

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

Lena Pilchard, a research associate at Eiffel, is attempting to measure the value added to the Eiffel Investments portfolio from the use of 1-year earnings growth forecasts developed by professional analysts. Additionally, Pilchard wants to develop an algorithm to create a custom index to use as a benchmark.

Pilchard's supervisor, Edna Wilrus, recommends a portfolio allocation strategy that overweights neglected firms. Wilrus cites studies of the "neglected firm effect," in which companies followed by a small number of professional analysts are associated with higher returns than firms followed by a larger number of analysts. Wilrus considers a company covered by three or fewer analysts to be "neglected."

Pilchard also is aware of research indicating that, on average, stock returns for small firms have been higher than those earned by large firms. Pilchard develops a model to predict stock returns based on analyst coverage, firm size, and analyst growth forecasts. She runs the following cross-sectional regression using data for the 30 stocks included in the Eiffel Investments portfolio:

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

where:

R_i = the rate of return on stock i

COVERAGE_i = one if there are three or fewer analysts covering stock i , and equals zero otherwise

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

FORECAST_i = the 1-year consensus earnings growth rate forecast for stock i

Pilchard derives the following results from her cross-sectional regression:

Exhibit 1: Results of Pilchard's Cross-Sectional Regression

Variable	Coefficient	t-Statistic
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Constant	0.060	1.56
COVERAGE	0.050	3.20
LN(SIZE)	-0.003	-2.50
FORECAST	0.200	2.85

The standard error of estimate in Pilchard's regression equals 1.96 and the regression sum of squares equals 400. The coefficient of determination of the regression model using the residuals as dependent variable and using the same set of independent variables is 0.07832.

Wilrus provides Pilchard with the following values for analyst coverage, firm size, and earnings growth forecast for Eggmann Enterprises, a company that Eiffel Investments is evaluating.

Exhibit 2: Coverage, Firm Size, and Earnings Growth Forecast for Eggmann Enterprises

Number of analysts	5
Firm size	\$500 million
Earnings growth forecast	50%

Pilchard uses the following table to conduct some of her hypothesis tests.

Exhibit 3: Critical Values for Chi-Square Distribution (Level of Significance = 5%)

Degree of Freedom	Critical Value
1	3.841
2	5.991
3	7.815
4	9.488
5	11.070
6	12.592

To create the custom benchmark, Elwell would *most* appropriately use a:

- A) LASSO algorithm.
 - B) KNN technique.
 - C) random forest classifier.
-

Question #2 of 88

Question ID: 1507376

Does the model exhibit evidence of conditional heteroskedasticity in residuals?

- A) Yes because the χ^2 of 6.44 is less than the critical χ^2 of 7.815.
 - B) No because the χ^2 statistic of 2.35 is less than the critical χ^2 of 7.815.
 - C) No because the data is cross-sectional.
-

Question #3 of 88

Question ID: 1507377

Holding firm size and consensus earnings growth forecasts constant, the estimated average difference in stock returns between neglected and non-neglected firms equals:

- A) 1%.
 - B) 3%.
 - C) 5%.
-

Question #4 of 88

Question ID: 1507378

Using the inputs for Eggmann Enterprises provided in Exhibit 2, the predicted stock return for Eggmann Enterprises is *closest* to:

- A) 4%.
 - B) 9%.
 - C) 14%.
-

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

Alfred Farias, fixed income analyst for BNF, Inc., is analyzing the economic prospects of Procken, Krosse, Weira, and Toban, four countries in the same region. He collects the following economic and demographic statistics for the countries:

	Procken	Krosse	Weira	Toban
Current real GDP (in \$ billions)	\$250.00	\$250.00	\$4,500.00	\$4,800.00
Projected real GDP in 5 years (in \$ billions) based on potential GDP growth rate	\$306.00	\$315.00	\$5,262.00	\$5,778.00
Long-term growth rate of capital	4.0%	4.2%	3.2%	3.8%
Current capital base (\$ billions)	\$782.9	\$699.2	\$18,750	\$19,750
Imports (in \$ billions)	\$30.00	\$60.00	\$1,500.00	\$900.00
Exports (in \$ billions)	\$32.00	\$80.00	\$1,000.00	\$900.00
Population (in \$ millions)	20.4	20.0	101.0	100.0
Labor growth rate	1.9%	2.9%	0.4%	0.8%
Cost of capital relative to total factor cost	32.5%	35.0%	25.0%	22.5%
Average real annual appreciation in equities (past five years)	4.0%	4.7%	4.5%	3.8%

A GDP per capita below \$25,000 is considered a developing country, and a GDP per capita greater than \$25,000 is considered a developed country.

Farias concludes that Weira and Toban have reached steady-state growth.

In the latest round of trade negotiations, representatives from each country discussed their efforts to foster their countries' economic development and benefit from the growth of world trade.

Procken's Representative: "We are wary of the potential for loss of domestic industries if we remove trade barriers. Given the state of our economy, I'm not certain that we can lower our trade barriers any further."

Krosse's Representative: "We in Krosse are not investing enough in infrastructure and education to increase the level of productivity and technology in our economy. We

also need foreign direct investment and hence we welcome foreign investors."

Weira's Representative: "We are concerned about my country's negative trade balance. Weira needs more exports to sustain our growth."

Toban's Representative: "We seem to be at a point in Toban where the growth rate of my country's labor force may be insufficient to support our GDP growth rate."

Question #5 of 88

Question ID: 1507390

Which country is *most likely* to benefit from capital deepening?

- A) Weira.
 - B) Krosse.
 - C) Procken.
-

Question #6 of 88

Question ID: 1507391

For this question only, assume that the population growth rate is the same for Krosse and Procken. A possible cause for the difference in growth rate of labor is that relative to Procken, Krosse has:

- A) stricter immigration policies.
 - B) a lower labor participation rate.
 - C) experienced an increase in average hours worked.
-

Question #7 of 88

Question ID: 1507392

The rental price of capital in Weira is *closest* to:

- A) 6%.
 - B) 12%.
 - C) 25%.
-

Question #8 of 88

Question ID: 1507393

Based on the information provided, which developing country is *most likely* to achieve convergence in growth rates and standard of living with their developed counterparts?

- A) Toban.
 - B) Krosse.
 - C) Procken.
-

Overview for Questions #9-12 of 88

Question ID: 1508883

TOPIC: FINANCIAL STATEMENT ANALYSIS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

In 2009, Continental Supply Company was formed to provide drilling equipment and supplies to contractors and oilfield production companies located throughout the United States. At the end of 2013, Continental Supply created a wholly owned foreign subsidiary, International Oilfield Incorporated, to begin servicing customers located in the North Sea. International Oilfield maintains its financial statements in a currency known as the local currency unit (LCU). Continental Supply follows U.S. GAAP and its presentation currency is the U.S. dollar.

For the years 2013 through 2016, the weighted-average and year-end exchange rates, stated in terms of local currency per U.S. dollar, were as follows:

LCU/\$US	2013	2014	2015	2016
Average	0.90	1.05	1.05	1.25
Year-end	1.00	1.10	1.00	1.50

International Oilfield accounts for its inventory using the lower-of-cost or market valuation method in conjunction with the first-in, first-out, cost flow assumption. All of the inventory on hand at the beginning of the year was sold during 2016. Inventory remaining at the end of 2016 was acquired evenly throughout the year.

At the beginning of 2014, International Oilfield purchased equipment totaling LCU 975 million when the exchange rate was LCU 1.00 to \$1. During 2015, equipment with an original cost of LCU 108 million was totally destroyed in a fire. At the end of 2015,

International Oilfield received a LCU 92 million insurance settlement for the loss. On June 30, 2016, International Oilfield purchased equipment totaling LCU 225 million when the exchange rate was LCU 1.25 to \$1.

For the years 2015 and 2016, Continental Supply reported International Oilfield revenues in its consolidated income statement of \$375 million and \$450 million, respectively. There were no inter-company transactions. Following are International Oilfield's balance sheets at the end of 2015 and 2016:

LCU in millions	2016	2015
Cash and receivables	120.0	216.0
Inventory	631.3	650.4
Equipment	820.7	693.6
Liabilities (all monetary)	600.0	600.0
Capital stock	350.0	350.0
Retained earnings	622.0	610.0

At the end of 2016, International Oilfield's retained earnings account was equal to \$525 million and, to date, no dividends have been paid. All of International Oilfield's capital stock was issued at the end of 2013.

