

TOPIC: QUANTITATIVE METHODS**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS**

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.

Quarterly sales for the Specialty Retail Industry during 2018 were:

Exhibit 4: 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

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 #2 of 88

Question ID: 1507266

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 #3 of 88

Question ID: 1507267

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 #4 of 88

Question ID: 1507268

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.

Overview for Questions #5-8 of 88

Question ID: 1507274

TOPIC: ECONOMICS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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.

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 #5 of 88

Question ID: 1507275

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 #6 of 88

Question ID: 1507276

Which Tristanyan industry is *most likely* to shrink due to the regulatory changes in the East?

- A) Snacks.

- B) Agriculture.
 - C) Carbonated beverages.
-

Question #7 of 88

Question ID: 1507277

Based on finding 1, the snack food industry is engaging in regulatory:

- A) capture.
 - B) arbitrage.
 - C) competition.
-

Question #8 of 88

Question ID: 1507278

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.
-

Overview for Questions #9-12 of 88

Question ID: 1508352

TOPIC: ECONOMICS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Bella Stone, CFA, is analyzing investment opportunities in Astair, an emerging market. She notes that at a recent congressional hearing, Mr. Adel Mahi, the chief economic advisor to the prime minister, stated that Astair's capital accumulation affects the size of the Astair's 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.

While discussing international parity conditions with an intern, Stone makes the following statements.

- Statement 1: 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 2: 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.
- Statement 3: For uncovered interest rate parity to hold, the forward rate must be an unbiased predictor of the future spot rate.
-

Question #9 of 88

Question ID: 1508353

Mahi's statement is consistent with:

- A) classical growth theory.
 - B) endogenous growth theory.
 - C) neoclassical growth theory.
-

Question #10 of 88

Question ID: 1508354

The objectives of regulators in financial markets is *least likely* to include:

- A) low inflation.
 - B) prudential supervision.
 - C) promotion of economic growth.
-

Question #11 of 88

Question ID: 1508355

Regarding statements 1 and 2 made by Stone, are both statements correct?

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

Question #12 of 88

Question ID: 1508356

Stone's statement 3 is *most likely*:

- 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.
-

Overview for Questions #13-16 of 88

Question ID: 1512441

TOPIC: FINANCIAL STATEMENT ANALYSIS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Delicious Candy Company (Delicious) is a leading manufacturer and distributor of quality confectionery products throughout Europe and Mexico. Delicious is a publicly traded firm located in Italy and has been in business over 60 years. Delicious complies with International Financial Reporting Standards (IFRS).

Caleb Scott, an equity analyst with a large pension fund, has been asked to complete a comprehensive analysis of Delicious in order to evaluate the possibility of a future investment.

Scott compiles the selected financial data found in Exhibit 1 and learns that Delicious owns a 30% equity interest in a supplier located in the United States. Delicious uses the equity method to account for its investment in the U.S. associate. The associate prepares its financial statements in accordance with U.S. Generally Accepted Accounting Principles (GAAP).

Exhibit 1: Selected Financial Data—Delicious Candy Company

In millions	2017	2016
Income Statement		
Revenue	€60,229	€55,137
Earnings before interest and tax	7,990	7,077
Earnings before tax	7,570	6,779
Income from associate ^a	354	270
Net income	6,501	5,625
Balance sheet		
Total assets ^b	€56,396	€53,111
Investment in associate	5,504	5,193
Stockholders' equity ^c	30,371	29,595

^a Not included in EBIT or EBT.

^b Total assets were €45,597 at the end of 2015.

^c Stockholders' equity was €27,881 at the end of 2015.

Scott reads the Delicious's revenue recognition footnote found in Exhibit 2.

Exhibit 2: Revenue Recognition Footnote

In millions
Revenue is recognized, net of returns and allowances, when the goods are shipped to customers and collectibility is assured. Several customers remit payment before delivery in order to receive additional discounts. Delicious reports these amounts as unearned revenue until the goods are shipped. Unearned revenue was €9,701 at the end of 2017, €2,514 at the end of 2016, and €2,511 at the end of 2015.

Scott wants to determine whether the cash flow is of high quality.

