

## **2011 Level II Mock Exam: Afternoon Session**

The afternoon session of the 2011 Level II Chartered Financial Analyst® 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.

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## Wilson Macharia Case Scenario

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Wilson Macharia, CFA, a lawyer specializing in trusts and estate planning, acts as a professional trustee on behalf of several pension funds who require legal expertise. He also provides inputs on the investment process and monitoring of the performance of the funds. Macharia often carries out training seminars to discuss pertinent issues concerning trust law and trustee responsibilities.

During a recent training session with trustees of a pension fund Macharia outlined what he thought were the most important parameters of the new Prudent Investor Rule:

- Parameter 1: Diversification is only required if appropriate to achieve the fund's objectives.  
Parameter 2: Trustees must consider fees, costs and other expenses when making investment decisions.  
Parameter 3: Trustees no longer need to balance current income and growth when making investment judgments.

Macharia went on to discuss the differences between the old Prudent Man Rule and the new Prudent Investor Rule as shown in Exhibit 1.

**Exhibit 1**  
**Changes in Prudent Rules**

Features	Old Prudent Man Rule	New Prudent Investor Rule
A	Each investment within a portfolio must meet the prudence test	Prudence test is on the whole portfolio
B	A trustee is required to perform duties personally	A trustee may delegate duties to others
C	Investments in mutual funds or index funds are seen as improper	All investments are allowed as long as they are actively managed

Macharia subsequently highlighted the following case study:

"A very large pension fund with no current exposure to the real estate market wanted to develop a commercial building to house its administration department and to rent the remaining space to third parties. The trustees estimated the commercial building would earn an investment return higher than the fund's historical 10-year return. The trustees recognized that while commercial real estate is riskier than other portfolio assets, it has also displayed very low correlations with other portfolio assets. The Trustees, with no real estate interests of their own, consulted with real estate experts to determine the safety of real capital value and the likelihood of competitive total investment returns. They also confirmed with pension consultants to ensure the investment would be a suitable investment given the fund's objectives, risk tolerances and the interests of all the beneficiaries.

One of the new trustees, a qualified civil engineer who has been employed by developers in the past, suspected costs would rise considerably due to poor estimates provided by the potential developers. He

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didn't mention his concerns because this was his first appointment as a trustee. The Trustees approved the project and appointed one of the developers that had bid for the project to build the commercial building.

At the end of the seminar, Macharia received the following questions from the audience:

- Question 1: "I'm a trustee for a pension fund. The Board of Trustees is planning to replace our current no-load balanced unit trust with a unit trust with a 2% front-end load with the same objectives and risk. The underlying investments giving current income streams and growth opportunities are almost identical in each of the unit trusts. A former employee of the pension fund just started managing money so we want to support him by moving 100% of our investment portfolio to his balanced unit trust. Our current manager has been in business for many years and consistently has a top quadrant performance history. By switching would we be in violation of the new Prudent Investor Rule?"
- Question 2: "I am a trustee for a trust with a remainder beneficiary. The remainder man is suing me on the basis that the trust suffered a significant loss during the global financial crisis. While I am experienced in asset management I delegated the asset management to a well-established asset manager, as I do not have the time to undertake this role. I appointed the manager after a thorough due diligence process to determine skills and historical performance. The fund has always met the objectives and risk profile of the trust, considering both the interests of the income beneficiary and the remainder man. In my quarterly meetings with the asset manager I can see he continues to consistently outperform other funds and at lower fees. Have I done anything wrong?"
- Question 3: "If the beneficiary of a trust is employed in a highly paid job do I as a trustee still need to consider the key factors of liquidity and regularity of income?"
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1. Which of Macharia's parameters *most* accurately reflects one of the principles of the new Prudent Investor Rule?
  - A. Parameter 1.
  - B. Parameter 2.
  - C. Parameter 3.
2. Which feature in Exhibit 1 *least likely* identifies the differences between the old and new Prudent Rules?
  - A. Feature A.
  - B. Feature B.
  - C. Feature C.