Question #9 of 88

Question ID: 1507400

Assuming that International Oilfield's equipment is depreciated using the straight-line method over 10 years with no salvage value, calculate the subsidiary's 2016 depreciation expense under the temporal method.

- A) \$95.7 million.
- B) \$104.7 million.
- C) \$114.7 million.

Question #10 of 88

Question ID: 1507401

Compute the cumulative translation adjustment reported on Continental Supply's consolidated balance sheet at the end of 2016, assuming International Oilfield is a relatively self-contained and independent operation of Continental Supply.

- A) -\$227 million.
 - B) -\$200 million.
 - C) \$298 million.
-

Question #11 of 88

Question ID: 1507402

Compared to the temporal method, which of the following *best* describes the impact of the current rate method on International Oilfield's gross profit margin percentage for 2016 when stated in U.S. dollars? The gross profit margin would be:

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

Question #12 of 88

Question ID: 1507403

When remeasuring International Oilfield's 2016 financial statements into the presentation currency, which of the following ratios is not affected by changing exchange rates under the temporal method?

- A) Current ratio.
 - B) Total asset turnover.
 - C) Quick ratio.
-

Overview for Questions #13-16 of 88

Question ID: 1508884

TOPIC: EQUITY VALUATION

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Sampson Aerospace is a publicly traded U.S. manufacturer. Sampson supplies communication and navigation control systems to manufacturers of airplanes for commercial and government use. The company operates two divisions: (1) Commercial Operations, and (2) Government Operations. Revenues from the Government Operations division comprise 80% of Sampson's total company revenues. Revenues for other companies in the industry are also driven primarily by sales to the U.S. government.

Sampson has gained a reputation for offering unique products and services. Sampson's market share has been increasing, and its net profit margin is among the highest in its industry.

Sampson Aerospace recently announced that it is reducing its investment return assumption on its pension assets from 6% to 5%, and that it has entered negotiations to possibly acquire controlling equity interests in communications software firms, NavTech and Aerospace Communications. NavTech recently has decided to capitalize a significant portion of its research and development expense, and Aerospace Communications has restructured and reclassified many of its leases from operating to financial leases. Smith recently announced that Sampson had dropped out of negotiations with Knowledge Technologies, claiming it was likely not a sustainable business model.

Consensus forecasts for NavTech and Aerospace Communications are presented in Exhibit 1.

Exhibit 1: Selected Financial Data for NavTech and Aerospace Communications

	NavTech	Aerospace Comm.
Expected year-end dividend per share	\$1.07	\$0.55
Expected year-end free cash flow to equity per share	\$0.80	\$1.25
Weighted average cost of capital	10%	9%
Required return on equity	12%	12%
Current stock price	\$21.40	\$25

The *most appropriate* approach for Sampson Aerospace's valuation of NavTech and Aerospace Communications is:

- A)** the dividend discount model.
 - B)** the free cash flow model.
 - C)** the relative value model.
-

Question #14 of 88

Question ID: 1507416

Regarding the financial statement information provided in the analyst's report, the quality of financial statements has improved *least* for:

- A)** Sampson.
 - B)** NavTech.
 - C)** Aerospace Communications.
-

Question #15 of 88

Question ID: 1507417

By claiming that Knowledge Technologies is "not a sustainable business model," Sampson CEO Drew Smith would *most likely* estimate Knowledge Technologies's value using:

- A)** balance sheet value.
 - B)** going concern value.
 - C)** liquidation value.
-

Question #16 of 88

Question ID: 1507418

Assuming that NavTech is valued according to the constant growth dividend model, the market expectation of dividend growth implied by NavTech's current stock price is *closest* to:

- A)** 3%.
- B)** 5%.

C) 7%.

Overview for Questions #17-20 of 88

Question ID: 1507419

TOPIC: EQUITY VALUATION

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Ivan Johnson is reviewing the investment merits of BioTLab, a fast-growing biotechnology company. BioTLab has developed several drugs, which are being licensed to major drug companies. BioTLab also has several drugs in phase III trials (phase III trials are the last testing stage before FDA approval). Johnson notes that two drugs recently received approval which should provide BioTLab solid revenue growth and generate predictable cash flow well into the future. Based on the potential for the two drugs, BioTLab's estimated annual cash flow growth rate for the next two years is 25%, and long-term growth is expected to be 12%. Because of BioTLab's attractive investment opportunities, the company does not pay a dividend. BioTLab's current weighted average cost of capital is 15% and its stock is currently trading at \$50 per share. The following is financial information for BioTLab for the most recent 12 months:

- Net working capital excluding cash increased from \$7,460,000 to \$9,985,000.
- Book value increased from \$81,250,000 to \$101,250,000.
- BioTLab currently has no debt.
- Research facilities and production equipment were purchased for \$8,450,000.
- BioTLab held non-operating assets in the amount of \$875,000.
- Net income for the 12 months was \$20,000,000.
- BioTLab has a marginal tax rate of 40%.
- Noncash charges for depreciation and restructuring for the 12 months were \$1,250,000.

BioTLab's management has indicated an interest in establishing a dividend and will fund new drug research by issuing additional debt.

Johnson also reviews a competitor to BioTLab, Groh Group, which has a larger segment operating in a highly cyclical business. The Groh Group has a debt to equity ratio of 1.0 and pays no dividends. In addition, Groh Group plans to issue bonds in the coming year.

Question #17 of 88

Question ID: 1507420

Using a two-stage, free cash flow to the firm model, determine which of the following is *closest* to the value of BioTLab.

- A) \$419 million.
 - B) \$436 million.
 - C) \$477 million.
-

Question #18 of 88

Question ID: 1507421

If BioTLab establishes a dividend and issues additional debt, the *most likely* effect on FCFF will be:

- A) no effect.
 - B) a decrease in FCFF.
 - C) an increase in FCFF.
-

Question #19 of 88

Question ID: 1507422

Which model would be *most appropriate* in valuing the Groh Group?

- A) FCFF model.
 - B) FCFE model.
 - C) Dividend Discount model.
-

Question #20 of 88

Question ID: 1507423

Ten years have passed and BioTlab's drug pipeline has generated the expected growth. To support BioTlab's growth, the company levered its balance sheet to a debt-to-equity ratio of 35% by borrowing an additional \$1.6 million during the last year, even as it paid total interest of \$4 million. Still, the company generated \$20 million in free cash flow to equity. The company's tax rate is 40% and pretax interest rate is 6%. The company's required rate of return on equity equals 13%. Using a single-stage FCFF model results in a value of \$483,508,770. The expected growth rate in BioTlab's free cash flows is *closest* to:

- A) 6%.
- B) 8%.
- C) 10%.

Overview for Questions #21-24 of 88

Question ID: 1507429

TOPIC: FIXED INCOME

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Mike Diffle has been asked to evaluate the bonds of Hardin, Inc. The specific issue Diffle is considering has an 8% annual coupon and matures in two years. The bonds are currently callable at 101, and beginning in six months, they are callable at par. Bratton Corporation, Hardin's competitor, also has bonds outstanding which are identical to Hardin's except that they are not callable. Diffle believes the AA rating of both bonds is an accurate reflection of their credit risk. Diffle is wondering if the Bratton bonds might be a better investment than the Hardin bonds. Assume that the following 1-year interest rate tree is used to value bonds with a maturity of up to three years (this tree assumes interest rate volatility of 10%).

<u>Today</u>	<u>Year 1</u>	<u>Year 2</u>
	9.324%	
	8.530%	
7.250%	7.634%	
	6.983%	
	6.250%	

Also, assume that the appropriate spot rates for securities maturing in one, two, and three years are 7.25%, 7.5%, and 7.80%, respectively.

Diffle believes he should begin his analysis with the option-free Bratton bonds. He decides to consider two different approaches to valuing the Bratton bonds—one that uses the current spot rate curve and another that uses the interest rate tree given above.