Scott gathers the information in Exhibit 3 to determine the implied "stand-alone" value of Delicious without regard to the value of its U.S. associate.

Exhibit 3: 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 #13 of 88

Question ID: 1507290

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 #14 of 88

Question ID: 1507291

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 #15 of 88

Question ID: 1512442

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 #16 of 88

Question ID: 1507293

Using the data found in Exhibit 1 and Exhibit 3, 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.
-

Overview for Questions #17-20 of 88

Question ID: 1508379

TOPIC: EQUITY VALUATION

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Brightscore Investments is a boutique wealth management firm. One of Brightscore's equity analysts, Marie Swift, CFA, recently held a meeting with the senior partners to discuss a relatively new model the firm is implementing to determine the P/E ratios of companies that Brightscore 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 semiconductor industry (16 companies):

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

(STD error) (2.11) (6.52) (9.24) (2.10)

Swift collects data on three companies as shown in Exhibit 1.

Exhibit 1: Selected Financial Information

	A	B	C
EPS	\$2.00	\$4.00	\$3.00
DPS	\$0.50	\$1.60	\$1.50
ROE	20%	15%	13%
Required rate of return	20%	12%	10%

Swift is following Sigma, Inc., a chipmaker for wearable devices. Sigma has invested significantly in R&D since its inception and that expenditure is finally bearing fruit: the company is now profitable. Sigma correctly expenses the R&D expenditure when incurred. Relative to its competitors, Sigma pays a lower share of gross revenue to its independent contractors. However, Sigma does pay contractors annual bonuses based on their number of years of affiliation with the company.

Swift is also analyzing Safe Bank, a regional bank holding company. Safe Bank is expected to have an earnings growth rate of 3% going forward and its ROE is 12%. Current BVPS is \$50.

Question #17 of 88

Question ID: 1508380

Based on Exhibit 1, which company has the lowest predicted P/E utilizing the model presented by Swift?

- A)** A.
- B)** B.
- C)** C.

Question #18 of 88

Question ID: 1508381

Which relative valuation multiple would Swift *most appropriately* use to value Sigma, Inc.?

- A) Price-to-cash-flow ratio.
 - B) Price-to-book ratio.
 - C) Price-to-sales ratio.
-

Question #19 of 88

Question ID: 1508382

Which of the following is *least appropriate* regarding the use of standardized unexpected earnings?

- A) A given size forecast error is more meaningful the lower the size of historical forecast errors.
 - B) SUE divides earnings surprise by the standard deviation of earnings.
 - C) The economic rationale for examining earnings surprises is that positive surprises may lead to persistent positive abnormal returns.
-

Question #20 of 88

Question ID: 1508383

Assuming a 9% required rate of return and using the residual income model, the value of Safe Bank's equity is *closest* to:

- A) \$75 per share.
 - B) \$95 per share.
 - C) \$115 per share.
-

Overview for Questions #21-24 of 88

Question ID: 1508369

TOPIC: EQUITY VALUATION

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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%

Question #21 of 88

Question ID: 1508370

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 #22 of 88

Question ID: 1508371

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 #23 of 88

Question ID: 1508372

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 #24 of 88

Question ID: 1508373

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.
-

Overview for Questions #25-28 of 88

Question ID: 1508384

TOPIC: FIXED INCOME

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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 November. 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."

Question #25 of 88

Question ID: 1508385

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 #26 of 88

Question ID: 1508386

Lindstrom's comment in Exhibit 2 on active bond management is *most likely*:

- A) correct.

- 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 [$f(1,1)$].
- 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 #27 of 88

Question ID: 1508387

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 #28 of 88

Question ID: 1508388

Gorman's definition of the swap spread in Exhibit 3 is *best* described as:

- A) correct.
- 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.
-

Overview for Questions #29-32 of 88

Question ID: 1508402

TOPIC: DERIVATIVES

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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 U.K. 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.

Over the past year, TorkSpark has also entered into a receiver swap, and has written call options on the stock of Perimeter, Inc., a Brazilian company listed on the NYSE. Additionally, TorkSpark has a long position in payer swaptions on a five-year interest rate swap.

