

2013 Level II Mock Exam: Morning Session

The morning session of the 2013 Level II Chartered Financial Analyst (CFA®) Mock Examination has 60 questions. To best simulate the exam day experience, candidates are advised to allocate an average of 18 minutes per item set (vignette and 6 multiple choice questions) for a total of 180 minutes (3 hours) for this session of the exam.

Questions	Topic
1–6	Ethical and Professional Standards
7-12	Derivatives
13-18	Fixed-Income Investments
19-24	Portfolio Management
25-30	Alternative Investments
31-36	Quantitative Methods
37-48	Financial Reporting & Analysis
49-54	Corporate Finance
55-60	Equity Investments
Total:	180

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Questions 1 to 6 relate to Ethical and Professional Standards

Tea Industry Case Scenario

Christian Mathew, CFA, is an equity analyst specializing in the beverage industry, for Gupta Asset Managers (Gupta), a portfolio management company based in Mumbai, India. Mathew is planning a trip to Sri Lanka to research the tea industry. Murali Premadosa, CFA, known as “Prem,” is a research analyst for a stock broking company, Ashoka Brokers, headquartered in Colombo, Sri Lanka. Mathew contacts Prem to help arrange visits to specifically identified tea estates of publicly traded companies in the highlands of Sri Lanka.

Prem, wanting to enhance the business relationship with Gupta, arranges for all of Mathew’s Sri Lankan expenses to be paid for by Ashoka. These costs include food, hotel and transport. This arrangement is based on the understanding that all security transactions resulting from Mathew’s trip to Sri Lanka will be executed through Ashoka. Ashoka’s commissions are typically similar to its competitors but it can take a few extra days to execute larger volumes of trades because Ashoka is new to the brokerage business. Prem sets the itinerary, with plans to visit a minimum of six Sri Lanka tea companies in the three tea-growing regions. Mathew agrees to the visits and asks Prem to create a list of questions to ask the management of each company to which he will add his own questions.

Mathew asks Prem to delay the release of any research report he writes on the six Sri Lanka companies they visit together until such time that Gupta has had an opportunity to act on Mathew’s recommendations. Prem agrees to this arrangement.

In a meeting with a publicly listed tea company, Kandy Tea Estate Limited, information is revealed that neither Mathew nor Prem believe is in the public arena. The information relates to the restructuring of the factory layout to make the tea drying process marginally more efficient with a 1% reduced loss of tealeaf. The new layout does not require any additional machinery or personnel. Prem and Mathew see the increased efficiencies during their factory tour.

After the meeting, Prem prepares an investment research report with the excerpt shown in Exhibit 1.

Exhibit 1

Kandy Tea Estate Limited

Date: December 2012

Analyst: Murali Premadosa

Chartered Financial Analyst

Recommendation: Long-term buy with associated high commodity risk supported by large growth prospects for Sri Lanka as well as liquidity risk because it is a thinly traded company in a frontier market.

Exhibit 1 cont’d - Tea Production by Country

(million kg)	2008	2009	2010	CAGR
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	(2008 – 2010)			
India	980.8	979.0E	966.4E	−0.7%
Sri Lanka	318.7	290.6	331.4	2.9%

Source: India Tea Board and Sri Lanka Tea Board

Mathew is impressed with Prem’s work ethic and research abilities. Knowing Gupta wants to hire analysts for its new Colombo office, Mathew asks Prem if he would be interested in changing employers and building a research team. Prem is excited about the prospect and to show his worth to Gupta, Prem undertakes the following actions at his office after normal working hours:

- Action 1: Creates a list of all the work he completed at Ashoka on his personal laptop.
- Action 2: Photocopies research reports he recently completed on the tea industry.
- Action 3: Makes hand written excerpts from previous research meeting notes.

Upon Mathew’s return to Mumbai, he delivers to his clients his investment report with a “Buy” recommendation for Kandy Tea Estate Limited, along with tea samples he collected while in Sri Lanka. When buying Kandy shares for his clients, Mathew also buys the same shares for his personal account. He had disclosed his plan to purchase the shares for his own portfolio alongside his clients before he bought the shares. However, Mathew is forced to sell the same shares two weeks later to pay for a medical emergency. Mathew received permission from Gupta’s compliance officer for both transactions.

1. Is Prem’s arrangement to enhance business relations consistent with the CFA Institute Code of Ethics and Standards of Professional Conduct?
 - A. Yes
 - B. No, with regard to best execution
 - C. No, with regard to independence and objectivity
2. Who is *most likely* to have violated CFA Institute Standards in regard to the timing of the release of research reports?
 - A. Prem
 - B. Mathew
 - C. Both Prem and Mathew
3. Is any further action *most likely* required of Prem and Mathew prior to publishing an investment report using the information received in their meeting with Kandy Tea Estate?
 - A. No.

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- B. Yes, convince the company to make a public disclosure.
 - C. Yes, independently verify the information provided by the company.
4. Prem's research report in Exhibit 1 *least likely* violates which CFA Institute Standard?
- A. Plagiarism
 - B. Use of CFA designation
 - C. Communication with Clients
5. Which of the actions that Prem undertakes to show his value to Gupta is consistent with the CFA Institute Standards?
- A. Action 1
 - B. Action 2
 - C. Action 3
6. Mathew's investment actions upon his return to Mumbai violate CFA Institute Standards with regards to his:
- A. disclosure to clients.
 - B. personal tea investments.
 - C. gifts of tea samples to clients.

Questions 7 to 12 relate to Derivatives

Ryan Parisi Case Scenario

Ryan Parisi is a managing director in the derivatives group at High Ridge Partners, an investment management firm. Parisi specializes in advising institutional clients on the use of forward contracts in their portfolio management strategies. Parisi is preparing to meet with three of the firm's U.S. – based clients: Leslie Sheroda, Kihoon Kwon, and David Ruane. Corey Curmaci, an analyst in the derivatives group, has also been asked to attend the meeting. Prior to the meeting, Parisi asks Curmaci if he is clear about how the value of a forward contract is determined. Curmaci responds, "Yes, I am. In general, the value of a forward contract may be positive or negative at the inception of the contract, during its life, and at the expiration of the contract."