To finish the analysis, Diffle would like to use his binomial model to evaluate the interest rate risk of both the Hardin bonds and the Bratton bonds. Diffle starts out with the benchmark interest rate tree and estimated OAS for both bonds. Then he shocks interest rates up and down by 25 basis points throughout the tree and adds the OAS estimated earlier. Using the tree and standard backward induction process, Diffle calculates values for the bonds. He plans to use these values as inputs into the following formulas for duration and convexity:

$$\text{duration} = \frac{V_- - V_+}{2 \times V_0 \times \Delta y}$$
$$\text{convexity} = \frac{V_+ + V_- - 2V_0}{V_0 \times (\Delta y)^2}$$

Diffle's supervisor, Mark Zando, notes that the duration estimate for the two bonds is not directly comparable. Assuming that the underlying option is at- or near-the-money, the duration of one of the bonds will be lower than the other one.

Question #21 of 88

Question ID: 1507430

Calculate the value of the Bratton bonds using the interest rate tree.

- A) 100.218.
- B) 100.378.
- C) 100.915.

Question #22 of 88

Question ID: 1507431

Using the interest rate tree, and assuming that the bonds will be called at any node of the tree where the calculated value exceeds the call price, which of the following is *closest* to the value of the Hardin bonds?

- A) 100.472.
 - B) 100.915.
 - C) 101.358.
-

Question #23 of 88

Question ID: 1507432

With regard to Zando's statement about comparability of duration of the two bonds, which of the following statements is *most accurate*? Bratton bonds' duration would be:

- A) lower than the duration of Hardin bonds under a rising interest rate scenario.
 - B) lower than the duration of Hardin bonds under a declining interest rate scenario.
 - C) higher than the duration of Hardin bonds under a declining interest rate scenario.
-

Question #24 of 88

Question ID: 1507433

Which of the following statements is *most accurate* regarding Diffle's calculation of duration and convexity?

- A) The duration estimate will be inaccurate since it does not account for any change in cash flows due to the call option embedded in the Hardin bond.
 - B) The duration estimate for the Bratton bonds will reflect the projected percentage change in price for a 100-basis-point change in interest rates.
 - C) The estimates for both duration and convexity will be inaccurate because the OAS was not estimated again after the rate shock.
-

Overview for Questions #25-28 of 88

Question ID: 1507449

TOPIC: DERIVATIVES

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Charles Mabry manages a portfolio of equity investments heavily concentrated in the biotech industry. He just returned from an annual meeting among leading biotech analysts in San Francisco. Mabry and other industry experts agree that the latest industry volatility is a result of questionable product safety testing methodologies. While no firms in the industry have escaped the public attention brought on by the questionable safety testing, one company in particular is expected to receive further attention—Biological Instruments Corporation (BIC), one of several long biotech positions in Mabry's portfolio. BIC is not expected to pay dividends in the foreseeable future. Several regulatory agencies as well as public interest groups have heavily criticized the rigor of BIC's product safety testing.

In an effort to manage the risk associated with BIC, Mabry has decided to allocate a portion of his portfolio to options on BIC's common stock. After surveying the derivatives market, Mabry has identified the following European options on BIC common stock:

BIC Call Options				BIC Put Options			
	Strike	Maturity	Premium		Strike	Maturity	Premium
Call A	40	October	3.51	Put D	30	November	2.31
Call B	50	October	1.98	Put E	40	November	4.14
Call C	60	October	1.42	Put F	50	November	9.21

Note: October options expire on the 21st of the month, while November options expire on the 18th.

Mabry wants to hedge the large BIC equity position in his portfolio, which closed yesterday (June 1) at \$42 per share.

Question #25 of 88

Question ID: 1507450

Which of the following statements regarding the delta of the BIC options is correct? (Assume that the largest delta is defined as the delta furthest from zero.)

- A)** Call C has the largest delta of all the BIC options.
- B)** Put D has the smallest delta of all the BIC options.

C) Put F has the largest delta of all the BIC options.

Question #26 of 88

Question ID: 1507451

If the gamma of Put E is equal to 0.081, which of the following correctly interprets the option's gamma?

- A) The sensitivity of Put E's price to changes in BIC's stock price is very likely to change.
 - B) A dynamic hedging strategy using Put E would require infrequent rebalancing.
 - C) An increase in BIC's stock price of one dollar will increase Put E's premium by \$0.081.
-

Question #27 of 88

Question ID: 1507452

Assuming that on October 15, the closing price of BIC common stock is \$40 per share, how would the delta of Put F have changed from June 1?

- A) The delta on Put F will move closer to -1.
 - B) The delta on Put F will move closer to 0.
 - C) The delta on Put F will move closer to 1.
-

Question #28 of 88

Question ID: 1507453

If the premium on Put D on November 1 is \$3.18, which of the following has *most likely* occurred?

- A) The price of BIC stock has decreased to \$26.82.
 - B) BIC had a negative earnings surprise.
 - C) Volatility of BIC stock has decreased.
-

TOPIC: ALTERNATIVE INVESTMENTS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Peter Lister, CFA, is an analyst with Rose Alternative Investments, LLC. Lister is evaluating investment opportunities in Buna, a developed country.

Buna 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. Buna's economy is expected to enjoy an above average growth rate.

Exhibit 1: Buna Economic Outlook

	Expected Annual Growth Rate	Relative to Other Developed Countries
Job creation	3.00%	High
Population	1.80%	High
Retail sales	1.50%	Low
Inflation	0.50%	Low

Three investment choices under consideration are:

- Choice 1: Investment in an equity REIT
- Choice 2: Purchase of an apartment building.
- Choice 3: Purchase of stock of a real estate operating company.

Lister is also evaluating a new investment in the Targus Company. Targus is a start-up biotech company seeking \$9 million of venture capital financing. Targus's founders believe that, based on the company's drug pipeline, a company value of \$300 million is reasonable in seven years. Lister views Targus as a risky investment (15% risk of failure) and is using an ROI of 8x.

Based on the information in Exhibit 1, the REIT sector that represents the *least* desirable investment is:

- A) retail.
 - B) office.
 - C) apartments.
-

Question #30 of 88

Question ID: 1507456

The *most* appropriate reason to favor investing in Choice 2 over Choices 1 and 3 is that Choice 2 is likely to have the ability to:

- A) use higher leverage.
 - B) provide greater tax advantages.
 - C) avoid structural conflicts of interest.
-

Question #31 of 88

Question ID: 1507457

Using the VC model, the post-money valuation of Targus Company is *closest* to:

- A) \$26 million.
 - B) \$28 million.
 - C) \$37.5 million.
-

Question #32 of 88

Question ID: 1507458

For this question only, assuming that the founders will hold 2.5 million shares, and the post money valuation is \$90 million, the price per share for the venture capital investor is *closest* to:

- A) \$32.40.
 - B) \$34.12.
 - C) \$36.00.
-

TOPIC: PORTFOLIO MANAGEMENT

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Samuel Edson, CFA, portfolio manager for Driver Associates, employs a multifactor model to evaluate individual stocks and portfolios. Edson examines several possible risk factors and finds two that are priced in the marketplace. These two factors are investor sentiment (IS) risk and business cycle (BC) risk. Edson manages equity Portfolio A and derives the following relationship for that portfolio, as well as for the S&P 500 stock market index:

$$R_A = 0.1750 + 2.0F_{IS} + 1.5F_{BC}$$

$$R_{S\&P} = 0.1475 + 1.5F_{IS} + 1.25F_{BC}$$

where:

R_A and $R_{S\&P}$ = the returns for Portfolio A and the S&P 500 market index, respectively

Portfolio A is well-diversified. F_{IS} is the surprise in investor sentiment, and F_{BC} is the surprise in the business cycle. Surprises in the risk factors are defined as the difference between the actual value and the predicted value.

Driver Associates also provides Edson with the following multifactor equations on three additional portfolios (D, E, and Z):

$$E(R_D) = R_F + 1.0F_{IS} + 0.0F_{BC} = 9\%$$

$$E(R_E) = R_F + 0.0F_{IS} + 1.0F_{BC} = 8\%$$

$$E(R_Z) = R_F + 1.5F_{IS} + 1.25F_{BC} = 14.75\%$$

Driver Associates uses a two-factor arbitrage pricing model to develop equilibrium expected returns for individual stocks and portfolios:

$$E(R) = \text{risk-free rate} + b_1\lambda_1 + b_2\lambda_2$$

where:

b_1 = sensitivity of the portfolio return to changes in risk factor 1

b_2	= sensitivity of the portfolio return to changes in risk factor 2
λ_1	= risk premium associated with risk factor 1
λ_2	= risk premium associated with risk factor 2

At the time of Edson's analysis, the long-term government bond yield was 5%.

