash. September futures price on the Nasdaq 100 index is currently at 4243. Three-month calls and puts with a strike price of 4200 are available. Exhibit 3 shows information about the options.

Exhibit 3: Three-Month Options on Nasdaq 100

Strike price (for both calls and puts)	$4200
Call premium	$243
Put premium	$196
Implied volatility	26%
Continuously compounded risk-free rate	0.35%
$N(d_1)$	0.5597
$N(d_2)$	0.5080

Question #43 of 60

Question ID: 1220658

Given data in Exhibit 1, which of the following was *closest* to the price of the FRA on the date of the contract's inception?

A) 4.7%.

B) **6.8%.**

C) 7.2%.

Explanation

Walker is entering into a 6 × 8 forward rate agreement (FRA), which represents a 2-month (60-day) loan that will begin six months (180 days) from now. The relevant LIBOR rates for this contract are 180-day and 240-day LIBOR. To calculate the contract rate on the 6 × 8 FRA, first un-annualize the 180- and 240-day rates as follows:

R180=0.0452(180360)=0.0226R240=0.0511(240360)=0.0341

Next, calculate the rate on the 6 × 8 FRA as follows (note we are using the 180-day and 240-day LIBOR rates to find the 60-day rate that lies between them):

$$\mathrm{FRA}_{6\times 8} = \left(\frac{1+\mathrm{R}_{240}}{1+\mathrm{R}_{180}}\right) - 1 = \left(\frac{1.0341}{1.0226}\right) - 1 = 0.0112$$

The 0.0112 or 1.12% rate represents a 60-day rate. Annualizing the rate will yield the following:

$$\mathrm{FRA}_{6\times 8} = 0.0112\left(\frac{360}{60}\right) = 0.0675 = 6.75\% \approx 6.8\%$$

For Further Reference:

(Study Session 14, Module 37.4, LOS 37.a)

Question #44 of 60

Question ID: 1220659

Which of the following is *closest* to the value of the forward rate agreement three months after the inception of the contract (from Walker's perspective)? For this question only, assume that the interest rate at inception was 6.0%.

A) **$2,340.**

B) –$3,266.

C) $3,266.

Explanation

For this question, we must find the value of the FRA three months (90 days) after the inception of the contract. First find the contract rate on a new FRA. Since we are 90 days past the inception of the original contract an equivalent new contract would be a 3 × 5 FRA, which would represent a 2-month (60-day) loan that would begin three months (90 days) from now. Thus, the relevant LIBOR rates are going to be 90-day and 150-day LIBOR. Calculate the FRA rate the same way as in the previous question:

$$\mathrm{R}_{90} = 0.0512\left(\frac{90}{360}\right) = 0.012800 \quad \mathrm{R}_{150} = 0.0596\left(\frac{150}{360}\right) = 0.024833$$

$$\mathrm{FRA}_{3\times 5} = \left(\frac{1+\mathrm{R}_{150}}{1+\mathrm{R}_{90}}\right) - 1 = \left(\frac{1.024833}{1.012800}\right) - 1 = 0.011881$$

$$\mathrm{FRA}_{3\times 5} = 0.011881\left(\frac{360}{60}\right) = 0.07129 = 7.129\%$$

Now take the difference between the new FRA rate and the original rate (given as 6.0% in the question) on an un-annualized basis and multiply by the notional principal (i.e., the amount that will be borrowed).

$$\left[(0.07129 - 0.06)\left(\frac{60}{360}\right)\right] \times \$1{,}275{,}000 = \$2{,}399$$

Finally, discount this difference to the present using the 150-day LIBOR rate.

$$\frac{\$2{,}399}{\left[1+\left(0.0596\times\frac{150}{360}\right)\right]} = \$2{,}340$$

For Further Reference:

(Study Session 14, Module 37.5, LOS 37.b)

Question #45 of 60

Question ID: 1220660

Using the Black model, the call option on the index futures is *best* valued as:

A) the present value of the difference between the strike rate multiplied by 0.5597 and the current futures price multiplied by 0.508.

B) **the present value of the difference between the current futures price times 0.5597 and the exercise price multiplied by 0.508.**

C) the future value of the difference between the current spot price multiplied by 0.5597 and the exercise price multiplied by 0.508.

Explanation

Using the Black model, the call option is valued as $C_0 = e^{-rT}[F_T N(d_1) - XN(d_2)]$.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.i)

Question #46 of 60

Question ID: 1220661

When the silver is removed from the mine, it will be sold to an Australian subsidiary before being exported. Walker is concerned that the price of silver and the Australian dollar will both depreciate over the next eight months. Which of the following strategies will be *most* appropriate given Walker's expectations? Establish:

A) a short position in a silver forward contract and a short position in a U.S. dollar currency forward contract.

B) a long position in a silver forward contract and a short position in an Australian dollar currency forward contract.

C) **a short position in a silver forward contract and a long position in a U.S. dollar currency forward contract.**

Explanation

The company will need to sell silver in eight months. Thus, if the price of silver is expected to fall over that time frame, Walker should be short a forward contract on the price of silver to lock in a higher selling price now. Walker will also need to convert Australian dollars to U.S. dollars after the extracted Australian silver is sold. Thus, he is effectively long

Australian dollars and will need either a short currency forward contract on Australian dollars or equivalently a long currency forward contract on U.S. dollars if he expects the Australian dollar to depreciate.

For Further Reference:

(Study Session 14, Module 37.6, LOS 37.a)

Question #47 of 60

Question ID: 1220662

Which of the following is the *most accurate* way to replicate a payer swap?

A) A zero-cost portfolio consisting of a long cap and a short floor with the same strike rate.

B) A short cap and long floor with strike rate equal to the swap fixed rate.

C) A long FRA with maturity equal to the swap tenor.

Explanation

If the exercise rate on a cap and floor is same, a long cap and short floor can be used to replicate a payer swap. If the value of such long cap and short floor is same, their (common) exercise rate should be equal to the swap fixed rate.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.j)

Question #48 of 60

Question ID: 1220663

Which of the following transactions should Walker initiate in order to comply with Steiner's request regarding the funding shortage at the South African gold mine? Establish:

A) a long position in an off-market FRA by making a payment to the short position.

B) a short position in an off-market FRA by receiving a payment from the long position.

C) a long position in an off-market FRA by receiving a payment from the short position.

Explanation

In answering this question, you must first compute the contract rate for a zero value (arbitrage free) 7 × 10 FRA (i.e., the FRA expires in 210 days and the underlying loan expires in 300 days). The contract rate for the 7 × 10 FRA is computed as follows:

$$R_{210} = 0.0603\left(\frac{210}{360}\right) = 0.0352 \quad R_{300} = 0.0641\left(\frac{300}{360}\right) = 0.0534$$

$$FRA_{7\times10} = \left(\frac{1+R_{300}}{1+R_{210}}\right) - 1 = \left(\frac{1.0534}{1.0352}\right) - 1 = 0.0176$$

$$\text{FRA}_{7\times10} = 0.0176\left(\frac{360}{90}\right) = 0.0704 = 7.04\%$$

Since the contract rate on an arbitrage free is higher than the desired rate of 6.95%, Walker must establish a position in an off-market FRA. He will need a long position because he will be borrowing at the contract rate, not lending. Since having a contract rate that is lower than the market rate (6.95% < 7.04%) is valuable to the long, Walker will have to make a payment to the short position at the contract inception.

For Further Reference:

(Study Session 14, Module 37.5, LOS 37.b)

Questions #49-54 of 60

Questions 109 through 114 relate to Portfolio Management.

Pearl Asset Management Case Scenario

Hong Zhou, Jianguo Yeung, and Jm Leor Joeng work for Pearl Asset Management, a large private wealth advisory firm. During lunch they discuss various unique client situations they face and how they plan to resolve them.

Yeung mentions that yesterday, he met one of his clients who was very concerned about current market volatility and its impact on his portfolio. Specifically, the client is concerned about the impact of extreme stress events.

Zhou, Yeung, and Joeng are all developing multifactor models to attempt to explain asset price returns. Zhou has built his model based on standardized sensitivities of asset returns to intrinsic valuation model inputs. When Zhou asks Yeung about factors that his model uses to explain the differences in returns of different asset classes, Yeung replies that he can't define exactly what the factors are but insists that his model uses statistical relationships that have been proven to hold over time. Joeng discounts both Zhou and Yeung's approaches and instead insists that surprises cause stock prices to move. Hence, he has built his model based on surprises rather than sensitivities to absolute factors.

Zhou wishes to combine the actively managed Lincoln investment fund with a passively managed fund that tracks the Russell 2000 (which is the benchmark for the Lincoln fund). Expected risk and return data is as follows:

	Lincoln Fund	Russell 2000
Expected annual return	7.6%	6.5%
Return standard deviation	19.0%	11.0%
Active risk	5.0%	0.0%
The risk-free rate is 3.0%		

Joeng asks Zhou about risk premium on an asset. Specifically, Joeng wants to know the impact on the risk premium if an asset's future value is negatively correlated with investors' utility from future consumption. Joeng also wants to know the relationship between a country's growth rate and the real risk-free rate.

Question #49 of 60

Question ID: 1220665

To address the client's concerns about extreme stress events on the portfolio value, Yeung is *most likely* to communicate the portfolio's:

A) VaR.

B) relative VaR.

C) **conditional VaR.**

Explanation

Yeung should present the portfolio's conditional VaR, which is the expected loss in the tail (given that VaR is exceeded). VaR just communicates the maximum loss a certain percentage of the time. Relative VaR is appropriate only for clients concerned about performance relative to a benchmark.

For Further Reference:

(Study Session 16, Module 45.2, LOS 45.e)

Question #50 of 60

Question ID: 1220666

Regarding the use of multifactor models, which of the following statements is *most likely* to be correct?

A) Zhou is using a macroeconomic model, Yeung is using a fundamental factor model, and Joeng is using principal component analysis.

B) **Zhou is using a fundamental factor model, Yeung is using principal component analysis, and Joeng is using a macroeconomic model.**

C) Zhou is using principal component analysis, Yeung is using a macroeconomic model, and Joeng is using a fundamental factor model.

Explanation

Macroeconomic models are based on surprises in macroeconomic data. Principal component analysis is used to identify the factors of a statistical factor model, which cannot necessarily be described using conventional economic variables. Fundamental factor models use firm-specific valuation metrics such as PE with standardized sensitivities.

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #51 of 60

Question ID: 1220667

To achieve the optimal level of active risk, what proportion of funds would Zhou allocate to the Lincoln fund?

A) 53%.

B) 82%.

C) **151%.**

Explanation

Information ratio for Lincoln fund = IR = active return/active risk = (7.6% − 6.5%) / 5% = 0.22

Sharpe ratio of benchmark = SR_B = (6.5% − 3%) / 11% = 0.32

The optimal amount of active risk can be calculated as:

$\sigma^*_A = (IR/SR_B) \times \sigma_B = (0.22 / 0.32) \times 11.0\% = 7.56\%$

The weight of the active Lincoln portfolio should be 7.56% / 5.0% = 1.51, and the weight on the benchmark portfolio would be 1 − 1.51 = –0.51.

For Further Reference:

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

Question #52 of 60

Question ID: 1220668

The highest Sharpe ratio that Zhou can achieve by combining the Lincoln fund and the Russell 2000 is *closest* to:

A) 0.39.

B) 0.42.

C) 1.12.

Explanation

The highest Sharpe ratio can be calculated using the relation $SR_P^2 = SR_B^2 + IR^2$:

$$\mathrm{SR_P} = \sqrt{\mathrm{SR_B^2} + \mathrm{IR}^2} = \sqrt{0.32^2 + 0.22^2} = 0.388$$

Thus, the highest Sharpe ratio that can be achieved by combining the active and passive portfolios is approximately 0.39.

For Further Reference:

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

Question #53 of 60

Question ID: 1220669

With regard to Joeng's question, Zhou would *most appropriately* reply that the risk premium would be:

A) lower.

B) higher.

C) unaffected by the correlation.

Explanation

An asset whose value is negatively correlated to the investor's utility from future consumption provides a poor hedge against bad consumption outcomes. That is, the asset pays off more when the investor's utility is low. Such assets would command a higher risk premium.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.c)

Question #54 of 60

Question ID: 1220670

For countries with high expected economic growth, it is *least likely* that:

A) real risk-free rates will be high.

B) **inter-temporal rate of substitution will be high.**

C) investors will save less.

Explanation

For countries with high expected economic growth rates, real rates will be high. Investors will be less concerned about the future, and the inter-temporal rate of substitution will be *low*. Also, investors will want to increase current consumption and, hence, will borrow more and save less.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.c)

Questions #55-60 of 60

Questions 115 through 120 relate to Portfolio Management.

Millennium Investments Case Scenario

Millennium Investments (MI), an investment advisory firm, provides asset allocation recommendations for its clients. Richie Shepard, senior analyst at MI, is using a two-factor macroeconomic model to evaluate a portfolio of two stocks: WMB and REL. The two factors in the model are surprises in inflation and in real GDP growth rate (both given in percentages). The portfolio is invested 60% in WMB. Factor sensitivity and other information for the two stocks are shown in Exhibit 1.

Exhibit 1: WMB and REL

Stock	E(R)	Inflation	GDP Growth Rate
WMB	9%	–2.2	+3.0
REL	10.8%	–1.0	+3.3

Another stock (not in the portfolio), PSL, has a factor sensitivity of –0.9 to inflation and +1.2 to GDP growth rate.

Shepard is also looking at evaluating three portfolios using a single-factor model. Information about the three portfolios is shown in Exhibit 2.

Exhibit 2: Portfolio Factor Sensitivity and Expected Return

Portfolio	Expected Return	Factor Sensitivity
X	0.10	1.00
Y	0.12	1.25

Z	0.15	1.50

Shepard is meeting with a client to discuss inclusion of actively managed funds in that client's portfolio. To prepare for the meeting, Shepard prepares a presentation to illustrate the merits and risks of this change. Shepard cannot recall the term that is used to capture the sum of active factor risk and active specific risk.

Shepard feels that the economy is finally out of recession and poised for robust growth over the next three to five years.

Question #55 of 60

Question ID: 1214413

Using the information in Exhibit 1, the expected return on the portfolio is *closest* to:

A) 8.4%.

B) 9.2%.

C) **9.7%.**

Explanation

$E(R_P) = 0.6E(R_{WMB}) + 0.4E(R_{REL}) = 0.6(9\%) + 0.4(10.8\%) = 9.72\%$

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #56 of 60

Question ID: 1214414

Using information in Exhibit 1, the portfolio's sensitivity to inflation is *closest* to:

A) –1.1.

B) **–1.7.**

C) –2.2.

Explanation

$\beta_{P,INF} = 0.6\beta_{WMB,INF} + 0.4\beta_{REL,INF} = 0.6(-2.2) + 0.4(-1.0) = -1.72$

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #57 of 60

Question ID: 1214415

Last year, PSL's actual return was 8% (0.5% unexplained by the model). Inflation surprise, as well as GDP growth rate surprise, was +0.5%. PSL's expected return was *closest* to:

A) **7.35%.**

B) 7.50%.

C) 8.50%.

Explanation

8 = E(R) + (–0.9 × 0.5) + (1.2 × 0.5) + (0.5)

E(R) = 7.35%

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #58 of 60

Question ID: 1214416

Using information in Exhibit 2, taking advantage of an arbitrage opportunity would *most likely* require shorting:

A) portfolio X.

B) **portfolio Y.**

C) portfolio Z.

Explanation

Consider portfolio A comprising 50% portfolio X and 50% portfolio Z. Portfolio A will have an expected return of 12.5% and a factor sensitivity of 1.25. A long position in portfolio A and short position in portfolio Y will have an expected return of 0.5% with zero factor sensitivity.

For Further Reference:

(Study Session 16, Module 44.1, LOS 44.b)

Question #59 of 60

Question ID: 1214417

The term that Shepard cannot recall is *most likely*:

A) active total risk.

B) **active risk squared.**

C) alpha risk.

Explanation

Active risk squared = active factor risk + active specific risk

For Further Reference:

(Study Session 16, Module 44.3, LOS 44.e)

Question #60 of 60

Question ID: 1214418

Based on Shepard's economic outlook, it can be *most appropriately* concluded that:

A) government bonds will outperform corporate bonds.

B) higher-rated corporate bonds will outperform lower-rated corporate bonds.

C) lower-rated corporate bonds will outperform higher-rated corporate bonds.

Explanation

Credit spreads tighten during times of economic expansions. During such times, lower-rated bonds outperform higher-rated bonds.

For Further Reference:

(Study Session 17, Module 46.1, LOS 46.f)

Questions #1-6 of 60

Questions 1 through 6 relate to Ethical and Professional Standards.

Trent, LLC Case Scenario

Martha Gillis, CFA, trades currencies for Trent, LLC. Trent is one of the largest investment firms in the world, and its foreign currency department trades more currency on a daily basis than any other firm. Gillis specializes in currencies of emerging nations.

Gillis received an invitation from the new finance minister of Binaria, one of the emerging nations included in Gillis's portfolio. The minister has proposed a number of fiscal reforms that he hopes will help support Binaria's weakening currency. He is asking currency specialists from several of the largest foreign exchange banks to visit Binaria for a conference on the planned reforms. Because of its remote location, Binaria will pay all travel expenses of the attendees, as well as lodging in government-owned facilities in the capital city. As a further inducement, attendees will also receive small bags of uncut emeralds (because emeralds are a principal export of Binaria), with an estimated market value of $500.

Gillis has approximately 25 clients that she deals with regularly, most of whom are large financial institutions interested in trading currencies. One of the services Gillis provides to these clients is a weekly summary of important trends in the emerging market currencies she follows. Gillis talks to local government officials and reads research reports prepared by local analysts, which are paid for by Trent. These inputs, along with Gillis's interpretation, form the basis of most of Gillis's weekly reports.

Gillis decided to attend the conference in Binaria. In anticipation of a favorable reception for the proposed reforms, Gillis purchased a long Binaria currency position in her personal account before leaving on the trip. After hearing the finance minister's proposals in person, however, she decides that the reforms are poorly timed and likely to cause the currency to depreciate. She issues a negative recommendation upon her return. Before issuing the recommendation, she liquidates the long position in her personal account but does not take a short position.

Gillis's supervisor, Steve Howlett, CFA, has been reviewing Gillis's personal trading. Howlett has not seen any details of the Binaria currency trade but has found two other instances in the past year where he believes Gillis has violated Trent's written policies regarding trading in personal accounts.

One of the currency trading strategies employed by Trent is based on interest rate parity. Trent monitors spot exchange rates, forward rates, and short-term government interest rates. On the rare occasions when the forward rates do not accurately reflect the interest differential between two countries, Trent places trades to take advantage of the riskless arbitrage opportunity. Because Trent is such a large player in the exchange markets, its transactions costs are very low, and Trent is often able to take advantage of mispricings that are too small for others to capitalize on. In describing these

trading opportunities to clients, Trent suggests that "clients willing to participate in this type of arbitrage strategy are guaranteed riskless profits until the market pricing returns to equilibrium."

Question #1 of 60

Question ID: 1220539

According to CFA Institute Standards of Professional Conduct, Gillis may accept the invitation to attend the conference in Binaria without violating the Standards:

A) so long as she pays her own travel expenses and refuses the gift of emeralds.

B) **so long as she refuses the gift of emeralds.**

C) because she would be the guest of a sovereign government.

Explanation

Standard I(B). Attending the conference would be appropriate, but Gillis must avoid any situation that would affect her independence in order to properly comply with Standard I(B) Professionalism – Independence and Objectivity. Since Binaria is remotely located, it is reasonable for the government to pay her travel expenses. However, the gift of emeralds must be refused. The fact that the host is a sovereign government does not matter—the obvious objective is to give the analysts a favorable bias toward the currency and the proposed reforms.

For Further Reference:

(Study Session 1, Module 2.1, LOS 2.a)

Question #2 of 60

Question ID: 1220540

Given that Gillis's weekly reports to clients are market summaries rather than specific investment recommendations, what are her record-keeping obligations according to CFA Institute Standards of Professional Conduct? Gillis must:

A) **maintain records of her conversations with local government officials and also keep copies of the research reports prepared by local analysts.**

B) only maintain records of her conversations with local government officials and her own summaries of the research reports prepared by local analysts.

C) keep her own summaries of the research reports prepared by local analysts, but she has no obligation to maintain records of her conversations with local government officials.

Explanation

Standard V(C). Gillis's reports may not be specific investment recommendations, but because they are client communications, she should keep either electronic or hard copy records of her conversations with the government officials and copies of the research reports she used in developing her weekly summary reports, in order to comply with Standard V(C) Investment Analysis, Recommendations, and Actions – Record Retention.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a)

Question #3 of 60

Question ID: 1220541

Regarding Gillis's transactions in the Binaria currency, she has violated the Standards by:

A) taking the long position and by selling the position before issuing a recommendation to clients.

B) selling the position before issuing the recommendation to clients, although taking the long position was not a violation.

C) not disclosing the trades in her report because the trades are acceptable as long as they are disclosed.

Explanation

Standard VI(B). Gillis is attempting to trade ahead of her employer and her clients in violation of the Standards. She was wrong to take the long position in anticipation of a positive recommendation and wrong to sell the position before issuing her negative recommendation. These trades were wrong regardless of whether they were disclosed. In accordance with Standard VI(B) Conflicts of Interest – Priority of Transactions, client interests must take precedence over personal interests.

For Further Reference:

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

Question #4 of 60

Question ID: 1220542

According to CFA Institute Standards of Professional Conduct, Howlett's best course of action with regard to the suspected violations by Gillis would be to:

A) meet with Gillis in person, explain the nature of the violations, and seek assurances that such violations will not recur.

B) warn Gillis to cease the trading activities and report the violation to Howlett's supervisor immediately.

C) place limits on Gillis's personal trading and increase monitoring of Gillis's personal trades.

Explanation

Standard I(A). Warning Gillis and/or reporting the violation up Trout's management structure are inadequate solutions. Limiting the trading activity and increased monitoring to prevent future violations are more appropriate initial responses, in accordance with Standard I(A) Professionalism – Knowledge of the Law.

For Further Reference:

(Study Session 1, Module 2.1, LOS 2.a)

Question #5 of 60

Question ID: 1220543

Based on the information given, and according to CFA Institute Standards, which of the following statements *best* describes Trent's compliance procedures relating to personal trading in foreign currencies? The compliance procedures:

A) appear adequate because Howlett was able to identify potential violations.

B) appear adequate, but Howlett's monitoring of Gillis's trades indicates poor supervisory responsibility.

C) **should include both duplicate confirmations of transactions and preclearance procedures for personal trades.**

Explanation

Standard VI(B). The main problem in this case appears to be that there is no system to identify potential front-running violations before they occur. Standard VI(B) Conflicts of Interest – Priority of Transactions recommends both preclearance of trades and duplicate trade confirmations as procedures for compliance.

For Further Reference:

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

Question #6 of 60

Question ID: 1220544

Trent's arbitrage trading based on interest rate parity is successful mostly due to Trent's large size, which provides it with an advantage relative to smaller, competing currency trading firms. Has Trent violated CFA Institute Standards of Professional Conduct with respect to its trading strategy or its guarantee of results?

A) The trading strategy and guarantee of results are both violations of CFA Institute Standards.

B) The trading strategy is legitimate and does not violate CFA Institute Standards, but the guarantee of investment return is a violation of Standards.

C) **Both the trading strategy and guarantee statement comply with CFA Institute Standards.**

Explanation

Standards II(B) and V(B). The strategy based on interest rate parity would provide riskless profits until the prices moved into equilibrium and the forward rates accurately reflected the interest rate differentials. Trout's guarantee is therefore accurate. The low transaction costs available to Trout are a competitive advantage that can be exploited without violating Standard II(B).

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a)

Questions #7-12 of 60

Questions 7 through 12 relate to Economics.

Summit Consulting Case Scenario

Jill Surratt, CFA, and Elizabeth Castillo, CFA, are analysts for Summit Consulting. Summit provides investment advice to hedge funds and actively managed investment funds throughout the United States and Canada.

Surratt and Castillo have a client, Tom Carr, who is interested in increasing his returns from foreign currency positions. Carr currently has a position in Japanese yen (¥) that he wishes to convert to Taiwanese dollars (NT$) because he thinks the Taiwanese currency will appreciate in the near term. He does not have a quote for yen in terms of the NT$ but has received quotes for both currencies in terms of the U.S. dollar. The quotes are $0.008852-56 for the yen and $0.02874-6 for the Taiwanese dollar. He would like to purchase NT$10 million.

In discussing these quotes, Surratt notes that the bid-ask spread is affected by many factors. She states that if an economic crisis were expected in the Asian markets, then the bid-ask spread of the currency quotes should widen. Castillo states that if a dealer wished to unload an excess inventory of yen, the typical response would be to lower her ask for the yen, thereby narrowing the bid-ask spread.

In regards to changes in currency values, Surratt states that under the Mundell-Fleming model, if the U.S. Federal Reserve restricts the growth of the money supply and foreign interest rates remain constant, then the interest rate differential (U.S. interest rate minus counter currency interest rate) should increase, thereby increasing the value of the dollar.

In addition to using monetary policy, Summit Consulting uses anticipated changes in fiscal policy to forecast exchange rates and the balance of payments for Canada. Castillo states that, under the Mundell-Fleming model, if the Canadian government were to unexpectedly reduce the budget deficit, then this should have a positive impact on the value of the Canadian dollar in the short run because foreigners would have more confidence in the Canadian economy.

Another of Summit's clients is Jack Ponder. Ponder would like to investigate the possibility of using covered interest arbitrage to earn risk-free profits over the next three months, assuming initial capital of $1 million. He asks Surratt to gather information on the inflation rates, interest rates, spot rates, and forward rates for the U.S. dollar and the Swiss franc (SF). Surratt has also used technical analysis to obtain a projection of the future spot rate for the two countries' currencies. The information is presented as follows.

Spot rate	$0.85 / SF
Three-month forward rate (as of today) for SF	$0.80 / SF
Expected spot rate three months from now	$0.60 / SF
Three-month inflation rate in Switzerland (annualized)	2.0%
Three-month inflation rate in the U.S. (annualized)	6.0%
Three-month interest rate for SF (annualized)	12.0%
Three-month interest rate for U.S. dollars (annualized)	18.0%

Ponder has a carry trade open involving the Bun (the currency of Bundovia). Ponder notices that Bundovia has a current account deficit and asks Surrat about the impact of such a deficit on the value of the Bun. Surrat states that the impact on the Bun depends on three factors:

Factor 1:	The expected size of the current account deficit in the future.
Factor 2:	The influence of exchange rates on domestic prices.
Factor 3:	The response of import and export demand to changes in import and export prices.

Question #7 of 60

Question ID: 1220546

The yen cost to Carr of buying NT$10 million is *closest* to:

A) ¥3,077,000.

B) ¥32,453,000.

C) **¥32,490,000.**

Explanation

We want to convert ¥ to NT$ (via USD). Since we are not given the starting ¥ position, we start with a hypothetical ¥1,000 contract size. The quotes given are $/¥ and $/NT$. To convert ¥ to $ (i.e., going "up the quote") use the bid price (and multiply). To convert from $ to NT$ we use the offer price (and divide).

Step 1: Convert 1,000 yen to USD at $0.008852 to obtain 1,000 × 0.008852 = $8.852.

Step 2: Convert $8.852 to NT$ at $0.02876 to get 8.852 / 0.02876 = NT$ 307.7886.

Now, we want NT$ 10 million or 10,000,000 / 307.7886 = 32,489.8323 ¥ contracts or ¥32,489,832.

Alternatively, we can calculate the NT$/Yen cross rate as 0.307789-0.308142.

To convert Yen to NT$ (going up the quote, use bid price and multiply):

Yen × 0.307789 = NT$ 10,000,000

Yen = 10,000,000 / 0.307789 = 32,489,790.

For Further Reference:

(Study Session 4, Module 10.1, LOS 10.b)

Question #8 of 60

Question ID: 1220547

Are Surratt and Castillo correct with regard to their statements concerning the currency bid-ask spreads?

A) **Only Surratt is correct.**

B) Only Castillo is correct.

C) Both Surratt and Castillo are correct.

Explanation

Surratt is correct. Market conditions affect currency spreads such that the bid-ask spread on foreign currency quotations increases as exchange rate volatility (uncertainty) increases. In this example, an economic crisis in the Asian markets would create uncertainty, thereby impacting the $/¥ and $/NT$ exchange rates and increasing the bid-ask spread.

Castillo is incorrect. Bank and other currency dealer positions are not considered to directly impact the size of foreign currency spreads.

In this example, it is true that the dealer would likely reduce her yen ask (selling price) if she wanted to unload an excess inventory of yen. However, the dealer would also probably reduce her bid (buying price) so that she did not buy any

additional yen. The result would be that the spread would remain relatively unchanged.

For Further Reference:

(Study Session 4, Module 10.1, LOS 10.a)

Question #9 of 60

Question ID: 1220548

Evaluate Surratt's statements concerning the impact of monetary policy on currency values. Surratt is:

A) **correct.**

B) incorrect, because restrictive monetary policy in the United States would lead to a lower value of the dollar.

C) incorrect, because restrictive U.S. monetary policy would be matched by foreign governments.

Explanation

Surratt is correct. Under the Mundell-Fleming model, restrictive monetary policy reduces the growth rate of the money supply and will lead to appreciation of a country's currency. Restrictive monetary policy will increase the interest rate and, consequently, the demand for domestic physical and financial assets. This increase in financial inflows (increase in the financial account) increases the demand for the domestic currency for investment purposes leading to its appreciation. Choice C is incorrect because we are given in the vignette that the foreign interest rates remain constant.

For Further Reference:

(Study Session 4, Module 10.3, LOS 10.k)

Question #10 of 60

Question ID: 1220549

Regarding Castillo's statements concerning the effect of fiscal policy on currency values, Castillo is:

A) correct.

B) **incorrect, because under the Mundell-Fleming model, restrictive Canadian fiscal policies lead to a short-run depreciation of the Canadian dollar.**

C) incorrect, because under the Mundell-Fleming model, restrictive Canadian fiscal policies lead to an increase in the value of the Canadian dollar in the long run.

Explanation

Castillo is incorrect with respect to the impact of unanticipated restrictive fiscal policies on the value of the Canadian dollar.

A reduction in the budget deficit means that government borrowing will decline, which reduces interest rates and causes investment funds to flow out of the country. As a result, the value of the Canadian dollar tends to decline.

For Further Reference:

(Study Session 4, Module 10.3, LOS 10.k)

Question #11 of 60

Question ID: 1220550

Which of the following *best* describes the covered interest arbitrage that Ponder should execute? Borrow in:

A) Swiss francs to make an arbitrage profit of $80,313.

B) U.S. dollars to make an arbitrage profit of $80,313.

C) **Swiss francs to make an arbitrage profit of $75,588.**

Explanation

The 90-day USD and SF interest rates are 18% / 4 = 4.5% and 12% / 4 = 3% respectively.

Using CIRP, F = S $(1+R_{\$}) / (1+R_{SF})$ = 0.85 (1.045) / (1.03) = $0.8624 / SF, which is greater than the market forward price of $0.80/SF. This implies that SF is trading at a bargain price in the forward market—buy it!

At t = 0	Cash Flow
Buy (i.e., long position in) SF in forward market at $0.80/SF	$0
Sell 1,176,471 SF in the spot at $0.85/SF	$1,000,000
	(1,176,471 SF)
Borrow 1,176,471 SF for 90 days @ 12% annual rate	1,176,471 SF
Invest $1 million for 90 days @ 18% annual rate	($1,000,000)
Total cash flows at t = 0	0

t = 90	Cash Flow
Receive USD with interest	$1,045,000
Convert USD 969,412* into SF at previously locked-in forward rate of $0.80/SF	($ 969,412)
	SF 1,211,765
Repay the SF loan taken at t = 0	(1,211,765)
Total cash flows at t = 90	$75,588

**This is the amount needed to repay the SF loan (with interest) after conversion.*

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.e)

Question #12 of 60

Question ID: 1220551

How many of the factors identified by Surrat regarding Bundovia's current account deficit are accurate?

A) **One factor only.**

B) Two factors only.

C) All three factors.

Explanation

Only factor 3 is correct. Factor 1 incorrectly specifies the size of expected future deficits rather than size of initial current account deficit. Factor 2 incorrectly specifies influence on domestic prices in general rather than domestic prices of traded goods (i.e., imports/exports).

For Further Reference:

(Study Session 4, Module 10.3, LOS 10.j)

Questions #13-18 of 60

Questions 13 through 18 relate to Financial Reporting and Analysis.

DF Investments Case Scenario

Lauren Jacobs, CFA, is an equity analyst for DF Investments. She is evaluating Iron Parts, Inc. Iron Parts is a manufacturer of interior systems and components for automobiles. The company is the world's second-largest original equipment auto parts supplier, with a market capitalization of $1.8 billion. Based on Iron Parts's low price-to-book value ratio of 0.9× and low price-to-sales ratio of 0.15×, Jacobs believes the stock could be an interesting investment. However, she wants to review the disclosures found in the company's financial statements. In particular, Jacobs is concerned about Iron Parts's defined benefit pension plan.

The following information for 20X7 and 20X8 is provided.

In millions, December 31	20X8	20X7
Projected benefit obligation (PBO)	$635	$500
Current service cost	30	18
Actual return on plan assets	37	32
Benefits paid	22	15
Past service cost	80	45
Employee contributions	17	15
Fair market value of plan assets	395	327
Discount rate	6.0%	5.5%
Expected return on plan assets	8.2%	7.5%
Rate of compensation increase	4.0%	4.0%

Iron Parts reports under U.S. GAAP.

Jacobs wants to fully understand the impact of changing pension assumptions on Iron Parts's balance sheet and income statement. In addition, she would like to compute Iron Parts's true pension expense.

Question #13 of 60

Question ID: 1220553

As of December 31, 20X8, the pension plan would be reflected on Iron Parts's balance sheet as:

A) a $175 million liability.

B) **a $240 million liability.**

C) a $183 million asset.

Explanation

Funded status equals fair value of plan assets minus PBO (395 − 635 = –240). Because the funded status is negative, Iron Parts would report a liability of $240 million.

For Further Reference:

(Study Session 5, Module 14.2, LOS 14.b)

Question #14 of 60

Question ID: 1220554

Which of the following *best* describes the effects of the change in Iron Parts's discount rate for 20X8, all else being equal?

A) **Service cost decreased and the pension plan appeared more funded.**

B) Pension expense decreased and the PBO increased.

C) Interest cost increased and retained earnings decreased.

Explanation

The discount rate increased from 5.5% to 6.0%. An increase in the discount rate will result in lower service cost. Lower service cost will result in a *lower* PBO. A lower PBO will result in a higher funded status (more funded). Lower service cost will result in lower pension expense and *higher* retained earnings. The impact on interest cost cannot be determined without more information.

For Further Reference:

(Study Session 5, Module 14.5, LOS 14.d)

Question #15 of 60

Question ID: 1220555

How much did Iron Parts contribute to its pension plan during 20X8?

A) $31 million.

B) **$36 million.**

C) $53 million.

Explanation

$327 beginning balance plan assets + $37 actual return + $17 employee contributions + employer contributions − $22 benefits paid = $395 ending balance plan assets. Solving for the contributions, we get $36.

For Further Reference:

(Study Session 5, Module 14.2, LOS 14.b)

Question #16 of 60

Question ID: 1220556

Which of the following *best* describes the effect(s) of the change in Iron Parts's expected return on the plan assets, all else being equal?

A) Pension expense decreased and the PBO increased.

B) Retained earnings increased and the pension plan appeared more funded.

C) **Net income increased.**

Explanation

The higher expected return reduces pension expense. Lower pension expense results in higher net income. Higher net income results in higher retained earnings. Neither the PBO nor the funded status is affected by the expected return on plan assets.

For Further Reference:

(Study Session 5, Module 14.5, LOS 14.d)

Question #17 of 60

Question ID: 1220557

For this question only, assume that Iron Parts reports under IFRS. The amount of periodic pension cost reported on the 20X8 P&L would be *closest* to:

A) $48 million.

B) $69 million.

C) **$120 million.**

Explanation

Amount reported under IFRS:

Service cost	$30
Interest cost[1]	$10.4
Past service cost	$80
Pension cost on P&L	$120.4 million

[1]*Interest cost = discount rate × beginning funded status = 0.06 × (500 − 327)*

For Further Reference:

(Study Session 5, Module 14.3, LOS 14.c)

Question #18 of 60

Question ID: 1220558

For the year ended December 31, 20X8, Iron Parts's total periodic pension cost is *closest* to:

A) $67 million.

B) **$103 million.**

C) $157 million.

Explanation

interest cost = beginning PBO × discount rate = 0.06 × 500 = $30.

TPPC = current service cost + past service cost + interest cost + losses due to changes in actuarial assumptions affecting PBO − actual return = 30 + 80 + 30 + 0 − 37 = $103

Alternatively, total periodic pension cost is equal to employer contributions of $36 minus the change in funded status. 20X8 funded status was –240 (395 plan assets − 635 PBO) and the funded status for 20X7 was –173 (327 plan assets − 500 PBO), so the change in funded status is –240 − (–173) = –$67. Thus, total periodic pension cost is $103 [36 − (–67)].

For Further Reference:

(Study Session 5, Module 14.3, LOS 14.c)

Questions #19-24 of 60

Questions 19 through 24 relate to Financial Reporting and Analysis.

Tobin Yoakam Case Scenario

Tobin Yoakam, CFA, is analyzing the financial performance of Konker Industries, a U.S. company which is publicly traded under the ticker KONK. Yoakam is particularly concerned about the quality of Konker's financial statements and its choices of accounting methodologies.

Below is a summary of Konker's financial statements prepared by Yoakam.

Konker Industries			
Income Statement		**Balance Sheet**	
($ in thousands)	**20X8**	**($ in thousands)**	**20X8**
Gross sales	55,435	Cash and equivalents	457
Sales discounts, returns, and allowances	1,352	Short term marketable securities	927
Net sales	54,083	Accounts receivable (net)	47,740
Cost of goods sold	26,500	Inventories	20,963
SG&A expenses	15,625	PP&E (net of depreciation)	25,371
Depreciation expense	1,082	Total assets	95,458
Earnings before interest and taxes	10,876		
Interest expense	693	Accounts payable	24,994

Earnings before taxes	10,183	Other current liabilities	1,209
Taxes (tax rate 40%)	4,073	Long term debt	21,770
Net income	6,110	Total liabilities	47,973
		Common stock	40,314
Dividends	5,046	Retained earnings	7,171
Net addition to retained earnings	1,064	Total liabilities and shareholders equity	95,458

At the beginning of 20X8, Konker formed a qualified special purpose entity (QSPE) and sold a portion of its accounts receivables to the QSPE. Under U.S. GAAP, QSPE was exempt from consolidation requirements. The total amount of accounts receivables sold to the QSPE was $13.5 million. Yoakam has noted in his research that the Financial Accounting Standards Board (FASB) eliminated qualified special purpose entities.

Konker has three major operating divisions: Konker Industrial, Konker Defense, and Konker Capital. Yoakam has computed the EBIT margin for each division over the last three years, as well as the ratio of the percentage of total capital expenditures to the percentage of total assets for each division.