Garton believes that the expansionary fiscal and monetary policies will soon lead to an increase in interest rates.

Question #29 of 88

Question ID: 1508403

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 MRR.

Question #30 of 88

Question ID: 1508404

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 #31 of 88

Question ID: 1508405

If Garton's expectations about interest rates turn out to be accurate, which of TorkSpark's positions is *most likely* to result in a gain to the firm?

- A) Receiver swap.
 - B) Calls on Perimeter, Inc.
 - C) Payer swaption.
-

Question #32 of 88

Question ID: 1508406

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.
-

Overview for Questions #33-36 of 88

Question ID: 1512448

TOPIC: ALTERNATIVE INVESTMENTS**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS**

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\$).

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 health care REIT.

Option 3: Investment in a retail REIT.

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: Health Care 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: Retail REIT

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 REIT terminal value at the end of seven years is to be based on a price-to-AFFO multiple of 12x.
-

Question #33 of 88

Question ID: 1508408

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 #34 of 88

Question ID: 1512449

Based on its estimated value using the net asset value approach, the REIT identified in Option 2 is:

- A)** fairly priced.
 - B)** selling at a discount.
 - C)** selling at a premium.
-

Question #35 of 88

Question ID: 1512450

The estimated value per share of Option 3, using the discounted cash flow approach, is *closest* to:

- A) WL\$ 125.50.
 - B) WL\$ 140.60.
 - C) WL\$ 162.00.
-

Question #36 of 88

Question ID: 1512451

A REOC 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.
-

Overview for Questions #37-40 of 88

Question ID: 1508417

TOPIC: PORTFOLIO MANAGEMENT**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS**

Sally Sishek, CFA, works as a freelance risk management consultant in the United States. Recently, she was contacted by BlueCanopy Investments (BCI), an asset management firm that recently experienced a significant financial loss after what it described as a "serious failure in multiple risk management processes."

Sishek has had an initial meeting with Jon Bagwell, the chief investment officer of BCI, who is leading the review of risk management following the resignation of BCI's chief risk officer (CRO) last month.

Bagwell has concerns that the CRO relied too heavily on VaR as a risk measure, rather than also implementing other complimentary controls.

Sishek is reviewing the VaR analysis carried out by the recently departed CRO. Some of the calculations involved are shown in Exhibit 1.

Exhibit 1: VaR Calculations

Portfolio EGF Internal Ref:0300201 5% VaR

Inputs:	Mean annual return	9.4%
	Annual volatility	14.2%

Assumptions:

- 250 trading days per year.
- Risk factors are normally distributed.
- Mean and volatility calculated using historical data over a 3-year lookback period.
- The historical standard deviation has been adjusted upward to reflect the long-term expectations relative to the lookback period.

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

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).

Question #37 of 88

Question ID: 1508418

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 #38 of 88

Question ID: 1508419

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 #39 of 88

Question ID: 1508420

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 #40 of 88

Question ID: 1508421

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.
-

Overview for Questions #41-44 of 88

Question ID: 1508427

TOPIC: ETHICAL AND PROFESSIONAL STANDARDS**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS**

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.

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 #42 of 88

Question ID: 1508429

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 #43 of 88

Question ID: 1508430

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 #44 of 88

Question ID: 1508431

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.
-

Overview for Questions #45-48 of 88

Question ID: 1512438

TOPIC: QUANTITATIVE METHODS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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

sales	= 20.1	+ 0.001	+ 1,000.6	+ 0.1	– 3.2	– 40.3
		GDP	TR	CC	PC	UR
VIF		(5.2)	(3.1)	(5.3)	(1.9)	(4.7)
Number of observations:	76					
Standard error estimate:	15.67					
Unadjusted R ² :	0.96					
Regression sum of squares:	412,522					
Error sum of squares:	17,188					

Independent Variable Descriptions

GDP = gross domestic product

TR = average rate on 5-year U.S. Treasury securities
CC = most recent quarter end consumer confidence index value
PC = previous year's sales of personal computers
UR = most recent quarter end unemployment rate

Variable Estimates for 2019

GDP = 8,000
TR = 0.05
CC = 97
PC = 60,000
UR = 0.055

Dave Carington was recently hired by the same investment firm as a quantitative analyst. During Horvath's meeting with Carington, the two discussed the application of big data and machine learning to investing. Carington makes the following comments:

Comment 1: One has to be careful to avoid overfitting in these models. Overfitting occurs when the noise in the data is perceived as relationships.