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3. In the case study, which General Fiduciary Standard was *most likely* violated?
- A. Care.
  - B. Skill.
  - C. Caution.
4. Macharia's most appropriate response to Question 1 is: "Yes, the trustees have not complied with the duty:
- A. to avoid fees."
  - B. of delegation."
  - C. of impartiality."
5. With regard to General Fiduciary Standards, what is Macharia's *most* appropriate answer to Question 2 from the audience?
- A. Yes.
  - B. No, trustees have a duty to delegate.
  - C. No, compliance with trustee duties is not judged on hindsight.
6. Macharia's *most* appropriate answer to Question 3 is:
- A. Yes.
  - B. No, with regard to liquidity.
  - C. No, with regard to regularity of income.

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## Chester Midway Case Scenario

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Chester Midway, CFA, is a portfolio manager for Pacific Capital, a hedge fund which invests in debt, equity and related derivatives securities. Midway is reviewing several investment recommendations from his research staff with respect to Yorktown Carrier Corporation.

Midway believes that Yorktown's stock price will increase over the next six months, but he does not want to purchase the stock today. In order to protect against the stock price rising over the next six months, Midway is considering a forward purchase. Yorktown's common stock currently trades at \$100 per share and is expected to pay quarterly dividends of \$0.75 per share with the next dividend payment expected 90 days from today. To evaluate this transaction, Midway uses the data provided in Exhibit 1.

**Exhibit 1**  
**Risk Free Interest Rates**

Maturity	Rate
3 months	0.50%
6 months	0.50%
1 year	1.00%

Michael Edwards, an equity analyst at Pacific, believes that call options are an alternative approach to establishing a long position in Yorktown stock. The current market price of a six month put option with a strike price of \$100.00 is \$5.35.

Midway asks Edwards if there are ways to measure the risk of option positions. Edwards responds by stating that numerical risk measures such as delta and gamma are used by investors to monitor the price relationship between a call option and the underlying stock. Edwards makes the following statements:

Statement 1: "A smaller gamma limits the effectiveness of delta hedging."

Statement 2: "A negative delta indicates that the call option price and the stock price will move in opposite directions."

Statement 3: "A larger gamma means that there is more uncertainty as to whether the call option will expire out-of-the-money."

Midway has analyzed Yorktown's recent price history and estimates that historical volatility is 30%. He uses the Black-Scholes option pricing model to observe that the volatility implied by the market prices of Yorktown options is 20%. Midway's forecast is that Yorktown's price volatility will remain at 30%. Midway recommends buying put options and selling call options in order to profit from his view on the volatility for Yorktown's stock relative to the market consensus.

Jim Frank is Pacific's fixed income analyst. He has analyzed Yorktown's balance sheet, and is meeting with the company's treasurer. He asks the treasurer if Yorktown's stock price may be adversely affected by rising interest rates given the high level of floating rate debt within its capital structure. Frank, however, believes that interest rates will not rise. The treasurer tells him that Yorktown could consider interest rate swaptions which hedge against a rise in rates but which simultaneously provides the flexibility to not engage in the swap should rates not rise.

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Frank has evaluated Yorktown's senior debt and its credit default swaps (CDS). Frank has a positive outlook regarding Yorktown's credit condition over the next two years but is concerned about Yorktown's longer term (5 years) credit outlook based on secular trends within Yorktown's industry.

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7. The six month forward price on Yorktown stock that Midway should expect to pay is *closest* to:
- A. \$98.50.
  - B. \$98.75.
  - C. \$99.00.
8. Based on Exhibit 1 and put-call parity, the price of a 6-month call option with a strike price of \$100.00 on Yorktown stock is *closest* to:
- A. \$5.10.
  - B. \$5.60.
  - C. \$5.85.
9. Which of Edward's statements to Midway regarding options is *mostly likely* correct:
- A. Statement 1.
  - B. Statement 2.
  - C. Statement 3.
10. Holding all of the other components of the Black-Scholes model constant, Midway's put and call strategy to exploit volatility is *most likely* incorrect because:
- A. both puts and calls will increase in value.
  - B. both puts and calls will decrease in value.
  - C. puts will decrease in value while calls will increase in value.
11. Which interest rate hedge instrument is *most* suitable for Yorktown given Frank's assessment of Yorktown's interest rate exposure *and* his view on interest rates:
- A. Payer Swaption
  - B. Receiver Swaption
  - C. Plain Vanilla Swap

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12. Given Frank's credit evaluation of Yorktown, which CDS strategy is most appropriate for Pacific?