Leslie Sheroda manages equity portfolios for a pension fund. One month (30 days) ago, Sheroda had indicated that the pension fund expected a large inflow of cash in 60 days. In order to hedge against a potential rise in equity values over this period, Parisi advised Sheroda to enter into a long forward contract on the S&P 500 Index expiring in 60 days. Sheroda has asked Parisi to calculate the value of the forward

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position today – that is, 30 days after the contract was initiated. Parisi has collected the information in Exhibit 1 to carry out the valuation assignment.

Exhibit 1
Selected Financial Information for Sheroda Meeting

Price of a 60-day S&P 500 forward contract 30 days ago	1403.22
S&P 500 Index level today	1450.82
Annualized continuously compounded risk-free rate	3.92%
Annualized continuously compounded dividend yield for S&P 500	2.50%

Three months ago (90 days), Kwon purchased a bond with a 5% annual coupon rate and a maturity of 7 years from the date of purchase. The bond has a face value of USD1,000 and pays interest every 180 days from the date of issue. Kwon is concerned about a potential increase in interest rates over the next year and has approached Parisi for advice on how he can use forward contracts to manage his risk. Parisi advises Kwon to enter into a short forward contract expiring in 360 days. The annualized risk-free rate now is 4% per year, and the price of the bond with accrued interest is USD1,071.33. Kwon asks Parisi to calculate the appropriate price for the forward contract.

Kwon asks Parisi, “Will there be any credit risk associated with this forward position?”

Parisi responds with the following statement:

“You will not be exposed to credit risk at the inception of the contract or at expiration after the contract is marked to market and settled. Between dates when the contract is marked to market, you face credit risk if the price of the forward contract rises above the price at the inception of the contract.”

Parisi’s next meeting is with Ruane, who is the corporate treasurer for a manufacturing firm. For the meeting, Parisi has collected the information in Exhibit 2.

Exhibit 2
Selected Financial Information for Ruane Meeting

Annualized 90-day LIBOR rate	3.2%
Annualized 450-day LIBOR rate	4.5%
Annualized risk-free rate in the U.S.	4.0%
Annualized risk-free rate in the euro zone.	6.0%
Spot exchange rate, USD per EUR	1.3900

Three months (90 days) from now Ruane expects to borrow USD 5 million, at LIBOR, for a period of twelve months (360 days). He is concerned that interest rates may rise significantly over the next few months and wishes to hedge this risk. Parisi advises Ruane to enter into a forward rate agreement (FRA) expiring in 90 days on 360-day LIBOR. Ruane wants to know the rate he would receive on the FRA.

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Ruane also expects an inflow of EUR3 million that needs to be converted to USD in 270 days and is concerned that the euro will decline in value over this period. Ruane is advised by Parisi to enter into an agreement to sell the euro forward in 270 days. Ruane asks Parisi to determine the appropriate forward price on the euro.

7. In his response to Parisi, Curmaci is *least likely* correct with respect to the value of a forward contract:
 - A. at inception.
 - B. at expiration.
 - C. during the life of the contract.

8. Based on the information in Exhibit 1 and assuming a 360-day year, the value of Sheroda's forward contract is *closest to*:
 - A. USD 49.16.
 - B. USD 50.71.
 - C. USD 52.18.

9. Based on a 360-day year, the price of the forward contract on the bond purchased by Kwon is *closest to*:
 - A. \$1,042.55.
 - B. \$1,063.19.
 - C. \$1,114.18.

10. In his response to Kwon, Parisi is *least likely* correct with respect to credit risk:
 - A. at contract expiration.
 - B. when the contract is initiated.
 - C. between marked-to-market dates.

11. The rate that Ruane would get on the FRA expiring in 90 days on 360– day LIBOR is *closest to*:
 - A. 1.26%.
 - B. 3.83%.
 - C. 4.79%.

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12. The forward price at which Ruane should be able to sell euros is *closest* to:

- A. USD1.3306/EUR.
- B. USD1.3703/EUR.
- C. USD1.4167/EUR.

Questions 13 to 18 relate to Fixed–Income Investments

Katharina Richter Case Scenario

Katharina Richter, CFA, is a fixed-income analyst at Paar Advisors, an investment advisory firm. She is evaluating a set of mortgage-backed securities (MBS) so that she can make recommendations about those securities for the firm's clients.

The securities, which are not yet issued, will be backed by a pool that currently contains \$117.54 million of U.S. 30-year residential mortgages. The pool has a weighted-average coupon (WAC) of 4.80% and a weighted-average maturity (WAM) of 243 months, which implies 17 months of seasoning. Richter reviews current prepayment estimates for this pool from three different providers. The first estimates a CPR of 8.50%, the second a prepayment speed of 220 PSA, and the third an SMM of 0.70%. As Richter reads about one provider's prepayment expectations, she finds the following statement: "Although U.S. mortgage interest rates are very low relative to the historical average, rates have been this low or lower for a number of years. Further, the general state of the economy is very poor. These factors cause us to expect low prepayment rates for the coming months." After some analysis, Richter realizes market conditions are such that these securities will not to be issued for another two months. At issue, the pool will not be replenished with new mortgage loans. She adjusts her analysis of the pool, using the SMM estimate of 0.70%, to reflect this delay.

One of Paar's clients, Konrad Hartmann, is concerned that mortgage interest rates might rise by about 1% in the near future and remain at that higher level for some period of time. He asks Richter which of the many types of CMO tranches and stripped mortgage-backed securities would perform best if his concerns are realized. Hartmann is also interested in the characteristics of MBS. He tells Richter that he understands that MBS are considered path-dependent securities for three reasons:

- Reason 1: The influence of earlier prepayments on current cash flows.
- Reason 2: The tendency of few mortgage borrowers to prepay early in the life of their mortgages.
- Reason 3: The way the current prepayment rate reflects whether borrowers have already had an opportunity to refinance at the current mortgage rate.