	EBIT / Assets			**CapEx % / Assets %**		
	20X8	**20X7**	**20X6**	**20X8**	**20X7**	**20X6**
Konker Industrial	6.2%	7.5%	6.7%	1.5	1.3	1.2
Konker Defense	6.7%	7.2%	6.9%	0.5	0.6	0.7
Konker Capital	10.1%	12.1%	11.1%	0.7	0.6	0.5

Since Yoakam is concerned about the quality of Konker's earnings, he decides to analyze the accrual ratios using the balance sheet approach. The table below contains the last three years of accrual ratios for Konker and the industry average.

Balance Sheet Accrual Ratios	**20X8**	**20X7**	**20X6**
Konker	4.5%	15.0%	7.0%
Industry average	4.8%	4.4%	5.2%

Yoakam meets his colleague Sarah for lunch. Sarah specializes in the insurance sector and makes the following statements:

Statement 1: P&C insurers' liability duration is shorter than that of life insurance companies.

Statement 2: Analysis of a life insurer's profitability includes analysis of its loss reserves.

Question #19 of 60

Question ID: 1220560

With respect to the balance sheet accrual ratio, which of the following, other things equal, would *most likely* lead to an increase in the ratio for a growing company?

A) Extending the time the firm takes to pay its suppliers.

B) A significant build-up of cash.

C) **A build-up of inventory.**

Explanation

The balance sheet accrual ratio is the year-over-year increase in net operating assets divided by average net operating assets. An increase in payables (a liability) will tend to decrease (reduce the change in) net operating assets, while an increase in inventory will tend to increase (increase the change in) net operating assets. Cash is not an operating asset and does not affect the ratio.

For Further Reference:

(Study Session 6, Module 18.5, LOS 18.e)

Question #20 of 60

Question ID: 1220561

When FASB retroactively eliminated the allowance of QSPEs created for the securitization of receivables, the *most likely* impact on Konker's financial statements would have been:

A) an increase in equity and an increase in interest expense.

B) no change in assets but an increase in financial leverage ratios.

C) **an increase in financial leverage ratios and a decrease in the interest coverage ratio.**

Explanation

The elimination of the securitization of receivables as an off-balance-sheet item would result in Konker having to report the transaction as securitized borrowing, replacing the receivables on the balance sheet, and reporting a liability equal to the proceeds of the securitization transaction. The impact on Konker's balance sheet would be an increase in assets, and an increase in liabilities. The change in equity from reporting the transaction in this way is likely to be small. Financial leverage would increase, and the consequent increase in interest expense from the liability would decrease the interest coverage ratio.

For Further Reference:

(Study Session 5, Module 13.9, LOS 13.c, Study Session 6, Module 18.2, LOS 18.d)

Question #21 of 60

Question ID: 1220562

An analyst is considering the effects of income reported under the equity method on certain financial ratios. For a firm that reports equity income as non-operating income (not included in EBIT), removing equity income from the financial statements would *most likely* result in:

A) an increase in the tax burden term in the extended Du Pont decomposition of ROE.

B) **an increase in the asset turnover ratio.**

C) a decrease in the interest coverage ratio.

Explanation

Removing the effects of the income reported under the equity method involves removing the income and the equity asset reported on the balance sheet. The decrease in total assets will increase the asset turnover ratio. The tax burden term is net income divided by earnings before tax so that the decrease in net income from removing the equity income will decrease the term. Neither interest expense nor operating earnings (EBIT) are affected by the appropriate adjustments, so the interest coverage ratio is unaffected.

For Further Reference:

(Study Session 6, Module 18.2, LOS 18.b)

Question #22 of 60

Question ID: 1220563

Regarding the three operating divisions of Konker, Yoakam should be *most* concerned that:

A) Konker is growing the Industrial division over time.

B) the operating ROA of the Capital division has fallen over the last year.

C) the ratio of the Capex percent change to the asset percentage is significantly less than one for the Defense division.

Explanation

The fact that Konker is growing the Industrial division most rapidly (highest capex percent to asset percent ratio) is a likely cause for concern and further investigation, since this division has the lowest operating return on assets. The decrease in the operating ROA for the Capital division is not particularly troublesome as it mirrors the pattern for the other divisions and likely just reflects year-to-year variation in profitability. The fact that the percent of capex for the Defense division is less than its percent of total assets is not a primary cause for concern since that division has a lower operating ROA, and growth in capital assets likely follows contract awards in the defense industry, rather than drives business. Also, the apparent overinvestment in the Industrial division will decrease the capex percent for other divisions, other things equal.

For Further Reference:

(Study Session 6, Module 18.2, LOS 18.b)

Question #23 of 60

Question ID: 1220564

Based on the balance sheet accruals ratios, Yoakam would *most likely* conclude which of the following regarding the earnings of Konker?

A) The volatile accruals ratios are indicators that Konker may be manipulating earnings.

B) Konker's earnings quality was lower than its peer group in 20X8 but higher in 20X6 and 20X7.

C) Konker's earnings quality worsened from 20X6 to 20X8 but was superior to its peer group over the 3-year period.

Explanation

Volatile accruals ratios are an indicator that a firm may be manipulating earnings. Additionally, increasing accruals ratios may be a sign that a firm may be manipulating earnings. Lower accrual ratios represent higher earnings quality.

For Further Reference:

(Study Session 6, Module 18.2, LOS 18.b)

Question #24 of 60

Question ID: 1220565

Which of Sarah's statements about insurance companies is *most* accurate?

A) Only statement 1 is correct.

B) Only statement 2 is correct.

C) Both statements are correct.

Explanation

Only statement 1 is correct. P&C policies (and hence, claim liabilities) tend to be short-term as compared to long-term life insurance policies. Statement 2 is incorrect because evaluation of loss reserves is important for P&C insurers' profitability. (

For Further Reference:

(Study Session 5, Module 16.6, LOS 16.f)

Questions #25-30 of 60

Questions 25 through 30 relate to Corporate Finance.

MavsHD Case Scenario

Donnie Nelson, CFA, has just taken over as chief financial officer of MavsHD, a high-tech company that delivers high-definition technology to a broad-based group of sports enthusiasts. MavsHD has 40% debt and 60% equity in its capital structure. For the year just ended, net income and dividends for MavsHD were $145 million and $21.75 million, respectively. The consensus estimate for net income at the end of the current year is $153 million. The company's current book value is $550 million. MavsHD's stock is currently trading on the NYSE for a price of $50 per share and has been steadily decreasing for the past 12 months.

MavsHD has gone through its pioneer and growth phases and is now settling in to the early stages of maturity. The business model is starting to shift from relying almost exclusively on new customers to retaining and satisfying existing customers. The previously experienced very high growth rate has slowed considerably. Nelson believes that shareholder composition has changed over time as well, favoring shareholders who have a greater interest in dividend stability than in explosive growth. In the past, however, the firm has favored a low dividend rate due to the availability of attractive internal investment opportunities.

Nelson wants to develop an optimal dividend policy for MavsHD that will create the most value for the shareholders and at the same time protect corporate assets. He is concerned, however, that there is sometimes a disconnect between an optimal dividend policy and how actual dividend rates are perceived in the marketplace.

Nelson is preparing a recommendation to senior management and the board of directors regarding the firm's dividend policy going forward. Nelson is considering recommending that MavsHD engage in a stock repurchase plan and repurchase 1.5 million shares of the 12.75 million shares outstanding. This repurchase would eliminate any need to increase the cash dividend payout. Other managers at the firm, besides Nelson, believe MavsHD should increase its dividend and gravitate toward what they perceive to be the target payout ratio over the next eight years. Thus, at the end of the current year, the firm would increase the dividend payment by $250,000 over the dividend in the prior year.

During the board meeting, two of the directors raised concerns over Nelson's proposed repurchase plan. The directors' comments follow:

Director 1:	I support the repurchase plan, especially relative to varying our dividend. Firms should not vary dividends—this lowers investors' confidence and can adversely impact the firm's cost of equity and its share price.
Director 2:	A share repurchase does not take away the uncertainty associated with future stock value. According to the bird-in-the-hand theory, investors prefer higher dividends because capital gains are uncertain. The theory states that if we increase our dividend payout, the value of MavsHD equity will increase. Thus, I propose a dividend increase rather than a repurchase.

One of the board members, Jason Neely, proposed an alternative dividend policy plan one week after the meeting at which Nelson presented his plan. Neely's proposal involves utilizing a residual dividend model. Neely rationalizes his plan by claiming that relative to a stable dividend policy, his proposal would increase the volatility of dollar dividends paid to shareholders but would simultaneously increase the firm's ability to exploit value additive investment projects using internally generated funds. Because of this enhanced access to value additive projects, MavsHD's cost of equity capital will experience a marginal decrease, which will further increase the overall value of the firm.

Question #25 of 60

Question ID: 1220567

Using the target payout ratio adjustment model approach to estimate dividend increases, determine which of the following is *closest* to the target payout ratio estimated by MavsHD's managers.

A) 15%.

B) 20%.

C) 25%.

Explanation

The target payout ratio approach to estimating a company's expected dividend uses the following formula:

expected increase in dividends = [(expected earnings × target payout ratio) – previous dividend] × adjustment factor

Rearranging the formula to solve for the target payout ratio, we obtain:

target payout ratio = [(expected increase in dividends ÷ adjustment factor) + previous dividend] ÷ expected earnings

Managers at MavsHD want to move toward the target payout ratio over a period of 8 years, which makes the adjustment factor equal to: 1 / 8 = 0.125. The expected dividend increase is given as $250,000, and the previous dividend is given as

$21,750,000. Plugging each of these figures into the previous formula, the target payout ratio is calculated as:

target payout ratio = [($250,000 ÷ 0.125) + $21,750,000] ÷ $153,000,000 = 0.1552 = 15.5%

For Further Reference:

(Study Session 7, Module 21.2, LOS 21.g)

Question #26 of 60

Question ID: 1220568

If the board proceeds with Nelson's proposed stock repurchase plan as suggested, which of the following is *least likely* to be true? MavsHD:

A) would be increasing financial leverage.

B) is trying to signal the market that despite the declining share price, future prospects for the company are good.

C) **will reduce the wealth of all shareholders, including those who tender their shares for repurchase if the repurchase price is at a premium to the current stock price.**

Explanation

Paying a premium price for the shares (i.e., a price higher than the current market price of the stock) will reduce the value of the remaining shareholders' shares. However, this value reduction is actually transferred to the selling shareholders since they receive more than the market value per share for selling their shares.

For Further Reference:

(Study Session 7, Module 21.2, LOS 21.k)

Question #27 of 60

Question ID: 1220569

For this question only, assume that MavsHD's marginal investor is in a 39.6% tax bracket for capital gains and a 15% tax bracket for dividends. If MavsHD declares a dividend of $2.25 per share, the change in MavsHD's stock price when the stock goes ex-dividend will be *closest* to:

A) 1.36.

B) 1.91.

C) **3.17.**

Explanation

$\Delta P = D(1 - T_D) / (1 - T_{CG}) = 2.25(1 - 0.15) / (1 - 0.396) = 3.17$

For Further Reference:

(Study Session 7, Module 21.1, LOS 21.d)

Question #28 of 60

Question ID: 1220570

In light of the fact that several different groups of investors hold shares in MavsHD, evaluate the directors' comments regarding Nelson's proposed stock repurchase plan.

A) Only Director 1 is correct.

B) Only Director 2 is correct.

C) **Both Director 1 and Director 2 are correct.**

Explanation

Investors do not like instability in the dividends paid by a company. Any volatility in dividends is seen as a negative sign by investors, and the company's stock price would be punished as a result of varying dividends. According to the bird-in-the-hand theory, investors prefer the assurance of receiving a higher dividend today rather than waiting for returns in the form of capital appreciation. Because of the uncertainty associated with capital appreciation and the relative certainty of dividends, the bird-in-the-hand theory predicts that investors will reward dividend paying companies with a lower cost of equity and, thus, a higher equity value. A repurchase does not provide the same type of assurance since it is an unpredictable and possibly one-time event.

For Further Reference:

(Study Session 7, Module 21.1, LOS 21.b, 21.c, 21.g)

Question #29 of 60

Question ID: 1220571

If MavsHD plans to make $160 million in net investments in the current year, what will be the company's dividend payout ratio using the residual dividend model?

A) **37.3%.**

B) 58.2%.

C) 62.8%.

Explanation

If the company plans on spending $160 million on net investments, then only 60% of the funds need to come from retained earnings. Therefore, MavsHD needs 0.6 × 160 = $96 million in retained earnings. Net income is projected to be $153 million, leaving $57 million (153 − 96) available to pay dividends. Thus, the dividend payout ratio would equal 57 / 153 = 37.3%.

For Further Reference:

(Study Session 7, Module 21.2, LOS 21.g)

Question #30 of 60

Question ID: 1220572

Evaluate Neely's comments about his proposed residual dividend plan. Neely's comments are:

A) correct.

B) **incorrect, because the equity cost of capital would not decrease under the proposed plan.**

C) incorrect, because the firm would not have greater access to internal funds for investment.

Explanation

Under a residual dividend policy, a firm determines the optimal capital budget and then uses retained earnings to fund the optimal capital budget, paying out what is left over to shareholders. Because the amount of distributable earnings is not known in advance and is determined as a function of the capital budget, the dollar dividend paid to shareholders will fluctuate widely from year to year. However, the firm will be able to use internally generated funds to a greater extent when deciding how to fund the optimal capital budget. It is not true, however, that the residual dividend policy will reduce the firm's cost of capital. Investors do not like unpredictable dividends and will penalize the company in the form of a higher required return on equity to compensate for the additional uncertainty related to dividend payments.

For Further Reference:

(Study Session 7, Module 21.2, LOS 21.g)

Questions #31-36 of 60

Questions 31 through 36 relate to Equity Valuation.

Arnaud Aims Case Scenario

Arnaud Aims is assisting with the analysis of several firms in the retail department store industry. Because one of the industry members, Flavia Stores, has negative earnings for the current year, Aims wishes to normalize earnings to establish more meaningful P/E ratios. For the current year (2016) and six previous years, selected financial data are given below. All data are in euros.

Exhibit 1: Selected Financial Data for Flavia Stores, 2010–2016

	2016	2015	2014	2013	2012	2011	2010
Earnings per share	(1.05)	1.90	1.65	0.99	1.35	0.77	1.04
Book value per share	9.11	10.66	9.26	8.11	7.62	6.77	6.50
Return on equity	(0.115)	0.178	0.178	0.122	0.177	0.114	0.160

Aims wishes to estimate normalized EPS for 2016 using two different methods, the method of historical average EPS and the method of average rate of return on equity. He will leave 2016 EPS and ROI out of his estimates. Based on his normalized EPS estimates, he will compute a trailing P/E for 2016. The stock price for Flavia Stores is €26.50.

Aims is also looking at price-to-book ratios as an alternative to price-to-earnings ratios. Three of the advantages of P/B ratios that Aims recalls are as follows:

Advantage 1:	Because book value is a cumulative balance sheet account encompassing several years, book value is more likely than EPS to be positive.
Advantage 2:	For many companies, especially service companies, human capital is more important than physical capital as an operating asset.

Advantage 3:	Book value represents the historical purchase cost of assets, as well as accumulated accounting depreciation expenses. Inflation and technological changes can drive a wedge between the book value and market value of assets.

Aims used a constant growth DDM to establish a justified P/E ratio based on forecasted fundamentals. One of his associates asked Aims whether he could easily establish a justified price-to-sales (P/S) ratio and price-to-book (P/B) ratio from his justified P/E ratio.

Aims replied, "I could do this fairly easily. If I multiply the trailing P/E ratio times the net profit margin, the ratio of net income to sales, the result will be the P/S ratio. If I multiply the leading P/E ratio times the return on equity, the ratio of net income to beginning book value of equity, the result will be the P/B ratio."

Aims's associate likes to use the price-earnings-to-growth (PEG) ratio because it appears to address the effect of growth on the P/E ratio. For example, if a firm's P/E ratio is 20 and its forecasted 5-year growth rate is 10%, the PEG ratio is 2.0. The associate likes to invest in firms that have an above-industry-average PEG ratio. The associate also says that he likes to invest in firms whose leading P/E is greater than its trailing P/E. Aims tells the associate that he would like to further investigate these two investment criteria.

Finally, Aims makes two comments to his associate about valuation ratios based on EBITDA and on dividends.

Comment 1:	EBITDA is a pre-interest-expense figure, so I prefer a ratio of total equity value to EBITDA over a ratio of enterprise value to EBITDA.
Comment 2:	Dividend yields are useful information because they are one component of total return. However, they can be an incomplete measure of return, because investors trade off future earnings growth to receive higher current dividends.

Question #31 of 60

Question ID: 1220574

Using the information in Exhibit 1, estimate the P/E ratio for Flavia Stores using EPS estimated with the method of historical average EPS. The P/E ratio is *closest* to:

A) 18.4.

B) **20.6.**

C) 27.9.

Explanation

Normalizing EPS using the method of average EPS is accomplished by averaging the EPS over the six-year period from 2010–2015:

EPS(normalized) = (1.90 + 1.65 + 0.99 + 1.35 + 0.77 + 1.04) / 6 = 1.283. The P/E ratio based on this normalized EPS is 26.5 / 1.283 = 20.649.

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.e)

Question #32 of 60

Question ID: 1220575

Using the information in Exhibit 1, estimate the P/E ratio for Flavia Stores using EPS estimated with the method of average return on equity. The P/E ratio is *closest* to:

A) 16.0.

B) 18.8.

C) 25.0.

Explanation

Normalizing EPS (for 2016) using the method of average return on equity is accomplished by (1) averaging the ROE over the six-year period from 2010−2015, and then (2) multiplying the average ROE times the 2015 BVPS. ROE(average) = (0.178 + 0.178 + 0.122 + 0.177 + 0.114 + 0.160) / 6 = 0.155. EPS(normalized) = 0.155(10.66) = 1.652. The P/E ratio based on this normalized EPS is 26.5 / 1.652 = 16.04.

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.e)

Question #33 of 60

Question ID: 1220576

Which one of the three advantages recalled by Aims *most likely* represents a good reason to consider using a P/B ratio?

A) Advantage 1.

B) Advantage 2.

C) Advantage 3.

Explanation

Book values are more likely to be positive than EPS. Thus, the P/B ratio suffers less often from the problem where P/E ratios are not meaningful because of a negative EPS. The other two advantages given are actually disadvantages associated with using P/B ratios.

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.c, 29.d)

Question #34 of 60

Question ID: 1220577

Is Aims correct in describing how we could transform a justified P/E ratio into a P/S ratio or a P/B ratio?

A) Yes.

B) No. He is correct about the P/S ratio but incorrect about the P/B ratio.

C) No. He is correct about the P/B ratio but incorrect about the P/S ratio.

Explanation

Aims is correct about both ratios. For example, let's take the trailing P/E ratio, which is P_0/E_0. Multiplying by the net profit margin results in $P_0/E_0 \times E_0/S_0 = P_0/S_0$. If the justified P/E is $(1 - b)(1 + g) / (r - g)$, the justified P/S is (E_0/S_0) $(1 - b)(1 +$

g) / (r − g). Multiplying the leading P/E ratio by the ROE results in $P_0/E_1 \times E_1/B_0 = P_0/B_0$. If the justified P/E is (1 − b) / (r − g), the justified P/B is ROE(1 − b) / (r − g). This becomes (ROE − b × ROE) / (r − g). Since b × ROE = g (from sustainable growth equation), the equation becomes (ROE − g) / (r − g).

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.h)

Question #35 of 60

Question ID: 1220578

When Aims further investigates the two investment criteria (the PEG ratio and the comparison between the trailing and leading P/E ratio), should he find his colleague's use of them to be appropriate?

A) No.

B) The PEG ratio criterion is appropriate, but the P/E ratio criterion is not.

C) The P/E ratio criterion is appropriate, but the PEG ratio criterion is not.

Explanation

Both criteria are poorly applied by the associate. Generally, a lower PEG ratio is considered desirable, not a higher one. The difference in the trailing and leading P/E ratios could be due to transitory elements in the current year's income in the denominator of the trailing P/E. In a constant growth model (admittedly a strong assumption), the leading P/E will naturally be smaller than the trailing P/E because earnings are growing by g.

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.e, 29.r)

Question #36 of 60

Question ID: 1220579

Are Aims's two comments about the dividend yield and EBITDA ratios correct?

A) Yes.

B) No. The comment about EBITDA ratios is correct, but the comment about dividend yields is incorrect.

C) No. The comment about dividend yields is correct, but the comment about EBITDA ratios is incorrect.

Explanation

Comment 1 about EBITDA ratios is incorrect. EBITDA is a pre-interest variable, so it is a flow available to all suppliers of capital, not just common shareholders. The comment about dividend yields is reasonable.

For Further Reference:

(Study Session 11, Module 29.4, LOS 29.m, 29.n)

Questions #37-42 of 60

Questions 37 through 42 relate to Equity Valuation.

Thorngate Ventures Case Scenario

Marsha McDonnell and Frank Lutge are analysts for the private equity firm Thorngate Ventures. Their primary responsibility is to value the equity of private firms in developed global economies. Thorngate's clients consist of wealthy individuals and institutional investors. The firm invests in and subsequently actively manages its portfolio of private firms.

During a discussion with junior analysts at the firm, McDonnell compares the characteristics of private firms with those of public firms and makes the following statements:

Statement 1:	Private firms typically have higher risk premiums and required returns than public firms because private firms are usually smaller and thus thought to be riskier. Furthermore, the lack of access to liquid public equity markets can limit a private firm's growth.
Statement 2:	Because of their higher risk, private firms may not be able to attract as many qualified applicants for top positions as public firms. Due to the higher risk, the managers they do attract tend to have a shorter-term view of the firm and their tenure at the firm, compared to public firm managers. As a result, the private firm may neglect profitable long-term projects.

Due to its considerable success, Thorngate has recently attracted a substantial inflow of capital from investors. To deploy that capital, McDonnell and Lutge are considering the purchase of Albion Biotechnology. Albion is using advances in biotechnology for application in the pharmaceutical field. The analysts are primarily interested in Albion because the firm's research team is developing a drug that Thorngate's current pharmaceutical firm is also working on. McDonnell estimates that combining research teams would result in advances that no pharmaceutical competitor could match for at least two years. The firm is currently owned by its founders, who are familiar to Lutge through previous social contacts. Lutge hopes to avoid a competitive bidding process for the firm, because its founders have not publicly advertised the firm's sale.

McDonnell is also examining the prospects of Balanced Metals, a metal fabrication firm. Thorngate currently does not have any manufacturing firms in its portfolio, and Balanced would provide needed exposure. The growth in sales at Balanced has been impressive recently, but it is expected to slow considerably in the years ahead due to increased competition from overseas firms. The firm's most valuable assets are its equipment and factory, located in a prime industrial area.

Balanced was previously considered for possible purchase by a competitor in the metal fabrication industry. Although the sale was not consummated, McDonnell has learned that the firm estimated that costs could be reduced at Balanced by eliminating redundant overhead expenses. McDonnell has obtained the following financial figures from the Balanced Metals CFO, as well as the previously estimated synergistic savings from cost reductions. Capital expenditures will equal depreciation plus approximately 4% of the firm's incremental revenues. McDonnell wants to forecast Balanced's free cash flow to the firm (FCFF) for the next year.

Current revenues	$22,000,000
Revenue growth	7%
Gross profit margin	25%
Depreciation expense as a percent of sales	1%
Working capital as a percent of sales	15%

SG&A expenses	$5,400,000
Synergistic cost savings	$1,200,000
Tax rate	30%

Lutge is valuing a noncontrolling equity interest in Jensen Gear, a small outdoors equipment retailer. Jensen has experienced healthy growth in earnings over the past three years. However, given its size and private status, Lutge does not expect that Jensen can be easily sold. To obtain the appropriate price multiple for the Jensen valuation, he has prepared a database of price multiples from the sale of entire public and private companies over the past 10 years, organized by industry classification. Using historical data, Lutge estimates a control premium of 18.7% and discount for lack of marketability of 24%.

To obtain the cost of capital for Jensen, Lutge uses a cost of capital database that includes public company betas, cost of equity, weighted average cost of capital, and other financial statistics by industry. Given Jensen's small size, Lutge obtains a size premium using the smallest-firm-size decile of the database. McDonnell examines Lutge's cost of capital calculations and makes the following statements.

Statement 1:	I am concerned about the use of this database. The estimate of the size premium may result in an undervaluation of the Jensen equity interest.
Statement 2:	The use of betas and the CAPM from the database may be inappropriate. If so, Lutge should consider using the build-up method whereby an industry risk premium is used instead of beta.

Question #37 of 60

Question ID: 1220581

Regarding the statements made by McDonnell on the comparison of private firms and public firms, are both statements correct?

A) Yes.

B) No, both statements are incorrect.

C) **No, one statement is correct, but the other statement is incorrect.**

Explanation

Statement 1: McDonnell is correct. Private firms are usually smaller than public firms and, thus, thought to be riskier. Accordingly, private firms are usually assigned higher risk premiums and required returns than public firms. The lack of access to liquid public equity markets can also limit a private firm's growth.

Statement 2: McDonnell is correct that small private firms may not be able to attract as many qualified applicants for top positions as public firms. This may reduce the depth of management, slow growth, and increase risk at private firms. She is, however, incorrect that private firm managers and investors have a shorter-term view. Public firm shareholders often focus on short-term measures such as quarterly earnings and the consistency of such. Public management may therefore take a shorter-term view than they otherwise would. So it is private firms that should be able to take a longer-term view.

Furthermore, in most private firms, management has substantial equity ownership. In this case, external shareholders cannot exert as much control, and the firm may be able to take a longer-term perspective.

For Further Reference:

(Study Session 11, Module 31.1, LOS 31.a)

Question #38 of 60

Question ID: 1220582

Which of the following *best* describes the standard of value that McDonnell and Lutge will apply to Albion Biotechnology?

A) Market value.

B) Intrinsic value.

C) **Investment value.**

Explanation

McDonnell and Lutge will use the investment value of Albion Biotechnology to determine what the firm is worth to Thorngate. Investment value is the value to a specific buyer and may be different for each investor due to different cash flow estimates, perceived firm risk, discount rates, financing costs, and synergies that lead to decreased costs.

Market value is frequently used in real estate and other real asset appraisals where the purchase will be levered. Intrinsic value is the value that should be the market value once other investors arrive at this "true" value.

McDonnell and Lutge are determining the firm's value to Thorngate. The firm is not publicly traded so there is no market for its shares at the present time.

Furthermore, combining Albion with Thorngate's current pharmaceutical firm would result in advances that no pharmaceutical competitor could match. The synergies appear to be unavailable to other potential buyers (i.e., the value that McDonnell and Lutge will determine is specific to Thorngate and is not a value determined in a market of many buyers and sellers).

For Further Reference:

(Study Session 11, Module 31.1, LOS 31.c)

Question #39 of 60

Question ID: 1220583

Which of the following is *closest* to the FCFF that McDonnell should estimate for Balanced Metals?

A) **–$117,800.**

B) $344,120.

C) $722,120.

Explanation

In a strategic transaction, a firm is acquired based in part on the synergies it brings to the acquirer. A financial transaction occurs when there are no synergies. The previous suitor of Balanced, a competitor in the same industry, was a strategic buyer and could realize the synergistic cost savings of $1,200,000.

Thorngate currently does not own a manufacturing firm, so it would be a financial buyer. Thorngate will not be able to realize any synergistic cost savings, so these are not included in the free cash flow to the firm (FCFF) estimates in the following tables.

The calculations are as follows.

Pro Forma Income Statement	
Revenues	$23,540,000
Cost of goods sold	$17,655,000
Gross profit	$5,885,000
SG&A expenses	$5,400,000
Pro forma EBITDA	$485,000
Depreciation and amortization	$235,400
Pro forma EBIT	$249,600
Pro forma taxes on EBIT	$74,880
Operating income after tax	$174,720

Adjustments to Obtain FCFF	
Plus: Depreciation and amortization	$235,400
Minus: Capital expenditures	$297,000
Minus: Increase in working capital	$231,000
FCFF	–$117,880

The following provides a line-by-line explanation for the previous calculations.

Pro Forma Income Statement	Explanation
Revenues	Current revenues times the growth rate: $22,000,000 × (1.07)
Cost of goods sold	Revenues times one minus the gross profit margin: $23,540,000 × (1 − 0.25)
Gross profit	Revenues times the gross profit margin: $23,540,000 × 0.25
SG&A expenses	Given in the question
Pro forma EBITDA	Gross profit minus SG&A expenses: $5,885,000 − $5,400,000
Depreciation and amortization	Revenues times the given depreciation expense: $23,540,000 × 0.01
Pro forma EBIT	EBITDA minus depreciation and amortization:

	$485,000 − $235,400
Pro forma taxes on EBIT	EBIT times tax rate: $249,600 × 0.30
Operating income after tax	EBIT minus taxes: $249,600 − $74,880
Adjustments to Obtain FCFF	
Plus: Depreciation and amortization	Add back noncash charges from above
Minus: Capital expenditures	Expenditures cover depreciation and increase with revenues: $235,400 + 0.04 × ($23,540,000 − $22,000,000)
Minus: Increase in working capital	The working capital will increase as revenues increase 0.15 × ($23,540,000 − $22,000,000)
FCFF	Operating income net of the adjustments above

For Further Reference:

(Study Session 11, Module 31.2, LOS 31.e)

Question #40 of 60

Question ID: 1220584

Which of the following income approaches would be *most* appropriate for valuing Balanced Metals?

A) **The free cash flow method.**

B) The excess earnings method.

C) The capitalized cash flow method.

Explanation

The free cash flow method can accommodate multiple stage growth assumptions and is the most appropriate. The firm's growth is expected to slow considerably in the years ahead, so the constant growth assumption of the capitalized cash flow method would be inappropriate. The capitalized cash flow method is a single-stage model.

The excess earnings method is useful when there are intangible assets to value, but that does not appear to be a concern in the valuation of Balanced. The firm's assets appear to be largely tangible (consisting of equipment and the factory).

For Further Reference:

(Study Session 11, Module 31.2, LOS 31.f)

Question #41 of 60

Question ID: 1220585

Which of the following is *closest* to the total adjustment for control and marketability that would be applied to the Jensen valuation?

A) A discount of 5.3% would be applied.

B) A discount of 36.0% would be applied.

C) A discount of 42.7% would be applied.

Explanation

Lutge is using the guideline transactions method (GTM) because his database uses the price multiples from the sale of entire public and private companies. The interest in Jensen is a noncontrolling equity interest, so a discount for lack of control (DLOC) will be applied to its valuation. A discount for lack of marketability (DLOM) will also be applied because the Jensen interest cannot be easily sold.

The DLOC is backed out of the control premium.

$$\text{DLOC} = 1 - \left[\frac{1}{1+\text{control premium}}\right]$$

$$\text{DLOC} = 1 - \left[\frac{1}{1+0.187}\right] = 15.75\%$$

The total discount includes the discount for lack of marketability (DLOM).

total discount = 1 − [(1 − DLOC)(1 − DLOM)]

total discount = 1 − [(1 − 0.1575)(1 − 0.24)] = 36.0%

For Further Reference:

(Study Session 11, Module 31.4, LOS 31.i, 31.k)

Question #42 of 60

Question ID: 1220586

Regarding the statements made by McDonnell on Lutge's cost of capital calculations for Jensen, are both statements correct?

A) Yes.

B) No, both statements are incorrect.

C) No, one statement is correct, but the other statement is incorrect.

Explanation

Statement 1: McDonnell is correct. Using data from the smallest cap segment of public equity to get the size premium may include a distress premium that is not applicable to a healthy private firm such as Jensen. If so, the estimated size premium will be too large, resulting in a discount rate that is too high and an undervaluation of the Jensen equity interest.

Statement 2: McDonnell is correct. Using the CAPM and estimating beta from public firm data may not be appropriate for private firms that have little probability of going public or being acquired by a public firm. In the build-up method, an industry risk premium is added to the risk-free rate along with an equity risk premium, the small stock premium, and a company-specific risk premium.

For Further Reference:

(Study Session 11, Module 31.2, LOS 31.g, 31.k)

Questions #43-48 of 60

Questions 43 through 48 relate to Fixed Income.

Solsbury Peak Case Scenario

Youri Wabush, CFA, works as an analyst for Solsbury Peak, a small investment house based in the United States. Wabush focuses primarily on fixed-income investment opportunities in the United States.

Every Monday, Wabush attends a morning briefing along with John Rafita, the firm's leading economist. Rafita presents his macroeconomic forecasts with a heavy focus on likely interest rate moves. Of particular interest to Wabush is Rafita's update on forward rates, which he provides on the first Monday of every month. Rafita provides an interpolated U.S. Treasuries spot rate curve along with current forward rate curves and a commentary on whether or not he believes the curves will remain stable in the short, medium, and long term.

The most recent U.S. Treasuries spot curve presented by Rafita is shown in Exhibit 1.

Exhibit 1: U.S. Treasuries Spot Curve

Maturity (years)	1	2	3	5	7	10	20	30
Spot rate (%)	0.13	0.29	0.65	1.29	2.05	2.70	3.42	3.76

Rafita also presents his view on the likely progression of the spot rate curve over the next year and a description of fixed-income strategies that should be successful if these changes are realized. His notes are presented in Exhibit 2.

Exhibit 2: Rafita Yield Curve Notes

U.S. Treasury Spot Curve Progression

The central bank has announced its intention to keep target rates constant for at least the next 15 months. This unprecedented level of transparency should allow fixed-income managers to forecast rates with a high degree of accuracy for the next year. As a result, I anticipate that the spot curve at this time next year will be almost identical to the no-arbitrage forward curve we're seeing now.

Minority Strategy

My estimate is that there is a sizeable minority, perhaps 20–25%, of fixed income portfolio managers who will continue to ride the yield curve as they have since 2008. With an upward-sloping curve such as the one we currently face, managers have historically been slow to move away from these strategies.

Wabush is not convinced that the central bank will follow through on their commitment to keep rates constant. He has heard rumors that the bank will announce next month that the policy will be reviewed, with the potential for almost immediate changes in target rates. Wabush is concerned that this will introduce significant volatility into the term structure of interest rates.

Wabush intends to test the impact on one of his fixed-income portfolios of the three theoretical yield curve shifts shown in Exhibit 3.

Exhibit 3: Theoretical Yield Curve Shifts

Theoretical Shift A	
Short term (2 yr.)	+70bps

Medium term (5 yr.)	+0bps
Long term (15 yr.)	+50bps

Theoretical Shift B	
Short term (2 yr.)	+30bps
Medium term (5 yr.)	+30bps
Long term (15 yr.)	+30bps

Theoretical Shift C	
Short term (2 yr.)	–10bps
Medium term (5 yr.)	+40bps
Long term (15 yr.)	+50bps

Wabush has estimated that the key rate durations of his portfolio are as shown in Exhibit 4.

Exhibit 4: Key Rate Durations

Maturity	Key Rate Duration
2 year	0.50
5 year	1.20
15 year	0.80

Question #43 of 60

Question ID: 1220588

Based on information in Exhibit 1, which of the following statements is *least accurate*?

A) Any U.S. Treasuries' forward curve will be upward sloping.

B) Any U.S. Treasuries' forward curve will lie below the spot curve.

C) A U.S. Treasuries' forward curve can be implied from the spot curve.

Explanation

If the spot curve is upward sloping, the forward curve will be upward sloping and lie above the spot curve.

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.a)

Question #44 of 60

Question ID: 1220589

Using the spot rate curve given in Exhibit 1, the one-year forward rate one year from today is *closest* to:

A) 0.27%.

B) 0.35%.

C) **0.45%.**

Explanation

$f(1,1) = [(1.0029)^2/(1.0013)] - 1 = 0.00450$ or 0.45%.

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.b)

Question #45 of 60

Question ID: 1220590

If Rafita's comments on the U.S. Treasury spot curve progression in Exhibit 2 prove to be correct, it is *most likely* that:

A) **the one-year holding period return on a two-year, zero-coupon U.S. Treasury starting today would be 0.13%.**

B) the one-year holding period return on a two-year, zero-coupon U.S. Treasury starting today would be 0.16%.

C) the one-year holding period return on a two-year, zero-coupon U.S. Treasury starting today would be 0.29%.

Explanation

If the spot rate curve after one year has passed is the same as the one-year forward curve from one year ago, the total return on a bond of any maturity over that year will be the one-year spot rate. In other words, the return on a bond over one year is always equal to the one-year spot rate if spot rates evolve as predicted by today's forward curve.

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.c)

Question #46 of 60

Question ID: 1220591

Fixed-income managers using the minority strategy described by Rafita in Exhibit 2 are *most likely* to:

A) **invest in bonds with a maturity longer than their investment horizon.**

B) match the maturity of the bond portfolio with their investment horizon.

C) invest in bonds with a maturity shorter than their investment horizon.

Explanation

In a "riding the yield curve" strategy, given an upward-sloping yield curve, investors purchase bonds with maturities longer than their investment horizon. As the bond approaches maturity, its price will increase, generating superior returns for the investor.

For Further Reference:

(Study Session 12, Module 32.2, LOS 32.d)

Question #47 of 60

Question ID: 1220592

If the rumors Wabush has heard regarding the central bank announcement are true, the uncertainty would *most likely* increase volatility:

A) in short-term rates more than in long-term rates.

B) in long-term rates more than in short-term rates.

C) equally in long-term and short-term rates.

Explanation

Volatility at the long-maturity end is thought to be associated with uncertainty regarding the real economy and inflation, while volatility at the short-maturity end reflects risks regarding monetary policy.

For Further Reference:

(Study Session 12, Module 32.6, LOS 32.l)

Question #48 of 60

Question ID: 1220593

Given the information in Exhibit 3 and Exhibit 4, which of the theoretical yield curve movements is *most likely* to result in a large percentage change in the value of Wabush's portfolio?

A) Theoretical shift A.

B) Theoretical shift B.

C) Theoretical shift C.

Explanation

Theoretical Shift A	**KRD**	**% Change**
Short term (2yr) +70bps	0.50	–0.35
Medium term (5yr) +0bps	1.20	0.00
Long term (15yr) +50bps	0.80	–0.40
		–0.75
Theoretical Shift B		
Short term (2yr) +30bps	0.50	–0.15

Medium term (5yr) +30bps	1.20	–0.36
Long term (15yr) +30bps	0.80	–0.24
		–0.75
Theoretical Shift C		
Short term (2yr) –10bps	0.50	+0.05
Medium term (5yr) +40bps	1.20	–0.48
Long term (15yr) +50bps	0.80	–0.40
		–0.83

For Further Reference:

(Study Session 12, Module 32.6, LOS 32.k)

Questions #49-54 of 60

Questions 49 through 54 relate to Derivatives.

Newton Capital Partners Case Scenario

Paul Durham, CFA, is a senior manager in the structured bond department within Newton Capital Partners (NCP), an investment banking firm located in the United States. Durham has just returned from an international marketing campaign for NCP's latest structured note offering, a series of equity-linked fixed-income securities or ELFS. The bonds will offer a 4.5% coupon paid annually along with the annual return on the S&P 500 Index and will have a maturity of five years. The total face value of the ELFS series is expected to be $200 million.

Susan Jacobs, a fixed-income portfolio manager and principal with Smith & Associates, has decided to include $10 million worth of ELFS in her fixed-income portfolio. At the end of the first year, however, the S&P 500 Index value is 1,054, significantly lower than the initial value of 1,112 set by NCP at the time of the ELFS offering. Jacobs is concerned that the four remaining years of the ELFS life could have similar results and is considering her alternatives to offset the equity exposure of the ELFS position without selling the bonds. Jacobs decides to offset her portfolio's exposure to the ELFS by entering into an equity-swap contract. The LIBOR term structure is shown in Exhibit 1.