Question #33 of 88

Question ID: 1507465

Edson's supervisor, Rosemary Valry, asks Edson to interpret the intercept of the multifactor equation for Portfolio A (0.175). Edson should respond that the intercept equals:

- A)** the expected return for Portfolio A, assuming no surprises in the macroeconomic variables.
 - B)** the expected return for Portfolio A, assuming the macroeconomic variables (investor sentiment and business cycle) equal zero.
 - C)** the expected abnormal return for Portfolio A.
-

Question #34 of 88

Question ID: 1507466

Driver Associates uses portfolios D, E, and Z as part of their risk management strategies. Which of these portfolios are factor portfolios?

- A)** Portfolios D and E.
 - B)** Portfolios D and Z.
 - C)** Portfolio Z only.
-

Question #35 of 88

Question ID: 1507467

Valry instructs Edson to use the two-factor model to examine Driver Associates's well-diversified balanced Portfolio P, which has an Investor Sentiment factor sensitivity equal to 1.25 and a Business Cycle factor sensitivity equal to 1.10. According to Driver Associates's model, the expected return for Portfolio P equals:

- A) 8.3%.
 - B) 10.8%.
 - C) 13.3%.
-

Question #36 of 88

Question ID: 1507468

Assuming Driver Associates uses the S&P 500 Index as their performance benchmark, which of the following portfolios is expected to have the *least* active factor risk?

- A) Portfolio D.
 - B) Portfolio E.
 - C) Portfolio Z.
-

Overview for Questions #37-40 of 88

Question ID: 1507469

TOPIC: PORTFOLIO MANAGEMENT

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Gordon Stenton, CFA, works for a small investment management firm in the United States. Part of his role involves managing portfolios for high net worth individuals. Currently, Stenton is corresponding with Rachael Matten. Matten has withdrawn her assets from Altune, an asset management firm, and is considering allocating \$2.5 million of those funds to Stenton's firm. Matten indicated that she was unhappy with the level of disclosure about trading methods and risk management that were employed at Altune.

Matten has sent Stenton a list of questions to assess the policies at Stenton's firm.

The first issue Matten wants clarification on pertains to the use of VaR. Among the documents that Altune sent Matten were two statements (shown in Exhibit 1). Matten was unsure of how to interpret either of these statements.

Exhibit 1: VaR

Statement 1:

Your portfolio has a 5% monthly VaR of \$225,000.

VaR is calculated using a parametric methodology and an assumption of normality for all risk factors.

Statement 2: The average loss once the VaR cutoff is exceeded is estimated to be \$320,000.

Matten indicates that in Statement 1, she understands that the \$225,000 represents the minimum loss that will occur 5% of the time. She would also like to confirm her suspicion that the 1% VaR (loss) would be lower.

To provide Matten the risk management process employed at his firm, Stenton intends to send Matten the description shown in Exhibit 2.

Exhibit 2: Risk Management Measures

Primary Risk Management Measure – Steps

Step 1: Identify the top 10 exposures for the portfolio.

Step 2: Design a hypothetical global event that would simultaneously adversely affect each of the exposures.

Step 3: Assess the impact on the portfolio.

Question #37 of 88

Question ID: 1507470

Which of the following statements regarding Statement 1 in Exhibit 1 is *least accurate*?

- A)** The given monthly VaR indicates an annual VaR of \$2.7 million.
- B)** The fund will lose more than \$225,000 in a month, 5% of the time.
- C)** The methodology described is not applicable to portfolios containing option positions.

Question #38 of 88

Question ID: 1507471

Statement 2 in Exhibit 1 is *most accurately* described as:

- A) incremental VaR.
 - B) conditional VaR.
 - C) marginal VaR.
-

Question #39 of 88

Question ID: 1507472

In her interpretation of VaR, Matten is *most likely*:

- A) correct regarding the \$225,000 but incorrect regarding the 1% VaR.
 - B) incorrect regarding the \$225,000 but correct regarding the 1% VaR.
 - C) incorrect regarding the \$225,000 and the 1% VaR.
-

Question #40 of 88

Question ID: 1507473

The primary risk management measure discussed in Exhibit 2 is *most accurately* described as:

- A) sensitivity risk analysis.
 - B) reverse stress testing.
 - C) Monte Carlo simulation.
-

Overview for Questions #41-44 of 88

Question ID: 1507474

TOPIC: ETHICAL AND PROFESSIONAL STANDARDS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Matteo Johansson, CFA, is a portfolio manager at Investment AB Framgang. Framgang is a Stockholm-based firm offering a variety of investment products and services. Johansson manages the Berglund Fund, a domestic equity fund specializing in small industrial stocks.

Framgang has an investment banking department that is active in initial public offerings (IPOs). Anders Lindberg, CFA, is the senior manager of the IPO team. Lindberg approaches Johansson about Blomtronics, a new IPO being offered by Framgang. Blomtronics will open trading in two days. Framgang had offered the IPO to all of its clients, but approximately 20% of the deal remained unsold. Having read the prospectus, Johansson thinks Blomtronics would be a good fit for his fund; he expects Blomtronics to improve the Berglund Fund's performance in both the short and long term. Johansson is not aware of any information related to Blomtronics beyond that provided in the prospectus. Johansson asks to purchase 5% of the IPO, but Lindberg limits Berglund's share to 2%, explaining:

"With Berglund Fund's reputation, any participation will make the unsold shares highly marketable. Further, we may need Berglund to acquire more Blomtronics shares at a later date if the price does not hold up."

Johansson is disappointed in being limited to 2% of the offering and suggests to Lindberg in an email that, given the 2% limitation, Berglund will not participate in the IPO. Lindberg responded a few hours later with the following message:

"I have just spoken with Ms. D, the CFO of Blomtronics. Although it is too late to alter the prospectus, management believes they will receive a large contract from a foreign government that will boost next year's sales by 20% or more. I urge you to accept the 2%—you won't be sorry!"

After reviewing Lindberg's email, Johansson agrees to the 2% offer.

Finally, Investment AB Framgang has been appointed by Olandig AB to manage Olandig's pension fund.

Question #41 of 88

Question ID: 1507475

By offering Berglund the opportunity to participate in the IPO of Blomtronics, Framgang Investments has violated CFA Institute Standards relating to:

- A)** priority of transactions but not independence and objectivity.
 - B)** independence and objectivity but not priority of transactions.
 - C)** neither priority of transactions nor independence and objectivity.
-

Question #42 of 88

Question ID: 1507476

Lindberg's arguments for limiting Berglund's share to 2% suggest that Framgang:

- A) may engage in a liquidity pumping strategy that would be acceptable given that Berglund is a related entity.
 - B) may engage in transaction-based manipulation of Blomtronics in the future, in violation of Standards relating to market manipulation.
 - C) is violating Standards related to priority of transactions by offering the IPO to Berglund before it is fully subscribed.
-

Question #43 of 88

Question ID: 1507477

Based upon Johansson's acceptance of the 2% limitation after receiving the email from Lindberg:

- A) Johansson has violated the Standards relating to material nonpublic information, and Lindberg has violated the Standards relating to preservation of confidentiality. Johansson has not violated the Standards relating to material nonpublic
 - B) information, but Lindberg has violated the Standards relating to preservation of confidentiality. Johansson has not violated the Standards relating to material nonpublic
 - C) information, but Lindberg has violated the Standards relating to preservation of confidentiality and material nonpublic information.
-

Question #44 of 88

Question ID: 1507478

Regarding Olandig's pension fund, Framgang is *least likely* to owe a duty of loyalty, prudence, and care to Olandig's:

- A) shareholders and management team.
 - B) pension plan participants.
 - C) pension plan beneficiaries.
-