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Hartmann shows Richter some spread information he has received regarding three CMO tranches. This information is found in Exhibit 1. He tells Richter he would be happy to invest in any of these securities based on their other characteristics and asks which he should choose based solely on this information.

Exhibit 1
Spread Comparison

	Nominal Spread	Zero Volatility Spread	Option- Adjusted Spread
Security X	2.12%	1.67%	0.00%
Security Y	3.18%	1.30%	−0.27%
Security Z	1.84%	1.46%	0.67%

-
13. Of the three prepayment estimates Richter reviews, the highest is *most likely* the one presented in terms of:
- A. PSA.
 - B. CPR.
 - C. SMM.
14. The statement Richter reads about prepayment expectations is *most likely*:
- A. correct.
 - B. incorrect with regard to the impact of current mortgage rates.
 - C. incorrect with regard to the impact of current economic conditions.
15. The expected balance of the mortgage pool Richter is analyzing on the revised date of issue is *closest to*:
- A. \$115,329,054.
 - B. \$115,333,047.
 - C. \$115,894,440.
16. Which of these security types is Richter *most likely* to suggest for Hartmann?

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- A. A PAC tranche
- B. A support tranche
- C. A principal-only strip

17. Which of Hartmann's reasons as to why MBS are path-dependent securities is *least likely* correct?

- A. Reason 1
- B. Reason 2
- C. Reason 3

18. Based on the information in Exhibit 1, Hartmann should *most likely* invest in:

- A. Security X.
- B. Security Y.
- C. Security Z.

Questions 19 to 24 relate to Portfolio Management

Vikram Shah Case Scenario

Vikram Shah works as a portfolio manager for Heddon Investment Advisors. Shah is meeting with the Investment Committee of a corporate pension fund to discuss portfolio performance, and strategies and techniques used in the management of the pension fund. For the meeting, Shah has collected the information in Exhibit 1.

Exhibit 1
Selected Financial Information

	Large-Cap U.S. Stocks	Investment Grade U.S. Corporate Bonds	Emerging Market Stocks
Expected Annual Return (%)	11	8	16
Expected Standard Deviation of Annual Returns (%)	14	6	22
Return Correlations			
Large-Cap U.S. Stocks	1.0	0.3	0.4

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Investment-Grade U.S. Corporate Bonds	---	1.0	-0.1
Emerging Market Stocks	---	---	1.0

Shah explains that his firm uses mean–variance portfolio analysis to guide asset allocation. He states, “We use mathematical techniques to identify a set of efficient portfolios. From this set, we select a portfolio that best matches our risk preferences. The pension fund’s assets are currently invested in the following proportions: 60% U.S. large-cap stocks, 35% U.S. investment-grade corporate bonds, and 5% emerging market stocks. Our analysis suggests that we should modify our current allocations so that the new allocations are 55% U.S. large-cap stocks, 30% U.S. investment–grade corporate bonds, and 15% emerging market stocks. This reallocation will result in a mean–variance efficient portfolio that is better aligned with our risk preferences.”

Jerry Cramer, a member of the investment committee, wants to know how correlations between securities and the number of securities in the portfolio impact the pension portfolio’s diversification benefits.

Shah responds, “As the average correlation between securities in a portfolio increases, the risk reduction benefits of diversification decrease. Furthermore, as average correlation between securities in a portfolio rises, the number of securities in the portfolio must be increased in order to achieve the same percentage of portfolio risk reduction when the average correlation between securities is lower.”

Another board member, Kala Amato, notes that no part of the pension portfolio is invested in a risk-free asset. She wants to know the impact of combining the current portfolio with an investment in a risk-free asset.

In response Shah states, “If we combine our portfolio with an investment in a risk-free asset, the result will be a new linear efficient frontier that is referred to as the capital allocation line (CAL) or the capital market line (CML). The risk and return of the resulting new portfolio will be linear combinations of the risk and return of the risk-free investment and our portfolio.”

Cramer asks Shah, “Can you explain the model that you use to select stocks for inclusion in the equity portion of the pension portfolio?”

Shah responds, “At Heddon, the primary model we use is a multi–factor model where the factors are: price-to-earnings ratio, financial leverage, and market capitalization.”

Shah moves on to a discussion on how Heddon Investment Advisors assesses portfolio risk. He states, “We use a risk model to decompose active risk into the following two components:

Component 1

This component is referred to as “active factor risk.” This is systematic risk attributable to differences in factor exposures between the portfolio and the benchmark. Note that the factors in our model are: price-to-earnings ratio, financial leverage, and market capitalization.

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Component 2

The second component is a function of the individual asset's active weight in the portfolio and the variance of returns unexplained by our three factors. This component is the active specific risk or asset selection risk."

Shah continues, "We prefer to structure our portfolio such that in addition to being on the efficient frontier, it tilts, relative to the benchmark, toward stocks of large-capitalization companies with lower P/E ratios and lower levels of leverage. Exhibit 2 shows the factor sensitivities for the recommended portfolio and the benchmark."

Exhibit 2
Factor Sensitivity

Factor	Portfolio	Benchmark
P/E Ratio	-0.25	-0.35
Financial Leverage	-0.60	-0.40
Market Capitalization	0.50	0.35

19. Based on the information presented in Exhibit 1, the standard deviation of Shah's new portfolio is *closest* to:
- A. 6.34%.
 - B. 10.04%.
 - C. 12.80%.
20. Is Shah's response to Cramer's question about the impact of correlation on portfolio risk diversification benefits and the number of securities required to achieve a certain level of risk diversification *most likely* correct?
- A. Yes.
 - B. No, he is incorrect about the impact of average correlation on risk diversification.
 - C. No, he is incorrect about average correlation and the number of securities required to achieve a certain level of portfolio risk diversification.
21. In his response to Amato, Shah is *most likely* correct with respect to the:
- A. CAL and the CML.
 - B. new efficient frontier.
 - C. risk and return of the new portfolio.