Exhibit 1: LIBOR Term Structure

	LIBOR	Discount Factor
1-year	3.2%	0.9690
2-year	4.1%	0.9242
3-year	4.9%	0.8718
4-year	5.3%	0.8251

To gain further understanding of different derivative contracts, Jacobs met with Jonathan Widby, senior analyst with Smith and Associates. Widby made the following statements:

Statement 1:	$N(d_2)$ in the BSM is interpreted as the risk-neutral probability that a put option will expire in the money.
Statement 2:	A call option on a dividend-paying stock can be valued using the BSM if we reduce the current stock price by the present value of dividends expected over the life of the option.
Statement 3:	For options on currencies, the carry benefit is not a dividend but rather interest earned on a deposit of the foreign currency.
Statement 4:	Under the Black model, a call option on futures is modeled as a portfolio containing a long bond position and a short futures position.

To offset any credit risk associated with the equity swap, Widby recommends using an index trade strategy by entering into a credit default swap (CDS) as a protection buyer. Widby's strategy would involve purchasing credit protection on an index comprising largely the same issuers (companies) included in the equity index underlying the swap. Widby suggests the CDS should have a maturity equal to that of the swap to provide maximum credit protection.

Question #49 of 60

Question ID: 1220595

Which of the following strategies would be *most* appropriate given Jacobs's situation and desire to offset the equity exposure of the ELFS position in her portfolio? Establish an equity swap as:

A) the floating-rate payer and S&P 500 Index return receiver.

B) the fixed-rate receiver and S&P 500 Index return payer.

C) the fixed-rate payer and S&P 500 Index return receiver.

Explanation

Jacobs needs to offset the returns on the S&P 500 Index. She is currently receiving the returns on the index (which means if there is a negative return on the Index, Jacobs must make a payment), so she will need to enter into a swap in which she pays the index and receives a fixed rate.

For Further Reference:

(Study Session 14, Module 37.9, LOS 37.c)

Question #50 of 60

Question ID: 1220596

Based on the strategy appropriate for Jacobs's portfolio, determine the contract rate on the swap strategy.

A) 4.5%.

B) 3.6%.

C) **4.9%.**

Explanation

Calculate the contract rate on a fixed-rate receiver equity swap using the following formula:

$$C_N = \frac{1 - Z_N}{(Z_1 + Z_2 + ... + Z_N)}$$

Note that this is the same formula for determining the fixed interest rate on an interest rate swap. The discount (Z) factors are given in Exhibit 1. Therefore, the contract rate is:

$$C_N = \frac{1 - 0.8251}{(0.9690 + 0.9242 + 0.8718 + 0.8251)} = 4.9\%$$

For Further Reference:

(Study Session 14, Module 37.9, LOS 37.c)

Question #51 of 60

Question ID: 1220597

If Jacobs enters into a $10 million 4-year 4.50% annual-pay fixed-rate equity swap as the equity return payer, what is the value to Jacob of the swap after one year (immediately after settlement) if the index has increased from 1,054 to 1,103, the LIBOR term structure is as given below, and the 3-year annual-pay swap fixed rate is currently 5.0%?

LIBOR

1-year: 4.10%

2-year: 4.70%

3-year: 5.29%

A) **–$136,885**

B) –$464,982

C) –$602,555

Explanation

Value to payer

$$\begin{aligned} &= (\text{sum of discount factors}) \times (\text{SFR}_{\text{new}} - \text{SFR}_{\text{old}}) \times (\text{days}/360) \times \text{notional} \\ &= 2.7377 \times (0.05 - 0.045) \times (360/360) \times \$10{,}000{,}000 \\ &= \$136{,}885 \end{aligned}$$

Since Jacob is a fixed rate receiver, value to Jacob = $–136,885.

Note: The value of equity side is not relevant because the valuation is immediately after settlement. Hence the change in index value net of fixed rate payment was already settled. Discount factors are as calculated below:

Term (yr)	LIBOR	DF
1	4.10%	0.9606
2	4.70%	0.9141
3	5.29%	0.8630
	Sum	2.7377

Note that LIBOR discount factors are calculated as follows:

Year 3 DF = 1 / [1 + (0.0529 × 1080 / 360)] = 0.8630

Alternatively, value to fixed rate receiver = value of fixed rate bond – value of equity = [(2.7377 × 450,000) + (0.8630 × 10,000,000)] – 10,000,000 = 9,861,965 – 10,000,000 = –138,035 *(difference due to rounding)*.

For Further Reference:

(Study Session 14, Module 37.9, LOS 37.d)

Question #52 of 60

Question ID: 1220598

Regarding statements 1 and 2 made by Widby:

A) both statements are correct.

B) only statement 1 is correct.

C) **only statement 2 is correct.**

Explanation

$N(d_2)$ is interpreted as the risk-neutral probability that a *call* option will expire in the money. $N(-d_2)$ is interpreted as the risk-neutral probability that a *put* option will expire in the money.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.g)

Question #53 of 60

Question ID: 1220599

Regarding statements 3 and 4 made by Widby:

A) both statements are correct.

B) **only statement 3 is correct.**

C) only statement 4 is correct.

Explanation

Statement 3 is correct, but Statement 4 is incorrect. Under the Black model, a call option is conceptualized as a futures component minus a bond component. (A put option is comprised of a bond component minus a futures component.)

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.h, 38.i)

Question #54 of 60

Question ID: 1220600

Which of the following *best* evaluates Widby's suggested use of credit default swaps to offset the credit risk of the equity swap? Widby's recommended strategy is:

A) correct.

B) incorrect, because the maturity of the CDS is not properly specified.

C) **incorrect, because the CDS does not reference the proper credit risk.**

Explanation

The credit risk underlying the equity swap is associated with the swap counterparty, not the companies in the equity index. This credit risk arises from the possibility that the counterparty to the swap will be unable or unwilling to make payments to Jacobs if the equity return is less than the fixed rate on the swap (i.e., the counterparty owes a payment to Jacobs).

For Further Reference:

(Study Session 13, Module 36.1, LOS 36.a)

Questions #55-60 of 60

Questions 55 through 60 relate to Alternative Investments.

AI Partners Case Scenario

Julian Fuentes, CFA, analyzes real estate investments for AI Partners (AIP), a private equity real estate investment firm. Although AIP has primarily invested in nonresidential commercial property, they are considering a multi-family residential investment along with nonresidential commercial properties. Fuentes has been asked to prepare selected data on three potential investment properties. Fuentes's results are presented in Exhibit 1.

Exhibit 1: Selected Property Data

	Property #1	Property #2	Property #3
Property type	**Multi-Family**	**Office Building**	**Retail Center**
Occupancy	93%	92%	95%
Square feet or #units	325 (u)	125,000 (sf)	315,000 (sf)
Gross potential rent	$3,900,000	$4,312,500	$2,765,850
Other income	$25,000	$440,000	$780,000
Potential gross income	$3,925,000	$4,752,500	$3,545,850
Vacancy loss	$273,000	$425,000	$138,293
Effective gross income	$3,652,000	$4,327,500	$3,407,557

Property management fees	$145,000	$172,500	$138,288
Other operating expenses	$1,800,500	$2,163,750	$1,703,800
Net operating income (NOI)	$1,706,500	$1,991,250	$1,565,469

Other information:

1. Each property except Property #3 is located in an active market.
2. Property #2 is an older office building with architectural features characteristic of the period in which it was constructed.
3. Property #2 is located in an area that is undergoing extensive renovation.

Radna Margulies, AIP's Chief Investment Officer, asks Fuentes to focus on the multi-family opportunity presented as Property #1. This request is based on her forecast of pent-up demand in the housing market. Fuentes forecasts net operating income for Property #1 for the first five years as presented in Exhibit 2. A list of discounted cash flow valuation assumptions for an equity-only transaction is presented in Exhibit 3.

Exhibit 2: Property #1—Net Operating Income Forecast

	Year 1	Year 2	Year 3	Year 4	Year 5
NOI	$1,706,500	$1,774,760	$1,845,750	$1,919,580	$1,996,364

Exhibit 3: Property #1—DCF Assumptions

Investment holding period	5 years
Going-in capitalization rate	8.25%
Terminal capitalization rate	7.50%
Discount rate	9.50%
Income/value growth rate	Constant

After reviewing valuation data for the three properties, Margulies requests that Fuentes discuss funding terms with Amiable Life Insurance Company (ALIC) for Property #1. Fuentes is offered a rate of 5.5%, interest only, on a 5-year term loan. ALIC stipulates a maximum loan-to-value (LTV) of 70% and minimum debt service coverage ratio of 1.5x.

Fuentes receives an appraisal of $30 million for the value for Property #1.

Question #55 of 60

Question ID: 1220602

Which property valuations are *most likely* to be heavily affected by their unique characteristics?

A) Property #1 and Property #2.

B) Property #1 and Property #3.

C) **Property #2 and Property #3.**

Explanation

While almost any private equity real estate investment will be unique (if for no other reason than that they must be in different locations), residential properties tend to have the fewest unique characteristics. Transactions-based indices tend to be more useful for residential commercial property benchmarking than for nonresidential commercial properties due to the large amount of data required for many properties and the unique features of many nonresidential commercial properties.

For Further Reference:

(Study Session 15, Module 39.1, LOS 39.b)

Question #56 of 60

Question ID: 1220603

Which property is likely to have the greatest operational risk resulting from management expenses?

A) Property #1.

B) Property #2.

C) **Property #3.**

Explanation

Commercial uses with higher management involvement, such as restaurants, hotels, shopping centers, also have higher operational risks. One way to check this given the specifics in this case is to look at management fees as a percentage of effective gross income for the three properties.

Property #1	3.97%	= ($145,000 / $3,652,000)
Property #2	3.99%	= ($172,500 / $4,327,500)
Property #3	4.06%	= ($138,288 / $3,407,557)

Therefore, Property #3 would be expected to have greater operational risk.

For Further Reference:

(Study Session 15, Module 39.1, LOS 39.d)

Question #57 of 60

Question ID: 1220604

Which approach would an appraiser *most likely* use for valuing Property #2?

A) Cost approach.

B) **Income approach.**

C) Sales comparison approach.

Explanation

Property #2 is an older office building with unique characteristics that could not be easily reproduced using current architectural designs and materials. Therefore, the cost approach would be less appropriate than the income approach as a basis for appraisal. The sales comparison approach would also be less suitable as the property is relatively unique.

For Further Reference:

(Study Session 15, Module 39.2, LOS 39.e)

Question #58 of 60

Question ID: 1220605

Based on Exhibit 2 and Exhibit 3, the valuation for Property #1 based on the discounted cash flow approach will be *closest* to:

A) $22,798,000.

B) **$24,295,000.**

C) $24,633,000.

Explanation

DCF valuation based on a required return of 9.5% is:

	NOI	Present Value
Year 1	$1,706,500	$1,558,447.49
Year 2	$1,774,760	$1,480,169.30
Year 3	$1,845,750	$1,405,822.60
Year 4	$1,919,580	$1,335,210.50
Year 5	$1,996,364	$1,268,145.64
Terminal value	$27,150,550	$17,246,780.74
Property #1 value		$24,294,576.27

Selected Calculation:

Terminal value is computed by applying the terminal cap rate to NOI in year 6. To estimate NOI for year 6, we need a growth rate estimate. We are not given the growth rate directly, but given the discount rate of 9.5% and the terminal cap rate of 7.5%, we can estimate the growth rate to be 2%.

$$\mathrm{TV}_5 = \frac{\mathrm{NOI}_5(1+g)}{\mathrm{C}_t} = \frac{1{,}996{,}364(1+0.02)}{0.075} = \$27{,}150{,}550.40$$

Note: Make sure that you use the uneven cash flow function to compute NPV using your financial calculator.

For Further Reference:

(Study Session 15, Module 39.3, LOS 39.g)

Question #59 of 60

Question ID: 1220606

Based on the appraised value, Amiable Life Insurance Company would be willing to loan a maximum amount *closest* to:

A) **$20.7 million.**

B) $21.0 million.

C) $21.7 million.

Explanation

The maximum loan amount will typically be based on the lower of loan-to-value (LTV) or debt service coverage ratio. Based on LTV of 70%, ALIC would be willing to loan $21 million ($30 million × 0.70). Based on a debt service coverage ratio of 1.5x, ALIC will loan just under $20.7 million. ALIC will be willing to loan only an amount equal to the lower of these two measures.

The calculation for maximum debt service based on a minimum debt service coverage ratio of 1.5x is:

$$\text{maximum debt service} = \frac{\text{NOI}_1}{\text{DSCR}} = \frac{\$1{,}706{,}500}{1.5} = \$1{,}137{,}666.67$$

Maximum debt service on an interest-only loan can be used to calculate the maximum loan amount:

$$\begin{aligned}\text{maximum loan} &= \frac{\text{maximum debt service}}{\text{interest rate}} \\ &= \frac{\$1{,}137{,}666.67}{0.055} = \underline{\underline{\$20{,}684{,}848.48}}\end{aligned}$$

For Further Reference:

(Study Session 15, Module 39.5, LOS 39.m)

Question #60 of 60

Question ID: 1220607

AIP's estimated return on equity on Property #1 using leverage as compared to return on equity without using any leverage will *most likely* be:

A) lower.

B) **greater.**

C) the same.

Explanation

AIP should earn a higher return on equity by financing part of its purchase price with a mortgage because the cost of mortgage funds (5.5%) is less than the required return on equity (9.5%). Including the mortgage funding in a weighted-average cost of capital (WACC) will increase the value over the purchase price required if only equity funding is used.

For Further Reference:

(Study Session 15, Module 39.1, LOS 39.l)

Questions #1-6 of 60

Use the following information to answer Questions 61 through 66.

Pat Wilson, CFA, is the chief compliance officer for Excess Investments, a global asset management and investment banking services company. Wilson is reviewing two investment reports written by Peter Holly, CFA, an analyst and portfolio manager who has worked for Excess for four years. Holly's first report under compliance review is a strong buy recommendation for BlueNote, Inc., a musical instrument manufacturer. The report states that the buy recommendation is applicable for the next 6 to 12 months with an average level of risk and a sustainable price target of $24 for the entire time period. Further, the report states that the risk analysis is based on 95% VaR (calculated using the parametric method) and that price declines over the investment horizon should thus be limited to 5% of the current price.

Holly informs Wilson that he determined his conclusions primarily from an intensive review of BlueNote's filings with the SEC but also from a call to one of BlueNote's suppliers who informed Holly that their new inventory processing system would allow for more efficiency in supplying BlueNote with raw materials. Holly explains to Wilson that he is the only analyst covering BlueNote who is aware of this information and that he believes the new inventory processing system will allow BlueNote to reduce costs and increase overall profitability for several years to come.

Wilson must also review Holly's report on BigTime, Inc., a musical promotion and distribution company. In the report, Holly provides a very optimistic analysis of BigTime's fundamentals. The analysis supports a buy recommendation for the company. Wilson finds one problem with Holly's report on BigTime related to Holly's former business relationship with BigTime, Inc. Two years before joining Excess, Holly worked as an investment banker and received 1,000 restricted shares of BigTime as a result of his participation in taking the company public. These facts are not disclosed in the report but are disclosed on Excess Investment's website.

Just before the report is issued, Holly mentions to Wilson that BigTime unknowingly disclosed to him and a few other analysts who were waiting for a conference call to begin that the company is planning to restructure both its sales staff and sales strategy and may sell one of its poorly performing business units next year.

Three days after issuing his report on BigTime, which caused a substantial rise in the price of BigTime shares, Holly sells all of the BigTime shares out of both his performance fee-based accounts and flat-fee accounts and then proceeds to sell all of the BigTime shares out of his own account on the following day. Holly obtained approval from Wilson before making the trades.

Just after selling his shares in BigTime, Holly receives a call from the CEO of BlueNote who wants to see if Holly received the desk pen engraved with the BlueNote company logo that he sent last week and also to offer two front row tickets plus limousine service to a sold-out concert for a popular band that uses BlueNote's instruments. Holly confirms that the desk pen arrived and thanks the CEO for the gift and tells him that before he accepts the concert tickets, he will have to check his calendar to see if he will be able to attend. Holly declines the use of the limousine service should he decide to attend the concert.

After speaking with the CEO of BlueNote, Holly constructs a letter that he plans to send by email to all of his clients and prospects with email addresses and by regular mail to all of his clients and prospects without email addresses. The letter details changes to an equity valuation model that Holly and several other analysts at Excess use to analyze potential investment recommendations. Holly's letter explains that the new model, which will be put into use next month, will utilize Monte Carlo simulations to create a

distribution of stock values, a sharp contrast to the existing model which uses static valuations combined with sensitivity analysis. Relevant details of the new model are included in the letter, but similar details about the existing model are not included. The letter also explains that management at Excess has decided to exclude alcohol and tobacco company securities from the research coverage universe. Holly's letter concludes by stating that no other significant changes that would affect the investment recommendation process have occurred or are expected to occur in the near future.

Question #1 of 60

Question ID: 1212854

According to CFA Institute Standards of Professional Conduct, which of the following statements is *most accurate* with regard to the investment report on BlueNote, Inc.? The report:

A) complies with the Standards.

B) should not have included a price target as it makes an implicit guarantee of investment performance.

C) **does not comply with the Standards due to improper risk analysis.**

Explanation

Under Standard V(A), specification of a price target is acceptable as long as the risk is appropriately disclosed. A research report can specify VaR as an appropriate risk metric, but the report should clarify that the quality of the VaR estimate depends on the quality of model inputs.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a)

Question #2 of 60

Question ID: 1212855

Did Holly violate any CFA Institute Standards of Professional Conduct with respect to his report on BlueNote or BigTime, as it relates to potential use of material nonpublic information?

A) Holly has violated Standard on material nonpublic information in the case of both reports.

B) There is a violation regarding the BlueNote report, but no violation with the BigTime report.

C) **There is a violation regarding the BigTime report, but no violation with the BlueNote report.**

Explanation

Standard II(A). Holly has utilized public information to conduct an intensive analysis of BlueNote and has also utilized information obtained from a supplier that, while nonpublic, is not by itself material. When combined with his knowledge of BlueNote's material public information, however, the information from the supplier allows Holly to make a significant and material conclusion that would not be known to the public in general. This situation falls under the Mosaic Theory. Holly is free to make recommendations based on her material nonpublic conclusion on BlueNote since the conclusion was formed using material public information combined with *nonmaterial* nonpublic information. Thus, the BlueNote report did not violate Standard II(A) Integrity of Capital Markets – Material Nonpublic Information, and since there appears to be a reasonable and adequate basis, does not appear to violate any other Standards either. Holly's report on BigTime, however, is based in part on a conversation that he overheard between executives at BigTime. The information he overheard related to the sale of one of BigTime's business units was both material and nonpublic. The fact that several other analysts overheard the conversation as well does not make the information public. Because

Holly is in possession of material nonpublic information, he is prohibited by Standard II(A) from acting or causing others to act on the information. Therefore, his report on BigTime violates the Standard.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #3 of 60

Question ID: 1212856

According to CFA Institute Standards of Professional Conduct, which of the following statements is *most accurate* with regard to Holly's disclosure of his ownership of BigTime restricted shares and past investment banking relationship with BigTime? The disclosure:

A) is neither required nor recommended by the Standards since the shares are restricted.

B) complies with the Standards' recommended procedures for disclosing conflicts of interest.

C) **does not comply with Standard VI(A) Disclosure of Conflicts because the disclosure is not reflected in the research report.**

Explanation

Standard VI(A) requires disclosures of conflicts of interest such as beneficial ownership of securities of a covered firm. Holly owns shares of BigTime that may potentially benefit from his recommendation. His best course of action would be to disclose the conflict in the report.

For Further Reference:

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

Question #4 of 60

Question ID: 1212857

According to CFA Institute Standards of Professional Conduct, which of the following statements is *most likely* correct with regard to Holly's report and subsequent sale of his and his clients' shares of BigTime common stock? Holly has:

A) **violated the Standard by attempting to manipulate the market price of BigTime stock.**

B) not violated the Standard since he first obtained approval to make the trades from his compliance officer.

C) not violated the Standard since he acted in the best interest of his clients by realizing gains on BigTime stock.

Explanation

Standard II(B) – Market Manipulation. Holly has issued a buy recommendation on BigTime stock. The analysis is based on a very optimistic analysis of the company's fundamentals. Yet, three days after issuing the report, Holly decides to sell all of his clients' holdings as well as his own holdings of BigTime stock after observing a rise in the price of the stock. Holly's report, which caused an increase in the price of BigTime stock, was intended to deceive market participants into believing the company was a good investment when, as indicated by his subsequent sale of the shares, Holly believed otherwise. The combination of actions indicates that Holly is likely attempting to manipulate the price of the stock for his clients', and his own, benefit. Thus, he has likely violated Standard II(B) – Integrity of Capital Markets – Market Manipulation.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #5 of 60

Question ID: 1212858

According to CFA Institute Standards of Professional Conduct, which of the following *best* describes the actions Holly should take with regard to the desk pen and the concert tickets offered to him by the CEO of BlueNote? Holly:

A) must not accept the desk pen or the concert tickets.

B) may accept both the desk pen and the concert tickets.

C) **may accept the desk pen but should not accept the concert tickets.**

Explanation

Standard I(B) – Professionalism: Independence and Objectivity. Members and candidates are prohibited from accepting any gift that could reasonably be expected to interfere with their independence and objectivity. The desk pen is a token item with little material value and can be accepted without violating the Standard. However, the concert tickets are likely to have a very substantial amount of material value since the concert is sold out and involves a popular musical act. Best practice dictates that Holly should not accept the concert tickets since they could reasonably be expected to compromise Holly's independence and objectivity.

For Further Reference:

(Study Session 1, Module 2.1, LOS 2.a, 2.b)

Question #6 of 60

Question ID: 1212859

In his letter to clients explaining the change in the valuation model, did Holly violate any CFA Institute Standards of Professional Conduct?

A) **No.**

B) Yes, because he did not treat all clients fairly in his dissemination of the letter.

C) Yes, because he failed to include details of the current valuation model to contrast with the new model.

Explanation

Standard V(B) – Communication With Clients and Prospective Clients. Standard V(B) requires members and candidates to promptly disclose any changes that materially affect investment processes. Holly has provided a detailed description of the new valuation model that will be used to generate investment recommendations and has disclosed the new limitations on the investment universe (i.e., no alcohol or tobacco stocks). Therefore, it does not appear that he has violated Standard V(B). Holly also has not violated any other standards. It is acceptable for him to email those clients with email addresses and send his letter by regular mail to those who do not. Standard III(B) – Fair Dealing does not require that all clients receive investment recommendations or other communications at exactly the same time, only that the system treats clients fairly.

For Further Reference:

(Study Session 1, Module 2.8, LOS 2.a, 2.b)

Questions #7-12 of 60

Use the following information to answer Questions 67 through 72.

Lena Pilchard, research associate for Eiffel Investments, is attempting to measure the value added to the Eiffel Investments portfolio from the use of 1-year earnings growth forecasts developed by professional analysts.

Pilchard's supervisor, Edna Wilrus, recommends a portfolio allocation strategy that overweights neglected firms. Wilrus cites studies of the "neglected firm effect," in which companies followed by a small number of professional analysts are associated with higher returns than firms followed by a larger number of analysts. Wilrus considers a company covered by three or fewer analysts to be "neglected."

Pilchard also is aware of research indicating that, on average, stock returns for small firms have been higher than those earned by large firms. Pilchard develops a model to predict stock returns based on analyst coverage, firm size, and analyst growth forecasts. She runs the following cross-sectional regression using data for the 30 stocks included in the Eiffel Investments portfolio:

$$R_i = b_0 + b_1 COVERAGE_i + b_2 LN(SIZE_i) + b_3(FORECAST_i) + e_i$$

where:

R_i = the rate of return on stock i

$COVERAGE_i$ = one if there are three or fewer analysts covering stock i, and equals zero otherwise

$LN(SIZE_i)$ = the natural logarithm of the market capitalization (stock price times shares outstanding) for stock i, units in millions

$FORECAST_i$ = the 1-year consensus earnings growth rate forecast for stock i

Pilchard derives the following results from her cross-sectional regression:

Exhibit 1: Results of Pilchard's Cross-Sectional Regression

Variable	Coefficient	t-Statistic
Constant	0.060	1.56
COVERAGE	0.050	3.20
LN(SIZE)	–0.003	–2.50
FORECAST	0.200	2.85

The standard error of estimate in Pilchard's regression equals 1.96 and the regression sum of squares equals 400.

Wilrus provides Pilchard with the following values for analyst coverage, firm size, and earnings growth forecast for Eggmann Enterprises, a company that Eiffel Investments is evaluating.

Exhibit 2: Coverage, Firm Size, and Earnings Growth Forecast for Eggmann Enterprises

Number of analysts	5
Firm size	$500 million
Earnings growth forecast	50%

Pilchard uses the following table to conduct some of her hypothesis tests.

Exhibit 3: Critical Values for Student t-Distribution

Degrees of Freedom	Area in Upper Tail				
	0.10	0.05	0.025	0.01	0.005

26	1.315	1.706	2.056	2.479	2.779
27	1.314	1.703	2.052	2.473	2.771
28	1.313	1.701	2.048	2.467	2.763
29	1.311	1.699	2.045	2.462	2.756
30	1.310	1.697	2.042	2.457	2.750

Question #7 of 60

Question ID: 1212861

Wilrus asks Pilchard to derive the lowest possible value for the coefficient on the FORECAST variable using a 99% confidence interval. The appropriate lower bound for the FORECAST coefficient is *closest* to:

A) 0.0055.

B) 0.0628.

C) 0.1300.

Explanation

The standard error can be determined by knowing the formula for the *t*-statistic:

t-statistic = (slope estimate − hypothesized value) / standard error

Therefore, the standard error equals:

standard error = (slope estimate − hypothesized value) / *t*-statistic

The null hypothesis associated with each of the *t*-statistics reported for the slope estimates in Table 1 is: H_o: slope = zero. So, the standard error equals the slope estimate divided by its *t*-statistic: 0.2000 / 2.85 = 0.07.

The confidence interval equals: slope estimate ± (t_{crit} × standard error), where t_{crit} is the critical *t*-statistic associated with the desired confidence interval (as stated in the question, the desired confidence interval equals 99%). Exhibit 3 provides critical values for a portion of the Student *t*-distribution. The appropriate critical value is found by using the correct significance level and degrees of freedom. The significance level equals 1 minus the confidence level = 1 − 0.99 = 0.01. The degrees of freedom equal N − k − 1, where *k* is the number of independent variables: 30 − 3 − 1 = 26 degrees of freedom. Note that the table provides critical values for one-tail tests of hypothesis (area in upper tail). Therefore, the appropriate critical value for the 99% confidence interval is found under the column labeled "0.005," indicating that the upper tail comprises 0.5% of the *t*-distribution, and the lower tail comprises an equivalent 0.5% of the distribution. Therefore, the two tails, combined, take up 1% of the distribution. The correct critical *t*-statistic for the 0.01 significance level equals 2.779. Therefore, the 99% confidence interval for the FORECAST slope coefficient is:

0.2000 ± 2.779(0.07) = (0.0055, 0.3945)

The lower bound equals 0.0055 and the upper bound equals 0.3945.

For Further Reference:

(Study Session 2, Module 4.2, LOS 4.c, Module 5.2, LOS 5.e)

Question #8 of 60

Question ID: 1212862

Wilrus asks Pilchard to assess the overall significance of her regression. To address the question, Pilchard calculates the *R*-square. She also decides to run a test of the significance of the regression as a whole. Determine the appropriate test statistic she

should use to test the overall significance of the regression.

A) ***F*-statistic.**

B) *t*-statistic.

C) Adjusted *R*-square.

Explanation

The *F*-statistic is used to test the overall significance of the regression, which is formulated with the null hypothesis that all three slopes simultaneously equal zero. Note that the adjusted *R*-square is not a test-statistic.

For Further Reference:

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

Question #9 of 60

Question ID: 1212863

Pilchard is asked whether her regression indicates that small firms outperform large firms, after controlling for analyst coverage and consensus earnings growth forecasts. Pilchard determines the appropriate hypothesis test to answer the question. Eiffel Investments uses a 0.01 level of significance for all hypothesis tests. Given the results of her regression, Pilchard should make which of the following decisions after controlling for analyst coverage and consensus earnings forecasts?

A) Not reject the hypothesis that $b_2 \geq 0$, and conclude that large firms significantly outperformed small firms.

B) Reject the hypothesis that $b_2 \geq 0$, and conclude that large firms significantly outperformed small firms.

C) **Reject the hypothesis that $b_2 \geq 0$, and conclude that small firms significantly outperformed large firms.**

Explanation

Pilchard should test the following null hypothesis: H_o: $b_2 \geq 0$. The alternative hypothesis is: H_A: $b_2 < 0$ (a negative estimate for b_2 supports the small firm effect). The test is a one-tail hypothesis test. The critical value at the 0.01 value for a one-tail test equals –2.479 (area in lower tail equals 0.01; degrees of freedom equal 26). Exhibit 1 indicates that the *t*-statistic for the b_2 estimate equals –2.50, which exceeds the critical value. Therefore, the null hypothesis that small firms do not outperform large firms, after controlling for COVERAGE and FORECAST should be rejected in favor of the alternative hypothesis that small firms outperform large firms (after controlling for COVERAGE and FORECAST).

For Further Reference:

(Study Session 2, Module 4.2, LOS 4.d, Module 5.2, LOS 5.e)

Question #10 of 60

Question ID: 1212864

Holding firm size and consensus earnings growth forecasts constant, the estimated average difference in stock returns between neglected and non-neglected firms equals:

A) 1%.

B) 3%.

C) **5%.**

Explanation

The slope on the dummy variable (COVERAGE), which is 0.05 or 5%, equals the change in average returns between neglected and non-neglected firms after controlling for SIZE and FORECAST.

For Further Reference:

(Study Session 2, Module 5.5, LOS 5.j)

Question #11 of 60

Question ID: 1212865

Pilchard derives the ANOVA table for her regression. In her ANOVA table, the degrees of freedom for the regression sum of squares and total sum of squares should equal:

A) 3 and 30, respectively.

B) 4 and 29, respectively.

C) **3 and 29, respectively.**

Explanation

The ANOVA (Analysis of Variance) Table provides data on the sources of variation in the dependent variable (stock returns). The degrees of freedom for the regression sum of squares (a.k.a., the explained sum of squares) equals *k*, the number of independent variables: k = 3 in Pilchard's regression. The total sum of squares equals the numerator of the sample variance formula for the dependent variable. Recall from Level I Quantitative Methods that the denominator of a sample variance equals N − 1. The denominator in the sample variance equals the degrees of freedom for the numerator (the total sum of squares). Therefore, the degrees of freedom for the total sum of squares in Pilchard's regression equals 30 − 1 = 29.

For Further Reference:

(Study Session 2, Module 4.4, LOS 4.g, Module 5.3, LOS 5.g)

Question #12 of 60

Question ID: 1212866

Using the inputs for Eggmann Enterprises provided in Exhibit 2, the predicted stock return for Eggmann Enterprises is *closest* to:

A) 4%.

B) 9%.

C) **14%.**

Explanation

The estimated regression equation equals:

$$\text{return} = 0.06 + 0.05\text{Coverage} - 0.003\text{LN(SIZE)} + 0.20\text{Forecast}$$

where:

coverage equals zero if number of analysts exceeds 3

Therefore, the predicted return for Eggmann Enterprises equals:

$$\text{return} = 0.06 + 0 - 0.003\text{LN}(500) + 0.20(0.50)$$

$$\text{return} = 14.14\%$$

For Further Reference:

(Study Session 2, Module 4.3, LOS 4.e, Module 5.2, LOS 5.e)

Questions #13-18 of 60

Use the following information to answer Questions 73 through 78.

Debbie Angle and Craig Hohlman are analysts for a large commercial bank, Arbutus National Bank. Arbutus has extensive dealings in both the spot and forward foreign exchange markets. Angle and Hohlman are providing a refresher course on foreign exchange relationships for its traders.

Angle uses a three country example from North America to illustrate foreign exchange parity relations. In it, the Canadian dollar is expected to depreciate relative to the U.S. dollar and the Mexican peso. Nominal, 1-year interest rates are 7% in the United States and 13% in Mexico. From this data and using the uncovered interest rate parity relationship, Angle forecasts future spot rates.

During their presentation, Hohlman discusses the effect of monetary and fiscal policies on exchange rates. He cites a historical example from the United States, where the Federal Reserve shifted to an expansionary monetary policy to stimulate economic growth. This shift was largely unanticipated by the financial markets because the markets thought the Federal Reserve was more concerned with inflationary pressures. Hohlman states that the effect of this policy was an increase in economic growth and an increase in inflation. The cumulative effect on the dollar was unchanged, however, because, according to the Mundell-Fleming model, an expansionary monetary policy would strengthen the dollar whereas under relative purchasing power parity, an increase in inflation would weaken the dollar.

Regarding U.S. fiscal policies, Hohlman states that if these were unexpectedly expansionary, real interest rates would increase, which would produce an appreciation of the dollar. Hohlman adds that a sustained increase in the federal budget would attract foreign capital such that the long-run effect would be an increase in the value of the dollar.

Hohlman makes the following statements about parity conditions:

Statement 1:	If relative purchasing power parity holds, we can say that uncovered interest rate parity also holds under certain conditions.
Statement 2:	For uncovered interest rate parity to hold, the forward rate must be an unbiased predictor of the future spot rate.

Angle next discusses the foreign exchange expectations. While examining Great Britain and Japan, she states that it appears the 1-year forward rate, which is currently ¥200/£, is an accurate predictor of the expected future spot rate. Furthermore, she states that uncovered interest rate parity and relative purchasing power parity hold. In the example for her presentation, she uses the following figures for the two countries.

	Great Britain	Japan
Expected GDP growth	2.50%	1.80%
Nominal 1-year interest rates	9.70%	6.40%
Growth in exports	3.90%	5.70%

As a follow-up to Angle's example, Hohlman discusses the use and evidence for purchasing power parity. He makes the following statements.

Statement 3:	Absolute purchasing power parity extends the law of one price and states that a basket of goods should have the same price throughout the world. Absolute purchasing power parity is not widely

used in practice to forecast exchange rates.

Statement 4: Although relative purchasing power parity is useful as an input for long-run exchange rate forecasts, it is not useful for predicting short-run currency values.

Question #13 of 60

Question ID: 1212868

Using Angle's analysis, what is the nominal 1-year interest rate in Canada?

A) Less than 7%.

B) Between 7% and 13%.

C) **Greater than 13%.**

Explanation

Angle uses the uncovered interest rate parity relationship to forecast future spot rates. If the Canadian dollar is expected to depreciate relative to the U.S. dollar and the Mexican peso, then nominal interest rates in Canada must be higher than those in the United States and Mexico. The 13% nominal interest rate in Mexico is higher than the nominal interest rate in the U.S., so the nominal interest rate in Canada must be greater than 13%.

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.e)

Question #14 of 60

Question ID: 1212869

Are Hohlman's statements regarding the effect of monetary policies on the dollar correct?

A) Yes, they are correct.

B) **No, under the Mundell-Fleming model, expansionary monetary policy in the U.S. would weaken the dollar.**

C) No, the dollar value would be unchanged, but under the asset market model and not the Mundell-Fleming model.

Explanation

Hohlman is incorrect regarding the implications of an expansionary monetary policy in the U.S. under the Mundell-Fleming model, which predicts a depreciation of the dollar. The asset market approach focuses on fiscal policy—not monetary policy.

For Further Reference:

(Study Session 4, Module 10.3, LOS 10.k)

Question #15 of 60

Question ID: 1212870

What additional condition must be satisfied for Hohlman's Statement 1 to be valid?

A) Covered interest parity must hold.

B) Fisher effect must hold.

C) **The international Fisher relation must hold.**

Explanation

If relative purchasing power parity holds, then inflation differentials drive future exchange rates. If the international Fisher relationship holds, then inflation differentials will be equal to interest rate differentials. Hence, when both relative purchasing power parity and the international Fisher relationship hold, uncovered interest rate parity should also hold. Covered interest rate parity always holds (by arbitrage) and is not a necessary additional condition. Real interest rate parity links the Fisher effect to the international Fisher relationship.

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.f)

Question #16 of 60

Question ID: 1212871

Hohlman's Statement 2 is:

A) correct.

B) incorrect as uncovered interest rate parity holds only if real interest rate parity holds.

C) incorrect as uncovered interest rate parity holds only if covered interest rate parity holds.

Explanation

When the expected future spot rate is equal to the forward rate (and covered interest parity holds—by arbitrage), uncovered interest rate parity should hold as well. The international Fisher relationship links relative purchasing power parity to uncovered interest rate parity. Real interest rate parity links the Fisher effect to the international Fisher relationship.

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.f)

Question #17 of 60

Question ID: 1212872

Which of the following is *closest* to the current ¥/£ spot rate?

A) ¥194/£.

B) ¥200/£.

C) ¥206/£.

Explanation

Angle assumes the forward rate is an accurate predictor of the expected future spot rate, so we will use ¥200/£ as the future spot rate.

Angle states that uncovered interest rate parity holds.

Given a quote structure of ¥/£,

S_0 (1 + Yen interest rate) / (1 + GBP interest rate) = $E(S_1)$

S_0(1.064 / 1.097) = 200

S_0 = 206.20

Notice that the exchange rate will move from ¥206/£ to ¥200/£. So it takes fewer yen to buy one pound (i.e., the yen has strengthened), which uncovered interest rate parity predicts because the Japanese interest rate is lower.

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.e, 10.f)

Question #18 of 60

Question ID: 1212873

Regarding the statements made by Hohlman on purchasing power parity, are both statements correct?

A) Yes.

B) No, only Statement 4 is correct.

C) No, both statements are incorrect.

Explanation

Statement 3: Hohlman is correct regarding absolute purchasing power parity. It is based on the law of one price, which states that the price of goods should not differ internationally. Absolute purchasing power parity is not used to predict exchange rates.

Statement 4: Hohlman is correct regarding relative purchasing power parity. It does not hold in the short-run and therefore is not useful for predicting short-run currency values. It does tend to hold in the long run, however, and is therefore useful for long-run exchange rate forecasts.

For Further Reference:

(Study Session 4, Module 10.2, LOS 10.e)

Questions #19-24 of 60

Use the following information to answer Questions 79 through 84.

Engineered Packaging, Inc., (EPI) is a manufacturer of industrial and consumer packaging products. The company's products include composite and plastic rigid packaging, flexible packaging, as well as metal and plastic ends and closures. In January 2018, EPI entered into a joint venture with BMI Enterprises. EPI contributed ownership of five plants, while BMI contributed a new manufacturing technology. The joint venture is known as EP/BM LLC. EPI owns 50% of EP/BM LLC and uses the equity method to account for its investment. The following information for 2018 is provided:

In Millions, Year-End 2018	EPI	EP/BM LLC
Revenue	$3,115	$421
Cost of goods sold	$2,580	$295
SG&A	$316	$50
Interest expense	$47	$8
Equity in earnings of EP/BM	$22	
Pretax income	$194	$68
Income tax	$60	$24
Net income	$134	$44

In Millions, December 31, 2018	EPI	EP/BM

		LLC
Assets		
Cash	$118	$13
Accounts receivable	$390	$50
Inventory	$314	$41
Property	$1,007	$131
Investment	$38	
Total	$1,867	$235

Liabilities and Equity	EPI	EP/BM LLC
Accounts payable	$274	$35
Long-term debt	$719	$125
Equity	$874	$75
Total	$1,867	$235

Question #19 of 60

Question ID: 1212875

Had EPI used the proportionate consolidation method instead of the equity method to account for its investment, which of the following statements is the *most accurate*?