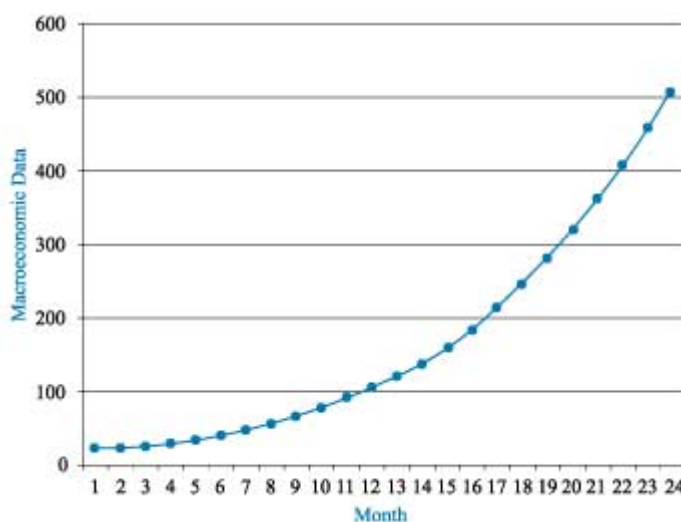
TOPIC: QUANTITATIVE METHODS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Song Hu is the quantitative analyst for Guangho Equity Partners. Hu has been busy over the past week modeling the macroeconomic data of an emerging market.

The data for the past 24 months is shown in **Exhibit 1: Time Series of Emerging Markets Data**.

Exhibit 1: Time Series of Emerging Markets Data



Hu ponders how she can run a regression that will model the data for this country in the most appropriate way. She decides to regress the macroeconomic values against a time variable. The resulting plot of the residuals is shown in **Exhibit 2: Residual Plot From Emerging Markets Data**.

Exhibit 2: Residual Plot From Emerging Markets Data



Hu set up a meeting with Qianfan Li, senior analyst to discuss the progress on a model that Li was developing. The model is supposed to forecast return over the next month for a group of 100 midsize companies. A portfolio with a long position in 10 stocks with the highest forecasted return and a corresponding short position in 10

stocks with the lowest return is envisioned. Li mentions that he is collecting the relevant fundamental and technical variable data for the 100 companies.

Li states that he would rather take the broad sample of 1,000 stocks with the highest trading volume and divide the sample into 10 groups of diverse characteristics. The intent is to select 1 stock from each group to long/short so as to diversify the portfolio composition and reduce risk.

Question #45 of 88

Question ID: 1507380

To best model the emerging markets data using linear regression, Hu should use:

- A) an adjustment for multicollinearity.
 - B) the natural log of the dependent variable.
 - C) White's correction for the standard errors.
-

Question #46 of 88

Question ID: 1507381

The *most likely* problem in Hu's regression of the emerging market data and the *most appropriate* test for it in the regression is:

<u>Problem</u>	<u>Test</u>
A) Serial correlation	Durbin-Watson
B) Serial correlation	Dickey-Fuller
C) Cointegrated variables	Engle-Granger

Question #47 of 88

Question ID: 1507382

Which model would be *most appropriate* for Li to use in predicting returns?

- A) Penalized regression model.
- B) Clustering model.

C) KNN Model.

Question #48 of 88

Question ID: 1507383

Li's suggested diversification problem could be *best* addressed using the:

- A) principal component analysis (PCA).
 - B) K-Means clustering.
 - C) LASSO.
-

Overview for Questions #49-52 of 88

Question ID: 1507384

TOPIC: ECONOMICS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Debbie Angle and Craig Hohlman are analysts for a large commercial bank, Arbutus National Bank. Arbutus has extensive dealings in both the spot and forward foreign exchange markets. Angle and Hohlman are providing a refresher course on foreign exchange relationships for its traders.

Angle uses a three country example from North America to illustrate foreign exchange parity relations. In it, the Canadian dollar is expected to depreciate relative to the U.S. dollar and the Mexican peso. Nominal, 1-year interest rates are 7% in the United States and 13% in Mexico. From this data and using the uncovered interest rate parity relationship, Angle forecasts future spot rates.

During their presentation, Hohlman discusses the effect of monetary and fiscal policies on exchange rates. He cites a historical example from the United States, where the Federal Reserve shifted to an expansionary monetary policy to stimulate economic growth. This shift was largely unanticipated by the financial markets because the markets thought the Federal Reserve was more concerned with inflationary pressures. Hohlman states that the effect of this policy was an increase in economic growth and an increase in inflation. The cumulative effect on the dollar was unchanged, however, because, according to the Mundell-Fleming model, an

expansionary monetary policy would strengthen the dollar whereas under relative purchasing power parity, an increase in inflation would weaken the dollar.

Regarding U.S. fiscal policies, Hohlman states that if these were unexpectedly expansionary, real interest rates would increase, which would produce an appreciation of the dollar. Hohlman adds that a sustained increase in the federal budget would attract foreign capital such that the long-run effect would be an increase in the value of the dollar.

Hohlman makes the following statement about parity conditions:

Statement: If relative purchasing power parity holds, we can say that uncovered interest rate parity also holds under certain conditions.

Angle next discusses the foreign exchange expectations. While examining Great Britain and Japan, she states that it appears the 1-year forward rate, which is currently ¥200/£, is an accurate predictor of the expected future spot rate. Furthermore, she states that uncovered interest rate parity and relative purchasing power parity hold. In the example for her presentation, she uses the following figures for the two countries.

	Great Britain	Japan
Expected GDP growth	2.50%	1.80%
Nominal 1-year interest rates	9.70%	6.40%
Growth in exports	3.90%	5.70%

Question #49 of 88

Question ID: 1507385

Using Angle's analysis, what is the nominal 1-year interest rate in Canada?

- A) Less than 7%.
- B) Between 7% and 13%.
- C) Greater than 13%.

Question #50 of 88

Question ID: 1507386

Is Hohlman's statement regarding the effect of monetary policies on the dollar correct?

- A) Yes, it is correct.
 - B) No, under the Mundell-Fleming model, expansionary monetary policy in the U.S. would weaken the dollar.
 - C) No, the dollar value would be unchanged, but under the asset market model and not the Mundell-Fleming model.
-

Question #51 of 88

Question ID: 1507387

What additional condition must be satisfied for Hohlman's statement to be valid?

- A) Covered interest parity must hold.
 - B) Fisher effect must hold.
 - C) The international Fisher relation must hold.
-

Question #52 of 88

Question ID: 1507388

Which of the following is *closest* to the current ¥/£ spot rate?

- A) ¥194/£.
 - B) ¥200/£.
 - C) ¥206/£.
-

Overview for Questions #53-56 of 88

Question ID: 1507394

TOPIC: FINANCIAL STATEMENT ANALYSIS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Engineered Packaging, Inc., (EPI) is a manufacturer of industrial and consumer packaging products. The company's products include composite and plastic rigid packaging, flexible packaging, as well as metal and plastic ends and closures. In

January 2018, EPI entered into a joint venture with BMI Enterprises. EPI contributed ownership of five plants, while BMI contributed a new manufacturing technology. The joint venture is known as EP/BM LLC. EPI owns 50% of EP/BM LLC and uses the equity method to account for its investment. The following information for 2018 is provided:

In Millions, Year-End 2018	EPI	EP/BM LLC
Revenue	\$3,115	\$421
Cost of goods sold	\$2,580	\$295
SG&A	\$316	\$50
Interest expense	\$47	\$8
Equity in earnings of EP/BM	\$22	
Pretax income	\$194	\$68
Income tax	\$60	\$24
Net income	\$134	\$44

In Millions, December 31, 2018	EPI	EP/BM LLC
Assets		
Cash	\$118	\$13
Accounts receivable	\$390	\$50
Inventory	\$314	\$41
Property	\$1,007	\$131
Investment	\$38	
Total	\$1,867	\$235

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

Question #53 of 88

Question ID: 1507395

Had EPI used the proportionate consolidation method instead of the equity method to account for its investment, which of the following statements is the *most accurate*?