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22. Shah's response to Cramer's question regarding the model used by Heddon Investment Advisors, would imply that the multifactor model is *most likely* a:
- A. statistical factor model.
 - B. fundamental factor model.
 - C. macroeconomic factor model.
23. Is Shah correct about the components of active risk?
- A. Yes.
 - B. No, he is incorrect about Component 1.
 - C. No, he is incorrect about Component 2.
24. With respect to the factor tilts of the portfolio in Exhibit 2, Shah is *least likely* correct about:
- A. P/E ratio.
 - B. financial leverage.
 - C. market capitalization.

Questions 25 to 30 relate to Alternative Investments

Martin Investment Management Inc Case Scenario

Jennifer Martin, CFA, is the owner of Martin Investment Management Inc, a boutique company that specializes in managing money for high-net-worth individuals. The firm specializes in real estate and private equity investments. Martin has three client meetings today.

The first meeting is with Larry Smith. Smith is interested in a portfolio of private equity real estate as a long-term investment. Specifically, he is interested in the risk–return characteristics of private equity real estate portfolios versus those of stock portfolios. Martin advises Smith that private equity real estate portfolios are generally riskier than stock portfolios and the expected returns are lower.

Martin learns that Smith's long-term goal when he retires is to purchase a multi-family property. For example, there is one such property currently listed on the market. He plans on living in one unit and renting out the rest. The rental income would provide Smith with the cash flow that he needs in his retirement. He asks Martin to value the property based on the assumptions that the net operating income is \$125,000, the discount rate is 11%, and the growth rate is 6%. Martin decides to use the direct capitalization method to value the property.

Martin's second meeting is with Andre Metcalfe, who is an executive at a large national bank. Metcalfe is interested in investing in publicly traded real estate securities. In particular, he is interested in investing in

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securities that generate cash flow primarily from the sale of properties. Martin makes a recommendation after doing some research.

Metcalfe asks Martin about economic factors that affect the value of REITs that invest in different types of properties. Martin makes the following statements regarding key economic drivers of the value of various REITs available in the market:

Statement 1: Job creation is less of a driver of value for industrial REITs than for office and storage REITs.

Statement 2: Retail sales growth is less of a driver of value for office REITs than for industrial and storage REITs.

Statement 3: Population growth is less of a driver of value for storage REITs than for industrial and office REITs.

Martin's third meeting is with James Wolfe, who is interested in investing in venture capital or private equity funds. He is financially very comfortable and is thus willing to take on risk. Martin has recently received some information about a new venture capital deal involving a software company that may be of interest to Wolfe. Information about the software company for the venture capital deal is provided in Exhibit 1.

Exhibit 1
Venture Capital Deal – Investment Information

Terminal Value (at time of exit)	\$1,000,000
Time to Exit Event	3 years
Amount of Initial Investment	\$200,000
Discount Rate	40%

Wolfe is also interested in investing in private equity funds but is not familiar with how their management compensation systems work. He wants to make sure that management stays motivated and is focused on maximizing profits. Martin tells Wolfe that most private equity funds have a mechanism in place that enables the management team to increase its equity allocation depending on the company's actual performance and the return achieved by the private equity firm.

25. Is Martin's warning about investing in private equity real estate portfolios true?

- A. Yes.
- B. No, private equity real estate portfolios are less risky than stock portfolios and have lower expected returns.
- C. No, private equity real estate portfolios are more risky than stock portfolios and have higher expected returns.

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26. The value that Martin estimates for the multi-family property is *closest* to:
- A. \$1.14 million.
 - B. \$2.08 million.
 - C. \$2.50 million.
27. Based on Metcalfe's goal for investing in publicly traded real estate securities, the *most* appropriate recommendation that Martin could make is to purchase a:
- A. REIT.
 - B. REOC.
 - C. CMBS.
28. Which of Metcalfe's statements regarding REITs is *least likely* correct?
- A. Statement 1.
 - B. Statement 2.
 - C. Statement 3.
29. Based on the information in Exhibit 1, the pre-money valuation of the venture capital deal is *closest* to:
- A. \$164,431.
 - B. \$291,545.
 - C. \$364,431.
30. In his discussion with Wolfe on private equity funds, the mechanism Martin mentions is *most likely* a:
- A. ratchet.
 - B. carried interest.
 - C. distribution waterfall.

Questions 31 to 36 relate to Quantitative Methods

Brendan Dennehy Case Scenario

Brendan Dennehy works for Transon Investments, Plc., a Dublin-based hedge fund with significant equity investments in technology companies in Asia, North America, and Europe. Transon is concerned by the recent poor performance of one of the fund's Chinese investments, Winston Communications, an assembler of telecommunications equipment. Transon's chief of information technology (IT) is Sean Malloy. Yesterday,

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Winston's IT office sent Malloy data relating to the assembly process and a printout of an analysis of the number of defective assemblies per hour. Winston's IT people believe that the number of defective assemblies per hour is a function of the outside air temperature and the speed (production rate) of the assembly lines. Malloy recalls that Dennehy had substantial training in statistics while working on his MBA. He asks Dennehy to help him interpret the regression results supplied by Winston.

Exhibit 1
Regression Results
 $D_t = b_0 + b_1 \text{Air}_t + b_2 R_t + \varepsilon_t$

	Coefficient	Std. Error
Constant (b_0)	0.0160	0.0942
Outside air temperature (b_1)	0.0006	0.0010
Assembly line speed (b_2)	0.5984	0.3000
Number of observations used in the regression		384
Critical t value at 5% significance (two-tail test that coefficient equals zero)		1.96

R Square	Std. Error of the Estimate	Durbin–Watson	F	Significance of F
0.414	0.333	1.890	157.699	0.000
Durbin-Watson critical values (5% significance)		1.63		1.72
Correlation between outside air temperature and assembly line speed		0.015		

Using the data provided in Exhibit 1, Dennehy tests the hypothesis that the coefficients for outside air temperature and assembly line speed are significantly different from zero, using a significance level of 5%. Dennehy also uses the results given in Exhibit 1 to evaluate the potential for multicollinearity in the data.

Finally, Dennehy would like to confirm that nonstationarity is not a problem. To test for this, he conducts Dickey–Fuller tests for a unit root on each of the time series. The results are reported in Exhibit 2.