A) Net profit margin would be the same.

B) Return on assets would be the same.

C) **Return on equity would be the same.**

Explanation

Total assets, liabilities, revenues, and expenses are higher under proportionate consolidation as compared to the equity method. However, net income and stockholders' equity are the same under either method. Accordingly, profit margin and return on assets are typically lower under proportionate consolidation than under the equity method. Return on equity will be same under either method.

The following financial statements are provided for informational purposes only. The numbers in the acquisition method are derived as EPI + EP/BM LLC, except for the equity items.

In Millions, Year End 2018	EPI	EP/BM LLC	Acquisition Method
Revenue	$3,115	$421	$3,536
Cost of goods sold	$2,580	$295	$2,875
SG&A	$316	$50	$366
EBIT	$219	$76	$295
Interest expense	$47	$8	$55
Equity in earnings of EP/BM	$22		N/A
Pretax income	$194	$68	$240

Income tax	$60	$24	$84
(–) Noncontrolling interest			$22*
Net income	$134	$44	$134

In Millions, December 31, 2018	EPI	EP/BM LLC	Acquisition Method
Assets			
Cash	$118	$13	$131
Accounts receivable	$390	$50	$440
Inventory	$314	$41	$355
Property	$1,007	$131	$1,138
Investment	$38		N/A
Total	$1,867	$235	$2,064

Liabilities and Equity			
Accounts payable	$274	$35	$309
Long-term debt	$719	$125	$844
Equity	$874	$75	$911**
Total	$1,867	$235	$2,064

*50% of EP/BM LLC's net income of $44

**$874 + noncontrolling interest (50% of EP/LLC's equity of $75)

For Further Reference:

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

Question #20 of 60

Question ID: 1212876

Based on the acquisition method, EPI's current ratio at the end of 2018 (using the financial information provided) is *closest* to:

A) 1.8.

B) 2.6.

C) **3.0.**

Explanation

current ratio = current assets / current liabilities; (131 + 440 + 355) / 309 = 3.0.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.c)

Question #21 of 60

Question ID: 1212877

Based on the acquisition method, EPI's interest coverage ratio for 2018 (using the financial information provided) is *closest* to:

A) 3.6.

B) 4.0.

C) **5.4.**

Explanation

interest coverage = EBIT / interest expense; 295 / 55 = 5.36.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.c)

Question #22 of 60

Question ID: 1212878

Had EPI used the acquisition method instead of the equity method to account for its investment, EPI's long-term debt-to-equity ratio would have been:

A) **higher.**

B) lower.

C) the same.

Explanation

Under Equity Method:

Long-term debt to equity ratio = 719 / 874 = 0.82

Under Acquisition Method:

Long-term debt to equity ratio = 844 / 911 = 0.93

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.a)

Question #23 of 60

Question ID: 1212879

For this question only, assume that EP/BM LLC sold inventory to EPI for $50 million during 2018. Of that inventory, $20 million was unsold at the end of the year. Compared to the equity method, the acquisition method would result in:

A) higher net income.

B) **higher ending inventory.**

C) lower net income.

Explanation

Regardless of the upstream/downstream sale, the net income would be identical under equity method and under acquisition method. All assets (including inventory) would be higher under acquisition method, regardless of upstream/downstream sale.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.a)

Question #24 of 60

Question ID: 1212880

For this question only, assume that EPI accounts for its investment in EP/BM LLC using the acquisition method with partial goodwill. As compared to the acquisition method, the return on ending equity under proportionate consolidation will *most likely* be:

A) lower.

B) the same.

C) **higher.**

Explanation

Net income will be the same under the acquisition method (partial or full goodwill) and proportionate consolidation. Stockholders' equity will be higher under the acquisition method due to minority interest; thus, ROE will be higher under proportionate consolidation relative to the acquisition method.

For Further Reference:

(Study Session 5, Module 13.4, LOS 13.a)

Questions #25-28 of 60

Use the following information to answer Questions 85 through 88.

GigaTech, Inc., is a large U.S.-based technology conglomerate. The firm has business units in three primary categories: (1) hardware manufacturing, (2) software development, and (3) consulting services. Because of the rapid pace of technological innovation, GigaTech must make capital investments every two to four years. The company has identified several potential investment opportunities for its hardware manufacturing division. The first of these opportunities, Tera Project, would replace a portion of GigaTech's microprocessor assembly equipment with new machinery expected to last three years. The current machinery has a book value of $120,000 and a market value of $195,000. The Tera Project would require purchasing machinery for $332,000, increasing current assets by $190,000, and increasing current liabilities by $80,000. GigaTech has a tax rate of 40%. Additional pro forma information related to the Tera Project is provided in the following table:

	Existing Equipment	Tera Project
Annual sales	$523,000	$708,000
Cash operating expenses	$352,000	$440,000
Annual depreciation	$40,000	$110,667
Accounting salvage value	$0	$0
Expected salvage value (after three years)	$90,000	$113,000

Analysts at GigaTech have noted that investment in the Tera Project can be delayed for up to nine months if managers at the company decide this is necessary. However, once the capital investment is made, the project will be necessary to maintain continuing operations. Tera Project can be scaled up with more equipment requiring less capital than the original investment if results are meeting expectations. In addition, the equipment used in Tera Project can be used in shift work if brief excess demand is expected.

GigaTech is also considering expanding its software development operations in India. Software development equipment must be continually replaced to maintain efficiency as newer and faster technology is developed. The company has identified two mutually exclusive potential expansion projects, Zeta and Sigma. Zeta requires investing in equipment with a 3-year life, while Sigma

requires investing in equipment with a 2-year life. GigaTech has estimated real capital costs for the two projects at 10.58%. GigaTech expects inflation to be approximately 4.0% for the foreseeable future. Nominal cash flows and net present values for the Zeta and Sigma projects are provided in the following table:

	Annual Cash Flows				
Project	**0**	**1**	**2**	**3**	**NPV**
Zeta	–$360,000	$250,000	$220,000	$190,000	$148,671
Sigma	–$470,000	$330,000	$390,000	$0	$111,853

Question #25 of 60

Question ID: 1212882

Assuming that working capital will be recaptured at the end of the project, which of the following is *closest* to the final period after-tax cash flow for the Tera Project?

A) $196,467.

B) **$210,267.**

C) $219,467.

Explanation

The final period cash flow will include the project cash flows, the return of net working capital, and the after-tax sale of fixed capital used in the project. Because Tera is a replacement project, the incremental cash flows must be calculated. In other words, we are concerned with the additional sales and costs derived from the new equipment.

incremental sales = 708,000 − 523,000 = $185,000

incremental cash expenses = 440,000 − 352,000 = $88,000

incremental depreciation = 110,667 − 40,000 = $70,667

incremental project cash flows = (185,000 – 88,000 − 70,667) × (1 − 0.40) + 70,667 = $86,467

return of incremental net working capital = $110,000

In the final year, the book value of the old machine (if not replaced) = 120,000 − 3 × 40,000 = 0. Similarly, the book value of the new machine (if replaced) = 332,000 − 3 × 110,667 = 0.

incremental cash flow from after-tax sale of equipment = (113,000 − 90,000) − 0.40[(113,000 − 90,000) − (0 − 0)] = $13,800

total cash flow in final period = 86,467 + 110,000 + 13,800 = $210,267

For Further Reference:

(Study Session 7, Module 19.1, LOS 19.a)

Question #26 of 60

Question ID: 1212883

Which of the following *best* describes how GigaTech should implement scenario analysis to analyze the Tera Project?

A) Generate a base case, high, and low estimate of NPV by changing only the most sensitive cash flow variable.

B) Generate a base case, high, and low estimate of NPV by changing only the discount rate applicable to the project.

C) **Generate a base case, high, and low estimate of NPV by simultaneously changing sales, expense, and discount rate assumptions for each case.**

Explanation

In scenario analysis, the analyst simultaneously changes several key variables to generate several different scenarios. Generally, three scenarios are created: (1) worst case, (2) most likely, and (3) optimistic. For the worst case scenario, for example, the analyst will use the slowest growth in sales, highest growth in expenses, and highest discount rate to derive an NPV under the worst of all possible situations. A similar approach is used to generate the optimistic scenario, but the best possible growth in each of the variables is used. The most likely is simply what the analyst thinks are the most reasonable assumptions for the discounted cash flow forecast under normal conditions. Using the different cases, the analyst can assess the risk of the project.

For Further Reference:

(Study Session 7, Module 19.2, LOS 19.d)

Question #27 of 60

Question ID: 1212884

Which of the following is *least likely* to be a real option available to GigaTech with regard to the Tera Project?

A) **Abandonment option.**

B) Expansion option.

C) Flexibility option.

Explanation

Once the Tera Project is begun, the project will be necessary for continuing operations. This is likely a result of the replacement nature of the project. If the equipment necessary for GigaTech's operations is replaced with newer equipment, abandoning the project is not really an option. Management does have the option of scaling up the project after initiation, which is known as an expansion option. Management can also wait up to nine months to make a decision on the Tera Project, giving them a timing option (note that this is not one of the answer choices). Finally, the equipment used in the Tera Project can support additional shifts if demand for GigaTech's products temporarily exceeds supply, giving them a flexibility option (specifically a production-flexibility option).

For Further Reference:

(Study Session 7, Module 19.3, LOS 19.f)

Question #28 of 60

Question ID: 1212885

Using the least common multiple of lives approach, determine whether the Zeta Project or the Sigma Project will increase the value of GigaTech by a greater amount.

A) Zeta Project.

B) **Sigma Project.**

C) Both projects increase GigaTech’s value by the same amount.

Explanation

The least common multiple of lives approach requires estimating the least common denominator between two mutually exclusive projects with unequal lives. Since the Zeta and Sigma projects have lives of 3 and 2, the least common multiple is 6. The cash flows must be stated over a 6-year period, repeating the cash flow pattern as often as necessary (two times for Zeta and three times for Sigma). The cash flows are then discounted to find the net present value (NPV). The project with the highest NPV is selected. The cash flows are as follows:

	Year						
	0	**1**	**2**	**3**	**4**	**5**	**6**
Zeta Project	–360,000	250,000	220,000	190,000			
				–360,000	250,000	220,000	190,000
Total	–360,000	250,000	220,000	–170,000	250,000	220,000	190,000
Sigma Project	–470,000	330,000	390,000				
			–470,000	330,000	390,000		
					–470,000	330,000	390,000
Total	–470,000	330,000	-80,000	330,000	–80,000	330,000	390,000

Before calculating the NPV of each project, the cost of capital must be restated in nominal terms since the cash flow projections are stated in nominal terms. The nominal cost of capital is equal to 15.0% = (1 + 0.1058)(1 + 0.04). The NPV of each project is calculated as follows:

$$\begin{aligned}\text{NPV}_{\text{Zeta}} &= -360{,}000 + \frac{250{,}000}{1.15} + \frac{220{,}000}{1.15^2} + \frac{-170{,}000}{1.15^3} + \frac{250{,}000}{1.15^4} + \frac{220{,}000}{1.15^5} + \frac{190{,}000}{1.15^6} \\ &= 246{,}425\end{aligned}$$

$$\begin{aligned}\text{NPV}_{\text{Sigma}} &= -470{,}000 + \frac{330{,}000}{1.15} + \frac{-80{,}000}{1.15^2} + \frac{330{,}000}{1.15^3} + \frac{-80{,}000}{1.15^4} + \frac{330{,}000}{1.15^5} + \frac{390{,}000}{1.15^6} \\ &= 260{,}381\end{aligned}$$

Since its NPV is greater, GigaTech should select the Sigma project.

For Further Reference:

(Study Session 7, Module 19.2, LOS 19.c)

Questions #29-32 of 60

Use the following information to answer Questions 89 through 92.

Dave Johnson, CFA is an equity analyst at DJ Advisors. Currently, Johnson is analyzing Superior Products, Inc., a consumer durables manufacturer. Recently, Superior's board of directors has become concerned with the firm's capital budgeting decisions and has asked management to provide a detailed explanation of the capital budgeting process. After reviewing the report from management, the board makes the following comments in a memo:

- The capital rationing system being utilized is fundamentally flawed since, in some instances, projects that do not increase earnings per share are selected over projects that do increase earnings per share.
- The cash flow projections are flawed since they fail to include costs incurred in the search for projects or the economic consequences of increased competition resulting from highly profitable projects.

- We are making inappropriate investment decisions since the discount rate used to evaluate all potential projects is the firm's weighted average cost of capital.

Superior is in the preliminary stages of starting a new division focusing on energy efficient and environment-friendly appliances. Superior's investment banker suggests that the company raise capital for the new division via specially labeled debt securities. Superior also needs to refinance existing debentures coming due over the next year and contemplates a single issue to cover both the capital needs of the new division and refinancing of maturing debentures.

Johnson is concerned about interlocking directorships and asks Jennifer Mogan, corporate governance specialist at DJ, about them. Mogan makes the following statements:

Statement 1:	Family control of a corporation is beneficial because it reduces the principal-agent problem.
Statement 2:	An advantage of family ownership of a corporation is that it is easier to attract quality talent for management positions.

Question #29 of 60

Question ID: 1212887

Regarding the statements in the board of directors' memo related to Superior's capital rationing system and its method of projecting project cash flows:

A) only the statement regarding capital rationing is correct.

B) only the statement regarding cash flow projections is correct.

C) **neither the statement regarding capital rationing nor the statement regarding cash flow projections is correct.**

Explanation

The comments in the memo from Superior's board of directors are both incorrect. Earnings per share (EPS) is not a suitable criteria to evaluate capital budgeting projects. Under capital rationing, a firm selects the projects that increase the value of the firm by the greatest amount (i.e., have the highest NPV) subject to the capital constraints of the firm's budget. It is perfectly possible that projects that increase EPS will not get selected. For example, if a project has an NPV of $80 and increases EPS by $0.50 and a second project has an NPV of $200 but will initially reduce EPS by $0.20, the firm should select the second project (if its capital budget will allow it) since it adds more value. The capital budgeting process should not consider sunk costs (i.e., past costs that do not affect the cash flows of the project) such as costs to find investment projects. The cash flow projections should consider the economic impact from increased competition resulting from highly profitable investment projects.

For Further Reference:

(Study Session 7, Module 19.2, LOS 19.c)

Question #30 of 60

Question ID: 1212888

Which of the following would *most* effectively correct Superior's discount rate problem described in the board of directors' memo?

A) Use the firm’s marginal cost of capital to evaluate all potential projects.

B) **Use a beta specific to each potential project to determine the appropriate discount rate.**

C) Use the cost of the firm’s equity capital to discount the cash flows of all potential projects.

Explanation

When evaluating potential capital investment projects, the discount rate should be adjusted for the risk of the project under consideration. This is frequently accomplished by determining a project beta and using this beta in the CAPM security market line equation: $r_i = R_F + \beta_i[E(R_M) - R_F]$. Project betas can be determined in a number of ways including using proxy firms with operations similar to the project under consideration, estimating an accounting beta, or through cross-sectional regression analysis. Whatever method used to determine the discount rate, it should be clear that the weighted average cost of capital (WACC) is only appropriate for projects with risk similar to the overall firm. If a project is more (less) risky than the overall firm, the discount rate used to evaluate the project should be greater (less) than the firm's WACC.

For Further Reference:

(Study Session 7, Module 19.2, LOS 19.e)

Question #31 of 60

Question ID: 1212889

Which of the following would *most accurately* describe (1) the debt security envisioned by Superior's investment banker to finance the new division, and (2) Superior's intention to channel some of the proceeds of the new debt securities to refinance existing debentures?

	New debt security	Use of proceeds for other purposes
A)	climate bonds	lower cost financing
B)	ESG bonds	diversion
C)	**green bonds**	**greenwashing**

Explanation

Green bonds are bonds issued to finance green projects. Greenwashing is the diversion of the proceeds from green bonds to purposes other than what the bonds were originally purported to finance.

For Further Reference:

(Study Session 8, Module 22.2, LOS 22.d)

Question #32 of 60

Question ID: 1212890

Which of Mogan's statements are correct?

A) **Statement 1 only.**
B) Statement 2 only.
C) Both statements are correct.

Explanation

Only statement 1 is correct. One advantage of family control is that principal-agent issues may be reduced. On the other hand, family ownership can make it difficult to recruit quality outsiders for management, and often leads to lack of concern for minority shareholders, as well as minimal transparency and low accountability by management.

For Further Reference:

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

Questions #33-36 of 60

Use the following information to answer Questions 93 through 96.

Broadstore, Inc., is a retailer operating in urban areas in the eastern and mid- western United States. Currently, Broadstore operates 120 retail outlets, but its executives seek to expand significantly. In order to achieve the rapid expansion, the board has identified two acquisition targets they believe could add value for Broadstore's shareholders.

The first target is retailer Sagan Termett, Inc., (Sagan). Sagan's store locations are geographically distributed in a way that would complement Broadstore without too much overlap; Sagan's stores are primarily on the west coast. Broadstore's board believes the company may be receptive to a bid at the right price.

Jackson Torrelle, CFA, works for Broadstore and has been asked to look at the details of a possible share-for-share exchange. The board believes that synergies of $2.3 million per year in perpetuity would be realized if the companies merged.

Broadstore currently has 20 million shares outstanding with a market price of $19.20 per share. Sagan Termett has 15.75 million shares outstanding with a market price of $16.20 per share. Torrelle has been asked to consider the following three scenarios for a possible merger:

Scenario 1:	Broadstore offers to acquire 100% of Sagan Termett's shares in exchange for 13 million newly issued shares in the merged entity.
Scenario 2:	Broadstore offers to purchase 100% of Sagan Termett's shares for $270 million.
Scenario 3:	Broadstore offers to purchase approximately 30% of Sagan Termett's stores for cash.

Torrelle intends to calculate the present value of any synergies using a discount rate of 8%. However, he has concerns as to whether any synergies will be realized and has sent an email to the CFO outlining the consequences of the synergies not being realized. An extract from the email is shown in Exhibit 1.

Exhibit 1: Torrelle Email (Extract)

> "…the assumed synergies arise primarily from the synchronization of accounting systems. I believe the estimate of the annual savings excludes significant one-off costs of training and the costs of running the systems in parallel. I estimate that these costs would reduce the present value of synergies by $8 million."

The second target is Exellara, Inc., a company that offers logistical solutions to retailers. Exellara already works with Broadstore, providing most of its distribution network.

Broadstore has only recently identified Exellara as a target and has yet to calculate a value for the company. As part of a preliminary review, the board has obtained a recently published research report that contains a comparable company analysis for Exellara. An extract from the report is shown in Exhibit 2.

Exhibit 2: Exellara Research Report (Extract)

Relative Valuation	Company I	Company II	Company III
Ratio			
P/E	12.3	15.8	9.9
P/S	1.2	1.9	1.3
P/BV	2.5	2.2	3.0
Exellara Metrics			
Earnings per share	$2.73		

Sales per share	$21.21
Book value per share	$13.92

The research report concluded that the likely price a potential acquirer would have to pay for Exellara would be $45.70. Torrelle is unsure how this conclusion was arrived at, as he does not have all the appendices to the report outlining its assumptions and calculation methods. He is particularly concerned that the price may be too high, as Broadstore has been criticized in the past for several acquisitions that shareholders did not feel were in their best long-term interests.

Question #33 of 60

Question ID: 1212892

If Broadstore proceeded with Scenario 3, it is *most likely* that:

A) Sagan Termett's shareholders would not have to pay tax on any capital gains on the transaction.

B) the transaction may be subject to approval by Sagan Termett's shareholders.

C) Broadstore would be required to assume the liabilities of Sagan Termett.

Explanation

If assets are purchased rather than shares, payment is made to the target company; the company will pay tax on any capital gains, not the shareholders. Purchasing assets instead of the share capital is a way to avoid assumption of liabilities, and when less than 50% of a target's assets are sold, shareholder approval is not normally required.

For Further Reference:

(Study Session 8, Module 23.2, LOS 23.e)

Question #34 of 60

Question ID: 1212893

If Broadstore proceeded with Scenario 1, with regards to Sagan Termett, and the original estimate of synergies is realized, the gain to Broadstore's shareholders would be *closest* to:

A) $5,000,000.

B) $13,000,000.

C) $21,000,000.

Explanation

	# Shares (millions)	Share Price ($)	Value ($ million)
Broadstore value	20.00	19.20	384.00
Sagan value	15.75	16.20	255.15
PV synergy (2.3 / 0.08)			28.75
Value new entity			**667.90**
Original # shares	20.00		
Shares issued	13.00		
Total			**33.00**

Share price of merged entity		**20.24**	
Broadstore holding	20.00	20.24	404.79
Broadstore original value			384.00
Gain			**20.79**
Sagan holding	13	20.24	263.11
Sagan original value			255.15
Gain			**7.96**

For Further Reference:

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

Question #35 of 60

Question ID: 1212894

If Torrelle's concerns outlined in Exhibit 1 were correct, the *most likely* result is that the gain to:

A) Broadstore would be reduced under Scenario 1 but not under Scenario 2.

B) **both Broadstore and Sagan Termett shareholders would be reduced under Scenario 1.**

C) both Broadstore and Sagan Termett shareholders would be reduced under Scenario 2.

Explanation

In Scenario 2, Sagan Termett shareholders receive cash for their shares and are, therefore, not affected by the realization of synergies; in this case, the acquirer bears all the risk. In Scenario 1, the Sagan Termett shareholders hold shares in the new entity; both sets of shareholders are affected by the realization of synergistic gains.

For Further Reference:

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

Question #36 of 60

Question ID: 1212895

The acquisition price for Exellara in the research report has *most likely* been calculated using comparable:

A) transaction analysis and a takeover premium of 20%.

B) company analysis and a takeover premium of 20%.

C) **company analysis and a takeover premium of 35%.**

Explanation

The methodology uses market price (not takeover price); hence, it represents comparable company analysis.

Exellar (per share)			**Avg. Metric**	**Value $**
Earnings	$2.73	×	12.67	34.59
Sales	$21.21	×	1.47	31.18
Book value	$13.92	×	2.57	35.77

Mean				$33.85
Premium				35%
Value	$33.85	×	1.35	$45.69

For Further Reference:

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

Questions #37-42 of 60

Use the following information to answer Questions 97 through 102.

Sentinel News is a publisher of more than 100 newspapers around the country, with the exception of the Midwestern states. The company's CFO, Harry Miller, has been reviewing a number of potential candidates (both public and private companies) that would provide Sentinel News entrance into the Midwestern market. Recently, the founder of Midwest News, a private newspaper company, passed away. The founder's family members are inclined to sell their 80% controlling interest. The family members are concerned that Midwest News's declining newspaper circulation is not cyclical, but rather permanent. The family members would reinvest the cash proceeds from the sale of Midwest News into a diversified portfolio of stocks and bonds. Miller's staff collects the financial information shown in Exhibit 1.

Exhibit 1: Midwest News's Financial Information

Total assets	$92.5 million
Total debt	$0
Total equity	$79.5 million
Shares outstanding	1.5 million
Revenues	$251.5 million
Net income (next year's forecast)	$19.5 million

Miller noted that Midwest News does not pay a dividend, nor does the company have any debt. The most comparable publicly traded stock is Freedom Corporation. Freedom, however, has significant radio and television operations. Freedom's estimated beta is 0.90, and 40% of the company's capital structure is debt. Freedom is expected to maintain a payout ratio of 40%. Analysts are forecasting the company will earn $3.00 per share next year and grow their earnings by 6% per year. Freedom has a current market capitalization of $15 billion and 375 million shares outstanding. Freedom's current market value equals its intrinsic value.

Miller's staff uses current expectations to develop the appropriate equity risk premium for Midwest News. The staff uses the Gordon growth model to estimate Midwest's equity risk premium. The equity risk premium calculated by the staff is provided in Exhibit 2.

Miller believes the best method to estimate the required return on equity of Midwest News is the build-up method. All relevant information to determine Midwest News's required return on equity is presented in Exhibit 2.

Exhibit 2: Required Return Estimate Factors

Risk-free rate	3.5%
Equity risk premium	4.0%
Small size premium	3.5%

Specific-company premium	2.0%
Beta	1.2
Growth rate	3.0%

The specific-company premium reflects concerns about future industry performance and business risk in Midwest News. Miller makes two statements concerning the valuation methodology used to value Midwest News's equity.

Statement 1:	The required return estimate that is calculated from Exhibit 2 reflects all adjustments needed to make an accurate valuation of Midwest News.
Statement 2:	It is better to use the free cash flow model to value Midwest News than a dividend discount model.

Miller considered two different valuation models to determine the price of Midwest News's equity: a single-stage free cash flow model and a single-stage residual income model.

Question #37 of 60

Question ID: 1212897

Using Freedom Corporation as a comparable, the estimated beta for Midwest News is *most likely*:

A) greater than 0.90.

B) **less than 0.90.**

C) equal to 0.90.

Explanation

$$\beta_u \approx \left[\frac{1}{1+\left(D/E\right)}\right]\beta_E = \left[\frac{1}{1+\left(40/60\right)}\right]0.90 = 0.54$$

The calculation is not required if you understand the steps involved. Since Midwest News has no debt and Freedom's beta must be unlevered, the beta to be used must be less than 0.90 (Freedom's beta).

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.d)

Question #38 of 60

Question ID: 1212898

The required return estimate of Freedom Corporation is *closest* to:

A) 3%.

B) 6%.

C) **9%.**

Explanation

$$\text{required return estimate} = \frac{\text{year-ahead dividend}}{\text{market price}} + \text{expected dividend growth rate}$$

$$\begin{aligned}\text{required return estimate} &= \frac{(\$3.00 \times 0.40)}{\left(\$15{,}000\text{ million}/375\text{ million}\right)} + 0.06 \\ &= 0.09\end{aligned}$$

Since Freedom Corporation has a dividend policy of paying 40% of earnings, dividend growth equals earnings growth.

The assumption is that Freedom's stock is correctly valued.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.a)

Question #39 of 60

Question ID: 1212899

Which of the following is NOT an input used to estimate Midwest News's equity risk premium based on the Gordon growth model?

A) Dividend yield on the market index.

B) Current long-term government bond yield.

C) **Expected growth in the market index's P/E ratio.**

Explanation

The Gordon growth model calculates the equity risk premium by starting with the dividend yield on the market index, adding the consensus long-term earnings growth rate and subtracting the current long-term government bond yield. The expected growth in the market index's P/E ratio is an input used in the macroeconomic model.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.b)

Question #40 of 60

Question ID: 1212900

Based on Exhibit 2 and using the build-up method, Midwest News's required return on equity is *closest* to:

A) **13.0%.**

B) 13.8%.

C) 15.8%.

Explanation

r_i = risk-free rate + equity risk premium + size premium$_i$ + specific-company premium$_i$

r_i = 3.5% + 4.0% + 3.5% + 2.0% = 13.0%

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.b)

Question #41 of 60

Question ID: 1212901

Using the single-stage residual income model and assuming the required return on equity is 15%, the value of Midwest News is *closest* to (use information in Exhibits 1 and 2):

A) $75 per share.

B) **$95 per share.**

C) $115 per share.

Explanation

$$V_0 = B_0 + \frac{(ROE - r)(B_0)}{r - g}$$

$$B_0 = \frac{\$79.5 \text{ million}}{1.5 \text{ million}} = \$53 \text{ per share}$$

ROE = $19.5 million / $79.5 million = 0.245

r = 0.15 *(given in problem)*

g = 0.03 *(given in Exhibit 2)*

$$V_0 = 53 + \frac{0.245 - 0.15}{0.15 - 0.03}(53) = \$94.96 \text{ per share}$$

For Further Reference:

(Study Session 11, Module 30.2, LOS 30.d)

Question #42 of 60

Question ID: 1212902

Miller has made two statements, one concerning the required return estimate and the other concerning the relative merits of the free cash flow model versus the dividend discount model. Are Miller's statements correct?

A) Only Statement 1 is correct.

B) **Only Statement 2 is correct.**

C) Both Statements 1 and 2 are correct.

Explanation

An issue not described in Exhibit 2 is control premium. Any control premium adjustment is normally added directly to a company's value estimate. Statement 1 is not correct. Since Midwest News does not pay a dividend, the free cash flow model would be better suited to compute the company's equity value rather than the dividend discount model. Statement 2 is correct.

For Further Reference:

(Study Session 9, Module 25.1, LOS 25.c and Study Session 11, Module 28.5, LOS 28.f)

Questions #43-48 of 60

Use the following information to answer Questions 103 through 108.

CTT Credit Analysis provides fixed-income credit analysis to fund managers and high net worth individuals. Tam Lowenstadt, CFA, joined the firm recently; one of his first tasks is to provide a new client with an overview of the credit analysis models the firm uses. He begins by outlining some key underlying principles, as shown in Exhibit 1.

Exhibit 1: Key Underlying Principles

1. The probability of default multiplied by the recovery rate given default is equal to the expected loss.
2. The sum of expected losses for each period is equal to the cumulative valuation adjustment.
3. Given the market price of a credit risky bond, the estimated risk-neutral probabilities of default and recovery rates are positively correlated.

Lowenstadt also provides an overview of the structural model approach to credit analysis. He starts off by explaining the basic approach of valuing the credit risk by using an option analogy. He makes two key statements regarding this analogy and how it can be used to value equity and debt:

Statement 1:	Owning the company's debt with a face value of K and a maturity of T is economically equivalent to owning a riskless bond with face value of K and maturity of T and simultaneously purchasing a European put option on the assets of the company with a strike price equal to K and maturing at time T.
Statement 2:	Holding the company's equity is economically equivalent to owning a European call option on the company's assets.

CTT Credit Analysis always includes an illustration of the impact of credit migration on the price performance of corporate bonds. As an example, Lowenstadt demonstrates the impact of a credit downgrade of ZT bonds. ZT, Inc., has two bonds outstanding, identical in every respect except that one is callable while the other is not.

CCT does not recommend the use of reduced form models of credit analysis to its clients. Lowenstadt defended this decision based on the firm's standard response as shown in Exhibit 2.

Exhibit 2: CCT Firm View on Reduced Form Models

Point 1:	Unlike the structural model, reduced form models do not explain *why* default occurs.
Point 2:	A key input into the reduced form model is the **default intensity**, which is the probability of default over the next time period. Default intensity is estimated using option pricing models.

Finally, Lowenstadt also discussed CCT's application of credit analysis to asset-backed securities. Lowenstadt is aware that the client has some collateralized debt obligations in her portfolio. His overview is shown in Exhibit 3.

Exhibit 3: ABS Overview

Section 1 − Collateral

Short-term granular and homogenous structured finance vehicles are evaluated using a portfolio-based approach. Medium-term granular and homogenous obligations are evaluated using a statistical-based approach because the portfolio composition varies over time.

Section 2 − Servicer Quality

- Counterparty risk.
- Operational risk.

Section 3 − Structure

- Credit enhancement.
- Distribution waterfall.

Question #43 of 60

Question ID: 1212904

In Exhibit 1, which of the underlying principles outlined by Lowenstadt is *most accurate*?

A) Principle 1.

B) Principle 2.

C) **Principle 3.**

Explanation

The expected loss is (the probability of default) × (loss given default), not the recovery rate. Credit valuation adjustment (CVA) is the sum of the present value of the expected loss for each period. In general, given the market price (and hence the credit spread), the estimated risk-neutral probabilities of default and recovery rates are positively correlated.

For Further Reference:

(Study Session 13, Module 35.1, LOS 35.a)

Question #44 of 60

Question ID: 1212905

Lowenstadt's Statement 1 is *most likely*:

A) incorrect, as he should have instead stated *purchasing* a European call option.

B) **incorrect, as he should have instead stated selling a European *put* option.**

C) correct.

Explanation

The option analogy for debt states that a long position in risky debt is equivalent to a long position in a riskless bond plus a short European put on the company's assets.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #45 of 60

Question ID: 1212906

Lowenstadt's Statement 2 is *best* described as:

A) incorrect, as he should have instead stated *American* call option.

B) incorrect, as he should have instead stated European *put* option.

C) **correct.**

Explanation

European call on assets is the correct analogy for equity under the structural model for credit analysis.

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #46 of 60

Question ID: 1212907

Given Lowenstadt's scenario, relative to the price performance of the straight bond issued by ZT, Inc., the callable bond is *most likely* to have:

A) equal or poorer price performance.

B) **equal or better price performance.**

C) the same price performance.

Explanation

Given Lowenstadt's scenario of a ratings downgrade, spreads should widen. Callable bonds have a duration that is lower than (or equal to) the duration of comparable straight bonds. Hence, the decline in price for a callable ZT bond will be less than (or equal to) the decline in price of an equivalent straight ZT bond.

For Further Reference:

(Study Session 13, Module 34.5, LOS 34.j, Module 35.6, LOS 35.f)

Question #47 of 60

Question ID: 1212908

Which of Lowenstadt's points in Exhibit 2 is *correct*?

A) Only point 1 is accurate.

B) Only point 2 is accurate.

C) Neither Point is accurate.

Explanation

While structural models provide economic rationale regarding why default occurs (i.e., when $A_T < K$), reduced form models do not. Default intensity is typically estimated using *regression models* (not option pricing models).

For Further Reference:

(Study Session 13, Module 35.4, LOS 35.d)

Question #48 of 60

Question ID: 1212909

Lowenstadt's overview of asset-backed securities in Exhibit 3 *most likely* contains an error in:

A) Section 1, because short-term granular and homogenous structured finance vehicles are evaluated using a statistical-based approach, while medium-term granular and homogenous obligations are evaluated using a portfolio-based approach.

B) Section 2, because counterparty risk is not relevant for servicer quality.

C) Section 3, because credit enhancement is not relevant for asset-backed securities.

Explanation

Short-term granular and homogenous structured finance vehicles are evaluated using a statistical-based approach. Medium-term granular and homogenous obligations are evaluated using a portfolio-based approach because the portfolio composition varies over time. All other sections are correct.

For Further Reference:

(Study Session 13, Module 35.3, LOS 35.h)

Questions #49-54 of 60

Use the following information to answer Questions 109 through 114.

Rock Torrey, an analyst for International Retailers Incorporated (IRI), has been asked to evaluate the firm's swap transactions in general, as well as a 2-year fixed for fixed currency swap involving the U.S. dollar and the Mexican peso in particular. The dollar is Torrey's domestic currency, and the exchange rate as of June 1, 2009, was $0.0893 per peso. The swap calls for annual payments and exchange of notional principal at the beginning and end of the swap term and has a notional principal of $100 million. The counterparty to the swap is GHS Bank, a large full-service bank in Mexico.

The current term structure of interest rates for both countries is given in the following table:

Time Period	U.S. Interest Rates	Mexican Interest Rates
360 days	4.0%	5.0%
720 days	4.5%	5.2%

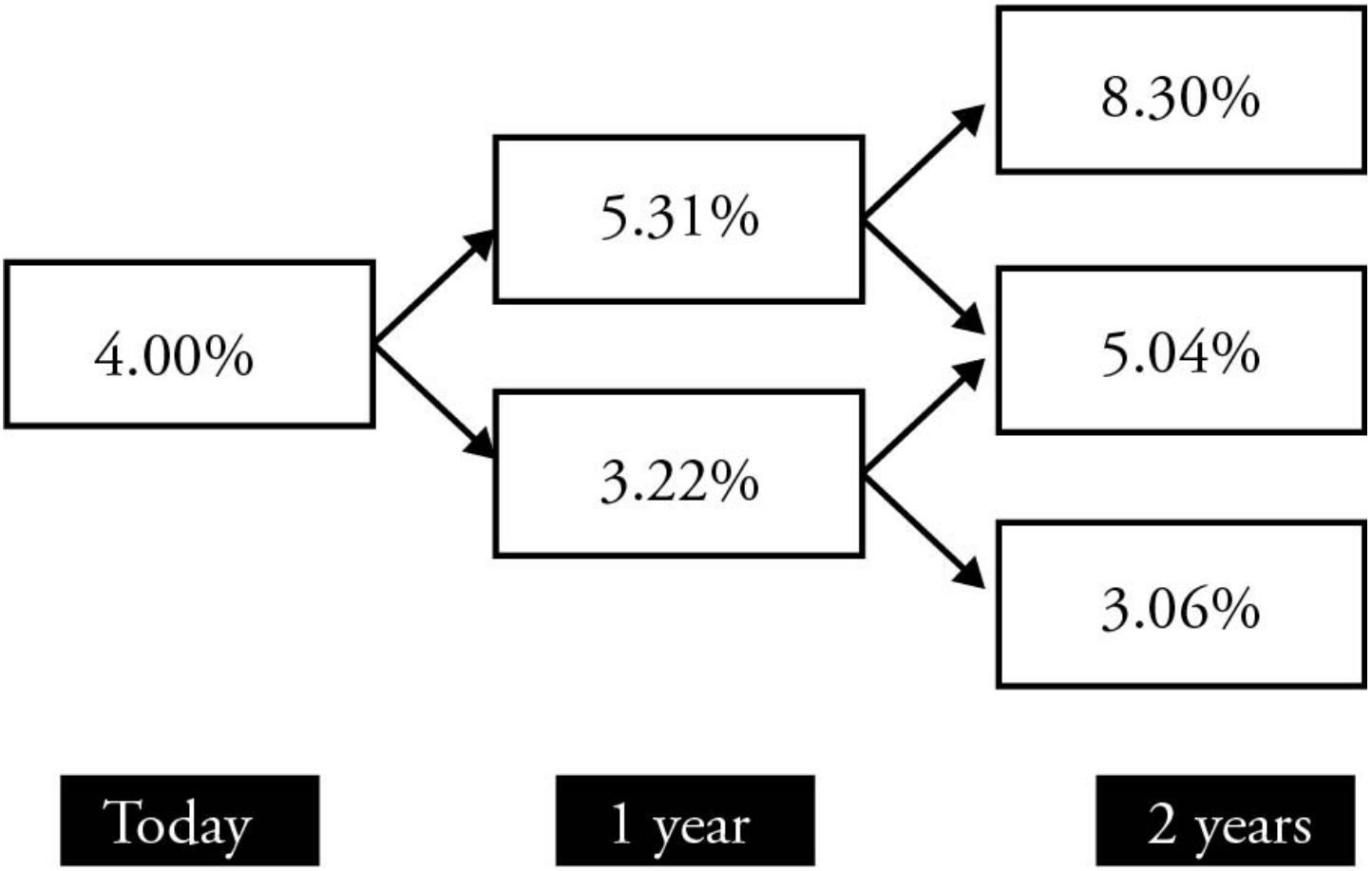
Torrey believes the swap will help his firm effectively mitigate its foreign currency exposure in Mexico, which stems mainly from shopping centers in high-end resorts located along the eastern coastline. Having made this conclusion, Torrey begins writing his report for the management of IRI. In the report, Torrey makes the following statements about interest rate derivative instruments:

Statement 1: A payer swap can be replicated using a long receiver swaption and a short payer swaption with the same exercise rates. If the exercise rate is set such that the premiums of the payer and receiver swaptions are equal, then the exercise rate must be equal to the market swap fixed rate.