- A) Net profit margin would be the same.
 - B) Return on assets would be the same.
 - C) Return on equity would be the same.
-

Question #54 of 88

Question ID: 1507396

Based on the acquisition method, EPI's current ratio at the end of 2018 (using the financial information provided) is *closest* to:

- A) 1.8.
 - B) 2.6.
 - C) 3.0.
-

Question #55 of 88

Question ID: 1507397

Based on the acquisition method, EPI's interest coverage ratio for 2018 (using the financial information provided) is *closest* to:

- A) 3.6.
 - B) 4.0.
 - C) 5.4.
-

Question #56 of 88

Question ID: 1507398

Had EPI used the acquisition method instead of the equity method to account for its investment, EPI's long-term debt-to-equity ratio would have been:

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

Overview for Questions #57-60 of 88

Question ID: 1507404

TOPIC: FINANCIAL STATEMENT ANALYSIS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Matthew Jackson, CFA, has recently taken an analyst role at The Collins Group, an asset management firm based in New Jersey. As part of his job, Jackson has been asked to review the most recent unaudited financial statements from several private companies that have been identified as potential investments for the firm.

Jackson is reviewing financial statements from Troth Health, a firm producing health and wellness products in the United Kingdom. Extracts from the pro forma financial statement recently released, along with 2019 and 2018 comparables, is shown in Exhibit 1.

Exhibit 1: Troth Health Financial Statement (Extract)

Headline Operating Profit: Quarter Ending 31 December 2020 (£000)			
	2020	2019	2018
Stockholders' equity	8,380	7,980	7,450
Revenue retail outlet sales	1,402.2	3,543.9	3,501.6
Online sales	3,086.2	398.9	389.4
<u>Headline net income (Note A)</u>	1,262.7	1,104.4	1,086.0

Note A: Headline net income excludes settlement costs and network costs. Settlement costs are one-off payments to settle legal procedures; these costs totaled (in £000) 20.0, 22.1, and 24.8 in 2018, 2019, and 2020, respectively. Network costs related to running the online business totaled (in £000) 202.0, 325.0, and 885.5 in 2018, 2019, and 2020, respectively. The financial accounts submitted to our bank in accordance with our loan covenants shows net income after charging both settlement and network costs in accordance with local GAAP.

Jackson notes that the financial statements submitted to the firm's bankers did indeed report net income correctly in accordance with local GAAP. However, this figure was much less prominent than headline net income, as the GAAP income was disclosed only in the footnotes rather than on the face of the income statement.

Jackson believes that the legal settlements are payments made to dissatisfied customers and are a normal part of business. Jackson also believes that the increase in network cost is consistent with Troth's increased focus on online operations. Troth's required return on stockholders' equity is 5%.

Question #57 of 88

Question ID: 1507405

Which of the following statements is the *least* accurate regarding the Troth Health information shown in Exhibit 1?

- A) The financial statements submitted to analysts are not as decision-useful as they could be due to biased accounting choices.
 - B) The financial statements submitted to the bank are not as decision-useful as they could be due to biased accounting choices.
 - C) The financial statements submitted to the bank are decision-useful as they exhibit no evidence of biased accounting choices.
-

Question #58 of 88

Question ID: 1507406

Which of the following conclusions is Jackson *most likely* to draw about the earnings quality of Troth Health? 2020 net income after correctly including network and settlement costs shows:

- A) compound annual growth of over 7%, and earnings that are of high quality as they are correctly calculated under GAAP.
 - B) negative compound annual growth of over 35%, and earnings that are of low quality.
 - C) negative compound annual growth of over 35%, and earnings that are of high quality as they are correctly calculated under GAAP.
-

Question #59 of 88

Question ID: 1507407

Treating an investment as an investment in associate rather than in a subsidiary is least likely to:

- A) overstate net profit margins.
 - B) understate fixed assets.
 - C) understate net income.
-

Question #60 of 88

Question ID: 1507408

If Jackson were to find that Troth has significant amounts of off-balance-sheet debt, the aspect of financial reporting quality that Troth Health's balance sheet is *most likely* to be lacking is:

- A) completeness.
 - B) unbiased measurement.
 - C) clear presentation.
-

Overview for Questions #61-64 of 88

Question ID: 1508604

Jared Sampson, CFA, is analyzing Gigatech, a large U.S.-based technology conglomerate. Sampson first starts out calculating economic value added (EVA) for Gigatech and notices that the firm uses last-in, first-out (LIFO) cost flow assumption. Sampson is also valuing the stock of Heritage Builders, a developer of luxury residential communities. Heritage reports in accordance with the IFRS.

Heritage's current book value per share is €15. In prior years, Heritage has enjoyed high residual income. Going forward, Heritage's return on equity (ROE) of 15% is expected to converge to its required rate of return of 12%, with a persistence factor of 0.60.

One of the concerns that Sampson has is the appropriateness of the residual income model of valuation for Heritage. He makes the following observations after analyzing Heritage's financial statements:

1. The firm's free cash flows have been negative in two of the last four years.
2. Heritage's pension plan shows remeasurement losses of €128 million.
3. Heritage does not pay any dividends.

Finally, Sampson wonders what would lead to a higher estimate of the persistence factor.

Question #61 of 88

Question ID: 1507425

Regarding the LIFO cost flow assumption, which of the following is the *most accurate* adjustment to calculate EVA for Gigatech?

- A)** While there is no adjustment needed to the NOPAT, the change in the LIFO reserve should be added to the invested capital.
 - B)** While there is no adjustment to the invested capital, the LIFO reserve should be added to NOPAT.
 - C)** The LIFO reserve should be added to the invested capital, and the change in the LIFO reserve should be added to NOPAT.
-

Question #62 of 88

Question ID: 1507426

The estimate of value of Heritage stock using the residual income valuation is *closest* to:

- A)** €16.67.
 - B)** €15.87.
 - C)** €15.22.
-

Question #63 of 88

Question ID: 1508605

Which observation regarding Heritage is problematic for use of the residual income valuation model?

- A)** Observation 2 only.
 - B)** Observations 1 and 2.
 - C)** Observations 1 and 3.
-

Question #64 of 88

Question ID: 1507428

Which of the following would *least likely* lead to a higher persistence factor for Heritage?

- A) Heritage does not pay any dividends.
 - B) Luxury residential builders have enjoyed a high persistence factor historically.
 - C) Heritage has a high level of ROE as compared to its peers.
-

Overview for Questions #65-68 of 88

Question ID: 1508601

TOPIC: CORPORATE ISSUERS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Sentinel News is a publisher of more than 100 newspapers around the country, with the exception of the Midwestern states. The company's CFO, Harry Miller, has been reviewing a number of potential candidates (both public and private companies) that would provide Sentinel News entrance into the Midwestern market. Recently, the founder of Midwest News, a small, private newspaper company, passed away. The founder's family members are inclined to sell their 80% controlling interest.

Miller noted that Midwest News does not pay a dividend, nor does the company have any debt. The most comparable publicly traded stock is Freedom Corporation. Freedom, however, has significant radio and television operations. Freedom is expected to maintain a payout ratio of 40%. Analysts are forecasting the company will earn \$3.00 per share next year and grow their earnings by 6% per year. Freedom has a current market capitalization of \$15 billion and 375 million shares outstanding. Freedom's current market value equals its intrinsic value.

Miller's staff uses current expectations to develop the appropriate equity risk premium for Midwest News. Miller believes the best method to estimate the required return on equity of Midwest News is the build-up method. All relevant information to determine Midwest News's required return on equity is presented in Exhibit 1.

Exhibit 1: Required Return Estimate Factors

Risk-free rate	3.5%
Equity risk premium	4.0%

Small size premium	3.5%
Specific-company premium	2.0%
Beta	1.2
Growth rate	3.0%

Miller makes two statements concerning cost of capital as shown below:

- Statement 1: In some less-developed countries that lack corporate debt markets, businesses have to rely on bank lending known as the shadow banking system.
- Statement 2: Countries that follow common law-based legal systems offer lower risk premiums compared to countries with civil law-based legal systems.

Miller is also looking into foreign media companies. Specifically, Miller is evaluating the valuation of Maura Ltd., a media house in an emerging economy.