Exhibit 2
Results of the Dickey–Fuller tests

Time Series	Value of the Test Statistic	Std. Error	t	Significance of t
Defective assemblies per hour	0.0036	0.0023	1.591	0.1123
Outside air temperature	−0.423	0.0724	−5.846	0.000
Assembly line speed	−0.586	0.043	−13.510	0.000

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Dennehy tells Malloy about the Dickey–Fuller test results, stating:

We can safely use regression to estimate the relationship between the dependent variable and the independent variables if:

- 1) none of the three time series exhibit a unit root, or
- 2) all three series exhibit a unit root but they are also mutually cointegrated.

31. Based on Exhibit 1 and statistical tests, the *best* conclusion Dennehy can make is that the regression coefficient is significantly different from zero with respect to the coefficient (s) for:

- A. assembly line speed (b_2) only.
- B. outside air temperature (b_1) only.
- C. both outside air temperature (b_1) and assembly line speed (b_2).

32. The results reported in Exhibit 1 suggest that:

- A. the F -statistic of the regression is not significant.
- B. predictions of defective assemblies per hour made using the regression have only about a 41% chance of being correct.
- C. variations in the independent variables explain approximately 41% of the variation in the defective assemblies per hour.

33. What is the *most* appropriate inference from the Durbin–Watson statistic reported in Exhibit 1? The Durbin–Watson test:

- A. is inconclusive.
- B. rejects the null hypothesis of no positive serial correlation.
- C. fails to reject the null hypothesis of no positive serial correlation.

34. The results reported in Exhibit 1 are *most* accurately interpreted as indicating that:

- A. the reported R^2 is spurious.
- B. multicollinearity is not present.
- C. the regression coefficients have inflated standard errors.

35. Assuming a 5% level of significance, the *most* appropriate conclusion that can be drawn from the Dickey–Fuller results reported in Exhibit 2 is that the:

- A. test for a unit root is inconclusive for the dependent variable.
- B. dependent variable exhibits a unit root but the independent variables do not.
- C. independent variables exhibit unit roots but the dependent variable does not.

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36. Dennehy's statement about the Dickey–Fuller test is *best* characterized as:

- A. correct.
- B. incorrect because only the dependent variable series needs to be tested for the absence of a unit root.
- C. incorrect because only the independent variable series needs to be tested for the absence of a unit root.

Questions 37 to 48 relate to Financial Reporting and Analysis

Luhvul Cooperage Case Scenario

Sarah MacPhail is a food and beverage analyst at Carter-Brown Associates. In early 2012, she began to review several recent reports and the financial statements of Luhvul Cooperage Inc., listed as LUVU on the NASDAQ. The company's financial statements are prepared under U.S. GAAP.

Luhvul is located just outside of Louisville, Kentucky, U.S.A. By U.S. law, Kentucky bourbon must be aged in brand-new, charred oak barrels. Luhvul purchases used barrels from the local distillers, reconditions them as needed, and resells them primarily to rum and whiskey producers worldwide. About 60% of sales are to the United Kingdom and about 25% to Chile, with all sales denominated in USD.

After reviewing Luhvul's annual report, MacPhail became concerned that the company might be in violation of one or more of its debt covenants. Excerpts from the company's financial statements are shown in Exhibit 1 and from the notes and MD&A in Exhibit 2.

Exhibit 1 Luhvul Cooperage Inc. All figures in USD (thousands)			
Balance Sheet As of December 31			
	2011	2010	
Cash and A/R	7,653	5,907	
Inventories	<u>8,103</u>	<u>12,791</u>	
Total current assets	15,756	18,698	
Net property, plant, and equipment	<u>16,345</u>	<u>17,532</u>	
Total assets	<u>32,101</u>	<u>36,230</u>	
Total current liabilities	5,984	9,778	
Long-term debt	5,615	7,128	
Shareholders' equity	<u>20,502</u>	<u>19,324</u>	
Total liabilities and equity	<u>32,101</u>	<u>36,230</u>	

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Income Statement For Periods Ending December 31			
	2011	2010	2009
Total revenues	64,302	51,852	66,786
Cost of goods sold	57,035	45,525	55,568
Selling and admin expense	5,025	4,137	5,604
Interest	<u>704</u>	<u>910</u>	<u>569</u>
Total costs and expenses	62,764	50,572	61,741
Earnings before tax	1,538	1,280	5,045

<p align="center">Exhibit 2 Luhvul Cooperage Inc. Selected Excerpts from Notes to the Financial Statements and Management's Discussion and Analysis All figures in USD (thousands) December 31, 2011</p>	
1. Debt Covenants	As determined under FIFO accounting, throughout the term of the loan, the current ratio must equal or exceed 3.0 and the interest coverage ratio must equal or exceed 5.0 times.
2. Inventories	<p>Inventories are reported on a LIFO basis. The LIFO reserve was \$4,994 and \$3,152 at the end 2011 and 2010, respectively.</p> <p>During 2011 the company liquidated certain LIFO inventories that had been carried at lower costs in prior years; the effect of the liquidation was to increase earnings before tax by \$1,517.</p>
3. Operations	During 2011, activity at the local distillers was interrupted because of a four-month strike, which reduced the company's access to used barrels.
4. Executive Compensation – Stock Options	<p>On January 1, 2011, the company granted 50,000 options on its common shares to its top managers. The options have the following features:</p> <ul style="list-style-type: none"> • The exercise price for all company stock options is the stock price on the date of the grant. • Options cannot be exercised for 4 years and expire in 10 years from the grant date. • Based on prior experience, it is estimated that options are exercised, on average, in five years. • The related compensation expense is reported in selling and administrative expenses. <p>Exhibit 3 contains stock information and estimated option prices during 2011; option</p>

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prices are estimated using the Black–Scholes model using assumptions contained in the Notes to the Financial Statements.

5. Executive Compensation – Stock Awards

In fiscal year 2012, the company will begin granting employees stock awards (SAs) rather than stock options as part of its executive compensation plans. SAs are grants that entitle the holder to shares of company stock as the award vests (normally a four-year period) with the award being based on accounting performance metrics as determined by the Compensation Committee of the Board of Directors.