Statement 2: A long callable bond can be replicated using a long option-free bond plus a short receiver swaption.

Torrey is also evaluating a 2-year European interest rate call option with a strike rate of 5% and a notional principal of $2 million. Torrey wants to use a binomial tree as shown in Exhibit 1 to value the option.

Exhibit 1: Two-Period Interest Rate Tree



Six months (180 days) have passed since Torrey issued his report to IRI's management team, and the current exchange rate is now $0.085 per peso. The new term structure of interest rates is as follows:

Time Period	U.S. Interest Rates	Mexican Interest Rates
180 days	4.2%	5.0%
540 days	4.8%	5.2%

Question #49 of 60

Question ID: 1212911

For the currency swap that Torrey is evaluating, calculate the annual payments that will be required of International Retailers Incorporated.

A) 29.1 million pesos.

B) 40.7 million pesos.

C) **56.8 million pesos.**

Explanation

To calculate the fixed payment in pesos, first use the Mexican term structure to derive the present value factors:

Z_{360} = 1 / [1 + 0.050(360/360)] = 0.9524

Z_{720} = 1 / [1 + 0.052(720/360)] = 0.9058

The annual fixed payment per peso of notional principal would then be:

FS(0,2,360) = (1 − 0.9058) / (0.9524 + 0.9058) = 0.0507

The annual fixed payment would be: 0.0507 × $100M / 0.0893 = 56.8 million pesos.

For Further Reference:

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

Question #50 of 60

Question ID: 1212912

Torrey's Statement 1 is *most likely*:

A) correct.

B) **incorrect about long receiver swaption and short payer swaption.**

C) incorrect about the exercise rate being equal to the market swap fixed rate if the premiums of the two swaptions are equal.

Explanation

A payer swap can be replicated using a long payer swaption and short receiver swaption with the same exercise rates. Torrey's Statement 1 about how if the premiums of the two options are equal, the exercise rate must be equal to the market swap fixed rate is correct.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.j)

Question #51 of 60

Question ID: 1212913

Torrey's Statement 2 is *most likely*:

A) correct.

B) incorrect about the long option free bond.

C) incorrect about the short receiver swaption.

Explanation

Statement 2 is correct.

For Further Reference:

(Study Session 14, Module 38.6, LOS 38.j)

Question #52 of 60

Question ID: 1212914

The value of the 2-year interest rate call option is *closest* to:

A) $7,717.

B) $15,434.

C) $18,415.

Explanation

Given the exercise rate of 5%, the call option has a positive payoff for nodes C++ and C+–.

The value of the option at node C++ can be calculated as:

[Max (0, 0.083 − 0.05)] × $ 2,000,000 = $ 66,000

Similarly, the value at node C+– can be calculated as:

[Max (0, 0.0504 − 0.05)] × $ 2,000,000 = $ 800

Value at node C+ = [(0.5 × 66,000) + (0.5 × 800)] / (1.0531) = $31,716

Value at node C– = [(0.5 × 800) + 0] / (1.0322) = $388

And the value at node C = [(0.5 × 31,716) + (0.5 × 388)] / (1.04) = $15,435

For Further Reference:

(Study Session 14, Module 38.5, LOS 38.d)

Question #53 of 60

Question ID: 1212915

Calculate the present value of the dollar fixed payments for the 2-year currency swap six months after Torrey's initial analysis.

A) $93.28 million.

B) $101.69 million.

C) $108.80 million.

Explanation

The fixed dollar payment under the swap using the original yield curve is computed as:

Z_{360} = 1 / [1 + 0.040(360 / 360)] = 0.9615

Z_{720} = 1 / [1 + 0.045(720 / 360)] = 0.9174

The annual fixed payment per dollar of notional principal would then be:

FS(0,2,360) = (1 − 0.9174) / (0.9615 + 0.9174) = 0.044

The annual fixed payment would be:

0.044 × $100M = $4.4 million

Using the new U.S. term structure to derive the present value factors:

Z_{180}(360) = 1 / [1 + 0.042(180 / 360)] = 0.9794

Z_{180}(720) = 1 / [1 + 0.048(540 / 360)] = 0.9328

The present value of the fixed payments plus the $100M principal is:

$4.4M × (0.9794 + 0.9328) + $100M × 0.9328 = $101.69 million

For Further Reference:

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

Question #54 of 60

Question ID: 1212916

Calculate the value of the 2-year currency swap from the perspective of the counterparty paying dollars six months after Torrey's initial analysis.

A) –$0.72 million.

B) –$3.21 million.

C) **–$4.21 million.**

Explanation

Use the new Mexican term structure to derive the present value factors:

Z_{180}(360) = 1 / [1 + 0.050(180 / 360)] = 0.9756

Z_{180}(720) = 1 / [1 + 0.052(540 / 360)] = 0.9276

The present value of the fixed payments plus the principal is:

0.0507 × (0.9756 + 0.9276) + 0.9276 = 1.0241 per peso

Apply this to notional principal and convert at current exchange rate:

1.0241 × ($100M / 0.0893) × 0.085= $97.48 million

The value of the swap is the difference between this value and the pay dollar fixed present value derived in the previous question:

$97.48 − $101.69M = –$4.21 million

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.

Bill Henry, CFA, is the CIO of IS University Endowment Fund located in the United States. The Fund's total assets are valued at $3.5 billion. The investment policy uses a total return approach to meet the return objective that includes a spending rate of 5%. In addition, the policy constraints established make tax-exempt instruments an inappropriate investment vehicle. The Fund's current asset mix includes an 18% allocation to private equity. The private equity allocation is shown in Exhibit 1.

Exhibit 1: IS University Endowment Fund's Private Equity Investments

Private Equity	Percentage Allocation
Venture capital	12%
Buyouts	56%
Special situations	32%

The private equity allocation is a mixture of funds with different vintages. For example, within the venture capital category, investments have been made in five different funds. Exhibit 2 provides details about the Alpha Fund with a vintage year of 2014 and committed capital of $195 million. The distribution waterfall calls for 20% carried interest when NAV before distributions exceeds committed capital.

Exhibit 2: $195 Million Venture Capital Alpha Fund ($Millions)

Year	Called-Down	Management Fees	Operating Results
2014	$30	$0.45	–$10
2015	$25	$0.83	$55
2016	$75	$1.95	$75

The Alpha Fund is considering a new investment in Targus Company. Targus is a start-up biotech company seeking $9 million of venture capital financing. Targus's founders believe that, based on the company's new drug pipeline, a company value of $300 million is reasonable in five years. Management at Alpha Fund views Targus Company as a risky investment (15% risk of failure) and is using a discount rate of 40%.

Question #55 of 60

Question ID: 1212918

Which of the following risk factors will *most likely* impact the private equity portion of the IS University Endowment?

A) Lack of diversification.

B) **Illiquid investments.**

C) Taxation risk.

Explanation

The risk that the private equity portion of the IS University's Endowment Fund would most likely suffer from is illiquidity. It can be difficult to trade the private equity investments because they are usually not listed on secondary securities markets. The private equity investments are diversified in terms of vintage and strategies. The IS endowment fund is exempt from taxation on capital gains or dividends.

For Further Reference:

(Study Session 15, Module 41.2, LOS 41.f)

Question #56 of 60

Question ID: 1212919

Using Exhibit 2, calculate the 2016 percentage management fee of the Alpha Fund.

A) 1.5%.

B) 2.0%.

C) 2.5%.

Explanation

Percentage management fee = management fee / paid-in capital

paid-in capital = Σ called-down

2016 % management fee = 1.95 / (75 + 25 + 30) = 0.015

For Further Reference:

(Study Session 15, Module 41.3, LOS 41.i)

Question #57 of 60

Question ID: 1212920

Alpha Fund's 2016 dollar amount of carried interest is *closest* to:

A) $0 million.

B) $10 million.

C) $20 million.

Explanation

$195 million Alpha Fund (all data in millions)

Year	Called-Down	Management Fees	Operating Results	NAV before Distributions	Carried Interest	Distributions	NAV after Distributions
2014	30	0.45	–10	19.55		0	
2015	25	0.83	55	98.72		0	
2016	75	1.95	75	246.77	10.35	0	236.42

2014 NAV before distributions = 30 – 0.45 + (–10) = 19.55

2015 NAV before distributions = 19.55 + 25 − 0.83 + 55 = 98.72

2016 NAV before distributions = 98.72 + 75 − 1.95 + 75 = 246.77

When NAV before distribution exceeds committed capital, the 20% carried interest is applied. (246.77 − 195) × 0.2 = 51.77 × 0.2 = 10.35

In years 2017 and beyond, the 20% carried interest is applied to the change in NAV before distributions. For example, if the 2017 NAV before distributions was 296.77, then the carried interest would equal (296.77 − 246.77) × 0.2 = 50 × 0.2 = 10.

The NAV after distributions subtracts carried interest and distributions from NAV before distributions.

For Further Reference:

(Study Session 15, Module 41.3, LOS 41.i)

Question #58 of 60

Question ID: 1212921

Which of the following is *most likely* a characteristic of a venture capital investment?

A) The typical investment uses leverage.

B) Measureable risk.

C) **Increasing capital requirements.**

Explanation

Venture capital investments require considerable capital to develop and grow. Companies that require venture capital usually have significant cash burn as they develop new products. Venture capital investments are primarily funded through equity and utilize little or no debt. Risk measurement of venture capital investments is difficult because of their short operating history, and the required development of new markets and technologies.

For Further Reference:

(Study Session 15, Module 41.1, LOS 41.c)

Question #59 of 60

Question ID: 1212922

Using the single period NPV method (venture capital method), the post-money valuation of Targus Company is *closest* to:

A) $48 million.

B) $50 million.

C) **$55 million.**

Explanation

post-money valuation = $V / (1 + r)^t$

V = $300 million; r = 40%; t = 5 years

post-money valuation = 300 million / $(1 + 0.4)^5$ = 55.78 million

Note that the adjusted discount rate incorporating the probability of failure is directly given in the question as 40%.

For Further Reference:

(Study Session 15, Module 41.4, LOS 41.j)

Question #60 of 60

Question ID: 1212923

For this question only, assuming that the founders will hold 2.5 million shares, and the post money valuation is $90 million, the price per share for the venture capital investor is *closest* to:

A) **$32.40.**

B) $34.12.

C) $36.00.

Explanation

The ownership proportion of the venture capital (VC) investor is f = INV / POST = \$9,000,000 / 90,000,000 = 0.10 or 10%.

$$\text{shares}_{VC} = \text{shares}_{Founders}(f / 1 - f) = 2{,}500{,}000 \times (0.10 / 0.90) = 277{,}778$$

$$\text{price} = \text{INV} / \text{shares}_{VC} = \$9{,}000{,}000 / 277{,}778 = \$32.40 \text{ per share}$$

For Further Reference:

(Study Session 15, Module 41.4, LOS 41.j)

Questions #1-6 of 60

Use the following information to answer Questions 1 through 6.

Charles Connor, CFA, is a portfolio manager at Apple Investments, LLC. Apple is a U.S.-based firm offering a wide spectrum of investment products and services. Connor manages the Biogene Fund, a domestic equity fund specializing in small capitalization growth stocks. The Biogene Fund generally takes significant positions in stocks, commonly owning 4.5–5% of the outstanding shares. The fund's prospectus limits positions to a maximum of 5% of the shares outstanding. The performance of the Biogene Fund has been superior over the last few years, but for the last two quarters the fund has underperformed its benchmark by a wide margin. Connor is determined to improve his performance numbers going forward.

The Biogene prospectus allows Connor to use derivative instruments in his investment strategy. Connor frequently uses options to hedge his fund's exposure as he builds or liquidates positions in his portfolio since Biogene's large positions often take several weeks to acquire. For example, when he identifies a stock to buy, he often buys call options to gain exposure to the stock. As he buys the stock, he sells off the options or allows them to expire. Connor has noticed that the increased volume in the call options often drives the stock price higher for a few days. He has seen a similar negative effect on stock prices when he buys large amounts of put options.

The end of the quarter is just a few days away, and Connor is considering three transactions:

Transaction A: Buying Put Options on Stock A

The Biogene Fund owns 4.9% of the outstanding stock of Company A, but Connor believes the stock is fully valued and plans to sell the entire position. He anticipates that it will take approximately 45 trading days to liquidate the entire Biogene position in Stock A.

Transaction B: Buying Call Options on Stock B

The Biogene Fund owns 5% of the outstanding stock of Company B. Connor believes there is significant appreciation potential for Stock B, but the stock price has dropped in recent weeks. Connor is hoping that by taking an option position, there will be a carryover effect on the stock price before quarter end.

Transaction C: Selling the Biogene Fund's Entire Position in Stock C

Connor believes that Stock C is still attractive, but he is selling the stock with the idea that he will repurchase the position next month. The motivation for the transaction is to capture a capital loss that will reduce the Biogene Fund's tax expense for the year.

Apple has an investment banking department that is active in initial public offerings (IPOs). George Arnold, CFA, is the senior manager of the IPO department. Arnold approached Connor about Stock D, a new IPO being offered by Apple.

Stock D will open trading in two days. Apple had offered the IPO to all of its clients, but approximately 20% of the deal remained unsold. Having read the prospectus, Connor thinks Stock D would be a good fit for his fund, and he expects Stock D to improve his performance in both the short and long term. Connor is not aware of any information related to Stock D beyond that provided in the prospectus. Connor asked to purchase 5% of the IPO, but Arnold limited Biogene's share to 2%, explaining:

> "With Biogene's reputation, any participation will make the unsold shares highly marketable. Further, we may need Biogene to acquire more Stock D shares at a later date if the price does not hold up."

Connor is disappointed in being limited to 2% of the offering and suggests to Arnold in an email that, given the 2% limitation, Biogene will not participate in the IPO. Arnold responded a few hours later with the following message:

> "I have just spoken with Ms. D, the CFO of Stock D. Although it is too late to alter the prospectus, management believes they will receive a large contract from a foreign government that will boost next year's sales by 20% or more. I urge you to accept the 2%—you won't be sorry!"

After reviewing Arnold's email, Connor agrees to the 2% offer.

Question #1 of 60

Question ID: 1212784

By executing Transaction A, Connor is:

A) violating the Standards because his option trading can be reasonably expected to affect the price of Stock A.

B) violating the Standards because the option position creates a profit opportunity in conflict with Biogene's clients.

C) **not violating the Standards.**

Explanation

There is no violation of the Standards in Transaction A. Connor is basically hedging any potential loss from a decline in the price of Stock A prior to the completion of his sale transaction. There is no apparent attempt to manipulate the market in this transaction.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #2 of 60

Question ID: 1212785

By executing Transaction B, Connor is:

A) **violating the Standards because his option trading can be reasonably expected to affect his quarterly performance.**

B) not violating the Standards because the option position creates a profit opportunity consistent with Biogene's clients' interests.

C) not violating the Standards because he believes there is significant appreciation potential in Stock B.

Explanation

A critical factor in assessing any violation of Standard II(B) Integrity of Capital Markets – Market Manipulation is the intent of the parties involved. In this case, Connor is hoping that his options transaction drives up the price of Stock B, which would improve the reported performance of the Biogene Fund. This type of manipulation would be a violation of the Standard.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #3 of 60

Question ID: 1212786

By executing Transaction C, Connor is:

A) violating the Standards by executing a transaction for tax reasons only.

B) violating the Standards by executing a transaction that provides tax benefits to the Biogene Fund.

C) **not violating the Standards.**

Explanation

Transactions meant to minimize tax liabilities are not prohibited by the Standards. If the Biogene Fund benefits, the investors in the fund will presumably benefit also.

For Further Reference:

(Study Session 1, Module 2.2, LOS 2.a, 2.b)

Question #4 of 60

Question ID: 1212787

By offering Biogene the opportunity to participate in the IPO of Stock D, Apple Investments has violated CFA Institute Standards relating to:

A) priority of transactions but not independence and objectivity.

B) independence and objectivity but not priority of transactions.

C) **neither priority of transactions nor independence and objectivity.**

Explanation

Connor was not pressured to take the IPO, and he believed it was a good investment. Connor received no confidential information. The IPO had been made available to all Apple clients prior to Biogene. There is no evidence of a violation of either of these Standards.

For Further Reference:

(Study Session 1, Module 2.5, LOS 2.a, 2.b)

Question #5 of 60

Question ID: 1212788

Arnold's arguments for limiting Biogene's share to 2% suggest that Apple:

A) may engage in a liquidity pumping strategy that would be acceptable given that Biogene is a related entity.

B) **may engage in transaction-based manipulation of Stock D in the future, in violation of Standards relating to market manipulation.**

C) is violating Standards related to priority of transactions by offering the IPO to Biogene before it is fully subscribed.

Explanation

By suggesting that Biogene might need to acquire more shares to support the price in the future, Arnold is suggesting that Apple would be willing to manipulate the market by creating false trading volume. This is transaction-based manipulation in violation of Standard II(B) Integrity of Capital Markets – Market Manipulation.

For Further Reference:

(Study Session 1, Module 2.3, LOS 2.a, 2.b)

Question #6 of 60

Question ID: 1212789

Based upon Connor's acceptance of the 2% limitation after receiving the email from Arnold:

A) **Connor has violated Standards relating to material nonpublic information, and Arnold has violated Standards relating to preservation of confidentiality.**

B) Connor has not violated Standards relating to material nonpublic information, but Arnold has violated Standards relating to preservation of confidentiality.

C) Connor has not violated Standards relating to material nonpublic information, but Arnold has violated Standards relating to preservation of confidentiality and material nonpublic information.

Explanation

By changing his previous decision and accepting the 2% based on Arnold's email, Connor has violated the Standards related to material nonpublic information. He has acted based upon the receipt of inside information. Arnold has violated the Standards related to both material nonpublic information and preservation of confidentiality. Arnold violated Standard III(E) – Duties to Clients – Preservation of Confidentiality by revealing information he received based upon a special relationship with Stock D. By passing that information to another area of Apple, Arnold has violated Standard II(A) Integrity of Capital Markets – Material Nonpublic Information as well.

For Further Reference:

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

Questions #7-12 of 60

Use the following information to answer Questions 7 through 12.

Alfred Farias, fixed income analyst for BNF, Inc., is analyzing the economic prospects of Procken, Krosse, Weira, and Toban, four countries in the same region. He collects the following economic and demographic statistics for the countries:

	Procken	Krosse	Weira	Toban
Current real GDP (in $ billions)	$250.00	$250.00	$4,500.00	$4,800.00
Projected real GDP in 5 years (in $ billions) based on potential GDP growth rate	$306.00	$315.00	$5,262.00	$5,778.00
Long-term growth rate of capital	4.0%	4.2%	3.2%	3.8%
Current capital base ($ billions)	$782.9	$699.2	$18,750	$19,750
Imports (in $ billions)	$30.00	$60.00	$1,500.00	$900.00
Exports (in $ billions)	$32.00	$80.00	$1,000.00	$900.00
Population (in $ millions)	20.4	20.0	101.0	100.0
Labor growth rate	1.9%	2.9%	0.4%	0.8%
Cost of capital relative to total factor cost	32.5%	35.0%	25.0%	22.5%
Average real annual appreciation in equities (past five years)	4.0%	4.7%	4.5%	3.8%

A GDP per capita below $25,000 is considered a developing country, and a GDP per capita greater than $25,000 is considered a developed country.

Farias concludes that Weira and Toban have reached steady-state growth.

In the latest round of trade negotiations, representatives from each country discussed their efforts to foster their countries' economic development and benefit from the growth of world trade.

Procken's Representative: "We are wary of the potential for loss of domestic industries if we remove trade barriers. Given the state of our economy, I'm not certain that we can lower our trade barriers any further."

Krosse's Representative: "We in Krosse are not investing enough in infrastructure and education to increase the level of productivity and technology in our economy. We also need foreign direct investment and hence we welcome foreign investors."

Weira's Representative: "We are concerned about my country's negative trade balance. Weira needs more exports to sustain our growth."

Toban's Representative: "We seem to be at a point in Toban where the growth rate of my country's labor force may be insufficient to support our GDP growth rate."

Question #7 of 60

Question ID: 1212791

Which country is *most likely* to benefit from capital deepening?

A) Weira.

B) **Krosse.**

C) Procken.

Explanation

Krosse is a developing nation with the highest α (share of capital in GDP) among all the countries. A high value of α indicates that the next unit of capital added will increase output almost as much as the previous unit of capital. Developing nations with a high α are more likely to benefit from capital deepening, which should result in an increase in productivity (at least in the short term).

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.d)

Question #8 of 60

Question ID: 1212792

For this question only, assume that the population growth rate is the same for Krosse and Procken. A possible cause for the difference in growth rate of labor is that relative to Procken, Krosse has:

A) stricter immigration policies.

B) a lower labor participation rate.

C) **experienced an increase in average hours worked.**

Explanation

Krosse's labor growth rate is greater than that of Procken's. Labor growth can be accomplished by an increase in the labor force participation rate, an increase in average hours worked, additional supply of labor by immigration, or a higher population growth rate. We are told that the population growth rate is equal for the two countries. The only choice that allows for higher labor growth rate is then higher average hours worked.

For Further Reference:

(Study Session 4, Module 11.2, LOS 11.g)

Question #9 of 60

Question ID: 1212793

The long-term growth rate of technology (TFP) for Toban is *closest* to:

A) 0.4%.

B) 2.1%.

C) **2.3%.**

Explanation

Growth rate in potential GDP = long-term growth rate of technology + α × (long-term growth rate of capital) + (1 − α) × (long-term growth rate of labor).

The growth rate in potential GDP using a calculator: PV = –$4,800; FV = +$5,778; N = 5; solve for I/Y. I/Y = 3.78%.

Rearrange the equation to solve for long-term growth rate of technology.

$$3.78\% = LTGRT + (0.225) \times 3.8\% + (0.775) \times 0.8\%$$

LTGRT = 3.78% − 0.86% − 0.62%

LTGRT = 2.30%

For Further Reference:

(Study Session 4, Module 11.2, LOS 11.e)

Question #10 of 60

Question ID: 1212794

Going forward, which country is *most likely* to experience lower stock market appreciation than that experienced over the past five years?

A) Weira.

B) Toban.

C) Procken.

Explanation

If the neoclassical theory holds then the sustainable growth rate of output of G* is the same as the long-term growth rate of capital.

The growth rate in potential GDP using a calculator:

Procken (Past = 4.0%):	PV = –$250; FV = +$306; N = 5; solve for I/Y = 4.12%.
Krosse (Past = 4.7%):	PV = –$250; FV = +$315; N = 5; solve for I/Y = 4.73%.
Weira (Past = 4.5%):	PV = –$4,500; FV = +$5,262; N = 5; solve for I/Y = 3.18%.
Toban (Past = 3.8%):	PV = –$4,800; FV = +$5,778; N = 5; solve for I/Y = 3.78%.

Weira's stock market appreciation rate of 4.5% exceeds the potential growth rate of GDP of 3.2% significantly. The difference between potential GDP growth rate and past stock market appreciation for the other three countries differences is relatively smaller.

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.b, 11.i)

Question #11 of 60

Question ID: 1212795

The rental price of capital in Weira is *closest* to:

A) 6%.

B) 12%.

C) 25%.

Explanation

It is stated in the vignette that Weira has reached steady-state. In steady state (i.e., in equilibrium), the marginal product of capital (MPK = αY/K) and marginal cost of capital (i.e., the *rental price of capital*, r) are equal; hence: αY/K = r.

r = (0.25)(4,500) / (18,750) = 0.06 or 6%

For Further Reference:

(Study Session 4, Module 11.1, LOS 11.d)

Question #12 of 60

Question ID: 1212796

Based on the information provided, which developing country is *most likely* to achieve convergence in growth rates and standard of living with their developed counterparts?

A) Toban.

B) **Krosse.**

C) Procken.

Explanation

Based on the data in the vignette, Krosse and Procken are developing countries. The GDP per capita for Krosse is $250 billion divided by 20.0 million people, which is equal to $12,500. The GDP per capita for Procken is $250 billion divided by 20.4 million people, which is equal to $12,255. Krosse is more likely to achieve convergence because Krosse is showing more willingness towards opening up the economy to trade and financial flows than is Procken; Krosse's international trade as a proportion of GDP is higher than Proken's, and comments by Krosse's representative indicate that inflow of foreign capital would be welcome. Finally, comments by Procken's representative indicate an inward-oriented policy, which could hinder convergence.

For Further Reference:

(Study Session 4, Module 11.3, LOS 11.j)

Questions #13-18 of 60

Use the following information to answer Questions 13 through 18.

Lyle Kreiger, CFA, has recently taken an analyst role at Rockway Stone, a small private equity firm based in the United States. As part of his role, he has been asked to review the most recent unaudited financial statements from several private companies that have been identified as potential investments for the firm.

Rockway Stone has a strict policy of only investing in companies that demonstrate a high level of financial reporting quality. The firm has developed an internal scoring system to rank the quality of a target company's financial statements. The scoring system awards points for each incident of low reporting quality; any company that reaches 40 points is not considered for potential investment. The scoring system is shown in Exhibit 1.

Exhibit 1: Rockway Stone FR Quality Score Sheet

1. Any instance of a change in policy year-to-year or reclassification of assets, liabilities, revenues, or expenses	**5 points**

2. Any instance from 1 that also results in an increase in total assets	**Additional 5 points**
3. Any instance from 1 that also results in an increase in revenue	**Additional 10 points**
4. Any indication that earnings are not persistent	**5 points**

The first report Kreiger is reviewing is from Tolston Conductors, a firm providing highly polished metals to the technology industry. Kreiger's supervisor has instructed Kreiger to focus on the inventory note shown in Exhibit 2.

Exhibit 2: Tolston Conductors Extract

Note 8 – Inventories		
	2014	**2013**
Raw materials ($'000)	481	409
WIP ($'000)	1,392	894
Finished goods ($'000)	508	496

Finished goods are classified as goods that are complete in all respects except packaging. Of the amount of inventory reported as work-in-progress in 2013, $342,000 has been reclassified as "other current assets." This WIP consisted primarily of highly polished metals that are now to be further reworked and are not expected to be ready for sale for two years.

Kreiger is also reviewing financial statements from Resonator Wellness, a firm producing health and wellness products in the U.K. Extracts from the pro forma financial statement recently released, along with 2013 and 2012 comparables, is shown in Exhibit 3.

Exhibit 3: Resonator Wellness Financial Statement – (Extract)

Headline Operating Profit: Quarter Ending 31 December 2014 (£000)			
	2014	**2013**	**2012**
Stockholders' equity	8,380	7,980	7,450
Revenue retail outlet sales	1,402.2	3,543.9	3,501.6
Online sales	3,086.2	398.9	389.4
Headline net income (Note A)	1,262.7	1,104.4	1,086.0

> **Note A:** *Headline net income excludes settlement costs and network costs. Settlement costs are one-off payments to settle legal procedures; these costs totaled (in £000) 20.0, 22.1, and 24.8 in 2012, 2013, and 2014, respectively. Network costs related to running the online business totaled (in £000) 202.0, 325.0, and 885.5 in 2012, 2013, and 2014, respectively. The financial accounts submitted to our bank in accordance with our loan covenants shows net income after charging both settlement and network costs in accordance with local GAAP.*

Kreiger notes that the financial statements submitted to the firm's bankers did indeed report net income correctly in accordance with local GAAP. However, this figure was much less prominent than headline net income, as the GAAP

income was disclosed only in the footnotes rather than on the face of the income statement. Kreiger believes that the legal settlements are payments made to dissatisfied customers and are a normal part of business. Kreiger also believes that the increase in network cost is consistent with increased focus on online operations. Resonator's required return on stockholders' equity is 5%.

Krieger's final task is to analyze a set of financial statements for AltoJib Plc., a manufacturing and engineering company that is considering delisting. The company has a large number of investments in associates that Kreiger would like to isolate. Rockway Stone's approach to isolating the impact of investment in associates is to perform some classic DuPont analysis to calculate ROE. In doing so, net margin and asset turnover (but not financial leverage) are adjusted for the impact of investment in associates.

The information Kreiger has to work with is shown in Exhibit 4 along with Rockway Stone's method of isolating the impact of investment in associates on ROE using DuPont analysis.

Exhibit 4: AltoJib Plc. Financial Statements (Extracts)

	2014	2013	2012	2011
	(£000)	(£000)	(£000)	(£000)
Revenue	998.5	918.6	817.6	
Net income	44.4	31.2	26.7	
Income from associates	17.8	11.2	8.4	
Total assets	1,260.8	1,166.6	1,043.2	1,012.1
Investment in associates	101.6	83.8	72.6	64.2
Equity	638.4	569.8	542.5	524.2
Financial leverage	2.01	1.99	1.93	

Calculation of ROE excluding associates

- Net margin is based on net income excluding income from associates.
- Asset turnover is calculated using average total assets excluding investments in associates.
- Financial leverage is calculated using average assets and average equity including investments in associates.

Calculation of total ROE

- Net margin is based on net income including income from associates.
- Asset turnover is calculated using average total assets including investments in associates.
- Financial leverage is calculated using average assets and average equity including investments in associates.

Question #13 of 60

Question ID: 1212805

Due to the reclassification described in Exhibit 2, inventory turnover will *most likely*:

A) **increase.**

B) remain the same.

C) decrease.

Explanation

Inventory turnover is cost of sales divided by inventory. A decrease in inventory is likely to cause the ratio to increase as the amount of inventory relative to the cost of goods sold decreases.

For Further Reference:

(Study Session 6, Module 18.5, LOS 18.d)

Question #14 of 60

Question ID: 1212806

Under the scoring system described in Exhibit 1 and taking into account the inventory note in Exhibit 2, Tolston Conductors should *most accurately* be assigned:

A) 5 points.

B) 10 points.

C) 20 points.

Explanation

Ending inventory and other current assets are both included within total assets, so the reclassification will not alter total assets or revenue.

For Further Reference:

(Study Session 6, Module 17.2, LOS 17.d)

Question #15 of 60

Question ID: 1212807

Which of the following statements is the *least accurate* regarding Resonator Wellness information shown in Exhibit 3?

A) The financial statements submitted to analysts are not as decision-useful as they could be due to biased accounting choices.

B) The financial statements submitted to the bank are not as decision-useful as they could be due to biased accounting choices.

C) The financial statements submitted to the bank are decision-useful as they exhibit no evidence of biased accounting choices.

Explanation

Biased accounting choices are reflected not only in the numbers presented but also in the manner of disclosure of information. The lack of transparency of GAAP-compliant net income relative to the headline net income suggests that the financial statements are not very decision-useful.

For Further Reference:

(Study Session 6, Module 17.1, LOS 17.b)

Question #16 of 60

Question ID: 1212808

Which of the following conclusions is Kreiger *most likely* to draw about the earnings quality of Resonator Wellness? 2014 net income after correctly including network and settlement costs shows:

A) compound annual growth of over 7%, and earnings that are of high quality as they are correctly calculated under GAAP.

B) **negative compound annual growth of over 35%, and earnings that are of low quality.**

C) negative compound annual growth of over 35%, and earnings that are of high quality as they are correctly calculated under GAAP.

Explanation

	2014	2013	2012
Headline Net Income	1,262.7	1,104.4	1,086.0
Network costs (from note A)	885.5	325.0	202.0
Settlements (from note A)	24.8	22.1	20.0
Net Income	**352.4**	**757.3**	**864.0**

Net Income CAGR $[(352.4 / 864)^{1/2}] - 1 = -0.36 = -36\%$

Average stockholders' equity = (8,380 + 7,980) / 2 = 8,180

Return on stockholders' equity for 2014 = 352.4 / 8,180 = 4.31%

Earnings quality refers not only to compliance with GAAP but also to the persistence and level of earnings. The GAAP-compliant net income does not satisfy the minimum return requirement; hence, earnings are low (and therefore of low quality).

For Further Reference:

(Study Session 6, Module 17.3, LOS 17.h)

Question #17 of 60

Question ID: 1212809

Treating an investment as an investment in associate rather than in a subsidiary is *least likely* to:

A) overstate net profit margins.

B) understate fixed assets.

C) **understate net income.**

Explanation

An investment in associates is accounted for using the equity method, while investment in a subsidiary is accounted for using the acquisition method. Using either method, net income will be the same. However, fixed assets and total revenue will be lower under the equity method.

For Further Reference:

(Study Session 6, Module 17.5, LOS 17.k)

Question #18 of 60

Question ID: 1212810

Using the Rockway Stone approach to calculating ROE measures outlined in Exhibit 4, Kreiger is *most likely* to conclude that:

A) ROE excluding the effects of investment in associates has decreased from 2012 to 2014.

B) **ROE excluding the effects of investment in associates in 2014 was approximately 35% lower than the total ROE in 2014.**

C) total ROE was higher than the ROE excluding the effects of investment in associates for 2012 and 2014, but lower in 2013.

Explanation

	2014	**2013**	**2012**	**2011**
	(£000)	(£000)	(£000)	(£000)
Revenue	998.5	918.6	817.6	
Net income	44.4	31.2	26.7	
Income from associates	17.8	11.2	8.4	
NI excluding associates	26.6	20.0	18.3	
Total assets	1,260.8	1,166.6	1,043.2	1,012.1
Investment in assoc.	101.6	83.8	72.6	64.2
Total assets (ex assoc.)	1,159.2	1,082.8	970.6	947.9
Equity	638.4	569.8	542.5	524.2
Average equity	604.1	556.2	533.4	510.2
Average assets	1,213.7	1,104.9	1,027.7	500.8
Average assets (ex assoc.)	1,121.0	1,026.7	959.3	
Net margin (ex assoc.)	2.66% (26.6 / 998.5)	2.18% (20.0 / 918.6)	2.24% (18.3 / 817.6)	
Net margin	4.45% (44.4 / 998.5)	3.40% (31.2 / 918.6)	3.27% (26.7 / 817.6)	

Asset TO (ex assoc.)	0.891 (998.5 / 1121.0)	0.895 (918.6 / 1026.7)	0.852 (817.6 / 959.3)
Asset turnover	0.823 (998.5 / 1213.7)	0.831 (918.6 / 1104.9)	0.796 (817.6 / 1027.7)
Leverage	2.01 (1213.7 / 604.1)	1.99 (1104.9 / 556.2)	1.93 (1027.7 / 533.4)
ROE total	7.35% 44.4 / 604.1)	5.61% (31.2 / 556.2)	5.01% (26.7 / 533.4)
ROE (ex assoc.)	4.77% (0.0266 × 0.891 × 2.01)	3.87% (0.0218 × 0.895 × 1.99)	3.68% (0.0224 × 0.852 × 1.93)

For Further Reference:

(Study Session 6, Module 18.1, LOS 18.a)

Questions #19-24 of 60

Use the following information to answer Questions 19 through 24.

In 2009, Continental Supply Company was formed to provide drilling equipment and supplies to contractors and oilfield production companies located throughout the United States. At the end of 2013, Continental Supply created a wholly owned foreign subsidiary, International Oilfield Incorporated, to begin servicing customers located in the North Sea. International Oilfield maintains its financial statements in a currency known as the local currency unit (LCU). Continental Supply follows U.S. GAAP and its presentation currency is the U.S. dollar.

For the years 2013 through 2016, the weighted-average and year-end exchange rates, stated in terms of local currency per U.S. dollar, were as follows:

LCU/$US	2013	2014	2015	2016
Average	0.90	1.05	1.05	1.25
Year-end	1.00	1.10	1.00	1.50

International Oilfield accounts for its inventory using the lower-of-cost-or- market valuation method in conjunction with the first-in, first-out, cost flow assumption. All of the inventory on hand at the beginning of the year was sold during 2016. Inventory remaining at the end of 2016 was acquired evenly throughout the year.

At the beginning of 2014, International Oilfield purchased equipment totaling LCU 975 million when the exchange rate was LCU 1.00 to $1. During 2015, equipment with an original cost of LCU 108 million was totally destroyed in a fire. At the end

of 2015, International Oilfield received a LCU 92 million insurance settlement for the loss. On June 30, 2016, International Oilfield purchased equipment totaling LCU 225 million when the exchange rate was LCU 1.25 to $1.

For the years 2015 and 2016, Continental Supply reported International Oilfield revenues in its consolidated income statement of $375 million and $450 million, respectively. There were no inter-company transactions. Following are International Oilfield's balance sheets at the end of 2015 and 2016:

LCU in millions	2016	2015
Cash and receivables	120.0	216.0
Inventory	631.3	650.4
Equipment	820.7	693.6
Liabilities (all monetary)	600.0	600.0
Capital stock	350.0	350.0
Retained earnings	622.0	610.0

At the end of 2016, International Oilfield's retained earnings account was equal to $525 million and, to date, no dividends have been paid. All of International Oilfield's capital stock was issued at the end of 2013.

Question #19 of 60

Question ID: 1212798

Assuming International Oilfield is a significantly integrated sales division and virtually all operating, investing, and financing decisions are made by Continental Supply, foreign currency gains and losses that arise from the consolidation of International Oilfield should be reported in:

A) shareholders' equity.

B) operating cash flow.

C) **net income.**

Explanation

Assuming International Oilfield is an integrated sales division and Continental Supply makes virtually all of the decisions, the functional currency is likely the presentation currency. Thus, the temporal method is used. Under the temporal method, remeasurement gains and losses are reported in the income statement.

For Further Reference:

(Study Session 5, Module 15.3, LOS 15.d)

Question #20 of 60

Question ID: 1212799

Assuming that International Oilfield's equipment is depreciated using the straight-line method over 10 years with no salvage value, calculate the subsidiary's 2016 depreciation expense under the temporal method.

A) **$95.7 million.**

B) $104.7 million.

C) $114.7 million.

Explanation

International Oilfield is carrying 867 (i.e., 975 – 108) LCU original cost of equipment purchased in 2014 on their books. The 2015 losses due to fire and related insurance settlement do not affect depreciation in 2016 (other than depreciating fewer assets). The new equipment purchased during the year would be depreciated for a half year in 2016. Depreciation will be translated at the historical exchange rate under the temporal method.

Equipment	Calculation	LCU Depreciation	Historical Exchange Rate	USD Depreciation
Originally purchased in 2014	867 / 10	86.7	1	$86.70
Purchased in 2016 (1/2 year)	1/2 × (225 /10)	11.25	1.25	$9.00
Total				$95.70

For Further Reference:

(Study Session 5, Module 15.3, LOS 15.d)

Question #21 of 60

Question ID: 1212800

Compute the cumulative translation adjustment reported on Continental Supply's consolidated balance sheet at the end of 2016, assuming International Oilfield is a relatively self-contained and independent operation of Continental Supply.

A) **–$227 million.**

B) –$200 million.

C) $298 million.

Explanation

Under the current rate method, gains and losses that occur as a result of the translation process do not show up on the income statement but are instead accumulated in a balance sheet account called the cumulative translation adjustment account (CTA). The translation gain or loss in each year is calculated and added to the account, acting like a running total of translation gains and losses. The CTA is simply an equity account on the balance sheet.

To compute the CTA for Continental's balance sheet, force the accounting equation (A = L + E) to balance with the CTA; [(120 million cash and receivables + 631.3 million inventory + 820.7 million equipment − 600 million liabilities) / 1.50] − $350 million capital stock − $525 retained earnings = –$227 million. The LCU 350 capital stock was issued at the end of 2013 at an exchange rate of LCU 1 = $1. The $525 retained earnings figure was given in the text.

