

## 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)

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### 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:

$$R_i = b_0 + b_1 \text{COVERAGE}_i + b_2 \text{LN}(\text{SIZE}_i) + b_3 (\text{FORECAST}_i) + e_i$$

where:

$R_i$  = the rate of return on stock  $i$

$\text{COVERAGE}_i$  = one if there are three or fewer analysts covering stock  $i$ , and equals zero otherwise

$\text{LN}(\text{SIZE}_i)$  = the natural logarithm of the market capitalization (stock price times shares outstanding) for stock  $i$ , units in millions

$\text{FORECAST}_i$  = 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:

$$t\text{-statistic} = (\text{slope estimate} - \text{hypothesized value}) / \text{standard error}$$

Therefore, the standard error equals:

$$\text{standard error} = (\text{slope estimate} - \text{hypothesized value}) / t\text{-statistic}$$

The null hypothesis associated with each of the  $t$ -statistics reported for the slope estimates in Table 1 is:  $H_0$ : 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  $\pm (t_{\text{crit}} \times \text{standard error})$ , where  $t_{\text{crit}}$  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:

$$0.2000 \pm 2.779(0.07) = (0.0055, 0.3945)$$

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:  $H_0: b_2 \geq 0$ . 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:

$$\text{return} = 0.06 + 0.05\text{Coverage} - 0.003\text{LN}(\text{SIZE}) + 0.20\text{Forecast}$$

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 ¥/£,

$$S_0 (1 + \text{Yen interest rate}) / (1 + \text{GBP interest rate}) = E(S_1)$$

$$S_0 (1.064 / 1.097) = 200$$

$$S_0 = 206.20$$

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
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 LLC
 

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**Assets**

Cash	\$118	\$13
Accounts receivable	\$390	\$50
Inventory	\$314	\$41
Property	\$1,007	\$131
Investment	\$38	
Total	\$1,867	\$235

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Liabilities and Equity	EPI	EP/BM LLC
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Accounts payable	\$274	\$35
Long-term debt	\$719	\$125
Equity	\$874	\$75
Total	\$1,867	\$235

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**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
<b>Assets</b>			
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

<b>Liabilities and Equity</b>			
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**

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:

Project	Annual Cash Flows				NPV
	0	1	2	3	
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.

$$\text{incremental sales} = 708,000 - 523,000 = \$185,000$$

$$\text{incremental cash expenses} = 440,000 - 352,000 = \$88,000$$

$$\text{incremental depreciation} = 110,667 - 40,000 = \$70,667$$

$$\text{incremental project cash flows} = (185,000 - 88,000 - 70,667) \times (1 - 0.40) + 70,667 = \$86,467$$

$$\text{return of incremental net working capital} = \$110,000$$

In the final year, the book value of the old machine (if not replaced) =  $120,000 - 3 \times 40,000 = 0$ . Similarly, the book value of the new machine (if replaced) =  $332,000 - 3 \times 110,667 = 0$ .

$$\text{incremental cash flow from after-tax sale of equipment} = (113,000 - 90,000) - 0.40[(113,000 - 90,000) - (0 - 0)] = \$13,800$$

$$\text{total cash flow in final period} = 86,467 + 110,000 + 13,800 = \$210,267$$

#### **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?

<u>New debt security</u>	<u>Use of proceeds for other purposes</u>
--------------------------	---

- |                  |                      |
|------------------|----------------------|
| 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
<b>Ratio</b>			
P/E	12.3	15.8	9.9
P/S	1.2	1.9	1.3
P/BV	2.5	2.2	3.0
<b>Exellara Metrics</b>			
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)			<u>28.75</u>
Value new entity			<u><b>667.90</b></u>
Original # shares	20.00		
Shares issued	13.00		
<b>Total</b>			<b>33.00</b>

Share price of merged entity		<b>20.24</b>	
Broadstore holding	20.00	20.24	404.79
Broadstore original value			<u>384.00</u>
<b>Gain</b>			<b><u>20.79</u></b>
Sagan holding	13	20.24	263.11
Sagan original value			<u>255.15</u>
<b>Gain</b>			<b><u>7.96</u></b>