Exhibit 3		
Luhvul Cooperage Inc.		
Stock Price and Estimated Option Prices throughout 2011		
Date	Stock Price	Option Price
January 1	\$18.00	\$4.38
July 1	\$21.00	\$6.40
December 31	\$23.00	\$7.78
Average for year	\$20.67	\$6.13

In reviewing the change in the company's executive compensation, MacPhail made the following three observations:

1. Management will have the same downside risk exposure from the stock awards plan as they currently face with the stock options plan.
2. Because both the stock awards and stock options have the same vesting period, they will also have the same total effect on net income.
3. The issuance of new shares under the new stock awards plan should improve the company's debt/equity ratio.

Luhvul Cooperage had just entered into a joint venture with a wine maker, three other cooperage firms and McFadden BioGroup, Ltd. to develop processes that would accelerate the natural seasoning of wood used in the production of barrels. In the joint venture, named Oakwood BioTreatment Inc., each company is to provide equal funding and to share equally in the profits.

37. In regard to MacPhail's concern about the violation of debt covenants in 2011, the *most appropriate* conclusion is that:

- A. neither debt covenant is violated.
- B. only the current ratio covenant is violated.
- C. only the interest coverage ratio covenant is violated.

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38. If the liquidation of LIFO inventories in 2011 had not occurred, the gross profit margin for the company would have been *closest* to:
- A. 8.9%.
 - B. 11.3%.
 - C. 13.6%.
39. The *most likely* explanation that MacPhail can give for the inventory liquidation described in Exhibit 2 is that there were:
- A. supply chain problems.
 - B. increased foreign sales.
 - C. recent purchases at lower costs.
40. The compensation expense for 2011 arising from the executive stock options granted in 2011 is *closest* to:
- A. \$43,800.
 - B. \$54,750.
 - C. \$76,625.
41. Which of MacPhail's observations about the new executive compensation plan is *most* accurate?
- A. 1
 - B. 2
 - C. 3
42. The *most* appropriate way for Luhvul Cooperage to account for its investment in Oakwood BioTreatment Inc. is to use:
- A. the equity method.
 - B. fair value designation.
 - C. proportionate consolidation.

Nation Resorts Ltd. Case Scenario

Nation Resorts Ltd (Nation) is a U.S.-based operator of destination vacation resorts. Resorts are divided into three types: winter, which are located at ski mountains; golf, located on championship courses in locations such as Arizona; and seaside, located at world-class ocean beaches. The three types of resorts generally attract different types of vacationers, and provide different vacation packages for different vacation budgets. Although the winter and golf resorts are somewhat counter-seasonal the company still suffers from the risk

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of the U.S. economy as well as the risk of unfavorable local weather conditions (lack of snow or sun). To diversify and reduce these risks, Nation started purchasing properties in other geographic areas, including Europe and Central America.

Nation made its first foreign investment when it bought a resort in Jamaica on May 1, 2008. Initially, Nation provided managers to assist in operating the resort but then hired local Jamaicans for their management development program, one of whom was recently appointed to a senior position at the resort. Nation invested in building and upgrading facilities with the initial expansion financing provided by Nation's U.S. bank. Concerned about the high rate of inflation in Jamaica, which at the time of purchase had averaged 20% per year over the previous three years, Nation kept any excess funds in U.S. dollars. Vacation packages are sold primarily in the United States and prices reflect competitive conditions in the U.S. vacation market. The resort uses local labor and supplies and is expected to be profitable for the first time this year (2010). Inflation has now declined to 14% per year, and Nation expects to be able to reinvest any profits in the resort and start using a local bank for on-going financing needs.

On July 1, 2010, Nation acquired its first European resort, Val Blanc SA, a ski resort in the Alps region of France. Nation paid €28 million for 100% of the company. The resort attracts skiers primarily from France and other European countries. The transition has gone very well with Nation leaving the local managers in place to make all operating and financial decisions. To date the only financial contribution by Nation has been the initial equity investment. Financial statements for the ski resort at acquisition and for the six months since acquisition are shown in Exhibit 1.

Exhibit 1
Val Blanc SA
Financial Statements
(all figures in thousands)

Income Statement

	<u>Dec 31, 2010</u>	<u>June 30, 2010</u>
	<u>6 months</u>	<u>12 months</u>
Resort revenues	€12,025	€46,805
Operating expenses	9,800	35,105
Depreciation and amortization	1,750	4,000
Interest expense	1,200	2,500
Earnings before taxes	€(725)	€5,200
Income taxes	0.00	1,300
Net earnings	<u>€ (725)</u>	<u>€3,900</u>

Statement of Financial Position

Dec 31, 2010 **June 30, 2010** ⁽¹⁾

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Cash and marketable securities	€5,750	€5,000
Accounts receivable	6,500	3,000
Inventory	8,000 ⁽²⁾	5,000
Total current assets	€20,250	€13,000
Property, plant and equipment	41,750	43,500
Intangible assets	5,000	5,000
Total assets	€ 67,000	€ 61,500

Current liabilities	€12,225	€5,000
Long-term debt	26,000	27,000
Share capital	20,000	20,000
Retained earnings	8,775	9,500
Total liabilities and equity	€67,000	€61,500

- (1) The June 30, 2010, Statement of Financial Position reflects the fair value of the identifiable assets and liabilities of Val Blanc at acquisition.
- (2) December 31, 2010, inventory was acquired evenly throughout the period since acquisition.

It is now early January 2011, and Paul Nakiska, a business analyst with Nation, is meeting with Nation's manager of financial reporting, Max Chara, to discuss how the company should account for the two foreign resorts in the 2010 financial statements and the impact the resorts will have on Nation's reported results. Nation has a December 31 year-end and prepares its financial statements according to U.S. GAAP.

In preparation for the meeting Nakiska's first task was to prepare the purchase price allocation of the Val Blanc acquisition using the acquisition method. He has also gathered some exchange rate information related to the two resorts, as shown in Exhibit 2.