For Further Reference:

(Study Session 5, Module 15.4, LOS 15.d)

Question #22 of 60

Question ID: 1212801

Compared to the temporal method, which of the following *best* describes the impact of the current rate method on International Oilfield's gross profit margin percentage for 2016 when stated in U.S. dollars? The gross profit margin would be:

A) lower.

B) **higher.**

C) the same.

Explanation

Compared to the temporal method, the current rate method will result in a higher gross profit margin percentage (higher numerator) when the local currency is depreciating as is the case in this scenario (the exchange rate has risen from LCU 1 per $1 to LCU 1.25 per $1; thus, it costs more LCUs to buy $1 which is the result of a depreciating LCU). Under the temporal method, COGS is remeasured at the historic rate; thus, COGS is not impacted by the depreciating currency. Under the current rate method, COGS is translated at the average rate; thus, COGS is lower because of the depreciating currency. Lower COGS results in a higher gross profit margin percentage.

For Further Reference:

(Study Session 5, Module 15.4, LOS 15.e)

Question #23 of 60

Question ID: 1212802

When remeasuring International Oilfield's 2016 financial statements into the presentation currency, which of the following ratios is not affected by changing exchange rates under the temporal method?

A) Current ratio.

B) Total asset turnover.

C) **Quick ratio.**

Explanation

Both the numerator (cash + receivables) and denominator (current liabilities) of the quick ratio are remeasured at the current exchange rate under the temporal method. Inventories are ignored in the quick ratio. Since the same rate is used to remeasure both the numerator and denominator, the ratio does not change when stated in the presentation currency.

For Further Reference:

(Study Session 5, Module 15.3, LOS 15.e)

Question #24 of 60

Question ID: 1212803

Assume the country where International Oilfield is operating has been experiencing 30% annual inflation over the past three years. Which of the following *best* describes the effect on Continental's consolidated financial statements for the year ended 2016?

A) **A gain is recognized in the income statement.**

B) A loss is recognized in the income statement.

C) A gain is recognized as a direct adjustment to the balance sheet.

Explanation

The temporal method is required if the foreign subsidiary is operating in a highly inflationary environment, defined as cumulative inflation of more than 100% in a 3-year period. Compounded inflation of 30% annually for three years is approximately 120% ($1.30^3 - 1$). Under the temporal method, remeasurement gains and losses are recognized in the income statement. In this case, International Oilfield has a net monetary liability position (monetary liabilities of 600 million > monetary assets of 120 million). Holding net monetary liabilities denominated in a currency that is depreciating will result in a gain.

For Further Reference:

(Study Session 5, Module 15.7, LOS 15.g)

Questions #25-30 of 60

Use the following information to answer Questions 25 through 30.

Sampson Aerospace is a publicly traded U.S. manufacturer. Sampson supplies communication and navigation control systems to manufacturers of airplanes for commercial and government use. The company operates two divisions: (1) Commercial Operations, and (2) Government Operations. Revenues from the Government Operations division comprise 80% of Sampson's total company revenues. Revenues for other companies in the industry are also driven primarily by sales to the U.S. government.

Sampson has gained a reputation for offering unique products and services. Sampson's market share has been increasing, and its net profit margin is among the highest in its industry.

Zone, Inc., ("Zone") is a small privately held network solutions company in the southwestern United States. Zone is profitable, and almost entirely equity financed. Drew Smith, Sampson's CFO, is evaluating a potential acquisition of Zone in a leveraged buyout. In his analysis, Smith makes several adjustments to Zone's financial statements as detailed below:

> Adjustment 1: Zone's owner/CEO received a compensation package of $1.2 million including bonus. This is consistent with CEO compensation packages at other firms. Smith considers the current management team to be very competent and does not anticipate any major changes; however, he increases the estimate for compensation expense to $1.5 million.
>
> Adjustment 2: Zone has long-term leases on all of its facilities. The lease rates were negotiated before the real estate market collapsed recently. Smith adjusts the leasing cost downward by $3 million.
>
> Adjustment 3: Zone has purchased fractional ownership in a corporate jet for its CEO. The benefit, with an annual cost of $350,000, is deemed to be excessive by market standards and Smith adjusts the cost estimate by that amount.

Exhibit 1 shows projections of selected financial data for Zone for the next year.

Exhibit 1: Selected Financial Information (Estimates) for Zone, Inc.

Item	$ Millions
Normalized EBITDA	32
Depreciation	11
SG&A expense	8

Net income	15
Capital expenditure	6
Working capital expense	5
Interest expense	2

Note: Zone's tax rate is expected to be 25%.

Sampson Aerospace recently announced that it is reducing its investment return assumption on its pension assets from 6% to 5%, and that it has entered negotiations to possibly acquire controlling equity interests in communications software firms, NavTech and Aerospace Communications. NavTech recently has decided to capitalize a significant portion of its research and development expense, and Aerospace Communications has restructured and reclassified many of its leases from operating to financial leases. Smith recently announced that Sampson had dropped out of negotiations with Knowledge Technologies, claiming it was likely not a sustainable business model.

Consensus forecasts for NavTech and Aerospace Communications are presented in Exhibit 2.

Exhibit 2: Selected Financial Data for NavTech and Aerospace Communications

	NavTech	Aerospace Comm.
Expected year-end dividend per share	$1.07	$0.55
Expected year-end free cash flow to equity per share	$0.80	$1.25
Weighted average cost of capital	10%	9%
Required return on equity	12%	12%
Current stock price	$21.40	$25

Question #25 of 60

Question ID: 1212819

Regarding Smith's adjustments to Zone's financial statements, the *most appropriate* adjustment is:

A) Adjustment 1.

B) Adjustment 2.

C) **Adjustment 3.**

Explanation

CEO compensation is consistent with market estimates, so no adjustment is necessary. Long-term leases on facilities are legally binding; hence, no adjustment is necessary until the lease comes up for renewal. Elimination of excessive perks is a valid adjustment.

For Further Reference:

(Study Session 11, Module 31.2, LOS 31.e)

Question #26 of 60

Question ID: 1212820

For valuation purposes, Zone's expected (first year) FCFF is *closest* to:

A) $14 million.

B) $15 million.

C) **$16 million.**

Explanation

Normalized EBITDA	32
(–) Depreciation	11
(=) EBIT	21
Taxes @ 25%	5.25
Operating income after tax	15.75
(+) Depreciation	11
(–) Capex	6
(–) WCInv	5
(=) FCFF	15.75

For Further Reference:

(Study Session 11, Module 31.2, LOS 31.e)

Question #27 of 60

Question ID: 1212821

The *most appropriate* approach for Sampson Aerospace's valuation of NavTech and Aerospace Communications is:

A) the dividend discount model.

B) **the free cash flow model.**

C) the relative value model.

Explanation

Sampson intends to make a purchase offer for controlling equity interests in the target companies. Cash flow models are more appropriate because a controlling interest allows Sampson to set the target company's financing, investment, and distribution policies.

For Further Reference:

(Study Session 9, Module 24.1, LOS 24.h)

Question #28 of 60

Question ID: 1212822

Regarding the financial statement information provided in the analyst's report, the quality of financial statements has improved *least* for:

A) Sampson.

B) **NavTech.**

C) Aerospace Communications.

Explanation

NavTech recently has decided to capitalize much of its research and development expense, thereby deferring much of its R&D expense (rather than immediately recognizing R&D as expense on the income statement). This is an example of aggressive accounting, especially if revenues cannot be matched directly with R&D expense. By reducing the investment return assumption on its pension investments, Sampson is moving to a more conservative approach. By capitalizing its leases (treating as finance leases rather than operating leases), Aerospace Communications more clearly reports its liabilities and assets.

For Further Reference:

(Study Session 9, Module 24.1, LOS 24.e)

Question #29 of 60

Question ID: 1212823

By claiming that Knowledge Technologies is "not a sustainable business model," Sampson CEO Drew Smith would *most likely* estimate Knowledge Technologies's value using:

A) balance sheet value.

B) going concern value.

C) **liquidation value.**

Explanation

If the company's business model is not sustainable, the liquidation value is more appropriate than its value as a going concern (which could be negative). Balance sheet value is an accounting concept, not a valuation concept.

For Further Reference:

(Study Session 9, Module 24.1, LOS 24.b)

Question #30 of 60

Question ID: 1212824

Assuming that NavTech is valued according to the constant growth dividend model, the market expectation of dividend growth implied by NavTech's current stock price is *closest* to:

A) 3%.

B) 5%.

C) **7%.**

Explanation

Defining P_0 as the current stock price, D_1 as the expected year-end dividend, r as the required cost of equity, and g as the dividend growth rate, the present value formula for constant growth dividends is:

$$P_0 = \$21.40 = \frac{D_1}{r-g} = \frac{\$1.07}{0.12-g}$$

$$0.12 - g = \frac{\$1.07}{\$21.40}$$

$$g = 0.12 - \frac{\$1.07}{\$21.40} = 0.07 = 7\%$$

For Further Reference:

(Study Session 9, Module 24.1, LOS 24.d and Study Session 10, Module 27.2, LOS 27.d)

Questions #31-36 of 60

Use the following information to answer Questions 31 through 36.

Ivan Johnson is reviewing the investment merits of BioTLab, a fast-growing biotechnology company. BioTLab has developed several drugs, which are being licensed to major drug companies. BioTLab also has several drugs in phase III trials (phase III trials are the last testing stage before FDA approval). Johnson notes that two drugs recently received approval which should provide BioTLab solid revenue growth and generate predictable cash flow well into the future. Based on the potential for the two drugs, BioTLab's estimated annual cash flow growth rate for the next two years is 25%, and long-term growth is expected to be 12%. Because of BioTLab's attractive investment opportunities, the company does not pay a dividend. BioTLab's current weighted average cost of capital is 15% and its stock is currently trading at $50 per share. The following is financial information for BioTLab for the most recent 12 months:

- Net working capital excluding cash increased from $7,460,000 to $9,985,000.
- Book value increased from $81,250,000 to $101,250,000.
- BioTLab currently has no debt.
- Research facilities and production equipment were purchased for $8,450,000.
- BioTLab held non-operating assets in the amount of $875,000.
- Net income for the 12 months was $20,000,000.
- BioTLab has a marginal tax rate of 40%.
- Noncash charges for depreciation and restructuring for the 12 months were $1,250,000.

BioTLab's management has indicated an interest in establishing a dividend and will fund new drug research by issuing additional debt.

Johnson also reviews a competitor to BioTLab, Groh Group, which has a larger segment operating in a highly cyclical business. The Groh Group has a debt to equity ratio of 1.0 and pays no dividends. In addition, Groh Group plans to issue bonds in the coming year.

Question #31 of 60

Question ID: 1212812

Johnson prefers to use free cash flow analysis to value investments. Which of the following statements is *least accurate* in describing the advantages of free cash flow valuation models?

A) Accounting issues limit the usefulness of reported earnings, while free cash flow is adjusted for these issues.

B) **Determining free cash flow is easier than dividends.**

C) A company must generate free cash flow to grow in the long run.

Explanation

An analyst must review the cash flows from a company's operating, investing, and financing activities to generate a useful free cash flow, while dividends are simply set by the board of directors. Analysts use free cash flow whenever an investor takes a control perspective, such as in the event of an acquisition. The P/E model is considered weak because accounting issues can impact earnings. Companies that do not generate free cash flow in the long run are in financial trouble.

For Further Reference:

(Study Session 11, Module 28.1, LOS 28.a)

Question #32 of 60

Question ID: 1212813

Using a two-stage, free cash flow to the firm model, determine which of the following is *closest* to the value of BioTLab.

A) $419 million.

B) $436 million.

C) **$477 million.**

Explanation

Free cash flow to the firm (FCFF) can be calculated in many ways but in this question, you are given enough information to calculate the measure in the following way:

FCFF = net income + non-cash charges + interest (1 − t) − fixed capital investment − working capital investment

$FCFF_0$ = 20,000,000 + 1,250,000 + 0 − 8,450,000 − (9,985,000 − 7,460,000) = 10,275,000

The next step is to forecast the future FCFFs and the terminal value:

$FCFF_1$ = 10,275,000(1.25) = 12,843,750

$FCFF_2$ = 12,843,750(1.25) = 16,054,688

terminal value = 16,054,688(1.12) / (0.15 – 0.12) = 599,375,000

Next, calculate the present value of the FCFFs and the terminal value:

$$\mathrm{PV_{FCFs}} = \frac{12{,}843{,}750}{1.15} + \frac{(16{,}054{,}688 + 599{,}375{,}000)}{(1.15)^2} = 476{,}521{,}739$$

If a firm has non-operating assets (e.g., land held for investment) on its balance sheet, the value of these assets must be added to the value of the operating assets (determined using the present value of the FCFFs and terminal value) to find the total firm value.

total firm value = value of operating assets + value of non-operating assets

total firm value = 476,521,739 + 875,000 = 477,396,739

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.j)

Question #33 of 60

Question ID: 1212814

If BioTLab establishes a dividend and issues additional debt, the *most likely* effect on FCFF will be:

A) no effect.

B) a decrease in FCFF.

C) an increase in FCFF.

Explanation

If BioTLab established a dividend there would be no impact on either FCFF or FCFE. Changing the company capital structure by increasing debt will not impact FCFF, although it will initially increase FCFE by the amount of debt issued and then reduce FCFE thereafter by the after-tax interest expense.

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.g)

Question #34 of 60

Question ID: 1212815

Which model would be *most appropriate* in valuing the Groh Group?

A) FCFF model.

B) FCFE model.

C) Dividend Discount model.

Explanation

The FCFF model is better than the FCFE model in valuing debt laden, cyclical companies, and companies with a changing capital structure. Since Groh Group does not pay a dividend, the DDM model would be the least appropriate model to value the company.

For Further Reference:

(Study Session 11, Module 28.1, LOS 28.a, 28.g)

Question #35 of 60

Question ID: 1212816

Ten years have passed and BioTLab's drug pipeline has generated the expected growth. To support BioTLab's growth, the company levered its balance sheet to a debt-to-equity ratio of 35% by borrowing an additional $1.6 million during the last year, even as it paid total interest of $4 million. Still, the company generated $20 million in free cash flow to equity. The company's tax rate is 40% and pretax interest rate is 6%. The company's required rate of return on equity equals

13%. Using a single-stage FCFF model results in a value of $483,508,770. The expected growth rate in BioTLab's free cash flows is *closest* to:

A) 6%.

B) 8%.

C) 10%.

Explanation

WACC = (0.35 / 1.35)(0.06)(1 − 0.40) + (1 / 1.35)(0.13) = 10.56%

$$\begin{aligned}\text{FCFF} &= \text{FCFE} + \text{Int}(1-\text{T}) - \text{net borrowing}\\ &= 20{,}000{,}000 + 4{,}000{,}000(1-0.40) - 1{,}600{,}000\\ &= 20{,}800{,}000\end{aligned}$$

$$\text{firm value} = \frac{\text{FCFF}_0(1+\text{g})}{\text{WACC}-\text{g}}$$

$$483{,}508{,}770 = \frac{20{,}800{,}000(1+\text{g})}{0.1056-\text{g}}$$

g = 0.06

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.j)

Question #36 of 60

Question ID: 1212817

Which of the following statements regarding free cash flow models is *least likely* correct?

A) Sensitivity analysis indicates that the FCFE model's valuation of BioTLab's common stock is most sensitive to the company's growth rate.

B) FCFE is net income plus depreciation minus net capital expenditures minus the increase in working capital plus net new debt financing.

C) **FCFF can be inflated by increasing capital expenditures relative to depreciation.**

Explanation

FCFF can be inflated by decreasing capital expenditures relative to depreciation. All other statements are true.

For Further Reference:

(Study Session 11, Module 28.5, LOS 28.e, 28.g)

Questions #37-42 of 60

Use the following information to answer Questions 37 through 42.

Mike Diffle has been asked to evaluate the bonds of Hardin, Inc. The specific issue Diffle is considering has an 8% annual coupon and matures in two years. The bonds are currently callable at 101, and beginning in six months, they are callable at par. Bratton Corporation, Hardin's competitor, also has bonds outstanding which are identical to Hardin's except that they are not callable. Diffle believes the AA rating of both bonds is an accurate reflection of their credit risk. Diffle is wondering if the Bratton bonds might be a better investment than the Hardin bonds. Assume that the following 1-year interest rate tree is used to value bonds with a maturity of up to three years (this tree assumes interest rate volatility of 10%).

Today	Year 1	Year 2
		9.324%
	8.530%	
7.250%		7.634%
	6.983%	
		6.250%

Also, assume that the appropriate spot rates for securities maturing in one, two, and three years are 7.25%, 7.5%, and 7.80%, respectively.

Diffle believes he should begin his analysis with the option-free Bratton bonds. He decides to consider two different approaches to valuing the Bratton Bonds—one that uses the current spot rate curve and another that uses the interest rate tree given above.

For the next step in his analysis, Diffle has decided to calculate the value of the Hardin bonds using the interest rate tree. His assumption is that the bond will be called at any node of the tree where the calculated value exceeds the call price. Diffle summarizes the results of his bond valuation analysis in a memo to his supervisor, Luke Puldo. In this memo, Diffle makes the following statements:

Statement 1:	The value of the option embedded in the Hardin bonds can be derived by simply subtracting the interest rate tree value of the Hardin bonds from the interest rate tree value of the Bratton bonds.
Statement 2:	I am concerned that the 10% volatility assumption used to develop the interest rate tree might be too low. A higher volatility assumption would result in a lower value for the Hardin bonds.

After reviewing Diffle's analysis, Puldo notes that Diffle has not included any information on the option adjusted spread (OAS) for the Hardin bonds. Puldo suggests that Diffle should evaluate the OAS in order to get an idea of the liquidity risk of the Hardin bonds. Diffle counters that the OAS may not be very informative in this case, since he is uncertain as to the reliability of the interest rate volatility assumption.

To finish the analysis, Diffle would like to use his binomial model to evaluate the interest rate risk of both the Hardin bonds and the Bratton bonds. Diffle starts out with the benchmark interest rate tree and estimated OAS for both bonds. Then he shocks interest rates up and down by 25 basis points throughout the tree and adds the OAS estimated earlier. Using the tree and standard backward induction process, Diffle calculates values for the bonds. He plans to use these values as inputs into the following formulas for duration and convexity:

$$\text{duration} = \frac{V_- - V_+}{2 \times V_0 \times \Delta y} \qquad \text{convexity} = \frac{V_+ + V_- - 2V_0}{V_0 \times (\Delta y)^2}$$

Puldo notes that the duration estimate for the two bonds is not directly comparable. Assuming that the underlying option is at- or near-the-money, the duration of one of the bonds will be lower than the other one.

Question #37 of 60

Question ID: 1212826

Calculate the value of the Bratton bonds using the interest rate tree.

A) 100.218.

B) 100.378.

C) **100.915.**

Explanation

Interest rate tree: Discount maturity value back one year at different 1-year forward rates, then take the equally weighted average of those values discounted back to today at today's 1-year rate:

V = 0.5 × [(108 / 1.08530) + 8] / 1.0725 + 0.5 × [(108 / 1.06983) + 8] / 1.0725

V = 0.5 × (99.512 + 8) / 1.0725 + 0.5 × (100.951 + 8) / 1.0725

V = 50.122 + 50.793 = 100.915

Today	Year 1	Year 2
		108
	107.512	
100.915		108
	108.951	
		108

For Further Reference:

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

Question #38 of 60

Question ID: 1212827

Using the interest rate tree, and assuming that the bonds will be called at any node of the tree where the calculated value exceeds the call price, which of the following is *closest* to the value of the Hardin bonds?

A) **100.472.**

B) 100.915.

C) 101.358.

Explanation

Use the same method as in the previous problem, but remember that if the value at one node exceeds the call price, then the call price should be used for that node. In this case, the value at the lower node would be 108 / 1.06983 = 100.951.

The assumption is that the bond would be called at the call price one year from now, or 100.

$$V = 0.5 \times (99.512 + 8) / 1.0725 + 0.5 \times (100 + 8) / 1.0725$$

$$V = 50.122 + 50.350 = 100.472$$

For Further Reference:

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

Question #39 of 60

Question ID: 1212828

Indicate whether the statements made by Diffle in his memo regarding the value of the embedded option and the effect of the volatility assumption are correct.

A) Only the statement regarding the value of the embedded option is correct.

B) Only the statement regarding the effect of the volatility assumption is correct.

C) **Both statements are correct.**

Explanation

Statement 1 is correct. The value of the option would be the difference between the value calculated with no call feature (the Bratton bonds) and the value calculated assuming the bond is callable (the Hardin bonds). Recall that the vignette stated the Bratton and Hardin bonds were identical except for the call feature in the Hardin bonds. The option value would therefore be: 100.915 − 100.472 = 0.443. Statement 2 is also correct. Increased volatility would increase the value of the option, thus lowering the value of the callable bond.

For Further Reference:

(Study Session 13, Module 34.1, LOS 34.b, 34.h)

Question #40 of 60

Question ID: 1212829

Which of the following *most accurately* critiques the OAS discussion between Diffle and Puldo? Puldo is:

A) **correct that the OAS will provide insight into the liquidity risk of the Hardin bonds, and Diffle is correct that different volatility assumptions would change the OAS.**

B) correct that the OAS will provide insight into the liquidity risk of the Hardin Bonds, but Diffle is incorrect since OAS implicitly adjusts for the volatility of interest rates.

C) incorrect that the OAS will provide insight into the liquidity risk of the Hardin Bonds, but Diffle is correct that different volatility assumptions would change the OAS.

Explanation

The OAS accounts for compensation for credit and liquidity risk after the optionality has been removed (i.e., after cash flows have been adjusted). Since in this case the credit risk of the bonds is similar, the OAS could prove helpful in evaluating the relative liquidity risk. OAS will be affected by different assumptions regarding the volatility of interest rates.

For Further Reference:

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

Question #41 of 60

Question ID: 1212830

With regards to Puldo's statement about comparability of duration of the two bonds, which of the following statements is *most accurate*? Bratton bonds' duration would be:

A) lower than the duration of Hardin bonds under a rising interest rate scenario.

B) lower than the duration of Hardin bonds under a declining interest rate scenario.

C) **higher than the duration of Hardin bonds under a declining interest rate scenario.**

Explanation

Option-free Bratton bonds will have higher one-sided down duration compared to the callable Hardin bonds when the underlying option is at- or near-the-money. Due to the underlying call option, the appreciation of Hardin bonds in a declining interest rate scenario will be limited.

For Further Reference:

(Study Session 13, Module 34.6, LOS 34.k)

Question #42 of 60

Question ID: 1212831

Which of the following statements is *most accurate* regarding Diffle's calculation of duration and convexity?

A) The duration estimate will be inaccurate since it does not account for any change in cash flows due to the call option embedded in the Hardin bond.

B) **The duration estimate for the Bratton bonds will reflect the projected percentage change in price for a 100-basis-point change in interest rates.**

C) The estimates for both duration and convexity will be inaccurate because the OAS was not estimated again after the rate shock.

Explanation

The duration formula given will calculate the percentage change in price for a 100-basis-point change in yield, regardless of the actual change in rates used to derive BV_- and BV_+. The standard backward induction process would ensure that the derived values of BV_- and BV_+ reflect any potential change in cash flows due to embedded options.

For Further Reference:

(Study Session 13, Module 34.5, LOS 34.i)

Questions #43-48 of 60

Use the following information to answer Questions 43 through 48.

Charles Mabry manages a portfolio of equity investments heavily concentrated in the biotech industry. He just returned from an annual meeting among leading biotech analysts in San Francisco. Mabry and other industry experts agree that the latest industry volatility is a result of questionable product safety testing methodologies. While no firms in the industry have escaped the public attention brought on by the questionable safety testing, one company in particular is expected to receive further attention—Biological Instruments Corporation (BIC), one of several long biotech positions in Mabry's portfolio. BIC is not expected to pay dividends in the foreseeable future. Several regulatory agencies as well as public interest groups have heavily criticized the rigor of BIC's product safety testing.

In an effort to manage the risk associated with BIC, Mabry has decided to allocate a portion of his portfolio to options on BIC's common stock. After surveying the derivatives market, Mabry has identified the following European options on BIC common stock:

	BIC Call Options				BIC Put Options		
	Strike	Maturity	Premium		Strike	Maturity	Premium
Call A	40	October	3.51	Put D	30	November	2.31
Call B	50	October	1.98	Put E	40	November	4.14
Call C	60	October	1.42	Put F	50	November	9.21

Note: October options expire on the 21st of the month, while November options expire on the 18th.

Mabry wants to hedge the large BIC equity position in his portfolio, which closed yesterday (June 1) at $42 per share. Since Mabry is relatively inexperienced with utilizing derivatives in his portfolios, Mabry enlists the help of an analyst from another firm, James Grimell.

Mabry and Grimell arrange a meeting in Boston where Mabry discusses his expectations regarding the future returns of BIC's equity. Mabry expects BIC equity to make a recovery from the intense market scrutiny but wants to provide his portfolio with a hedge in case BIC has a negative surprise. Grimell makes the following suggestion:

> "If you want to avoid selling the BIC position and are willing to earn only the risk-free rate of return, you should sell calls and buy puts on BIC stock with the same market premium. Alternatively, you could buy put options to manage the risk of your portfolio. I recommend waiting until the vega on the options rises, making them less attractive and cheaper to purchase."

Question #43 of 60

Question ID: 1212833

Which of the following statements regarding the delta of the BIC options is correct? (Assume that the largest delta is defined as the delta furthest from zero.)

A) Call C has the largest delta of all the BIC options.

B) Put D has the smallest delta of all the BIC options.

C) **Put F has the largest delta of all the BIC options.**

Explanation

An option that is deep in-the-money will have the largest delta. Call options that are deep in-the-money will have a delta close to one, while put options that are deep in-the-money will have a delta close to –1. Options that are out-of-the-money will have deltas close to zero. Put F is the option that is deepest in-the-money, and therefore has the largest delta (even though it is negative, the change in the price of Put F given a change in the price of BIC stock will be larger than any of the other options). Call C is the deepest out-of-the-money option, and thus has the smallest delta.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.k)

Question #44 of 60

Question ID: 1212834

If the gamma of Put E is equal to 0.081, which of the following correctly interprets the option's gamma?

A) The sensitivity of Put E's price to changes in BIC's stock price is very likely to change.

B) A dynamic hedging strategy using Put E would require infrequent rebalancing.

C) A $1.00 increase in BIC's stock price will increase Put E's premium by $0.081.

Explanation

An option's gamma measures the change in the delta for a change in the price of the underlying asset. The gamma of an option is highest when an option is at-the-money since the probability of moving in or out of the money is high. Put E is close to being at-the-money and because it has a gamma of greater than zero, the sensitivity of Put E's price to changes in BIC's stock price (i.e., the delta) is likely to change. The higher the gamma, the greater the change in delta given a change in stock price.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.l)

Question #45 of 60

Question ID: 1212835

Assuming that on October 15, the closing price of BIC common stock is $40 per share, how would the delta of Put F have changed from June 1?

A) The delta on Put F will move closer to –1.

B) The delta on Put F will move closer to 0.

C) The delta on Put F will move closer to 1.

Explanation

As the option moves further into the money and as the expiration date approaches, the delta of a put option moves closer to –1.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.k)

Question #46 of 60

Question ID: 1212836

If the premium on Put D on November 1 is $3.18, which of the following has *most likely* occurred?

A) The price of BIC stock has decreased to $26.82.

B) **BIC had a negative earnings surprise.**

C) Volatility of BIC stock has decreased.

Explanation

The premium on Put D has risen from $2.31 to $3.18 and there is still time left until expiration. Therefore, the increase in value must have come from either a decrease in stock price, an increase in volatility, or both of these events. Choice A would be correct if the option was at expiration and the $3.18 represented only intrinsic value. Since we are not yet at the expiration date, the stock price must be above $26.82. A negative earnings surprise would most likely cause a drop in the market price of the stock. Since there is no indication of the exact amount of the drop in price, the premium observed is a possibility. A decrease in BIC volatility would reduce the put premium, not increase it.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.k)

Question #47 of 60

Question ID: 1212837

Given Mabry's assessment of the risks associated with BIC, which option strategy would be the *most* effective in delta-neutral hedging the risk of BIC stock?

A) **Add put options to the portfolio as the put option delta moves closer to zero.**

B) Add call options to the portfolio as the call option delta moves further away from zero.

C) Add put options to the portfolio as the put option delta moves toward –1.

Explanation

To protect a portfolio against an expected decrease in the value of a long equity position, put options can be purchased (i.e., a protective put strategy). The number of puts to purchase depends on the hedge ratio, which depends on the option's delta. As a put option's delta moves closer to zero, the put becomes a less-effective hedging instrument, so we need to use more of them. Thus, we must add additional put options to the portfolio as the put option delta moves closer to zero.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.l)

Question #48 of 60

Question ID: 1212838

Which of the following correctly analyzes Grimell's comments regarding earning the risk-free rate by selling calls and buying puts, and regarding waiting for the option vegas to increase?

A) Only Grimell’s statement regarding earning the risk-free rate is correct.

B) Only Grimell's statement regarding waiting for vega to rise is correct.

C) Neither of Grimell's statements is correct.

Explanation

Grimell is incorrect in both of his statements. Using put-call parity, Mabry could create a position in which he would earn the risk-free rate of return but he would need to sell calls and buy puts with the same strike price, not the same premium. As the vega (volatility relative to price) of an option increases, it would become more sensitive to changes in the volatility of the underlying asset. Therefore, the price would likely rise, not fall.

For Further Reference:

(Study Session 14, Module 38.7, LOS 38.k)

Questions #49-54 of 60

Use the following information to answer Questions 49 through 54.

Gordon Stenton, CFA, works for a small investment management firm in the United States. Part of his role involves managing portfolios for high net worth individuals. Currently, Stenton is corresponding with Rachael Matten. Matten has withdrawn her assets from Altune, an asset management firm, and is considering allocating $2.5 million of those funds to Stenton's firm. Matten indicated that she was unhappy with the level of disclosure about trading methods and risk management that were employed at Altune.

Matten has sent Stenton a list of questions to assess the policies at Stenton's firm.

The first issue Matten wants clarification on pertains to the use of VaR. Among the documents that Altune sent Matten were two statements (shown in Exhibit 1). Matten was unsure of how to interpret either of these statements.

Exhibit 1: VaR

Statement 1:	Your portfolio has a 5% monthly VaR of $225,000. VaR is calculated using a parametric methodology and an assumption of normality for all risk factors.
Statement 2:	The average loss once the VaR cutoff is exceeded is estimated to be $320,000.

Matten indicates that in Statement 1, she understands that the $225,000 represents the minimum loss that will occur 5% of the time. She would also like to confirm her suspicion that the 1% VaR (loss) would be lower.

To provide Matten the risk management process employed at his firm, Stenton intends to send Matten the description shown in Exhibit 2.

Exhibit 2: Risk Management Measures

Primary Risk Management Measure – Steps	
Step 1:	Identify the top 10 exposures for the portfolio.
Step 2:	Design a hypothetical global event that would simultaneously adversely affect each of the

exposures.

Step 3: Assess the impact on the portfolio.

Matten has also raised an issue about investing in ETFs and the trading methods used by Stenton. She has read several negative comments in the financial press regarding the use of algorithms to trade and about the growing trend of high frequency trading. She has asked Stenton to comment on the concerns she has noted in Exhibit 3.

Exhibit 3: Concerns

Concern 1: The tracking error of ETFs chosen by Stenton tends to be fairly high.

Concern 2: The increase in market fragmentation resulting from an increase in electronic markets.

Question #49 of 60

Question ID: 1212847

Which of the following statements regarding Statement 1 in Exhibit 1 is *least accurate*?

A) The monthly VaR of $225,000 indicates an annual VaR of $2.7 million.

B) The fund will lose more than $225,000 in a month, 5% of the time.

C) The methodology described is not applicable to portfolios containing option positions.

Explanation

A monthly VaR cannot be annualized by simply multiplying by 12. The monthly return and standard deviation would need to be annualized and VaR recalculated. An assumption of a normal distribution is invalid if options were in the portfolio.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.b)

Question #50 of 60

Question ID: 1212848

Statement 2 in Exhibit 1 is *most accurately* described as:

A) incremental VaR.

B) conditional VaR.

C) marginal VaR.

Explanation

The estimated loss under the condition that VaR has been exceeded is known as conditional VaR.

For Further Reference:

(Study Session 16, Module 45.2, LOS 45.e)

Question #51 of 60

Question ID: 1212849

In her interpretation of VaR, Matten is *most likely*:

A) correct regarding the $225,000 but incorrect regarding the 1% VaR.

B) incorrect regarding the $225,000 but correct regarding the 1% VaR.

C) incorrect regarding the $225,000 and the 1% VaR.

Explanation

The $225,000 is a minimum loss that will be exceeded 5% of the time. A 1% VaR corresponds to a greater loss than a 5% VaR.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.a)

Question #52 of 60

Question ID: 1212850

The primary risk management measure discussed in Exhibit 2 is *most accurately* described as:

A) sensitivity risk analysis.

B) reverse stress testing.

C) Monte Carlo simulation.

Explanation

The description is of reverse stress testing, which is a form of scenario analysis, not sensitivity analysis. A Monte Carlo simulation would run many repeated scenarios.

For Further Reference:

(Study Session 16, Module 45.3, LOS 45.h)

Question #53 of 60

Question ID: 1212851

Stenton would *least accurately* respond to Concern 1 in Exhibit 3 by saying that tracking errors are caused by:

A) service charges paid by the authorized parties for primary market transactions.

B) the increased use of execution algorithms to profit from arbitrage opportunities, which has decreased market stability.

C) sampling and optimization methods used by funds.

Explanation

Fund fees/expenses, sampling and optimization, fund accounting practices, use of depository receipts, index changes, regulatory and tax requirements, and asset manager operations contribute to ETF tracking errors. Service fees paid by APs offset any incidentals that the ETF bears in the creation/redemption process and do not contribute to tracking error.

For Further Reference:

(Study Session 16, Module 43.1, LOS 43.c)

Question #54 of 60

Question ID: 1212852

Stenton should *most accurately* respond to Concern 2 in Exhibit 3 by saying that:

A) U.S. markets are not fragmented.

B) one specific type of trading algorithm, smart order routing, is chiefly responsible for market fragmentation.

C) **smart order routing was developed as a response to market fragmentation.**

Explanation

Market fragmentation occurs when the number of venues trading the same instrument increases. As a response, algorithms are used to aggregate liquidity and route orders to the venues that have the best price and market depth.

For Further Reference:

(Study Session 17, Module 48.2, LOS 48.e)

Questions #55-60 of 60

Use the following information to answer Questions 55 through 60.

Samuel Edson, CFA, portfolio manager for Driver Associates, employs a multifactor model to evaluate individual stocks and portfolios. Edson examines several possible risk factors and finds two that are priced in the marketplace. These two factors are investor sentiment (IS) risk and business cycle (BC) risk. Edson manages three equity portfolios (A, B, and C) and derives the following relationships for each portfolio, as well as for the S&P 500 stock market index:

$R_A = 0.1750 + 2.0F_{IS} + 1.5F_{BC}$ (1)

$R_B = 0.0940 + 0.5F_{IS} + 0.8F_{BC}$ (2)

$R_C = 0.1550 + 1.25F_{IS} + 1.15F_{BC}$ (3)

$R_{S\&P} = 0.1475 + 1.5F_{IS} + 1.25F_{BC}$ (4)

where:

R_A, R_B, R_C, and $R_{S\&P}$ = the returns for portfolios A, B, C, and the S&P 500 market index, respectively

Portfolios A and B are well-diversified, while C is a less than fully diversified, value-oriented portfolio. F_{IS} is the surprise in investor sentiment, and F_{BC} is the surprise in the business cycle. Surprises in the risk factors are defined as the difference between the actual value and the predicted value.

Exhibit 1 provides data for the actual and predicted values for the investor sentiment and business cycle risk factors.

Exhibit 1: Risk Factor Values

Factor	Actual Value	Predicted Value

Investor sentiment	1%	2%
Business cycle	2%	3%

Driver Associates also provides Edson with the following multifactor equations on three additional portfolios (D, E, and Z):

$E(R_D) = R_F + 1.0F_{IS} + 0.0F_{BC} = 9\%$ (5)

$E(R_E) = R_F + 0.0F_{IS} + 1.0F_{BC} = 8\%$ (6)

$E(R_Z) = R_F + 1.5F_{IS} + 1.25F_{BC} = 14.75\%$ (7)

Driver Associates uses a two-factor arbitrage pricing model to develop equilibrium expected returns for individual stocks and portfolios:

$E(R) = \text{risk-free rate} + b_1\lambda_1 + b_2\lambda_2$ (8)

where:

b_1 = sensitivity of the portfolio return to changes in risk factor 1

b_2 = sensitivity of the portfolio return to changes in risk factor 2

λ_1 = risk premium associated with risk factor 1

λ_2 = risk premium associated with risk factor 2

At the time of Edson's analysis, the long-term government bond yield was 5%.

Question #55 of 60

Question ID: 1212840

Equations (1) through (4) are examples of:

A) macroeconomic factor models.

B) fundamental factor models.

C) statistical factor models.

Explanation

The models in equations 1 through 4 employ factors derived from macroeconomic variables.

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #56 of 60

Question ID: 1212841

Edson's supervisor, Rosemary Valry, asks Edson to interpret the intercept of the multifactor equation for Portfolio A (0.175). Edson should respond that the intercept equals:

A) the expected return for Portfolio A, assuming no surprises in the macroeconomic variables.

B) the expected return for Portfolio A, assuming the macroeconomic variables (investor sentiment and business cycle) equal zero.

C) the expected abnormal return for Portfolio A.

Explanation

The intercept in a macroeconomic factor model equals the expected return for the portfolio examined in the model (assuming no surprises in the macroeconomic variables). The factors in the multifactor equations, F_{IS} and F_{BC}, are factor "surprises," which by definition are expected to equal zero (i.e., by definition, zero "surprise" is "expected"). So, by assumption, F_{IS} and F_{BC} are expected to equal zero. Therefore, the expected return for Portfolio A equals its intercept (17.5%).

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #57 of 60

Question ID: 1212842

The firm-specific surprises contributed 1.20% to Portfolio A's return. Using the data in Exhibit 1, the actual return on Portfolio A is *closest* to:

A) 12.2%.

B) 13.7%.

C) **15.2%.**

Explanation

The multifactor equation for Portfolio A is used to answer this question. Simply insert the factor surprises for F_{IS} and F_{BC}. From Exhibit 1, $F_{IS} = 0.01 - 0.02 = -0.01$ and $F_{BC} = 0.02 - 0.03 = -0.01$. Therefore, both factor surprises equal –1%. Substituting into the multifactor equation for Portfolio A and including the firm-specific surprise return: 0.1750 + 2(–0.01) + 1.5(–0.01) + 0.012 = 15.2%.

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #58 of 60

Question ID: 1212843

Driver Associates uses portfolios D, E, and Z as part of their risk management strategies. Which of these portfolios are factor portfolios?

A) **Portfolios D and E.**

B) Portfolios D and Z.

C) Portfolio Z only.

Explanation

A portfolio that has a sensitivity of 1.0 to one of the macroeconomic factors, and zero sensitivity to the remaining macroeconomic factors is called a factor portfolio. Portfolios D and E are factor portfolios. A portfolio that has factor

sensitivities that equal the sensitivities of the benchmark is called a tracking portfolio. Portfolio Z has factor sensitivities that exactly match those of the S&P 500.