**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

$$\beta_u \approx \left[ \frac{1}{1 + (D/E)} \right] \beta_E = \left[ \frac{1}{1 + (40/60)} \right] 0.90 = 0.54$$

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

$$\begin{aligned} \text{required return estimate} &= \frac{\text{year-ahead dividend}}{\text{market price}} + \text{expected dividend growth rate} \\ \text{required return estimate} &= \frac{(\$3.00 \times 0.40)}{(\$15,000 \text{ million} / 375 \text{ million})} + 0.06 \\ &= 0.09 \end{aligned}$$

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

$$r_i = \text{risk-free rate} + \text{equity risk premium} + \text{size premium}_i + \text{specific-company premium}_i$$

$$r_i = 3.5\% + 4.0\% + 3.5\% + 2.0\% = 13.0\%$$

**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

$$V_0 = B_0 + \frac{(ROE - r)(B_0)}{r - g}$$

$$B_0 = \frac{\$79.5 \text{ million}}{1.5 \text{ million}} = \$53 \text{ per share}$$

$$ROE = \$19.5 \text{ million} / \$79.5 \text{ million} = 0.245$$

$$r = 0.15 \text{ (given in problem)}$$

$$g = 0.03 \text{ (given in Exhibit 2)}$$

$$V_0 = 53 + \frac{0.245 - 0.15}{0.15 - 0.03} (53) = \$94.96 \text{ per share}$$

**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

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##### Section 1 – Collateral

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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.

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##### Section 2 – Servicer Quality

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- 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)  $\times$  (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:

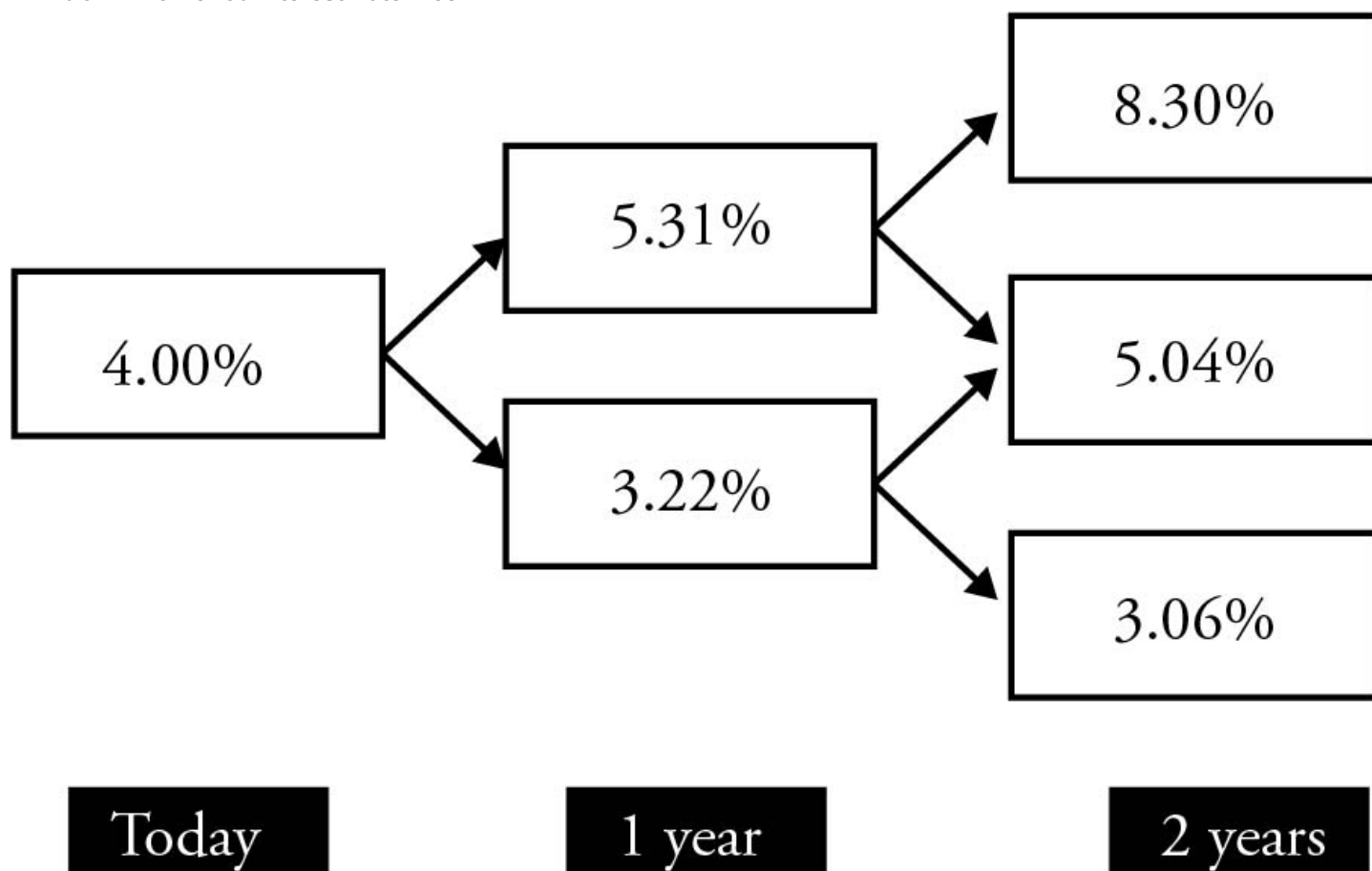
Time Period	U.S. Interest Rates	Mexican Interest Rates
360 days	4.0%	5.0%
720 days	4.5%	5.2%