Question #65 of 88

Question ID: 1507410

The required rate of return estimate for equity of Freedom Corporation is *closest* to:

- A) 3%.
 - B) 6%.
 - C) 9%.
-

Question #66 of 88

Question ID: 1507411

Using the build-up method, Midwest News's required return on equity is *closest* to:

- A) 13.0%.
 - B) 13.8%.
 - C) 15.8%.
-

Question #67 of 88

Question ID: 1508602

Miller has made two statements, the shadow banking system, and the other concerning the characteristics of common law-based and civil law-based legal systems. Are Miller's statements correct?

- A) Only Statement 1 is correct.
 - B) Only Statement 2 is correct.
 - C) Both Statements 1 and 2 are correct.
-

Question #68 of 88

Question ID: 1508603

Which of the following approaches would be *least appropriate* to measure the cost of capital of Maura Ltd.?

- A) Expanded CAPM.
 - B) Extended CAPM.
 - C) Country risk premium.
-

Overview for Questions #69-72 of 88

Question ID: 1508885

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

CTT Credit Analysis provides fixed-income credit analysis to fund managers and high net worth individuals. Tam Lowenstadt, CFA, joined the firm recently; one of his first tasks is to provide a new client with an overview of the credit analysis models the firm uses.

Lowenstadt makes the following statement regarding this analogy and how it can be used to value equity and debt:

- Statement 1: Holding the company's equity is economically equivalent to owning a European call option on the company's assets.

CTT Credit Analysis always includes an illustration of the impact of credit migration on the price performance of corporate bonds. As an example, Lowenstadt demonstrates the impact of a credit downgrade of ZT bonds. ZT, Inc., has two bonds outstanding, identical in every respect except that one is callable while the other is not.

CTT does not recommend the use of reduced form models of credit analysis to its clients. Lowenstadt defended this decision based on the firm's standard response as shown in Exhibit 1.

Exhibit 1: CTT Firm View on Reduced Form Models

- Point 1: Unlike the structural model, reduced form models do not explain *why* default occurs.
- Point 2: A key input into the reduced form model is the **default intensity**, which is the probability of default over the next time period. Default intensity is estimated using option pricing models.

Finally, Lowenstadt also discussed CTT's application of credit analysis to asset-backed securities. Lowenstadt is aware that the client has some collateralized debt obligations in her portfolio. His overview is shown in Exhibit 2.

Exhibit 2: ABS Overview

Section 1 – Collateral

Short-term granular and homogenous structured finance vehicles are evaluated using a portfolio-based approach. Medium-term granular and homogenous obligations are evaluated using a statistical-based approach because the portfolio composition varies over time.

Section 2 – Servicer Quality

- Counterparty risk.
 - Operational risk.
-

Section 3 – Structure

- Credit enhancement.
 - Distribution waterfall.
-
-

Question #69 of 88

Question ID: 1507440

Lowenstadt's Statement 1 is *best* described as:

- A)** incorrect, as he should have instead stated *American* call option.
 - B)** incorrect, as he should have instead stated European *put* option.
 - C)** correct.
-

Question #70 of 88

Question ID: 1507441

Given Lowenstadt's scenario, relative to the price performance of the straight bond issued by ZT, Inc., the callable bond is *most likely* to have:

- A)** equal or poorer price performance.
 - B)** equal or better price performance.
 - C)** the same price performance.
-

Question #71 of 88

Question ID: 1507442

Which of Lowenstadt's points in Exhibit 1 is *correct*?

- A)** Only point 1 is accurate.
 - B)** Only point 2 is accurate.
 - C)** Neither point is accurate.
-

Question #72 of 88

Question ID: 1507443

Lowenstadt's overview of asset-backed securities in Exhibit 2 *most likely* contains an error in:

- A)** Section 1, because short-term granular and homogenous structured finance vehicles are evaluated using a statistical-based approach, while medium-term granular and homogenous obligations are evaluated using a portfolio-based approach.
- B)** Section 2, because counterparty risk is not relevant for servicer quality.

C) Section 3, because credit enhancement is not relevant for asset-backed securities.

Overview for Questions #73-76 of 88

Question ID: 1507434

TOPIC: FIXED INCOME

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Ben Stamper, CFA, is evaluating callable bonds issued by Gardein, Inc. Stamper has decided to calculate the value of the Gardein bonds using a binomial interest rate tree. His assumption is that the bond will be called at any node of the tree where the calculated value exceeds the call price. Stamper summarizes the results of his bond valuation analysis in a memo to his supervisor, Luke Puldo.

In this memo, Stamper makes the following statements:

- | | |
|--------------|--|
| Statement 1: | The value of the option embedded in the Gardein bonds can be derived by simply subtracting the interest rate tree value of the Gardein bonds from the interest rate tree value of the otherwise comparable straight bonds. |
| Statement 2: | I am concerned that the 10% volatility assumption used to develop the interest rate tree might be too low. A higher volatility assumption would result in a lower value for the Gardein bonds. |

After reviewing Stamper's analysis, Puldo notes that Stamper has not included any information on the option adjusted spread (OAS) for the Gardein bonds. Puldo suggests that Stamper should evaluate the OAS in order to get an idea of the liquidity risk of the Gardein bonds. Stamper counters that the OAS may not be very informative in this case, since he is uncertain as to the reliability of the interest rate volatility assumption.

Stamper provides Puldo with the process used by the firm to evaluate credit risk as shown in Exhibit 1.

Exhibit 1: Key Underlying Principles

1. The probability of default multiplied by the recovery rate given default is equal to the expected loss.
2. The sum of expected losses for each period is equal to the cumulative valuation adjustment.
3. Given the market price of a credit risky bond, the estimated risk-neutral probabilities of default and recovery rates are positively correlated.

Stamper also provides an overview of the structural model approach to credit analysis. He starts off by explaining the basic approach of valuing the credit risk by using an option analogy. He makes the following observation:

Observation: Owning the company's debt with a face value of K and a maturity of T is economically equivalent to owning a riskless bond with face value of K and maturity of T and simultaneously purchasing a European put option on the assets of the company with a strike price equal to K and maturing at time T .

Question #73 of 88

Question ID: 1507435

Indicate whether the statements made by Stamper in his memo regarding the value of the embedded option and the effect of the volatility assumption are correct.

- A)** Only the statement regarding the value of the embedded option is correct.
 - B)** Only the statement regarding the effect of the volatility assumption is correct.
 - C)** Both statements are correct.
-

Question #74 of 88

Question ID: 1507436

Which of the following *most* accurately critiques the OAS discussion between Stamper and Puldo? Puldo is:

- A)** correct that the OAS will provide insight into the liquidity risk of the Gardein bonds, and Stamper is correct that different volatility assumptions would change the OAS. correct that the OAS will provide insight into the liquidity risk of the Gardein Bonds,
- B)** but Stamper is incorrect since OAS implicitly adjusts for the volatility of interest rates.

incorrect that the OAS will provide insight into the liquidity risk of the Gardein
C) Bonds, but Stamper is correct that different volatility assumptions would change the OAS.

Question #75 of 88

Question ID: 1507437

In Exhibit 1, which of the underlying principles outlined by Stamper is *most* accurate?

- A)** Principle 1.
 - B)** Principle 2.
 - C)** Principle 3.
-

Question #76 of 88

Question ID: 1507438

Stamper's observation about the structural model is *most likely*:

- A)** incorrect, as he should have instead stated purchasing a European call option.
 - B)** incorrect, as he should have instead stated selling a European put option.
 - C)** correct.
-

Overview for Questions #77-80 of 88

Question ID: 1507444

TOPIC: DERIVATIVES

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Simon Jackman, a junior analyst for Tucker Group Limited (TGL), has been asked to evaluate the firm's various swap transactions and interest rate option positions. TGL's counterparty for many of these derivatives is MBS Bank, a large full-service bank in Australia.

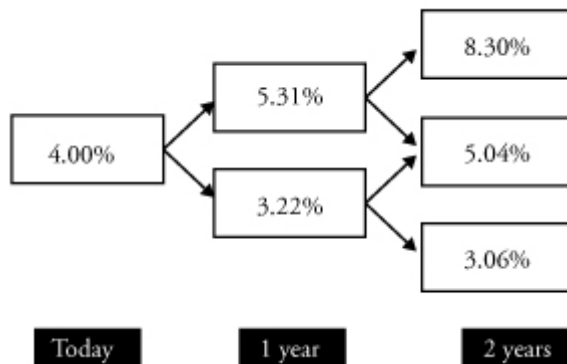
Jackman begins writing his report for the management of TGL. In the report, Jackman makes the following statements about interest rate derivative instruments:

Statement 1: A payer swap can be replicated using a long receiver swaption and a short payer swaption with the same exercise rates. If the exercise rate is set such that the premiums of the payer and receiver swaptions are equal, then the exercise rate must be equal to the market swap fixed rate.