For Further Reference:

(Study Session 16, Module 44.3, LOS 44.f)

Question #59 of 60

Question ID: 1212844

Valry instructs Edson to use the two-factor model to examine Driver Associates's well-diversified balanced Portfolio P, which has an Investor Sentiment factor sensitivity equal to 1.25 and a Business Cycle factor sensitivity equal to 1.10. According to Driver Associates's model, the expected return for Portfolio P equals:

A) 8.3%.

B) 10.8%.

C) **13.3%.**

Explanation

According to the Arbitrage Pricing Model, the expected return equals risk-free rate + $b_1RP_1 + b_2RP_2$, where RP_i is the risk premium for factor *i*. Portfolio D is designed to have sensitivity equal to one to the investor sentiment risk factor and sensitivity equal to zero to the business cycle risk factor. Similarly, Portfolio E is a portfolio designed to have sensitivity equal to zero to the investor sentiment risk factor and sensitivity equal to one to the business cycle risk factor. Portfolios that have a sensitivity equal to 1.0 to one factor and zero sensitivity to the remaining factors are called *factor portfolios*. Therefore, Portfolio D is the investor sentiment factor portfolio, and Portfolio E is the business cycle factor portfolio. According to the multifactor equations, the expected return for the investor sentiment factor portfolio (D) equals 9% and for the business cycle factor portfolio (E) equals 8%. Risk premiums are defined as the difference between the expected return on the appropriate factor portfolio and the risk-free rate. The risk-free rate is 5% (the long-term government bond yield). Therefore, the investor sentiment risk premium equals 0.09 − 0.05 = 0.04. Similarly, the business cycle risk premium equals 0.08 − 0.05 = 0.03. Therefore, the expected return for Portfolio P equals 0.05 + 1.25(0.04) + 1.1(0.03) = 13.3%.

For Further Reference:

(Study Session 16, Module 44.2, LOS 44.d)

Question #60 of 60

Question ID: 1212845

Assuming Driver Associates uses the S&P 500 Index as their performance benchmark, which of the following portfolios is expected to have the *least* active factor risk?

A) Portfolio D.

B) Portfolio E.

C) **Portfolio Z.**

Explanation

Active factor risk is caused by deviations of a portfolio's factor sensitivities from the benchmark factor sensitivities. Deviations are quite large for both Portfolios D and E, but Portfolio Z's factor sensitivities match those of the S&P 500 benchmark (1.5 and 1.25).

For Further Reference:

(Study Session 16, Module 44.3, LOS 44.f)

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 out-performed 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

	Level of Significance for One-Tailed Test			
	10%	**5%**	**2.5%**	**1%**
	Level of Significance for Two-Tailed Test			
Degrees of Freedom	**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 × 8,000 + 1,000.6 × 0.05 + 0.1 × 97 − 3.2 × 60,000 − 40.3 × 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	26,977	108
Total assets	40,877	824
Current liabilities	10,363	220
Other liabilities	11,121	8
Common stock	6,127	108
Retained earnings	13,266	488
Total liabilities and equity	40,877	824

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

Revenue	66,176	2,176
Expenses	63,515	2,068
Net income	2,661	108
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 × [$824 million − $220 million − $8 million]). The amount of excess purchase price that should be allocated to PP&E is $28.4 million (= 0.2 × [$250 million − $108 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:	$28.4 million
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 × $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:	$5.0 million
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 × 4.4%) + (0.45 × 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:

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

For Further Reference:

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

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 × 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.l)

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).

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

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	76.0	78.6	82.0	78.1
Total assets	100.0	104.2	109.2	110.5
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	46.0	50.2	55.2	64.5
	100.0	104.2	109.2	110.5
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

EVA = NOPAT − $WACC

NOPAT = EBIT × (1 − t) = 28.1 × (1 − 0.45) = 15.455

$WACC = WACC × total capital = 12.5% × 109.2 = $13.65m

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

EVA = 15.455 − 13.65 = $1.805m

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%		(12.78)
(=) Residual income		(0.28)

[1]Beginning 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

WCInv = 32.4 − 27.2 = 5.2

FCInv = (ending FA − beginning FA + depreciation) = 78.1 − 82.0 + 12 = 8.1

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)]

= $144.5m

For Further Reference:

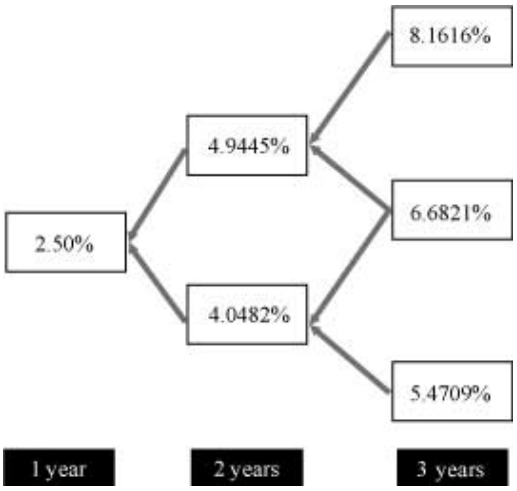
(Study Session 11, Module 30.1, LOS 30.a)

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 (σ = 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

Question ID: 1212763

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

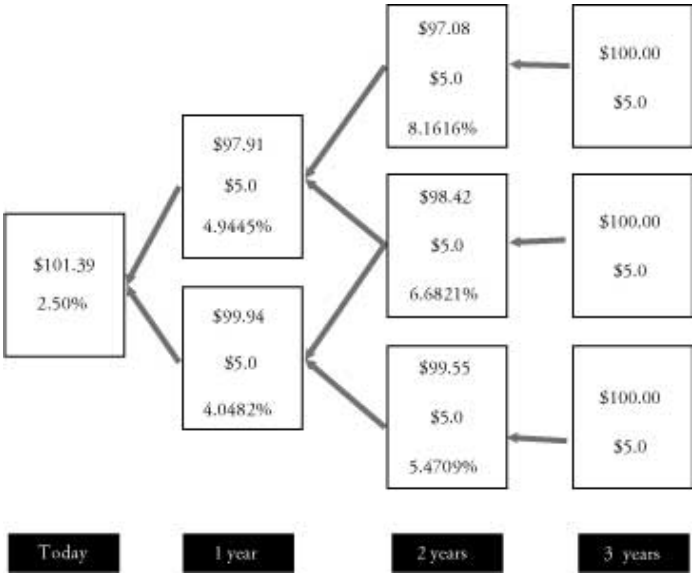
A) $98.96.

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

Question ID: 1212764

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:

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

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:

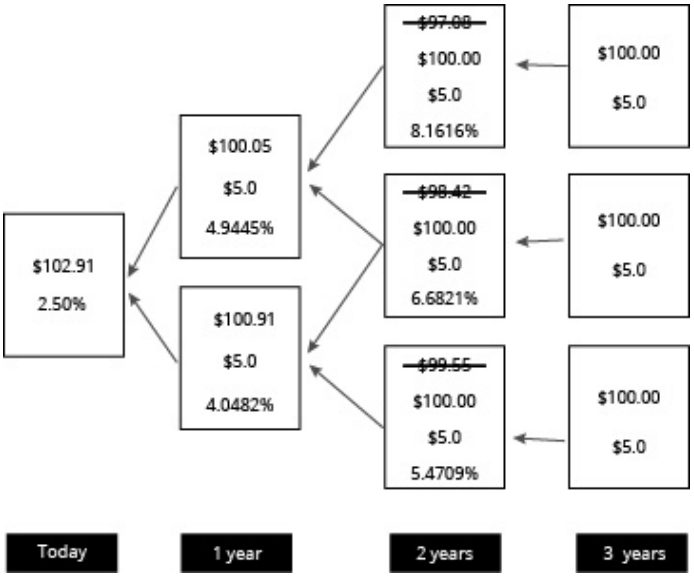
A) $98.96.

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

Question ID: 1212767

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 putable 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:

$$FP = S_0e^{(r-d)t} = 1{,}050e^{(0.04-0.02)(240/365)} = 1{,}064$$

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:

$$FP = S_0e^{(r-d)t} = 1{,}015e^{(4.0-2.0)(180/365)} = 1{,}025$$

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) × (0.9996 + 0.9978 + 0.9961 + 0.9932) + 1 × 0.9932 = 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 €1,001,400 − €1,021,033 = –€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

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

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(Dena) = IR(Orient)

$$(0.2) \times (0.99) \times \sqrt{12} = (0.25) \times (0.80) \times \sqrt{\mathrm{X}}$$
$$\sqrt{\mathrm{X}} = 3.429; \mathrm{X} = 11.76$$

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(% 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

$$\mathrm{IR} = \mathrm{IC}\sqrt{\mathrm{BR}}$$
$$\mathrm{IR_A} = 0.04\sqrt{12 \times 2} = 0.20$$
$$\mathrm{IR_B} = 0.16\sqrt{4 \times 3} = 0.55$$
$$\mathrm{IR_C} = 0.18\sqrt{2 \times 2} = 0.36$$

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 × 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:

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

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)

dollars for the year and decides there are more than enough soft dollars to pay the StockCal, AGF, and Add-Invest Software bills combined. Luna believes she can be assured of excellent trade execution from Turn Byer and improved profitability for TIM because of the increased use of soft dollars. Luna then directs that the StockCal and Add-Invest software services be paid for with soft dollar or client brokerage dollars.

Case 3

Sol Wurtzel, the equity salesman for Turn Byer, has referred several clients to TIM over the past year. In fact, Wurtzel referrals currently account for almost 20% of the assets managed by TIM. The principals of TIM decide to reward Wurtzel, either by doubling the commissions paid on trades executed through Turn Byer on Wurtzel's referral accounts, or by paying Wurtzel a cash referral fee for each additional TIM account opened by a Wurtzel referral. The principals agree that any cash referral fee would need to be disclosed to clients in advance.

Case 4

Luna notes that her clients have become increasingly aware of the directed client brokerage/soft dollar commissions issue. At a recent meeting with one of her large pension clients, Service Workers Union Local No. 1418, the subject of directed commissions came up. Upon learning of the commission dollars available to their account, the Union trustees directed Luna to use their client brokerage of approximately $25,000 to donate to a think tank called the Hoover Study Center of Unions at Samford University. Service Workers trustees believe the Hoover study will increase the public awareness of the benefits unions offer to their members and increase union membership. Luna concurs with the trustee's judgment on increasing union enrollment as a great goal, and follows the client's instructions and makes the $25,000 contribution to the Hoover Study Center. Another client, Rosa Lutz, has asked Luna to credit the soft dollar client brokerage proceeds from her personal retirement accounts to Roswell Academy, to update their computer lab. Luna agrees that a new computer lab for Roswell Academy is greatly needed, and she allocates $10,000 of Lutz's commission dollars to Roswell Academy.

Question #1 of 60

Question ID: 1212644

Did Sampson and/or Lawson violate the CFA Institute Standards of Professional Conduct with respect to presenting the TIM biographies to the client?

A) Yes, both Sampson and Lawson violated the Standards.

B) Yes, Sampson violated the Standards, while Lawson did not.

C) Neither Sampson nor Lawson violated the Standards, because such outsourcing is permitted.

Explanation

Standard I(C). Both Sampson and Lawson have violated Standard I(C) – Professionalism – Misrepresentation. When Sampson prepared biographies with Shadow Mountain Wealth Management Team included in them, she was obviously trying to convey the image that TIM personnel are employees of the bank trust department. This does not portray the correct business relationship between Shadow Mountain and TIM. TIM is an outsourcer to Shadow Mountain and a contract investment management provider, not an employee. Sampson is attempting to create a misleading view of the service level and investment expertise that clients could rightly expect. While Lawson was not a party to preparing such misleading business cards and marketing materials, he participated in the misrepresentation by agreeing to go ahead with the client presentation.

For Further Reference:

(Study Session 1, Module 2.2, LOS 2.a)

Question #2 of 60

Question ID: 1212645

Sampson's use of the relabeled BAGF investment performance record violates CFA Institute Standards:

A) only if Sampson fails to include written disclosures as to the true source and nature of the performance record.

B) only if Sampson does not have written permission from Gobble Insurance to use the performance data.

C) unless Sampson includes written disclosures as to the true source and nature of the performance record and has written permission from Gobble Insurance to use the performance data.

Explanation

Standards I(C) and III(D). Including the BAGF performance is a violation of Standard I(C) – Professionalism – Misrepresentation and Standard III(D) – Duties to Clients – Performance Presentation. When Sampson combines the BAGF performance record with the TIM Composite Equity Composite, this gives potential clients a misleading impression of TIM's long-term equity management performance. The use of this performance data might be acceptable if full disclosure were made as to the source and nature of the data.

For Further Reference:

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

Question #3 of 60

Question ID: 1212646

Did Luna violate the CFA Institute Standards of Professional Conduct by using soft dollar commissions to pay TIM's software subscription costs to StockCal and/or Add-Invest?

A) Both StockCal and Add-Invest software services may be paid for with soft dollars.

B) Neither StockCal nor Add-Invest software may be paid for with soft dollars.

C) It is acceptable to use soft dollars to pay for the StockCal software but not the Add-Invest software.

Explanation

Standard III(A). Luna has violated the CFA Institute Standards of Professional Conduct – Standard III(A) Duties to Clients – Loyalty, Prudence, and Care. Client brokerage is the property or asset of the client and not TIM. Client brokerage should be used only for research products or services that are directly related to the investment decision-making process and not the management costs of the firm. In this case, Luna should disclose to TIM's clients that their brokerage may be used to purchase research. In addition, Luna should seek to ensure that Turn Byer is providing the best execution for TIM's clients. StockCal is clearly providing equity research products/services that aid TIM in the investment decision-making process and not the general operation or management costs of the firm. StockCal may therefore be properly paid for with client brokerage soft dollars, and this is not a violation of the Standards or Code. However, Add-Invest Software provides

TIM's clients with portfolio accounting and performance measurement services and is not related to the investment decision-making process. Therefore, Luna is misusing client resources when she uses client brokerage to purchase Add-Invest Software. Add-Invest is clearly a business expense of TIM and should rightly be paid for by the firm and not the clients. The product or service received must provide proper assistance to the investment manager in following through with his investment decision-making responsibilities.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #4 of 60

Question ID: 1212647

Would either compensation arrangement to reward Wurtzel for client referrals violate the CFA Institute Standards of Professional Conduct?

A) Both compensation arrangements would be violations, regardless of any disclosures to clients.

B) **The increased commissions plan would be a violation, while the cash referral fees would not be a violation.**

C) Both compensation arrangements are allowed, as long as they are fully disclosed, in advance, to all clients and prospective clients.

Explanation

Standard III(A). The increased commission would be a violation, but the cash referral fee would not. Doubling the commission paid to Wurtzel would be a violation of Standard III(A) Duties to Clients – Loyalty, Prudence, and Care. Client brokerage is strictly an asset of the client and must be used for the benefit of clients in research that will assist the investment manager in the investment decision-making process. Client brokerage cannot be used as a reward for bringing clients to TIM and to do so is a misappropriation of client assets. Cash referral fees are acceptable, so long as the referral arrangement is fully disclosed to the clients in advance of opening their accounts. The case mentions that this disclosure will be made. This disclosure allows the client to evaluate any potential conflict(s) of interest in the referral process.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #5 of 60

Question ID: 1212648

Is the use of client brokerage to make the $25,000 educational contribution to the Hoover Study Center of Unions a violation of the CFA Institute Standards of Professional Conduct?

A) **Yes, because TIM must ensure that client brokerage fees are directed to the benefit of the client.**

B) Yes, because client brokerage must only be used to pay for goods and services directly related to the investment decision-making process.

C) No, because the client brokerage has been spent at the specific direction of the client.

Explanation

Standard III(A). In making a $25,000 contribution to the Hoover Study Center of Unions, Luna has violated Standard III(A) Duties to Clients – Loyalty, Prudence, and Care, which states that Members and Candidates must act for the benefit of their clients and place their clients' interest before their employers' or their own interest. In relationship with clients, Members and Candidates must determine applicable fiduciary duty and must comply with such duty to the persons and interests to whom it is owed. The contribution to the Hoover Study Center of Unions, authorized by the trustees of the union, brings into question this acting for the benefit of the client. Despite providing guidance and governance for the union, trustees are not the client of the union fund; rather, the members of the union and their beneficiaries are the clients of the fund. By making a $25,000 contribution from the client brokerage, Luna and the trustees have used funds that rightly belong to the members of the union and they have done so without direct compensation to the union members. Luna should not have authorized the pension account to make the contribution and having done so violated her duty to loyally guard the assets of her clients as a fiduciary. Luna has an obligation to follow the Code and Standards. Client brokerage is the property of the client, not the trustee or fiduciary representing the client.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Question #6 of 60

Question ID: 1212649

Is the use of client brokerage to make the $10,000 contribution to the Roswell Academy a violation of the CFA Institute Standards of Professional Conduct?

A) Yes, because client brokerage must only be used to pay for goods and services directly related to the investment decision-making process.

B) Yes, because client brokerage of tax-deferred accounts cannot be used to make charitable contributions.

C) **No, because the client brokerage has been spent at the specific direction of the client.**

Explanation

Standard III(A). In this case, Lutz is the client and, therefore, the direct owner of the client brokerage. If Lutz's desire is to give the soft dollar client brokerage asset to the Roswell Academy, she is free to do so because it is her asset. She is sole owner of her own retirement account. Luna, by following the wishes of the client, is complying with her duty of loyalty. Thus, there is no violation of Standard III(A) Duties to Clients – Loyalty, Prudence, and Care, in the case of the $10,000 contribution to Roswell Academy.

For Further Reference:

(Study Session 1, Module 2.4, LOS 2.a)

Questions #7-12 of 60

Use the following information to answer Questions 7 through 12.

William Shears, CFA, has been assigned the task of predicting sales for the specialty retail industry. Shears finds that sales have been increasing at a fairly constant rate over time and decides to estimate the linear trend in sales for the industry using quarterly data over the past 15 years, starting with Quarter 1 of 2004 and ending with Quarter 4 of 2018. On January 1, 2019, Shears estimates the following model:

$$sales_t = b_0 + b_1 t + e_t \quad (1)$$

where:

sales = quarterly sales (measured in $ millions) for the specialty retail industry

b_0 = intercept term

b_1 = slope

t = time variable (quarter number)

e = random error

Exhibit 1 provides the results of the linear trend regression.

Exhibit 1: Linear Trend Regression

	Coefficient	Standard Error
Intercept	10.0	3.50
Trend	16.0	6.55

Shears also estimates an autoregressive model of order one, AR(1), using the changes in quarterly sales data for the industry from the first quarter of 2004 through the fourth quarter of 2018. He obtains the following results for his AR(1) model:

$$\Delta sales_t = b_0 + b_1 \Delta sales_{t-1} + e_t$$

Exhibit 2: AR(1) Model for Changes in Industry Sales

	Coefficient	Standard Error
Intercept	20.00	2.15
Lag 1	0.10	0.04

The autocorrelations for the first four lags from Shears's AR(1) model are provided in Exhibit 3:

Exhibit 3: Autocorrelations From the AR(1) Model

Lag	Autocorrelation	p-Value
1	–0.032	0.38
2	–0.200	0.16
3	–0.065	0.23
4	0.470	0.02

Shears also derives a regression using the residuals from the AR(1) model. He regresses the squared residuals (or estimated errors) against the lagged squared residuals. The results of this regression are reported in Exhibit 4.

Exhibit 4: Squared Residuals Regression

	Coefficient	Standard Error	p-Value
Intercept	3.00	0.577	0.01
Lagged residual squared	0.28	0.185	0.31

Quarterly sales for the Specialty Retail Industry during 2018 were:

Exhibit 5: 2018 Quarterly Industry Sales

Quarter	Sales (in millions)
Quarter 1, 2018	900
Quarter 2, 2018	925
Quarter 3, 2018	950
Quarter 4, 2018	1,000

Question #7 of 60

Question ID: 1212651

Shears's supervisor, Sam Kite, expresses concern that equation (1) might be misspecified. Specifically, Kite refers to the finding that "sales have been increasing at a fairly constant rate over time."

Which of the following data transformations should be applied to the dependent variable in equation (1) to best address Kite's concern?

A) Lagged transformation.

B) **Logarithmic transformation.**

C) First difference transformation.

Explanation

A logarithmic transformation of the dependent variable is the most appropriate transformation to apply when the variable grows at a constant rate over time:

$$\ln(\text{sales}) = a^* + b^*t + e$$

The slope of this equation equals the nominal constant rate. The effective rate equals $e^{b^*} - 1$.

For Further Reference:

(Study Session 2, Module 6.1, LOS 6.b)

Question #8 of 60

Question ID: 1212652

Using the results for the linear trend equation in Exhibit 1, the specialty retail industry sales forecast for Quarter 1 of 2019 is *closest* to:

A) $26 million.

B) $976 million.

C) **$986 million.**

Explanation

Quarter 1 of 2019 is the 61st quarter (starting with Quarter 1 of 2004): sales = 10 + 16(61) = $986 million.

For Further Reference:

(Study Session 2, Module 6.1, LOS 6.b)

Question #9 of 60

Question ID: 1212653

Assuming the AR(1) model in Exhibit 2 is appropriate, Shears should conclude that the Quarter 1, 2019, change in sales is *most likely* to:

A) **fall from Quarter 4, 2018, change in sales.**

B) rise from Quarter 4, 2018, change in sales.

C) remain unchanged from Quarter 4, 2018, change in sales.

Explanation

The mean reverting value equals the intercept divided by 1 minus slope = 20 / (1 − 0.10) = 20 / 0.90 = $22.22 million. The last change was $50 million as shown in Exhibit 5 (1000 − 950). Therefore, the AR(1) model predicts that the series will fall anytime the current value (the last quarter in 2018) is above the mean reverting value. The change in sales for the last quarter in 2018 was $50 million, which exceeds the mean reverting value. We could also have computed the forecasted change in sales for Quarter 1, 2019 as 20 + (0.1) × 50 = 25 (which is lower than the previous change of 50).

For Further Reference:

(Study Session 2, Module 6.2, LOS 6.f)

Question #10 of 60

Question ID: 1212654

Regarding seasonality, given a 5% level of significance, Shears should use Exhibit 3 to conclude he should add the following lag to his autoregressive model:

A) no lag.

B) the 3rd lag.

C) **the 4th lag.**

Explanation

Seasonality refers to repeating patterns each year. Using quarterly data, tests of seasonality focus on the 4th lag (i.e., "same time last year"). The autocorrelation for the 4th lag is statistically significant. This can be observed by comparing the reported *p*-value (0.02), which is less than the level of significance (0.05).

For Further Reference:

(Study Session 2, Module 6.4, LOS 6.l)

Question #11 of 60

Question ID: 1212655

From the data provided in Exhibit 4, for a 5% level of significance, Shears should conclude that his AR(1) model exhibits:

A) no autocorrelation.

B) **no autoregressive conditional heteroskedasticity (ARCH).**

C) no multicollinearity.

Explanation

Autoregressive conditional heteroskedasticity refers to an autoregressive equation in which the variance of the errors terms is heteroskedastic (i.e., error variance is not constant). The presence of ARCH is tested with the following regression:

$$e_t^2 = \beta_1 + \beta_2 e_{t-1}^2 + v_t$$

which serves as a proxy for:

$$\text{var}(e_t) = \beta_1 + \beta_2 \text{var}(e_{t-1}) + v_t$$

Exhibit 4 indicates that the slope estimate in the ARCH equation is not significant (the *t*-statistic for the slope estimate of the ARCH equation is not significant). Therefore, the squared error does not depend on its lagged value (i.e., if the slope equals zero, then the error variance equals the constant β_1, which indicates no conditional heteroskedasticity in the AR model). ARCH is not present.

For Further Reference:

(Study Session 2, Module 6.5, LOS 6.m)

Question #12 of 60

Question ID: 1212656

Using the historical data provided in Exhibit 5, the two-period-ahead forecast of the change in industry sales is *closest* to:

A) $5 million.

B) **$22.5 million.**

C) $120 million.

Explanation

The most recent change in sales reported in Exhibit 5 was $50 million (i.e., an increase from $950 million to $1,000 million). Therefore, the one-step-ahead forecast is 20 + 0.1(50) = $25 million and the two-step-ahead forecast is 20 + 0.1(25) = $22.5 million.

For Further Reference:

(Study Session 2, Module 6.2, LOS 6.d)

Questions #13-18 of 60

Use the following information to answer Questions 13 through 18.

Tristanya is a developed country with three states, West Tristanya (West), Central Tristanya (Central), and East Tristanya (East). Tristanya is a stable democracy with elected representatives, appointed judges, and an elected prime minister. All three states have approximately the same population and geographical area. Tristanya's savings rates are above the global average, and economic development has been mostly financed with domestic savings. The currency in Tristanya is the Tristanya dollar with a symbol of T$. The financial markets are highly liquid and function efficiently. Tristanya's foreign trade is a significant part of the economy, and because of this, Tristanya has continued to push for lower trade barriers. Similar to other developed nations, population growth rate in Tristanya is low and capital stock is high.

The three states adhere to all federal regulations but differ significantly on some policies that are not covered by federal laws. The states also have their own agencies for regional administration of state-specific regulations. Any jurisdictional issue is resolved in federal courts.

The government of Tristanya is increasing its efforts to boost labor productivity. Some of the proposals under consideration include:

1. Increased education funding for elementary and middle schools.
2. Increased tax credits for private research and development expenditures.
3. Increased depreciation allowances for tax purposes.

At a recent congressional hearing, Mr. Adel Mahi, the chief economic adviser to the prime minister, stated that Tristanya's capital accumulation affects the size of the Tristanyan GDP but not its growth rate.

All commercial and financial market regulations are the domain of federal agencies and government recognized self-regulatory organizations (SROs). In this regard, the federal government tends to set minimum standards and allows each state to create agencies to enforce their regulations.

Fuel costs have become an issue in Tristanya as demand for gasoline is expected to increase. Mandated fuel additives, specifically corn ethanol, are used to increase supply, and minimum fuel economy standards have been imposed to curtail demand.

East has the highest obesity rates among the three states. To control the state government's health care expenditure, East's government is implementing an additional tax on all sweet snack foods manufactured in the state. The tax is also known as the "sweet tax." Another regulation, the "supersize drinks ban," will prohibit restaurants in East from selling large portion sizes of carbonated beverages.

The most common form of sweetener in Tristanya is corn syrup. The agricultural industry has benefited from excess demand for corn to produce corn syrup and ethanol. Even after implementation of the "sweet tax," the demand for corn is expected to remain high.

West has the highest gasoline usage per capita, and reducing gasoline consumption is a policy goal for that state's government. West also has the most stringent environmental regulations and has recently raised their standards for minimum fuel economy for automobiles.

Juanita Estrada, an analyst, is assigned to assess the impact of all the regulatory changes on economic growth. Estrada lists the following findings from her analysis:

Finding 1:	The snack food industry is in the process of relocating manufacturing of sweet snack foods to West and Central and relocating manufacturing of salty snack foods to East.
Finding 2:	After West raised that state's fuel economy standards, the average miles driven per capita increased.

Question #13 of 60

Question ID: 1212658

Based on finding 1, the snack food industry is engaging in regulatory:

A) capture.

B) **arbitrage.**

C) competition.

Explanation

The snack foods industry, a regulated entity, has found a way to exploit the differences in regulations among the three states and is engaging in regulatory arbitrage. Regulatory competition is a result of actions taken by regulators to attract certain entities. Regulatory capture is the idea that regulatory bodies are influenced or controlled by the regulated industry.

For Further Reference:

(Study Session 4, Module 12.1, LOS 12.f)

Question #14 of 60

Question ID: 1212659

Which Tristanyan industry is *most likely* to shrink due to the regulatory changes in the East?

A) Snacks.

B) Agriculture.

C) **Carbonated beverages.**

Explanation

The carbonated beverages industry is likely to be hurt by the elimination of bigger sizes of drinks. The snack industry can avoid the new manufacturing tax in East by moving manufacture of sweet snacks to the other two states. The demand for corn is expected to remain fairly high so the regulatory changes in East are unlikely to have a major impact on the Tristanyan agricultural industry.

For Further Reference:

(Study Session 4, Module 12.1, LOS 12.i)

Question #15 of 60

Question ID: 1212660

The cost associated with finding 2 is:

A) a component of the regulatory burden.

B) a component of the implementation cost.

C) **a justification for sunset provisions.**

Explanation

The increase in driving miles was not the intended effect of the regulation. Unintended effects are not a component of implementation cost. Regulatory burden refers to the cost of regulation for the entity being regulated. If sunset clause provisions were included in the regulation, West's regulators would be required to revisit the cost-benefit analysis and consider the cost of unintended consequences before renewing the regulation.

For Further Reference:

(Study Session 4, Module 12.1, LOS 12.h)

Question #16 of 60

Question ID: 1212661

The government proposal that would *most likely* lead to the highest increase in labor productivity is:

A) Proposal 1.

B) **Proposal 2.**

C) Proposal 3.

Explanation

In order for developed countries to grow, technological development is critical. Proposal 2 most clearly addresses this need. Proposal 1 would be more effective if the focus was on post-secondary education, as developed nations benefit more from innovation and less from applying technology. Proposal 3 is unlikely to have a major impact on labor productivity, as developed nations have high capital-to-labor ratios, and incentives to further increase capital will have relatively little effect on labor productivity.

For Further Reference:

(Study Session 4, Module 11.2, LOS 11.h)

Question #17 of 60

Question ID: 1212662

Mahi's statement is consistent with:

A) classical growth theory.

B) endogenous growth theory.

C) **neoclassical growth theory.**

Explanation

Neoclassical growth theory concludes that capital accumulation affects the level of output but not the long-run growth rate.

For Further Reference:

(Study Session 4, Module 11.3, LOS 11.i)

Question #18 of 60

Question ID: 1212663

The objectives of regulators in financial markets is *least likely* to include:

A) low inflation.

B) prudential supervision.

C) promotion of economic growth.

Explanation

The objectives of regulators in financial markets include prudential supervision, financial stability, market integrity, and economic growth. Low inflation is likely to be an objective of the central bank.

For Further Reference:

(Study Session 4, Module 12.1, LOS 12.b)

Questions #19-24 of 60

Use the following information to answer Questions 19 through 24.

Viper Motor Company, a publicly traded automobile manufacturer located in Detroit, Michigan, periodically invests its excess cash in low-risk fixed-income securities. At the end of 2019, Viper's investment portfolio consisted of two separate bond investments: Pinto Corporation and Vega Incorporated.

On January 2, 2019, Viper purchased $10 million of Pinto's 4% annual coupon bonds at 92% of par. The bonds were priced to yield 5%. Viper classified the bonds as amortized cost securities. At the end of 2019, the bonds had a fair value of $9.6 million.

On July 1, 2019, Viper purchased $7 million of Vega's 5% semiannual coupon mortgage bonds at par. The bonds mature in 20 years. At the end of 2019, the market rate of interest for similar bonds was 4%. Viper classifies these bonds as fair value through profit or loss securities.

Neither of the bond investments were sold by Viper in 2019.

On January 1, 2020, Viper purchased a 60% controlling interest in Gremlin Corporation for $900 million. Viper paid for the acquisition with shares of its common stock.

Exhibit 1 contains Viper's and Gremlin's preacquisition balance sheet data.

Exhibit 1: Preacquisition Balance Sheet Data

In millions	Viper		Gremlin	
	Book Value	Fair Value	Book Value	Fair Value
Current assets	$9,000	$9,000	$500	$700
Noncurrent assets	7,500	7,800	900	950

	$16,500		$1,400	
Current liabilities	$3,000	$3,000	$250	$250
Long-term debt	7,700	7,500	400	300
Stockholders' equity	5,800		750	
	$16,500		$1,400	

Exhibit 2 contains selected information from Viper's financial statement footnotes.

Exhibit 2: Selected Footnote Information—Viper Motor Company

In millions
At the end of 2020, the carrying value of Viper's investment in Gremlin was $1,425, including goodwill. On that date, the fair value of Gremlin was $1,475, and the fair value of Gremlin's identifiable net assets was $1,350. The recoverable amount was estimated at $1,430.

Question #19 of 60

Question ID: 1212665

The carrying value of Viper's investment portfolio as of December 31, 2019, is *closest* to:

A) $16.6 million.

B) **$17.2 million.**

C) $17.5 million.

Explanation

Pinto bonds are reported on the balance sheet at amortized cost. At the end of 2019, the Pinto bonds have a carrying value of $9,260,000 (9,200,000 issue price + 60,000 discount amortization). The amortized discount is equal to the $60,000 difference between the interest expense of $460,000 (9,200,000 × 5%) and the $400,000 coupon payment (10,000,000 × 4%).

FVPL securities are reported on the balance sheet at fair value. At the end of 2019, the fair value of the Vega bonds was $7,941,591 (N = 39, I = 2, PMT = 175,000, FV = 7,000,000, Solve for PV).

Thus, at the end of 2019, the investment portfolio is reported at $17.2 million (9,260,000 Pinto bond + 7,941,591 Vega bond).

For Further Reference:

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

Question #20 of 60

Question ID: 1212666

If Viper had initially classified its Vega bond investment as fair value through OCI, which of the following *best* describes the *most likely* effect for the year ended 2019?

A) Lower asset turnover.

B) Higher return on equity.

C) **Lower net profit margin.**

Explanation

A $941,591 unrealized gain (7,941,591 FV − 7,000,000 BV) was included in Viper's net income because the Vega bonds were classified as FVPL securities. Had the Vega bonds been classified as FVOCI, the unrealized gain would have been reported as a component of stockholders' equity. In that case, net profit margin would have been lower (lower numerator).

For Further Reference:

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

Question #21 of 60

Question ID: 1212667

What is the appropriate adjustment, if any, if the Pinto bonds are reclassified as fair value through profit or loss securities during 2020?

A) **The difference between the fair value and the carrying value on the date of reclassification is recognized in Viper's income statement.**

B) Any unrealized gain or loss, as of the date of reclassification, is immediately recognized in Viper's OCI.

C) No adjustment is necessary because reclassification to/from fair value through profit or loss is strictly prohibited.

Explanation

Reclassifying an amortized cost security to FVPL involves stating the investment on the balance sheet at fair value and recognizing the difference in the fair value and the carrying value in the income statement.

For Further Reference:

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

Question #22 of 60

Question ID: 1212668

The amount of goodwill Viper should report in its consolidated balance sheet immediately after the acquisition of Gremlin is *closest* to:

A) $250 million under the partial goodwill method.

B) $350 million under the pooling method.

C) **$400 million under the full goodwill method.**

Explanation

Full goodwill method (in millions)

Fair value of Gremlin	$1,500	(900 purchase price / 60% ownership interest)
Less: Fair value of Gremlin's identifiable net assets	1,100	(700 CA + 950 NCA − 250 CL − 300 LTD)

Goodwill	$400	

Partial goodwill method (in millions)

Purchase price	$900	
Less: Pro-rata share of Gremlin's identifiable net assets at FV	660	(700 CA + 950 NCA − 250 CL − 300 LTD) × 60%
Goodwill	$240	

Goodwill is not created under the pooling method.

For Further Reference:

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

Question #23 of 60

Question ID: 1212669

According to U.S. GAAP, Viper's long-term debt-to-equity ratio, calculated immediately after the acquisition, is *closest* to:

A) 1.07.

B) 1.10.

C) 1.12.

Explanation

Viper's post-acquisition LTD is $8,000 million [7,700 million BV of Viper + 300 million fair value (FV) of Gremlin debt]. Viper's post-acquisition equity is equal to $7,300 million (5,800 million Viper pre-acquisition equity + 900 million FV of shares used to acquire Gremlin + 600 million noncontrolling interest). Under U.S. GAAP, the noncontrolling interest is based on the full goodwill method (1,500 million FV of Gremlin × 40% noncontrolling interest). Thus, the long-term debt-to-equity ratio is 1.10 (8,000 million LTD / 7,300 million equity).

For Further Reference:

(Study Session 5, Module 13.7, LOS 13.b, 13.c)

Question #24 of 60

Question ID: 1212670

Using only the information contained in Exhibit 2, which of the following statements is *most accurate* when presenting Viper's consolidated income statement for the year ended 2020?

A) An impairment loss of $5 million should be recognized under IFRS.

B) An impairment loss of $275 million should be recognized under U.S. GAAP.

C) No impairment loss is recognized under U.S. GAAP or IFRS.

Explanation

According to U.S. GAAP, the goodwill is not impaired because the $1,475 million fair value of Gremlin exceeds the $1,425 million carrying value. Thus, no impairment loss is recognized.

Under IFRS, no impairment loss is recognized because the $1,430 million recoverable amount exceeds the $1,425 million carrying value.

For Further Reference:

(Study Session 5, Module 13.2, LOS 13.b)

Questions #25-30 of 60

Use the following information to answer Questions 25 through 30.

Delicious Candy Company (Delicious) is a leading manufacturer and distributor of quality confectionery products throughout Europe and Mexico. Delicious is a publicly traded firm located in Italy and has been in business over 60 years. Delicious complies with International Financial Reporting Standards (IFRS).

Caleb Scott, an equity analyst with a large pension fund, has been asked to complete a comprehensive analysis of Delicious in order to evaluate the possibility of a future investment.

Scott compiles the selected financial data found in Exhibit 1 and learns that Delicious owns a 30% equity interest in a supplier located in the United States. Delicious uses the equity method to account for its investment in the U.S. associate. The associate prepares its financial statements in accordance with U.S. Generally Accepted Accounting Principles (GAAP).

Exhibit 1: Selected Financial Data—Delicious Candy Company

In millions	2017	2016
Income Statement		
Revenue	€60,229	€55,137
Earnings before interest and tax	7,990	7,077
Earnings before tax	7,570	6,779
Income from associate[a]	354	270
Net income	6,501	5,625
Balance sheet		
Total assets[b]	€56,396	€53,111
Investment in associate	5,504	5,193
Stockholders' equity[c]	30,371	29,595

[a] Not included in EBIT or EBT.

[b] Total assets were €45,597 at the end of 2015.

[c] Stockholders' equity was €27,881 at the end of 2015.

Scott reads the Delicious's revenue recognition footnote found in Exhibit 2.

Exhibit 2: Revenue Recognition Footnote

In millions
Revenue is recognized, net of returns and allowances, when the goods are shipped to customers and collectibility is assured. Several customers remit payment before delivery in order to receive additional discounts. Delicious reports these amounts as unearned revenue until the goods are shipped. Unearned revenue was €7,201 at the end of 2017, €2,514 at the end of 2016, and €1,711 at the end of 2015.

Delicious operates two geographic segments: Europe and Mexico. Selected financial information for each segment is found in Exhibit 3.

Exhibit 3: Selected Financial Information by Segment

In millions	EBIT	Revenue	Total CapEx	Total Assets
Europe	€7,203	€50,463	€4,452	€36,642
Mexico	€787	€9,766	€8,269	€14,250

Scott wants to determine whether the cash flow is of high quality.

Scott gathers the information in Exhibit 4 to determine the implied "stand-alone" value of Delicious without regard to the value of its U.S. associate.

Exhibit 4: Selected 2017 Market Capitalization Data

In millions except exchange rates	Delicious	Associate
Market capitalization	€97,525	$32,330
Current exchange rate (€ per $)	€0.70	
Average exchange rate (€ per $)	€0.73	

Delicious financial statements include an investment of €60 million in debt securities, which are reported as fair value through profit or loss securities.