Exhibit 2
Selected Exchange Rates

Date	USD = 1JMD	USD = 1EUR
May 1, 2008	0.0139	N/A
January 1, 2010	0.0115	1.4368
June 30, 2010	0.0117	1.2250
December 31, 2010	0.0117	1.3261
Average 2010	0.0115	1.3277
Average January – July 2010	0.0113	1.3303
Average July – December 2010	0.0117	1.3198

Nakiska started the meeting:

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I suggest we use the current rate method for both our foreign subsidiaries because that will simplify our financial reporting. The current rate method also allows the key metrics we use to evaluate performance—the current ratio, fixed asset turnover, and operating margin—to be the same after translation as they are before.

Chara replied:

I am not so concerned about the translated metrics because we evaluate the performance of each resort in its local currency; however, I am concerned about the effect on Nation's consolidated net income and return on equity.

If we use the temporal method for the resort in France, we can take advantage of the strengthening euro and report the translation gain on the income statement.

I am also not so concerned about using the same method for all subsidiaries, if using different methods will help increase our net income.

Nakiska agreed to calculate the effects of the various translation methods and of the Val Blanc acquisition on the financial statements and send a report to Chara.

43. In 2008, Nation *most likely* used which of the following translation methods for the Jamaican resort?
The:

- A. temporal method because of the high rate of inflation.
- B. temporal method because the U.S dollar was the functional currency.
- C. current rate method because the Jamaican dollar was the functional currency.

44. Prior to translating the subsidiary's financial statements, Nakiska's allocation of the purchase price of the acquisition of Val Blanc will *most likely* result in which of the following for Nation?

- A. A gain of €1,500
- B. Goodwill of €8,000
- C. An increase in retained earnings of €9,500

45. The net income (in USD) from the Val Blanc subsidiary that will be included in Nation's income for 2010 is *closest* to:

- A. (791).
- B. (957).
- C. (961).

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46. Using the translation method suggested by Nakiska, the total shareholders' equity of the Val Blanc resort on December 31, 2010 after translation is *closest* to:
- A. \$32,203.
 - B. \$35,181.
 - C. \$38,159.
47. Nakiska's comment about the key performance metrics is *least* accurate with respect to:
- A. current ratio.
 - B. operating margin.
 - C. fixed asset turnover.
48. Is Chara correct in his assessment of the effect of using the temporal method on the Val Blanc resort?
- A. No, because it would result in a translation loss on the income statement.
 - B. Yes, because it would result in a translation gain on the income statement.
 - C. No, because the translation gain or loss would not be reported in net income.

Questions 49 to 54 relate to Corporate Finance

England Case Scenario

Telemtogo Inc. (TLGO) is a manufacturer and distributor of camping and hiking equipment in the U.S. TLGO management is considering a new division to manufacture outdoor patio products to be sold in the same retail outlets as TLGO's existing products.

Karen England is a consultant hired by TLGO to explore the feasibility/profitability of the new division. England begins by developing future financial projections for the division based on comparable firms that produce similar products. England assumes the capital investment will be made at the end of 2012 (see Exhibit 1).

Exhibit 1

TLGO Outdoor Patio Product Division

Abridged Financial Statement Year-End Projections (Inflation Adjusted)

Note: All values are in USD millions.

End of Year	2012	2013	2014	2015	2016	2017
Consultant fee	0.55					
Capital investment required	10.36					
Additional net working capital	2.20	0.62	0.43	0.28	0.19	0.12

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Sales	2.70	3.24	3.89	4.67	5.60
Variable expenses	1.62	1.94	2.33	2.80	3.36
Fixed expenses	0.20	0.21	0.21	0.22	0.23
Depreciation	0.21	0.21	0.21	0.21	0.21
EBIT	0.67	0.88	1.14	1.44	1.81
Interest	0.36	0.36	0.36	0.36	0.36
Taxable income	0.31	0.52	0.78	1.08	1.45
Tax expense (32%)	0.10	0.17	0.25	0.34	0.46
Net income	0.21	0.35	0.53	0.74	0.99

Note: The inflation rate is assumed to be 0.78% annually.

England begins her analysis by determining TLGO's real weighted average cost of capital (real WACC) which she presents in Exhibit 2.

Exhibit 2	
TLGO's Real WACC Components	
Risk-free rate	2.5%
Market risk premium	8.2%
Equity beta	1.6
Pre-tax cost of debt	9.3%
Real WACC	10.1%

Note: All values are nominal except for the real WACC, and project financing is with equal portions of debt and equity.

She then proceeds to determine the feasibility of the project in two ways:

1. discounting the after-tax operating cash flows from the project and
2. calculating its economic profit.

In a phone conversation, Terry Weinberger, a member of TLGO's management team, suggests that the risk of the new division may be different from the current risk faced by TLGO, making TLGO's real WACC inappropriate for her analysis. He suggests incorporating the cost of equity from a firm within the outdoor patio products industry, Outerside Inc. (OUT), to obtain a more appropriate real WACC. England later estimates OUT's current beta and adjusts it to account for TLGO's leverage. The value of the adjusted beta for OUT is 1.8.

Weinberger continues to tell England that five years ago, TLGO considered acquiring OUT. Unfortunately, OUT successfully defended itself from being acquired by seeking an angel investor who bought a substantial minority stake of its stock—enough to block our hostile takeover bid.

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Weinberger further suggests calculating the net present value (NPV) of the project with an assumption of selling the division for \$12 million at the end of 2017. All working capital can be recaptured. (Note: Capital gains are fully taxed at 32%.)

Weinberger also asks England to calculate the NPV for three different possible sets of economic conditions under which prices and costs differ to give management a broader perspective on the decision.

In response to the conversation with Weinberger, England produces the analysis in Exhibit 3.

Exhibit 3
NPV Analysis of TLGO Project

Economic conditions	Probability	NPV in USD millions
Below Average	25%	−5.21
Average	50%	−3.08
Above Average	25%	1.25

In a second phone conversation, England and Weinberger discuss the value of possible real options. When England implements the value of the real options into the NPV analysis, the expected NPV for the project based on Exhibit 3 becomes \$0.75 million.