Statement 2: A long callable bond can be replicated using a long option-free bond plus a short receiver swaption.

Jackman is also evaluating a two-year European interest rate call option with a strike rate of 5% and a notional principal of \$2 million. Jackman wants to use a binomial tree as shown in Exhibit 1 to value the option.

Exhibit 1: Two-Period Interest Rate Tree



Question #77 of 88

Question ID: 1507445

Jackman's Statement 1 is *most likely*:

- A) correct.
- B) incorrect about long receiver swaption and short payer swaption.
- C) incorrect about the exercise rate being equal to the market swap fixed rate if the premiums of the two swaptions are equal.

Question #78 of 88

Question ID: 1507446

Jackman's Statement 2 is *most likely*:

- A) correct.

- B) incorrect about the long option free bond.
 - C) incorrect about the short receiver swaption.
-

Question #79 of 88

Question ID: 1507447

The value of the two-year interest rate call option is *closest* to:

- A) \$7,717.
 - B) \$15,434.
 - C) \$18,415.
-

Question #80 of 88

Question ID: 1507448

In Jackman's binomial interest rate tree, the probability of an up movement is *least* likely to be equal to:

- A) exactly 50%.
 - B) $(1 + R_f - D) / (U - D)$.
 - C) $1 - \text{the probability of a down move.}$
-

Overview for Questions #81-84 of 88

Question ID: 1507459

TOPIC: ALTERNATIVE INVESTMENTS

THE TOTAL POINT VALUE FOR THIS QUESTION SET IS 12 POINTS

Bill Henry, CFA, is the CIO of IS University Endowment Fund located in the United States. The Fund's total assets are valued at \$3.5 billion. The investment policy uses a total return approach to meet the return objective that includes a spending rate of 5%. In addition, the policy constraints established make tax-exempt instruments an inappropriate investment vehicle. The Fund's current asset mix includes an 18% allocation to private equity. The private equity allocation is shown in Exhibit 1.

Exhibit 1: IS University Endowment Fund's Private Equity Investments

Private Equity	Percentage Allocation
Venture capital	12%
Buyouts	56%
Special situations	32%

The private equity allocation is a mixture of funds with different vintages. For example, within the venture capital category, investments have been made in five different funds. Exhibit 2 provides details about the Alpha Fund with a vintage year of 2014 and committed capital of \$195 million. The distribution waterfall calls for 20% carried interest when NAV before distributions exceeds committed capital.

Exhibit 2: \$195 Million Venture Capital Alpha Fund (\$Millions)

Year	Called-Down	Management Fees	Operating Results
2014	\$30	\$0.45	-\$10
2015	\$25	\$0.83	\$55
2016	\$75	\$1.95	\$75

Question #81 of 88

Question ID: 1507460

Which of the following risk factors will *most likely* impact the private equity portion of the IS University Endowment?

- A) Lack of diversification.
- B) Illiquid investments.
- C) Taxation risk.

Question #82 of 88

Question ID: 1507461

Using Exhibit 2, calculate the 2016 percentage management fee of the Alpha Fund.

- A) 1.5%.
- B) 2.0%.
- C) 2.5%.

Question #83 of 88

Question ID: 1507462

Alpha Fund's 2016 dollar amount of carried interest is *closest* to:

- A) \$0 million.
 - B) \$10 million.
 - C) \$20 million.
-

Question #84 of 88

Question ID: 1507463

Which of the following is *most likely* a characteristic of a venture capital investment?

- A) The typical investment uses leverage.
 - B) Measurable risk.
 - C) Increasing capital requirements.
-

Overview for Questions #85-88 of 88

Question ID: 1507479

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

Pat Wilson, CFA, is the chief compliance officer for Excess Investments, a global asset management and investment banking services company. Wilson is reviewing two investment reports written by Peter Holly, CFA, an analyst and portfolio manager who has worked for Excess for four years. Holly's first report under compliance review is a strong buy recommendation for BlueNote, Inc., a musical instrument manufacturer. The report states that the buy recommendation is applicable for the next 6 to 12 months with an average level of risk and a sustainable price target of \$24 for the entire time period. Further, the report states that the risk analysis is based on 95% VaR (calculated using the parametric method) and that price declines over the investment horizon should thus be limited to 5% of the current price.

Holly informs Wilson that he determined his conclusions primarily from an intensive review of BlueNote's filings with the SEC but also from a call to one of BlueNote's suppliers who informed Holly that their new inventory processing system would allow for more efficiency in supplying BlueNote with raw materials. Holly explains to Wilson that he is the only analyst covering BlueNote who is aware of this information and that he believes the new inventory processing system will allow BlueNote to reduce costs and increase overall profitability for several years to come.

Wilson must also review Holly's report on BigTime, Inc., a musical promotion and distribution company. In the report, Holly provides a very optimistic analysis of BigTime's fundamentals. The analysis supports a buy recommendation for the company.

Just before the report is issued, Holly mentions to Wilson that BigTime unknowingly disclosed to him and a few other analysts who were waiting for a conference call to begin that the company is planning to restructure both its sales staff and sales strategy and may sell one of its poorly performing business units next year.

Three days after issuing his report on BigTime, which caused a substantial rise in the price of BigTime shares, Holly sells all of the BigTime shares out of both his performance fee-based accounts and flat-fee accounts and then proceeds to sell all of the BigTime shares out of his own account on the following day. Holly obtained approval from Wilson before making the trades.

After speaking with the CEO of BlueNote, Holly constructs a letter that he plans to send by email to all of his clients and prospects with email addresses and by regular mail to all of his clients and prospects without email addresses. The letter details changes to an equity valuation model that Holly and several other analysts at Excess use to analyze potential investment recommendations. Holly's letter explains that the new model, which will be put into use next month, will utilize Monte Carlo simulations to create a distribution of stock values, a sharp contrast to the existing model which uses static valuations combined with sensitivity analysis. Relevant details of the new model are included in the letter, but similar details about the existing model are not included. The letter also explains that management at Excess has decided to exclude alcohol and tobacco company securities from the research coverage universe. Holly's letter concludes by stating that no other significant changes that would affect the investment recommendation process have occurred or are expected to occur in the near future.

Question #85 of 88

Question ID: 1507480

According to CFA Institute Standards of Professional Conduct, which of the following statements is *most accurate* with regard to the investment report on BlueNote, Inc.? The report:

- A) complies with the Standards.
 - B) should not have included a price target as it makes an implicit guarantee of investment performance.
 - C) does not comply with the Standards due to improper risk analysis.
-

Question #86 of 88

Question ID: 1507481

Did Holly violate any CFA Institute Standards of Professional Conduct with respect to his report on BlueNote or BigTime, as it relates to potential use of material nonpublic information?

- A) Holly has violated Standard on material nonpublic information in the case of both reports.
 - B) There is a violation regarding the BlueNote report, but no violation with the BigTime report.
 - C) There is a violation regarding the BigTime report, but no violation with the BlueNote report.
-

Question #87 of 88

Question ID: 1507482

According to CFA Institute Standards of Professional Conduct, which of the following statements is *most likely* correct with regard to Holly's report and subsequent sale of his and his clients' shares of BigTime common stock? Holly has:

- A) violated the Standard by attempting to manipulate the market price of BigTime stock.
- B) not violated the Standard since he first obtained approval to make the trades from his compliance officer.
- C) not violated the Standard since he acted in the best interest of his clients by realizing gains on BigTime stock.

Question #88 of 88

Question ID: 1507483

In his letter to clients explaining the change in the valuation model, did Holly violate any CFA Institute Standards of Professional Conduct?

- A)** No.
 - B)** Yes, because he did not treat all clients fairly in his dissemination of the letter.
 - C)** Yes, because he failed to include details of the current valuation model to contrast with the new model.
-