Comment 2: To reduce the risk of type II error, choose a model with a high recall.

Question #45 of 88

Question ID: 1507270

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

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

Question #46 of 88

Question ID: 1512439

Based on the information provided, which of the following concerns about the model would be *most appropriate*?

- A) Low explanatory power.
 - B) Type II error.
 - C) Type I error.
-

Question #47 of 88

Question ID: 1508351

Regarding Carington's comments:

- A) both comments are accurate.
 - B) neither comments are accurate.
 - C) only one comment is accurate.
-

Question #48 of 88

Question ID: 1507273

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

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

Overview for Questions #49-52 of 88

Question ID: 1512440

TOPIC: FINANCIAL STATEMENT ANALYSIS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Best Tools, Inc., supplies automotive accessories to several major auto manufacturers in North America and Europe. On January 1, 2020, Best purchased a 60% controlling interest in Gremlin Corporation for \$900 million. Best paid for the acquisition with shares of its common stock.

Exhibit 1 contains Best's and Gremlin's preacquisition balance sheet data.

Exhibit 1: Preacquisition Balance Sheet Data

In Millions	Best		Gremlin	
	Book Value	Fair Value	Book Value	Fair Value
Current assets	\$ 9,000	\$ 9,000	\$ 500	\$ 700
Noncurrent assets	\$ 7,500	\$ 7,800	\$ 900	\$ 950
	\$ 16,500		\$ 1,400	
Current liabilities	\$ 3,000	\$ 3,000	\$ 250	\$ 250
Long-term debt	\$ 7,700	\$ 7,500	\$ 400	\$ 300
Stockholders' equity	\$ 5,800		\$ 750	
	\$ 16,500		\$ 1,400	

Exhibit 2 contains selected information from Best's financial statement footnotes.

Exhibit 2: Selected Footnote Information (Amounts in \$ Millions)

At the end of 2020, the carrying value of Best'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*.

* for pro rata share

Outside of United States, Best operates in two geographic segments: Europe and Mexico. Selected financial information for each segment is found in Exhibit 3.

Exhibit 3: Selected Financial Information by Segment

<i>in millions</i>	EBIT	Revenue	Total CapEx	Total Assets
Europe	\$7,203	\$50,463	\$4,452	\$36,642
Mexico	\$787	\$9,766	\$8,269	\$14,250

The amount of goodwill Best 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 #50 of 88

Question ID: 1508359

According to U.S. GAAP, Best'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 #51 of 88

Question ID: 1508360

Using only the information contained in Exhibit 2, which of the following statements is *most accurate* regarding Best'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 should be recognized under U.S. GAAP or IFRS.
-

Question #52 of 88

Question ID: 1508361

The data found in Exhibit 3 *most likely* indicates that Best may be over-allocating resources to:

- A) the Europe segment.
- B) the Mexico segment.
- C) the Europe segment and the Mexico segment.

Overview for Questions #53-56 of 88

Question ID: 1512443

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS.

James Kelley is analyzing X-Sport, Inc., a manufacturer of high-end outdoor sporting equipment. Kelley has been asked by his supervisor, Jessica Malone, to estimate the cost of capital for X-Sport. X-Sport has a \$30 million face value, 5.75% annual-pay, senior unsecured debt with 7 years remaining to maturity. The unrated debt does not publicly trade, but Kelley estimates that it would be rated A based on X-Sport's metrics. Kelley has collected current information on yields as shown in **Exhibit 1: Current Yield to Maturity by Rating Class and Maturity**.