Question #25 of 60

Question ID: 1212672

When applying the financial analysis framework to Delicious, which of the following is the *best* example of an input Scott should use when establishing the purpose and context of the analysis?

A) The audited financial statements of Delicious prepared in conformance with either U.S. GAAP or IFRS.

B) Ratio analysis adjusted for differences between U.S. accounting standards and international accounting standards.

C) Review of the pension fund's guidelines related to developing the specific work product.

Explanation

The institutional guidelines related to developing the specific work product is an input source in the first phase (defining the purpose and context of the analysis). Audited financial statements are an example of an input in the data collection phase. Ratio analysis is an example of the output from the data processing phase.

For Further Reference:

(Study Session 6, Module 18.1, LOS 18.a)

Question #26 of 60

Question ID: 1212673

If Delicious reported the investment in debt securities as fair value through OCI securities instead of as fair value through profit or loss securities, the impact on Delicious's financial statement would be:

A) to decrease total assets.

B) to increase total assets.

C) no change to total assets.

Explanation

If Delicious reported the investment in debt securities as fair value through OCI instead of fair value through profit or loss, its total assets would be unchanged, because both methods report the bonds at fair value on the balance sheet. Net income would, however, differ with unrealized gains or loss reported in income statement under fair value through profit or loss classification while being reported in OCI under fair value through OCI classification.

For Further Reference:

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

Question #27 of 60

Question ID: 1212674

Using the data found in Exhibit 1 and Exhibit 2, which of the following *best* describes the impact on Delicious's financial leverage in 2017 as compared to 2016?

A) Financial leverage increased, but the true nature of the leverage decreased.

B) Financial leverage increased, and the true nature of the leverage increased.

C) Financial leverage and the true nature of the leverage were unchanged.

Explanation

Delicious's financial leverage ratio was 1.8 (54,753 average assets / 29,983 average equity) for 2017 and was 1.7 for 2016 (49,354 average assets / 28,738 average equity). Although leverage was higher, the nature of the true leverage was lower. This is because the increasing customer advances (unearned revenue) will not require an outflow of cash in the future and are, thus, less onerous than Delicious's other liabilities.

For Further Reference:

(Study Session 6, Module 18.2, LOS 18.b)

Question #28 of 60

Question ID: 1212675

The data found in Exhibit 3 indicates that Delicious may be over-allocating resources to:

A) the Europe segment.

B) **the Mexico segment.**

C) the Europe segment and the Mexico segment.

Explanation

As indicated below, the Mexico segment has the lowest EBIT margin, yet it has the highest proportional capital expenditures to proportional assets ratio. Thus, Delicious may be overallocating resources to the Mexico segment.

Segment Analysis for 2017

	EBIT Margin	Total CapEx %	Total Assets %	CapEx % / Assets %
Europe	14.3%	35.0%	72.0%	0.5
Mexico	8.1%	65.0%	28.0%	2.3

For Further Reference:

(Study Session 6, Module 18.2, LOS 18.b)

Question #29 of 60

Question ID: 1212676

High quality cash flow is *most likely* to be characterized by:

A) positive OCF that covers capital expenditures.

B) **positive OCF that covers capital expenditures, dividends and debt repayments.**

C) positive OCF in conjunction with positive cash flows from investing and financing activities.

Explanation

High-quality cash flow is characterized by positive OCF that is derived from sustainable sources and is adequate to cover capital expenditures, dividends, and debt repayments.

For Further Reference:

(Study Session 6, Module 17.4, LOS 17.i)

Question #30 of 60

Question ID: 1212677

Using the data found in Exhibit 1 and Exhibit 4, Delicious's implied P/E multiple without regard to its U.S. associate is *closest* to:

A) 14.0.

B) **14.8.**

C) 15.1.

Explanation

Delicious's implied value without its U.S. associate is €90,736 [€97,525 Delicious market cap − €6,789 share of associate's market cap ($32,330 × 30% × €0.70 / $ current exchange rate)].

Delicious's net income without associate is €6,147 (€6,501 net income − €354 pro-rata share of income from associate).

Implied P/E = 14.8 (€90,736 Delicious implied value without associate / €6,147 Delicious net income without associate).

For Further Reference:

(Study Session 6, Module 18.6, LOS 18.e)

Questions #31-36 of 60

Use the following information to answer Questions 31 through 36.

George Armor, CFA, is a new stock analyst for Pedad Investments. One tool that Pedad uses to compare stock valuations is the dividend discount model (DDM). In particular, the firm evaluates stocks in terms of "justified" multiples of sales and book value. These multiples are based on algebraic manipulation of the DDM. Over time, these multiples seem to provide a good check on the market valuation of a stock relative to the company's fundamentals. Any stock that is currently priced below its value based on a justified multiple of sales or book value is considered attractive for purchase by Pedad portfolio managers. Exhibit 1 contains financial information from the year just ended for three stable companies in the meatpacking industry: Able Corporation, Baker, Inc., and Charles Company, from which Armor will derive his valuation estimates.

Exhibit 1: Selected Financial Information

	Able Corporation	Baker, Inc.	Charles Company
Revenue/share	$115.00	$52.80	$25.75
EPS	$2.50	$4.80	$4.00
DPS	$1.00	$1.60	$2.50
ROE	25%	15%	8%
Book value per share	$10.00	$32.00	$50.00
Stock price per share (current)	$60.00	$70.00	$35.50
Required return	20%	12%	10%

One of Pedad's other equity analysts, Marie Swift, CFA, recently held a meeting with Armor to discuss a relatively new model the firm is implementing to determine the P/E ratios of companies that Pedad researches. Swift explains that the

model utilizes a cross-sectional regression using the previous year-end data of a group of comparable companies' P/E ratios against their dividend payout ratios (payout ratio), sustainable growth rates (*g*), and returns on equity (*ROE*). The resulting regression equation is used to determine a predicted P/E ratio for the subject company using the subject company's most recent year-end data. Swift has developed the following model, which has an R-squared of 81%, for the meatpacking industry (16 companies):

predicted P/E =	2.74 +	8.21(payout ratio) +	14.21(g) +	2.81(ROE)
(STD error)	(2.11)	(6.52)	(9.24)	(2.10)

After Swift presents the model to Armor, she points out that models of this nature are subject to limitations. In particular, multicollinearity, which appears to be present in the meatpacking industry model, can create great difficulty in interpreting the effects of the individual coefficients of the model. Swift continues by stating that in spite of this limitation, models of this nature generally have known and significant predictive power across different periods, although not across different stocks.

Question #31 of 60

Question ID: 1212679

Based on Exhibit 1, which stock is the *most* undervalued by applying the justified price-to-book value method?

A) Able Corporation.

B) **Baker, Inc.**

C) Charles Company.

Explanation

The justified price-to-book value (P/B) ratio is calculated as:

$$P/B = (ROE - g) / (r - g)$$

where:

growth rate: $g = ROE \times (1 - \text{payout})$

Able: $g = 0.25 \times (1 - 1.00 / 2.50) = 0.15$

Baker: $g = 0.15 \times (1 - 1.60 / 4.80) = 0.10$

Charles: $g = 0.08 \times (1 - 2.50 / 4.00) = 0.03$

Justified price-to-book value (P/B):

Able: $P/B = (0.25 - 0.15) / (0.20 - 0.15) = 2$, implying price = $2 \times 10 = \$20$

Baker: $P/B = (0.15 - 0.10) / (0.12 - 0.10) = 2.5$, implying price = $2.5 \times 32 = \$80$

Charles: $P/B = (0.08 - 0.03) / (0.10 - 0.03) = 0.71$, implying price = $0.71 \times 50 = \$35.5$

Able sells for $60, triple its value; Baker sells for $70, 12% below its value; and Charles sells for $35.5, right at its value.

For Further Reference:

(Study Session 11, Module 29.4, LOS 29.h, 29.j)

Question #32 of 60

Question ID: 1212680

Based on Exhibit 1, the justified price-to-sales ratio of Baker, Inc., is *closest* to:

A) 1.5.

B) **1.7.**

C) 1.9.

Explanation

The justified price-to-sales (P/S) ratio is calculated as:

P/S = [profit margin × payout ratio × (1 + g)] / (r − g)

Baker: P/S = [(4.80 / 52.80) × (1.60 / 4.80) × (1 + 0.10)] / (0.12 − 0.10) = 1.67

For Further Reference:

(Study Session 11, Module 29.4, LOS 29.h)

Question #33 of 60

Question ID: 1212681

If valuation is based on the justified price-to-sales ratio, Armor should conclude that Able Corporation is:

A) **overvalued; the stock trades at more than double its value based on a justified price-to-sales ratio.**

B) overvalued relative to Baker, but undervalued relative to Charles.

C) undervalued; the stock trades at less than half its value based on a justified price-to-sales ratio.

Explanation

Able Corporation should sell for [(2.50 / 115) × (1.00 / 2.50) × (1 + 0.15)] / (0.20 − 0.15) = 0.20 × sales, or $23/share. The current market price of $60 is 161% overvalued. Baker trades for $70 versus a value of 1.67 × 52.8 = $88, a discount of 20%. Charles trades for $35.50 versus a value of 1.43 × 25.75 = 37, a negligible discount of 4%.

For Further Reference:

(Study Session 11, Module 29.4, LOS 29.i)

Question #34 of 60

Question ID: 1212682

Armor has been asked to identify the relative valuation merits of the three stocks. Which of the following statements is correct?

A) Able Corporation is the best investment because it has the highest ROE.

B) Charles Company is the best investment because the stock is priced below book value.

C) Able Corporation's earnings should grow the fastest due to its high ROE and retention ratio.

Explanation

A high ROE does not make a company a good investment, nor does a high book value. However, Able Corporation does have the highest potential growth rate. Because the justified values for Charles Company are near the market price, there does not appear to be any problem with the valuation inputs (e.g., required return). The similarity between the justified P/B value and the market price of Charles indicates that it is fairly priced and not an especially attractive investment.

For Further Reference:

(Study Session 11, Module 29.2, LOS 29.i)

Question #35 of 60

Question ID: 1212683

Based on Exhibit 1, which company has the lowest predicted P/E utilizing the meatpacking industry model presented by Swift?

A) Able Corporation.

B) Baker, Inc.

C) Charles Company.

Explanation

Based on the model presented, the predicted P/E ratios can be calculated as:

Able: 2.74 + 8.21(1.00 / 2.50) + 14.21(0.15) + 2.81(0.25) = 8.85

Baker: 2.74 + 8.21(1.60 / 4.80) + 14.21(0.10) + 2.81(0.15) = 7.32

Charles: 2.74 + 8.21(2.50 / 4.00) + 14.21(0.03) + 2.81(0.08) = 8.52

For Further Reference:

(Study Session 11, Module 29.1, LOS 29.e)

Question #36 of 60

Question ID: 1212684

Evaluate Swift's comments regarding multicollinearity and predictive power. Which of the following comments is correct?

A) Only the comment about multicollinearity is correct.

B) Only the comment about predictive power is correct.

C) Both comments are correct.

Explanation

Swift has correctly stated that if multicollinearity is present in a model, the interpretation of the individual regression coefficients becomes problematic. The existence of multicollinearity is generally signaled by a high R-squared value and low *t*-statistics on the regression coefficients. The *t*-stat for the coefficients for payout ratio, *g*, and ROE can be calculated

as (8.21 / 6.52) = 1.26, (14.21 / 9.24) = 1.54, and (2.81 / 2.10) = 1.34, respectively. Note that all of these *t*-stats are well below the approximate critical value of 2, indicating they are statistically insignificant. With the high R-squared of 81% and insignificant *t*-stats, it appears that multicollinearity is indeed present in this model. Swift's comment regarding predictive power is incorrect. Cross-sectional regressions have unknown predictive power outside the specific sample and time period used to generate the regression.

For Further Reference:

(Study Session 2, Module 5.8, LOS 5.l)

Questions #37-42 of 60

Use the following information to answer Questions 37 through 42.

Ande Lindstrom is currently in the final year of his undergraduate degree in finance and is preparing to take the Level I CFA exam in December. To keep on top of the material, Lindstrom runs a website for his peers who are also planning to sit for the CFA exam.

Lindstrom is currently reviewing several submissions from classmates on the subject of fixed-income instruments. These submissions are especially topical because the U.S. central bank raised target rate in the previous month. Lindstrom intends to post the spot rate curve shown in Exhibit 1, which is derived from U.S. Treasuries, along with any articles he agrees with.

Exhibit 1: U.S. Treasuries Spot Curve

Maturity (years)	1	2	3	5	7	10	20	30
Spot Rate (%)	0.25	0.36	0.90	1.49	2.27	2.94	3.52	4.00

Joe Hellens, a fellow Level I candidate, has submitted an article claiming that some banks are still offering forward rates that do not fully account for the new spot curve. As a result, Hellens claims that there are arbitrage opportunities. Upon analyzing a particular bank's offering of a 2-year forward contract on a risk-free, 5-year, zero coupon bond, Hellens states that "the quoted forward price of $0.8608 per $1 is higher than it should be under the forward pricing model and, hence, arbitrage profits could be made."

Lindstrom is always wary of posting articles on to the website that could be interpreted as investment advice. Instead, he prefers instructional articles that allow the reader to carry out their own research. In place of Hellens's article on potential arbitrage opportunities (the profits of which he feels would be eliminated by transaction costs), Lindstrom intends to use the comment addressing active bond management shown in Exhibit 2.

Exhibit 2: Active Bond Management

> "Active bond managers will seek to outperform the market by anticipating interest rate movements that are not in line with current spot and forward rates. For example, the price of a 1-year forward contract on a 1-year, zero coupon, risk-free bond will remain unchanged if the future 1-year spot rate in one year is equal to the current 2-year spot rate. If it is not, there may be an opportunity for active managers to outperform the market."

Dan Gorman has submitted an article for Lindstrom's review on the topic of the swap curve. Lindstrom is aware of the curve but unsure about how it is used in computing swap spreads and in bond valuation generally. Extracts from

Gorman's article are shown in Exhibit 3.

Exhibit 3: Swap Curves and Spreads

"Swap spreads make use of the swap curve. Swap curves are a popular benchmark for the time value of money as they have at least two key advantages over the government yield curve:

Advantage One: Some countries do not have a liquid government bond market for maturities over one year. In those markets, the swap curve is an essential benchmark.

Advantage Two: Retail banks generally have familiarity with the swap market because they hedge assets and liabilities on their balance sheet with swaps. For this reason, the swap rate makes a useful benchmark for the time value of money for them."

Swap curves can also be used to calculate the swap spread, which is an increasingly popular indicator of credit spreads in the markets. The swap spread is defined as:

"The spread paid by the floating-rate payer of an interest rate swap over the rate of the on-the-run government security with the same maturity."

The swap spread is a useful indicator of credit risk in the markets and can be used in conjunction with the TED, LIBOR-OIS, and Z-spreads to get an in-depth view of the state of the fixed-income markets. An investor can use these other three spreads as follows:

Z-spread: Calculated as the constant basis point spread added to the implied spot yield curve so that the discounted cash flows of a bond equal its market price. For a risky bond, the Z-spread is a more accurate measure of compensation for credit and liquidity risk than the swap spread.

TED spread: Calculated as the difference between LIBOR and the yield on a maturity-matched T-bill. TED spread gives better insight into the supply and demand conditions in the market at a given maturity as opposed to the swap spread, which focuses more on the risks in the banking system.

LIBOR-OIS spread: Calculated as the difference between LIBOR and the overnight indexed swap rate. It is considered a good indicator of the risk and liquidity inherent in the money markets.

Finally, Lindstrom has received an email from one of his professors praising his work on the website but also offering some constructive criticism. An extract from the email is shown in Exhibit 4.

Exhibit 4: Email

"…I would suggest one area you could look at improving is the portion on term structure theories. Personally I would remove the theory stating that lenders and borrowers influence the shape of the yield curve and that the yield of each maturity sector is determined independently.

I suggest instead that you take a look at the following equilibrium term structure model, which calculates the change in the short term interest rate (*dr*) over small increments of time (*dt*):

$$dr = \mathrm{a}\left(\mathrm{b} - \mathrm{r}\right) dt + \sigma\sqrt{\mathrm{r}}dz$$

It is a formula I personally use when modelling rates, typically with r = 3%, b = 8%, a = 0.40, σ = 20%."

Question #37 of 60

Question ID: 1212686

Hellens's claim regarding the 2-year forward contract on the 5-year, risk-free, zero coupon bond is *most accurately* described as:

A) incorrect, as the quoted price is roughly in line with the forward pricing model.

B) incorrect, as the quoted price is much lower than the forward pricing model would suggest.

C) correct.

Explanation

To obtain $F_{(2,5)}$, first calculate the 2-year discount factor P_2 and the 7-year discount factor P_7.

$$\begin{aligned} P_2 &= 1 / (1+0.0036)^2 &= 0.9928 \\ P_7 &= 1 / (1+0.0227)^7 &= 0.8546 \\ F_{(2,5)} &= 0.8546 / 0.9928 &= 0.8608 \end{aligned}$$

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.b)

Question #38 of 60

Question ID: 1212687

Lindstrom's comment in Exhibit 2 on active bond management is *most likely*:

A) correct.

B) incorrect, as the forward price will be unchanged if the 1-year spot rate occurring in one year is equal to the current 1-year forward rate one year from now [*f* (1,1)].

C) incorrect, as the forward price will be unchanged if the 1-year spot rate occurring in one year is equal to the current 1-year spot rate.

Explanation

Spot rates should evolve in line with the current forward rates.

For Further Reference:

(Study Session 12, Module 32.1, LOS 32.c)

Question #39 of 60

Question ID: 1212688

Which of the advantages of swap curves listed in Exhibit 3 is accurate?

A) Advantage one only.

B) Advantage two only.

C) Both advantages one and two are accurate.

Explanation

Retail banks typically have little exposure to swaps and, consequently, they typically use the government yield curve. The swap curve is more commonly used by wholesale banks.

For Further Reference:

(Study Session 12, Module 32.2, LOS 32.e)

Question #40 of 60

Question ID: 1212689

Gorman's definition of the swap spread in Exhibit 3 is *best* described as:

A) correct.

B) incorrect, as the spread is compared to the corporate bond being valued, not a government security.

C) **incorrect, as the spread uses the fixed-rate paid in the swap, not the floating rate.**

Explanation

The swap spread is the spread paid by the fixed-rate payer of an interest rate swap over the rate on an on-the-run government security with the same maturity as the swap.

For Further Reference:

(Study Session 12, Module 32.3, LOS 32.f)

Question #41 of 60

Question ID: 1212690

With regards to the discussion of spreads in Exhibit 3, Gorman is *least accurate* in his:

A) definition of the LIBOR-OIS spread.

B) assertion that the *z*-spread is a more accurate measure of credit risk than the swap spread.

C) **assertion that the TED spread gives better insight into supply and demand conditions than does the swap spread.**

Explanation

The swap spread gives more information about supply and demand, whereas the TED spread more accurately reflects the level of risk in the banking system.

For Further Reference:

(Study Session 12, Module 32.4, LOS 32.g, 32.h)

Question #42 of 60

Question ID: 1212691

The professor who sent the email in Exhibit 4 is *most likely* advocating the exclusion of:

A) the segmented markets theory in favor of the Cox-Ingersoll-Ross model, with a mean reverting, short-term interest rate of 8%.

B) the preferred habitat theory in favor of the Vasicek model, with a mean reverting, short-term interest rate of 3%.

C) the segmented markets theory in favor of the Cox-Ingersoll-Ross model, with a mean reverting, short-term interest rate of 2%.

Explanation

The segmented markets theory and the preferred habitat theory both state that rates are influenced by lenders and borrowers, but it is the segmented markets theory that proposes that the maturity sectors are independent. The "b" term in the Cox-Ingersoll-Ross model is the mean reverting level for the short-term interest rate.

For Further Reference:

(Study Session 12, Module 32.5, LOS 32.i, 32.j)

Questions #43-48 of 60

Use the following information to answer Questions 43 through 48.

Jon Garton, CFA, is an equity analyst covering several industry sectors for a boutique U.S. investment firm. Currently Garton is reviewing a reply that he received from the CFO of TorkSpark, Inc., a manufacturer of automotive parts.

Garton had noticed that the most recent quarterly filing by TorkSpark showed an increase in the volume of derivative transactions that showed gains and losses either in the income statement or in other comprehensive income. This is the third quarter in a row that Garton has observed such an increase, and in a recent analyst call, Garton asked the CFO to give some explanation for such an increase.

Extracts from the CFO's reply are shown in Exhibit 1.

Exhibit 1: TorkSpark CFO comments

"TorkSpark currently has a $68 million bond outstanding that is not due to mature until 2028. The coupon payments are fixed at 6.25% and paid quarterly. A decision was taken recently to try to reduce the interest rate risk on the bond.

The board also identified a need to address the financing of TorkSpark Plc., our wholly owned subsidiary in the UK. In order to raise the 175 million GBP needed to fund an expansion of the operations, the board leveraged its relationship with the Lobman Starn banking group here in the United States.

TorkSpark borrowed 250 million USD and set up a USD-GBP currency swap with a swap dealer based in Europe. Unfortunately, the dealer experienced some issues trying to hedge their position, so TorkSpark agreed to settle the swap at the PV of future payments only 170 days after origination.

The only other currency derivative TorkSpark used in the period was a currency forward contract that was used to hedge the risk on an unusually large EUR receipt. Due to TorkSpark discontinuing a product line, Redaux SA, a frequent customer, agreed to pay a large sum for all remaining stock. Due to continued political turbulence in the Eurozone, TorkSpark opted to hedge 60% of the EUR receivable."

Garton is familiar with Torkspark's euro currency forward contract because it was discussed in detail in the analyst call. The currency forward lead to a large loss that was offset by a gain on the receivable in other comprehensive income in the financial statements. Details of the contract are shown in Exhibit 2.

Exhibit 2: Currency Forward Contract

Contract length:	90 days
90-day forward rate at origination:	€/$0.89239
Spot rate at origination:	€/$0.89298
90-day forward rate at expiry:	€/$0.84256
Spot rate at expiry:	€/$0.84487
Loss at settlement date:	$189,083

Garton is not convinced that all the derivatives transactions reflected in TorkSpark's financial statements are purely for hedging. He believes that there are significant exposures to both interest rate and currency risk for the next six quarters. As a result, Garton intends to suggest that his firm hedge their holding of TorkSpark stock using exchange-traded options.

Garton collects the following information about TorkSpark:

1. One-year, at-the-money calls with exercise price of $60 are highly liquid.
2. Over the year, the stock price can increase to $72 or decline to $50.
3. The risk-free rate is 3%.

Question #43 of 60

Question ID: 1212693

Which of the following positions is *most likely* to achieve the CFO's objective for the $68 million bond outstanding?

A) Pay fixed interest rate swap with quarterly settlement.

B) Pay floating interest rate swap with quarterly settlement.

C) Long FRA on 90-day LIBOR.

Explanation

The CFO is looking to reduce the duration of the fixed-rate bond. The risk here is that market interest rates drop below 6.25%, but we're stuck still paying 6.25%. We can reduce this specific risk by effectively changing that fixed payment into a floating payment. A pay floating and receive fixed swap is most likely to achieve this objective.

For Further Reference:

(Study Session 14, Module 37.7, LOS 37.c)

Question #44 of 60

Question ID: 1212694

In order to hedge exposure to the currency swap described by the CFO, the swap dealer would *least appropriately*:

A) borrow GBP.

B) borrow USD.

C) lend USD.

Explanation

TorkSpark has borrowed USD and thus should engage in a USD for GBP swap. At initiation, TorkSpark would exchange USD principal for GBP principal. During the life of the swap, Torkspark would pay GBP interest and the swap dealer would pay USD interest. In order to hedge these flows, the dealer could enter into a GBP for USD swap. Alternately, the dealer could lend USD and borrow GBP.

For Further Reference:

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

Question #45 of 60

Question ID: 1212695

The value of the euro receivable due from Redaux is *closest* to:

A) €1,800,000.

B) €3,000,000.

C) €5,000,000.

Explanation

$/€ spot rate at expiry = 1 / 0.84487 = 1.18361 $/€

$/€ forward rate at initiation = 1 / 0.89239 = 1.12059 $/€

$ loss per € = 1.12059 − 1.18361 = $0.06302

Loss on forward contract (given) = $189,083

Total € hedged = 189,083 / 0.06302 = €3,000,365.

Given 60% hedged, Total € receivable = 3,000,365 / 0.6 = €5,000,608

For Further Reference:

(Study Session 14, Module 37.6, LOS 37.a)

Question #46 of 60

Question ID: 1212696

The optimal hedge ratio for a call option on TorkSpark's stock is *closest* to:

A) 0.55.

B) 0.67.

C) 0.75.

Explanation

Call option hedge ratio = $h = \frac{C^+ - C^-}{S^+ - S^-} = \frac{12-0}{72-50} = 0.55$

For Further Reference:

(Study Session 14, Module 38.2, LOS 38.c)

Question #47 of 60

Question ID: 1212697

The risk-neutral probability of a down move for TorkSpark stock is *closest* to:

A) 0.33.

B) **0.46.**

C) 0.58.

Explanation

We are given that the at-the-money option has an exercise price = $60. Hence S_0 = 60.

U = S^+/S_0 = 72/60 = 1.20; D = S^-/S_0 = 50/60 = 0.833

Probability of up move = $\pi_U = \frac{1+R_f - D}{U-D} = \frac{1+0.03-0.833}{1.20-0.833} = 0.54$

Probability of down move = 1 − 0.54 = 0.46

For Further Reference:

(Study Session 14, Module 38.1, LOS 38.a)

Question #48 of 60

Question ID: 1212698

If Garton wants to hedge the firm's position in TorkSpark stock using put options, the resulting portfolio's gamma would *most likely* be:

A) negative.

B) zero.

C) **positive.**

Explanation

To dynamically hedge a long stock position, long put options will be used. Long stock has zero gamma while long put has positive gamma. Portfolio gamma therefore would be positive.

For Further Reference:

(Study Session 14, Module 38.4, LOS 38.m)

Questions #49-54 of 60

Use the following information to answer Questions 49 through 54.

Karen Westin, Kei Shinoya, and Carlos Perez, partners at PacRim Investment Consultants, are advising a client, the West Lundia Government Employees Pension Plan (WLGE), a large public pension fund. In a previous meeting with the pension board of WLGE, the PacRim team made a recommendation to increase the fund's exposure to domestic real estate. Because of the WLGE plan's large size and in-house expertise, the pension fund has the capacity to invest in and manage a wide variety of real estate investments. The currency in West Lundia is the West Lundian Dollar (WL$).

West Lundian Commercial Real Estate Market Expectations

Commercial real estate prices have experienced a moderate increase over the past year after a decade of unusually slow growth. Demand is expected to exceed supply over the next 10 years. The current average commercial mortgage rate of 3.75% is low by historical standards and is expected to stay relatively low for at least seven more years. The West Lundian economy is expected to enjoy an above average growth rate.

Exhibit 1: West Lundia's Economic Outlook

	Expected Annual Growth Rate	Relative to Other Developed Countries
Job creation	3.0%	High
Population	1.8%	High
Retail sales	1.5%	Low
Inflation	0.5%	Low

Because of the favorable real estate conditions, the consensus was to consider equity investments in real estate. Three options under consideration are:

Option 1:	Direct investment, in an existing office building.
Option 2:	Investment in a public equity REIT.
Option 3:	Equity investment in a public REOC.

Option 1: Direct Investment	
Expected NOI Years 1–7	WL$ 7.0 MM
Expected NOI Year 8	WL$ 8.5 MM
Required return on equity investment	10%
NOI growth rate after 8 years	3.25%

Option 2: REIT	
Recent NOI	WL$ 140.0 MM
Non-cash rents	WL$ 5.0 MM
Full year adjustment for acquisition	WL$ 5.0 MM
Other assets	WL$ 50.0 MM
Total liabilities	WL$ 300.0 MM

Current market price per share	WL$ 125.00
Shares outstanding	15 MM
Going-in cap rate	7.00%
NOI growth rate	2.50%

Option 3: REOC	
Expected AFFO in Year 7	WL$ 13.5 MM
Holding period	7 years
Present value of all dividends for 7 years	WL$ 39.7 MM
Shares outstanding	1.0 MM
Cap rate	7.0%
Growth rate (from Year 8)	2.50%

Additional Information:

1. The office building under consideration has existing tenants with long-term leases that will expire in seven years.
2. The REOC terminal value at the end of seven years is to be based on a price-to-AFFO multiple of 12x.

Question #49 of 60

Question ID: 1212700

Based on the information in Exhibit 1, the REIT sector that represents the *least desirable* investment is:

A) **industrial.**

B) office.

C) apartments.

Explanation

For industrial properties, the most important factor affecting economic value is retail sales growth, which is expected to be low in West Lundia. The most important factor affecting economic value for apartment REITs are job creation and population growth, which are both expected to be high. For office properties, the most important factor is job creation, which is expected to be high.

For Further Reference:

(Study Session 15, Module 40.1, LOS 40.c)

Question #50 of 60

Question ID: 1212701

The estimated value of the office building (Option 1) using the discounted cash flow approach is *closest* to:

A) WL$ 89 million.

B) WL$ 93 million.

C) WL$ 99 million.

Explanation

There are two components to this valuation. The first component is the cash flows for the first seven years. The second component is the terminal value.

PV of CFs in Years 1–7:

PMT = 7.0; I/Y = 10; N = 7. The PV = WL$34.08 million.

PV of terminal value:

An appropriate terminal cap rate can be calculated using the following equation:

cap rate = discount rate − growth rate = 10% − 3.25% = 6.75%.

The terminal value is calculated using the following inputs: WL$8.5 million divided by the terminal cap rate of 6.75%. The value in Year 7 is WL$125.93 million, discounting this value to the present:

FV = WL$125.93 million; N = 7, I/Y = 10 results in a present value of WL$64.62 million.

WL$34.08 + WL$64.62 = WL$98.7 million.

For Further Reference:

(Study Session 15, Module 39.3, LOS 39.g)

Question #51 of 60

Question ID: 1212702

Based on its estimated value using the asset value approach, the REIT identified in Option 2 is:

A) fairly priced.

B) selling at a discount.

C) selling at a premium.

Explanation

NAVPS based on forecasted NOI:

Option #2 (REIT)	**(in WL$ millions)**
Recent NOI	140.0
Subtract: Non-cash rents	− 5.0
Add: Full-year adjustment for acquisition	+ 5.0
Pro forma cash NOI	140.0
Projected NOI @ 2.5% growth	143.5
Estimated value of operating real estate @ cap rate of 7.0%	2050.0
Add: Other assets	+ 50.0

Estimated gross value	2100.0
Subtract: Total liabilities	− 300.0
NAV	1800.0

NAVPS = 1800 / 15 = 120, which is lower than the current market price of WL$125.00. This REIT is selling at a premium to NAVPS.

For Further Reference:

(Study Session 15, Module 40.2, LOS 40.e)

Question #52 of 60

Question ID: 1212703

The *most appropriate* reason to choose Option 1 (direct investment) over Options 2 and 3 is that Option 1 is likely to have the ability to:

A) use higher leverage.

B) provide greater tax advantages.

C) **avoid structural conflicts of interest.**

Explanation

Option 1 represents private investment in real estate, while Options 2 and 3 entail investing through public securities. Tax advantages can be enjoyed by direct investments in real estate, as well as through public securities. Similarly, use of leverage can be pursued by all three options. Option 1 does not have the problem of structural conflicts of interest that may be present in REITs (Option 2).

For Further Reference:

(Study Session 15, Module 39.1, LOS 39.c)

Question #53 of 60

Question ID: 1212704

The estimated value per share of Option 3, REOC, using the discounted cash flow approach is *closest* to:

A) **WL$ 125.50.**

B) WL$ 140.60.

C) WL$ 162.00.

Explanation

The terminal value estimate is 12.0 × WL$13.5 MM for end of Year 7 or WL$162.0 MM. The discount rate is the cap rate of 7.0% plus the growth rate of 2.5%, or 9.5%. Discounting this terminal value to find the present value: FV = WL$162.0 MM; I/Y = 9.5; N = 7; PV = WL$85.83 MM. Add the present value of all dividends of WL$39.7 MM for a total of WL$125.53 MM. Divide WL$125.53 MM by 1 million shares outstanding for a value per share of WL$125.53.

For Further Reference:

(Study Session 15, Module 40.3, LOS 40.h)

Question #54 of 60

Question ID: 1212705

Option 3 would be preferred over Option 2 if:

A) liquidity of the investment is critical.

B) the investment must be efficient in terms of corporate taxes.

C) **capital appreciation is more highly valued than current income.**

Explanation

Investment in both public REOCs and public REITs enjoy high liquidity, as shares of both trade on a stock exchange. Tax advantages favor REITs as REOCs are not tax-advantaged. REOCs are more reliant on capital appreciation due to their ability to reinvest cash flows, while REITs tend to have higher current income (i.e., yield).

For Further Reference:

(Study Session 15, Module 40.1, LOS 40.a)

Questions #55-60 of 60

Use the following information to answer Questions 55 through 60.

Sally Sishek, CFA, works as a freelance risk management consultant in the United States. Recently, she was contacted by BlueCanopy Investments (BCI), an asset management firm that recently experienced a significant financial loss after what it described as a "serious failure in multiple risk management processes."

Sishek has had an initial meeting with Jon Bagwell, the chief investment officer of BCI, who is leading the review of risk management following the resignation of BCI's chief risk officer (CRO) last month.

Bagwell has concerns that the CRO relied too heavily on VaR as a risk measure, rather than also implementing other complimentary controls.

Sishek is reviewing the VaR analysis carried out by the recently departed CRO. Some of the calculations involved are shown in Exhibit 1.

Exhibit 1: VaR Calculations

Portfolio EGF Internal Ref:0300201 5% VaR

Inputs:	Mean annual return	9.4%
	Annual volatility	14.2%

Assumptions:

- 250 trading days per year.
- Risk factors are normally distributed.
- Mean and volatility calculated using historical data over a 3-year lookback period.

- The historical standard deviation has been adjusted upward to reflect the long-term expectations relative to the lookback period.

5% Annual VaR = [9.4% − (1.65 × 14.2%)] = –14%

5% Daily VaR = [0.0376% − (1.65 × 0.0568%)] = –0.056%

Sishek has some concerns about the calculations as well as the firm's use of VaR. Bagwell admits that he has very little idea how the VaR calculations were currently used to manage risk. Sishek suggests that in the short term, the firm should immediately implement at least the following recommendation:

> **Risk Management Recommendation**
>
> Impose a daily 1% VaR limit of (for example) $2,000,000 on a portfolio. Monitor the portfolio for any signs of trending and liquidate the portfolio if cumulative monthly losses exceed $7,500,000.

She also intends to provide a list of typical risk management measures that traditional asset managers employ and agreed to put together a case study on how each of these measures could be implemented. The list she will provide is shown in Exhibit 2.

Exhibit 2: Risk Management Measures

Typical risk measures employed by traditional asset managers include:

1. **Beta sensitivity:** useful for equity only
2. **Active share:** a measure of similarity to a benchmark
3. **Surplus-at-risk:** an application of VaR
4. **Maximum drawdown:** percentage of portfolio redeemed at peak times

---

Bagwell states that he is concerned about risks associated with the ETFs that BCI has been investing in. Sishek makes the following statements about the risks of investing in ETFs:

Statement 1:	Some ETF legal structures expose the investors to counterparty risk.
Statement 2:	Settlement risk is a key concern for foreign equity ETFs that invest in American depository receipts (ADRs).

Bagwell also revealed that he has some concerns over the trading methods authorized (and, in some cases, used) by the outgoing CRO. A recent internal audit of transactions carried out under his authorization revealed several instances of high frequency trading that auditors were uncomfortable with.

Multiple instances of trading patterns were flagged in an audit report as having a "high risk of inviting regulatory scrutiny." An example is outlined in Exhibit 3.

Exhibit 3: High Frequency Trading Patterns

The pattern of trading by Trader [B] over the period 8th June to 12th June suggests strongly that Trader [B] may be wash trading.

Question #55 of 60

Question ID: 1212707

In Exhibit 1, the annual VaR is *most accurately* described as being calculated using:

A) a historical simulation.

B) **the parametric method.**

C) a Monte Carlo simulation.

Explanation

VaR has been calculated using the parameters (mean and standard deviation) of the portfolio and assuming a distribution for portfolio risk factors. A historical simulation would instead identify actual returns from the portfolio and identify the 5th percentile.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.b)

Question #56 of 60

Question ID: 1212708

The calculated percentage value for daily VaR in Exhibit 1 is *most likely*:

A) correct given the assumptions and method described.

B) too high given the assumptions and method described.

C) **too low given the assumptions and method described.**

Explanation

To calculate the daily VaR from an annual VaR, the mean and standard deviation must be adjusted using the 250 trading days described.

The mean has been correctly calculated as 9.4% / 250 = 0.0376%

The standard deviation, however, should be divided by $\sqrt{250}$:$14.2\%/\sqrt{250} = 0.898\%$

This would result in a 5% daily VaR = [0.0376% − (1.65 × 0.898%)] = –1.44%.

For Further Reference:

(Study Session 16, Module 45.1, LOS 45.c)

Question #57 of 60

Question ID: 1212709

Sishek's short-term risk management recommendation is *best* described as an example of:

A) risk budgeting.

B) **a stop loss limit.**

C) a position limit.

Explanation

Liquidating a position when losses exceed a certain amount is an example of a stop loss limit.

For Further Reference:

(Study Session 16, Module 45.5, LOS 45.k)

Question #58 of 60

Question ID: 1212710

The description of measures given by Sishek in Exhibit 2 is inaccurate with respect to:

A) active share because it does not require the use of a benchmark.

B) surplus-at-risk because it is not an application of VaR.

C) **maximum drawdown because it is not a measure of redemptions.**

Explanation

Maximum drawdown is most commonly defined as the worst peak-to-trough decline in a portfolio's returns, or the worst-returning month or quarter for a portfolio. Maximum drawdown is an important risk measure for hedge funds. Redemption risk is a measure for open-end funds of the percentage of a portfolio could be redeemed at peak times.

For Further Reference:

(Study Session 16, Module 45.3, LOS 45.h)

Question #59 of 60

Question ID: 1212711

Which of Sishek's statements about risks of investing in ETF are accurate?

A) **Only statement 1 is correct.**

B) Only statement 2 is correct.

C) Both statements are correct.

Explanation

Statement 1 is correct. Some ETF legal structures expose investors to counterparty risk: the invested amount could be lost in the event of counterparty failure. Statement 2 is incorrect. Settlement risk is applicable for ETFs that use OTC derivative contracts, however ADRs are exchange-traded.

For Further Reference:

(Study Session 16, Module 43.3, LOS 43.g)

Question #60 of 60

Question ID: 1212712

The activity described in Exhibit 3 is *most likely* to involve:

A) placing a legitimate trade on one side of the market and several illegitimate orders at different prices on the other side.

B) **executing simultaneous buy and sell orders on the same financial instrument.**

C) entering large quantities of fictitious orders into the market and instantaneously canceling them.

Explanation

Wash trading is a kind of market manipulation where the investor buys and sells the same financial instrument simultaneously, in order to simulate demand in the instrument by boosting trading volume. Placing a legitimate trade on one side of the market and several bogus orders on the other side of the market is known as layering. Entering large quantities of fictitious orders into the market and instantaneously canceling them is known as quote stuffing.

For Further Reference:

(Study Session 17, Module 48.4, LOS 48.j)