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:  $0.0507 \times \$100M / 0.0893 = 56.8$  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:

$$[\text{Max}(0, 0.083 - 0.05)] \times \$2,000,000 = \$66,000$$

Similarly, the value at node C+– can be calculated as:

$$[\text{Max}(0, 0.0504 - 0.05)] \times \$2,000,000 = \$800$$

$$\text{Value at node C+} = [(0.5 \times 66,000) + (0.5 \times 800)] / (1.0531) = \$31,716$$

$$\text{Value at node C–} = [(0.5 \times 800) + 0] / (1.0322) = \$388$$

$$\text{And the value at node C} = [(0.5 \times 31,716) + (0.5 \times 388)] / (1.04) = \$15,435$$

#### **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:

$$0.044 \times \$100M = \$4.4 \text{ million}$$

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:

$$\$4.4M \times (0.9794 + 0.9328) + \$100M \times 0.9328 = \$101.69 \text{ million}$$

#### 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:

$$0.0507 \times (0.9756 + 0.9276) + 0.9276 = 1.0241 \text{ per peso}$$

Apply this to notional principal and convert at current exchange rate:

$$1.0241 \times (\$100M / 0.0893) \times 0.085 = \$97.48 \text{ million}$$

The value of the swap is the difference between this value and the pay dollar fixed present value derived in the previous question:

$$\$97.48 - \$101.69M = -\$4.21 \text{ million}$$

#### 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 =  $\Sigma$  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.  $(246.77 - 195) \times 0.2 = 51.77 \times 0.2 = 10.35$

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  $(296.77 - 246.77) \times 0.2 = 50 \times 0.2 = 10$ .

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

$$\text{post-money valuation} = V / (1 + r)^t$$

$$V = \$300 \text{ million}; r = 40\%; t = 5 \text{ years}$$

$$\text{post-money valuation} = 300 \text{ million} / (1 + 0.4)^5 = 55.78 \text{ million}$$

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  $f = \text{INV} / \text{POST} = \$9,000,000 / 90,000,000 = 0.10$  or 10%.

$$\text{shares}_{\text{VC}} = \text{shares}_{\text{Founders}}(f / 1 - f) = 2,500,000 \times (0.10 / 0.90) = 277,778$$

$$\text{price} = \text{INV} / \text{shares}_{\text{VC}} = \$9,000,000 / 277,778 = \$32.40 \text{ per share}$$

**For Further Reference:**

(Study Session 15, Module 41.4, LOS 41.j)