Exhibit 1: Current Yield to Maturity by Rating Class and Maturity

Maturity					
Rating	3	5	8	10	Average
AAA	5.00%	6.00%	6.50%	7.25%	6.19%
AA	5.50%	6.55%	7.15%	8.00%	6.80%
A	6.00%	7.05%	7.65%	8.50%	7.30%
BBB	6.50%	7.60%	8.25%	9.25%	7.90%
BB	7.00%	8.15%	8.85%	10.00%	8.50%
B	7.50%	8.70%	9.45%	10.75%	9.10%

To estimate X-Sport's cost of equity, Kelley uses the firm's model. **Exhibit 2: Estimated Inputs for Cost of Capital Estimates** shows the estimates of inputs that the model uses.

Exhibit 2: Estimated Inputs for Cost of Capital Estimates

Input	Estimate
Long-term inflation forecast	2.50%
Current level of inflation	4.50%
Forecast div. yield—public companies	1.20%
Real GDP growth rate	3.20%

LT government securities YTM	3.00%
ST government securities YTM	5.00%
Market P/E multiple	Fairly valued
Growth in shares outstanding	0%

Kelley believes that X-Sport's cost of capital should include specific company risk premium (SCRП) and makes the following notes:

1. Qualitative factors affecting SCRП include corporate governance quality, use of leverage to finance assets, and customer and supplier concentration, among others.
2. Firms with most of the assets represented by successful R&D would command a lower SCRП.

While discussing a foreign competitor of X-Sport, Kelley brings up the use of the international capital asset pricing model (ICAPM). While discussing the two factors in the ICAPM, Malone makes the following statements:

- Statement 1: The first factor captures the company's relationship with the local economy relative to the global economy.
- Statement 2: The second factor captures the sensitivity of the company's cash flows to changes in its currency value.
-

Question #53 of 88

Question ID: 1508887

Using the information in Exhibit 1, what is the cost of debt for X-Sport?

- A) 7.45%.
 - B) 7.30%.
 - C) 7.35%.
-

Question #54 of 88

Question ID: 1512444

Using the information in Exhibit 2 and the Grinold-Kroner model, the estimate of ERP is *closest* to:

- A) 1.90%.
 - B) 3.90%.
 - C) 5.90%.
-

Question #55 of 88

Question ID: 1508367

Regarding Kelley's statements about specific company risk premium:

- A) only one of the statements is correct.
 - B) both statements are correct.
 - C) both statements are incorrect.
-

Question #56 of 88

Question ID: 1512445

Regarding Malone's statements about ICAPM:

- A) only one of the statements is correct.
 - B) both statements are correct.
 - C) both statements are incorrect.
-

Overview for Questions #57-60 of 88

Question ID: 1508412

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS.

Sundakini Mamalakis manages portfolios of several wealthy individual investors. To differentiate herself from other advisors, Mamalakis wants to make available alternative investment portfolio options for some of her clients. Being rather unfamiliar with the asset class, Mamalakis wants to hire an alternative investment specialist. After interviewing several candidates, Mamalakis narrowed down her search to two promising candidates: Adonia Papageorgiou and Adras Nikolaou.

Nikolaou made the following statement about how debt for LBO transactions is raised: "Much of the debt financing for private equity firms comes from the

syndicated loan market, but the debt is often repackaged and sold as collateralized loan obligations (CLOs)."

Papageorgiou is bullish on venture capital investment. In her presentation, she illustrated a deal as shown in **Exhibit 1: Venture Capital Investment**.

Exhibit 1: Venture Capital Investment

	Round 1	Round 2
Investment	\$5	\$15
ROI	15	7
Exit value	\$120	\$350

Nikolaou made a presentation about the mechanics of investing in a PE fund where the terms call for a managing partner earning a carried interest with a clawback provision. To illustrate, Nikolaou used an illustration, shown in **Exhibit 2: Vanilla PE Distribution Waterfall**, where the terms call for a zero hurdle rate and two investments that were exited in five years.

Exhibit 2: Vanilla PE Distribution Waterfall

Committed capital	\$300
Carried interest	15%
First investment	\$100
Second investment	\$200
First investment exit proceeds	\$90
Second investment exit proceeds	\$220

Question #57 of 88

Question ID: 1508413

Nikolaou's statement about debt for LBO transactions is *most likely*:

- A) correct.
- B) incorrect about the syndicated loan market.
- C) incorrect about the debt being sold as CLOs.

