



## 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

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.

## **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.

**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.

**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.

**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.

**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.

## 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:

$$\text{sales}_t = b_0 + b_1t + e_t \quad (1)$$

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:

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

### 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.

**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.

**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.

**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.

**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.

**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.

## 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.

**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.

**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.

**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.

**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.

## 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.

## 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
	<u>\$16,500</u>	<u>\$1,400</u>

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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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 <sup>a</sup>	354	270
Net income	6,501	5,625

**Balance sheet**

Total assets <sup>b</sup>	€56,396	€53,111
Investment in associate	5,504	5,193
Stockholders' equity <sup>c</sup>	30,371	29,595

<sup>a</sup> Not included in EBIT or EBT.

<sup>b</sup> Total assets were €45,597 at the end of 2015.

<sup>c</sup> 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.

### 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.

### 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.

### 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.

### 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.

### 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.

### 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):

$$\text{predicted P/E} = 2.74 + 8.21(\text{payout ratio}) + 14.21(g) + 2.81(ROE)$$

$$(\text{STD error}) \quad (2.11) \quad (6.52) \quad (9.24) \quad (2.10)$$

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.

### 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.

### 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.

**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.

**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.

**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.

---

**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 ( $dt$ ):

$$dr = a(b - r) dt + \sigma\sqrt{r}dz$$

It is a formula I personally use when modelling rates, typically with  $r = 3\%$ ,  $b = 8\%$ ,  $a = 0.40$ ,  $\sigma = 20\%$ ."

#### 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.

#### 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.

#### 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.

**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.

**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.

**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%.

---

**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%.

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.

### 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.

### 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.

### 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.

### 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.

### 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.

## 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.

**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.

**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.

**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.

**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.

**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.

---

**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

<b>Inputs:</b>	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.

$$\text{5\% Annual VaR} = [9.4\% - (1.65 \times 14.2\%)] = -14\%$$

$$\text{5\% Daily VaR} = [0.0376\% - (1.65 \times 0.0568\%)] = -0.056\%$$

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.

## 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.

## 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.

## 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.

### 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.

### 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.