49. The 2014 after-tax operating cash flow for the new division (in USD millions) is *closest* to:
- A. 0.38.
 - B. 0.56.
 - C. 0.81.
50. Prior to her first conversation with Weinberger and using the information from Exhibits 1 and 2, England's estimate of the 2013 economic profit for the new division (in USD millions) is *closest* to:
- A. −0.59.
 - B. −0.81.
 - C. −0.87.
51. Based on the first conversation with Weinberger, the *most* appropriate real cost of equity (%) for determining the net present value for the proposed new division is:
- A. 14.7.
 - B. 16.4.
 - C. 17.1.
52. Which of the following is the *best* characterization of OUT's takeover defense tactic in response to TLGO's takeover bid five years ago?

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- A. Greenmail
- B. White Squire defense
- C. White Knight defense

53. If Weinberger is correct about the selling price of the division in 2017, the after-tax non-operating cash flow (in USD millions) from the sale is *closest* to:

- A. 11.13.
- B. 14.97.
- C. 15.32.

54. Following her second conversation with Weinberger and based on Exhibit 3, the expected additional value (in USD millions) created by real options is *closest* to:

- A. -1.78.
- B. 3.28.
- C. 3.83.

Questions 55 to 60 relate to Equity Investments

Vitality FoodGroup Case Scenario

Gregory Armishaw is an equity analyst at Fulsom-Wagner Investment Counsel in Minneapolis, U.S.A. Armishaw specializes in the food and beverage industry. In late January 2013, he had just become aware of a new salt substitute, SansSalt, which had been developed by a local company, Vitality FoodGroup, Inc. (NYSE listing: VFG). Prior to learning of this new development, Armishaw had a neutral rating on the company's shares.

VFG produces a wide variety of chemicals used in the food services industry. SansSalt can be used by food producers and processors to formulate low-sodium foods without sacrificing taste or functionality, replacing over 90% of the sodium content in their finished products.

With the continuing national concern over health matters arising from excessive salt use, Armishaw believes that the addition of this product line could be quite beneficial to VFG. Armishaw told Anthony Stack, a junior analyst, that in his December 2012 valuation of VFG's common shares, he had considered the residual income model but settled on the H-model version of the dividend discount model. Stack summarizes the data that have been used in that valuation in Exhibits 1, 2, and 3.

<p align="center">Exhibit 1 Vitality FoodGroup, Inc. Free Cash Flow to the Firm December 31, 2012</p>	<p align="center">Exhibit 2 Vitality FoodGroup, Inc. Selected Balance Sheet Data December 31, 2012</p>
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USD millions	
Net income	\$422
Non-cash charges (depreciation)	174
After-tax interest expense	42
Investment in fixed capital	–208
Investment in working capital	–35
Free cash flow to the firm	<u>\$395</u>

USD millions	
Total assets	<u>\$3,301</u>
Short-term liabilities	194
Long-term debt	954
Common stock	1,075
Retained earnings	<u>1,078</u>
Total liabilities and equity	<u>\$3,301</u>

Exhibit 3 Vitality FoodGroup, Inc. Selected Information for Valuation December 31, 2012	
Weighted average cost of capital	11.9%
Cost of debt, before tax	7.0%
Cost of equity capital	15%
Expected dividend growth behavior:	
• Expected for 2013	14%
• After 2013, dividend growth rate declines linearly over a six-year period	
• Final and perpetual growth rate:	5%
Estimated EPS in 2018	\$5.04
Dividend payout ratio	40%
Shares outstanding	150 million

Stack noticed that in the 2012 valuation, Armishaw had assumed a sustainable growth rate of 5% following the period of high growth. His recollection was that the sustainable growth model assumes that the company will require:

1. external debt financing.
2. external equity financing.
3. improving return on equity.

Stack asked Armishaw what the present value of growth opportunities (PVGO) was for the perpetual growth period in his December 2012 valuation.

In their meeting on the following day, Armishaw said that he had been estimating the benefits that VFG would receive from its new SansSalt product. Exhibit 4 contains his revised estimates for the share price (as of January 15, 2013), assuming a terminal value in 2022 arising from a perpetuity based on 2022's residual income.

Exhibit 4 Vitality FoodGroup, Inc. Basis for Terminal Value and Revised Price Estimate

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January 15, 2013	
Forecasted residual income per share at end of 2022	\$5.32
Estimated ROE in 2022	20%
Nature of stream beyond 2022	Perpetuity
Growth rate beyond 2022	0%
Cost of equity	15%
Dividend payout	40%
Revised estimate of share price	\$45.50

Stack questions Armishaw's assumption in his 2013 valuation that a perpetuity would best describe the terminal value of the stream and suggests that residual income should fade over time. He further suggests that a persistence factor of 0.50 might be appropriate. Stack then determines the impact on the estimate of the VFG share price that his alternative assumptions about the terminal value would have.

Stack told Armishaw that he prefers the use of a residual income model to value the company over other available methods. He provides three justifications for his preference:

1. The model explicitly incorporates the cost of debt capital.
2. The model can be used when cash flows are unpredictable.
3. There is less of an impact arising from the uncertainty in forecasting terminal value.

55. In December 2012, Armishaw's estimate of VFG's residual income per share for 2014 was *closest* to:

- A. -\$0.28.
- B. \$0.84.
- C. \$1.17.

56. In December 2012, using the H-model, Armishaw's per share valuation of VFG's common shares would have been *closest* to:

- A. \$14.85.
- B. \$15.86.
- C. \$17.89.

57. Which of Stack's recollections about the assumptions underlying the sustainable growth rate model is *most* accurate?

- A. 1
- B. 2
- C. 3

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58. The *most* appropriate answer to Stack's question about the PVGO is:
- A. -\$13.44.
 - B. -\$12.43.
 - C. \$19.32.
59. Compared to Armishaw's revised 2013 estimated price for VFG, Stack's assumption of a persistence factor results in a price that is *closest* to:
- A. \$6.50 lower.
 - B. \$6.74 lower.
 - C. \$26.30 higher.
60. The *least* appropriate justification that Stack makes in support of the use of the residual income model is:
- A. 1.
 - B. 2.
 - C. 3.

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