Question #58 of 88

Question ID: 1508414

Which contract term in a private equity LBO transaction is used to prevent unauthorized changes in a business plan?

- A) Tag-along, drag-along.
 - B) Board representation.
 - C) Required approvals.
-

Question #59 of 88

Question ID: 1508415

Using the information in Exhibit 1, the fractional ownership of first-round investors after the second round is *closest* to:

- A) 30%.
 - B) 63%.
 - C) 44%.
-

Question #60 of 88

Question ID: 1508416

Using information in Exhibit 2, under a deal-by-deal method with a claw-back provision and true-up every five years, the cumulative dollar amount the GP receives by the end of the five years is equal to:

- A) \$1.5 million.
 - B) \$2.4 million.
 - C) \$0.
-

Overview for Questions #61-64 of 88

Question ID: 1508374

TOPIC: EQUITY VALUATION**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS**

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

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

Exhibit 1: Selected Prizm Financial Data

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

Exhibit 1: Selected Prizm Financial Data (continued)

	20X3	20X4	20X5	20X6
Balance Sheet at 31 December	\$m	\$m	\$m	\$m
Working capital	24.0	25.6	27.2	32.4
Fixed assets	<u>76.0</u>	<u>78.6</u>	<u>82.0</u>	<u>78.1</u>
Total assets	<u>100.0</u>	<u>104.2</u>	<u>109.2</u>	<u>110.5</u>
Liabilities	24.0	24.0	24.0	16.0
Common stock	20.0	20.0	20.0	20.0
Additional paid up capital	10.0	10.0	10.0	10.0

Retained income	<u>46.0</u>	<u>50.2</u>	<u>55.2</u>	<u>64.5</u>
	<u>100.0</u>	<u>104.2</u>	<u>109.2</u>	<u>110.5</u>
Market value of equity	167	203	199	145
(31 December)				

Other information:

- Beta of firm = 1.
- Debtholders' required rate of return: 5%.
- Equity holders' required rate of return: 15%.
- After tax WACC: 12.5%.
- Tax rate: 45%.

Notes:

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

Question #61 of 88

Question ID: 1508375

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

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

Question #62 of 88

Question ID: 1508376

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

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

Question #63 of 88

Question ID: 1508377

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

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

Question #64 of 88

Question ID: 1508378

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

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

Overview for Questions #65-68 of 88

Question ID: 1508888

TOPIC: FIXED INCOME

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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

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

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

Exhibit 2: Selected Data on Two Dxon Bonds

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

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

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

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

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

Question #65 of 88

Question ID: 1508390

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

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

Question #66 of 88

Question ID: 1508391

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

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

Question #67 of 88

Question ID: 1508889

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

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

Question #68 of 88

Question ID: 1508393

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

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

Overview for Questions #69-72 of 88

Question ID: 1508394

TOPIC: FIXED INCOME**THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS.**

Garima Kahn is the head of analytics at Molson Traders. Kahn is onboarding Jason Bates, a new recruit. Kahn provides several research papers and other internal

documents for Bates to review.

Bates looks over the section about credit analysis and how OAS is used to value different credit risky bonds. He notes that there is a warning statement that the calculated OAS is sensitive to inputs used in the model, and that care should be taken to use an appropriate level of future interest rate volatility in the model. Bates wants to use a binomial interest rate tree to value bond X. Bond X is a four year bond, extendible by the investor for an additional two years at the same coupon rate.

Bates reads a report prepared by Kahn for the risk management department. Bates underlines the following statement in the report:

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

Bates then prepares a summary documenting his understanding of various spread measures as shown in Exhibit 1.

Exhibit 1: Spreads

The swap spread is a useful indicator of credit risk in the markets. It can be used in conjunction with the TED, MRR-OIS, and z-spread to get an in-depth view of the state of the fixed-income markets, as follows:

- Z-spread: Calculated as the constant number of basis points that must be added to the implied spot yield curve to make the discounted cash flows of a bond add up to its market price. For a risky bond, the z-spread is a more accurate measure of compensation for credit and liquidity risk than is the swap spread.
- TED spread: Calculated as the difference between MRR and the yield on a maturity-matched T-bill. TED spread gives better insight into supply and demand conditions in the market at a given maturity than does the swap spread (which focuses more on the risks in the banking system).
- MRR-OIS spread: Calculated as the difference between MRR and the overnight indexed swap rate. It is considered a good indicator of the risk and liquidity inherent in the money markets.

Bates prepares a partial report about his understanding of bond analytics and submits it to Kahn for feedback. Kahn's feedback is shown in Exhibit 2.

Exhibit 2: Kahn's Feedback

"...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 term structure model, which calculates the change in the log of the short term interest rate over small increments of time (dt):

$$d\ln(r_t) = \Theta_t dt + \sigma dz_t$$

Question #69 of 88

Question ID: 1508395

If the volatility estimate used in generating the interest rate tree is less than the true volatility, which of the following would *most accurately* describes the impact on the calculated value of bond X and the estimated OAS of bond X?

<u>Value of Bond X</u>	<u>Estimated OAS of Bond X</u>
A) Underestimated	Too low
B) Underestimated	Too high
C) Overestimated	Too high

Question #70 of 88

Question ID: 1508396

Kahn's statement to the risk management department is *best* described as:

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

Question #71 of 88

Question ID: 1508397

With regard to the summary of spreads in Exhibit 1, Kahn is *least accurate* in her:

- A) definition of the MRR-OIS spread.
 - B) assertion that the z-spread provides a more accurate measure of credit risk than does the swap spread.
 - C) claim that the TED spread gives better insight into supply and demand conditions than does the swap spread.
-

Question #72 of 88

Question ID: 1507328

Kahn's feedback in Exhibit 2 is *most likely* to be advocating the exclusion of:

- A) the segmented markets theory in favor of the Kalotay-Williams-Fabozzi (KWF) model.
 - B) the preferred habitat theory in favor of the Vasicek model.
 - C) the segmented markets theory in favor of the Cox-Ingersoll-Ross model.
-

Overview for Questions #73-76 of 88

Question ID: 1512446

TOPIC: DERIVATIVES

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Michelle Norris, CFA, manages assets for individual investors in the United States as well as in other countries. Norris limits the scope of her practice to equity securities traded on U.S. stock exchanges. Her partner, John Witkowski, handles any requests for international securities. Recently, one of Norris's wealthiest clients suffered a substantial decline in the value of his international portfolio. Worried that his U.S. allocation might suffer the same fate, he has asked Norris to implement a hedge on his portfolio. Norris has agreed to her client's request and is currently in the process of evaluating several futures contracts. Her primary interest is in a futures contract on a broad equity index that will expire 240 days from today. The closing price as of yesterday, January 17, for the equity index was 1,050. The expected dividends from the index yield 2% (continuously compounded annual rate). The continuously compounded risk-free rate is 4%. Norris decides that this equity index futures contract is the appropriate hedge for her client's portfolio and enters into the contract.

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

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

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

Exhibit 1: Swiss Interest Rates

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

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

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

Question #74 of 88

Question ID: 1508400

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

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

Question #75 of 88

Question ID: 1512447

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

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

Question #76 of 88

Question ID: 1507333

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

- A) -€19,633.
- B) -€141,584.

C) -€1,021,033.

Overview for Questions #77-80 of 88

Question ID: 1508422

TOPIC: PORTFOLIO MANAGEMENT

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS.

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

Exhibit 1: Premier Fund Characteristics

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

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

Statement 1: "Unlike the Sharpe ratio, the information ratio can be affected by the addition of cash or leverage."

Statement 2: "The information ratio of an unconstrained portfolio is unaffected by aggressiveness of the active weights."

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

Exhibit 2: Selected Information for Dena and Orient Funds

	Dena	Orient
Information coefficient	0.20	0.25

Transfer coefficient 0.99 0.80

Independent bets/year 12 X

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

Exhibit 3: Selected Fund Data

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

Question #77 of 88

Question ID: 1508423

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

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

Question #78 of 88

Question ID: 1508424

Regarding Ogle's Statements 1 and 2:

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

Question #79 of 88

Question ID: 1508425

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

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

Question #80 of 88

Question ID: 1508426

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

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

Overview for Questions #81-84 of 88

Question ID: 1508437

TOPIC: ETHICAL AND PROFESSIONAL STANDARDS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

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

James Rogers, CFA, and Karen Pierce, CFA, are both portfolio managers affected by the new policy. Rogers out-performed the S&P 500 Index in each of the last three quarters, largely because he began investing his clients' funds in small-cap securities.

Chester has recently been citing Rogers's performance in local media advertising, including claims that "Chester's star manager, James Rogers, has outperformed the S&P 500 Index in each of the last three quarters." The print advertising associated with the media campaign includes a photograph of Rogers, identifying him as James Rogers, CFA. Below his name is a quote apparently attributable to Rogers saying "as a CFA charterholder, I am committed to the highest ethical standards."

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

Pierce has not fared as well as Rogers. She also shifted into smaller-cap securities, but due to two extremely poor performing large-cap stocks, her performance lagged the S&P 500 Index for the first three quarters. After an angry confrontation with her supervisor, Pierce resigned. Pierce soon accepted a position at a competing firm, Cheeri Group.

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

Statement 1: Includes large capitalization portfolios only.

Statement 2: Results reflect manager's performance at previous employer.

Question #81 of 88

Question ID: 1508438

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

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

Question #82 of 88

Question ID: 1508439

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

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

Question #83 of 88

Question ID: 1508440

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

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

Question #84 of 88

Question ID: 1508441

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

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

TOPIC: ETHICAL AND PROFESSIONAL STANDARDS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Darren Patel, CFA, has worked at Analytica Partners, LLC, for the past six years as a portfolio manager and has built up a book of several large clients. Patel notes that his clients have become increasingly aware of the directed client brokerage (soft dollar commissions) issue. At a recent meeting with one of his 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 Patel 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. The Service Workers trustees believe the Hoover study will increase the public awareness of the benefits unions offer to their members and increase union membership. Patel concurs with the trustees' goal of increasing union enrollment, and follows the client's instructions: he makes the \$25,000 contribution to the Hoover Study Center.

Another client, Rosa Lutz, has asked Patel to credit the soft dollar client brokerage proceeds from her personal retirement accounts to Roswell Academy to update their computer lab. Patel agrees that a new computer lab for Roswell Academy is greatly needed, and he allocates \$10,000 of Lutz's commission dollars to Roswell Academy.

Jessica Burns, CFA, one of Patel's colleague at Analytica, recently quit. When she left, Burns took a copy of a computer model with the permission of the co-worker who developed the model, as well as the most recent list of her buy recommendations, which was created from the output of the computer model. Burns soon accepts a position at a competing firm, Babylon Group. On her first day at Babylon, she contacts each of her five largest former clients, informing them of her new employment and asking that they consider moving their accounts from Analytica to Babylon. During telephone conversations and emails with her former clients, Burns mentions that Analytica has a new compensation program that created incentives for managers to shift into mid-cap securities.

Question #85 of 88

Question ID: 1508433

Is the use of client brokerage to make the \$25,000 contribution to the Hoover Study Center of Unions a violation of the CFA Institute Standards of Professional Conduct?

- Yes, because Patel must ensure that client brokerage fees are directed to the benefit of the client.
- Yes, because client brokerage must only be used to pay for goods and services directly related to the investment decision-making process.
- No, because the client brokerage has been spent at the specific direction of the client.
-

Question #86 of 88

Question ID: 1508434

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?

- Yes, because client brokerage must only be used to pay for goods and services directly related to the investment decision-making process.
- Yes, because client brokerage of tax-deferred accounts cannot be used to make charitable contributions.
- No, because the client brokerage has been spent at the specific direction of the client.
-

Question #87 of 88

Question ID: 1508435

By taking the computer model when leaving her position at Analytica, Burns has *most likely* violated CFA Institute Standards:

- because she should have obtained the permission from her colleague in writing.
- by placing the interests of her current employer above the interests of her former employer.
- unless she obtained permission from Analytica.
-

Question #88 of 88

Question ID: 1508436

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

- A)** encouraged her former clients to leave Analytica.
 - B)** should not have contacted her former clients.
 - C)** disclosed her former employer's new compensation program.
-