- A. Sell 2-year CDS.
- B. Sell 2-year CDS and buy 5-year CDS.
- C. Buy 2-year CDS and sell 5-year CDS.

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### Benito Alvarez, CFA, Case Scenario

Benito Alvarez, CFA, manages a fund that invests in all sectors of the fixed income market that he believes are trading at fair to attractive valuations. The fund has received a cash inflow and Alvarez is evaluating several securities for purchase. His first task is to evaluate three corporate bonds, offered by issuers whose financial data appears in Exhibit 1:

**Exhibit 1**  
**Selected Financial Data**

(US\$000's)	Belmont	Andover	Wellesley	Industry
Current Assets	14,250	23,750	10,900	48,900
Current Liabilities	12,500	23,000	9,400	44,900
Total Assets	28,500	47,500	21,800	97,800
Total Debt	7,000	12,500	4,800	24,300
Capital	9,000	12,000	7,600	28,600
EBIT	969	1,938	919	3,825
Interest	350	618	250	1,217
Net Income	433	924	468	1,826

Alvarez is not convinced that an analysis of the data in Exhibit 1 is sufficient to determine a company's ability to service debt. He asks Antonia Diaz, CFA, his research analyst to do a cash flow analysis on each company. Diaz collects the data in Exhibit 2.

**Exhibit 2**  
**Cash Flow Data**

(US\$000's)	Belmont	Andover	Wellesley
Funds from Operations	1,967	3,600	1,682
Change in Working Capital	(200)	500	200
Capital Expenditures	1,425	2,850	1,525
Off-Balance Sheet Liabilities	700	1,250	480

Alvarez learns in his analysis that Andover has a bank agreement that requires it to adhere to the following covenants:

- Covenant 1: The borrower cannot incur additional debt if its fixed-charge coverage ratio is less than 2.0X, adjusted for the new debt.
- Covenant 2: The borrower will not pay dividends in excess of \$50 million in any calendar year.
- Covenant 3: The borrower shall maintain all properties owned in good condition.

Diaz then informs Alvarez that each of the companies in Exhibit 2 securitizes its receivables generated by the sale of equipment to their customers. Diaz claims that he can provide an opinion as to which asset backed securitization (ABS) to invest in since it is very similar to his credit analysis of the companies. He lists the following factors as being relevant in his analysis:

- Factor 1: The credit quality of the collateral including concentration of loans and credit enhancements.

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- Factor 2: The quality of the company servicing the receivables including its history, experience and underwriting standards.
- Factor 3: Cash flow stress and payment structure. This analysis focuses on the company selling the receivables and its ability to support the waterfall distribution.

Alvarez then comments that he has been reluctant to invest in companies rated below investment grade because they are too risky. In particular, he is concerned about the recovery value on the bonds he would purchase given the lower credit quality of these companies, as well as the complex corporate structure. Diaz provides his view on high yield issuers:

“Bank loans are an attractive part of the capital structure since they have priority over other bondholders in the firm’s assets. These companies often have a holding company structure from which it can issue bonds but is reliant on the ability of operating subsidiaries to move cash to the holding company to pay bondholders which may be restricted by covenants, even if they are senior bonds.”

The last security that Alvarez evaluates for his portfolio is the sovereign debt of three emerging market countries. Each country has both local currency and US-dollar denominated debt. Alvarez uses the data in Exhibit 3 for his analysis:

**Exhibit 3**  
**Qualitative Profile for Emerging Market Countries**

Factor	Country A	Country B	Country C
Political Stability	Medium	High	High
Net external debt (% of GDP)	90	150	125
Net external liabilities (% of GDP)	110	170	135
Past local debt default	No	No	Yes
Past external debt default	Yes	No	No
Fiscal policy flexibility	High	High	Medium
National income per capita	32,000	15,000	17,000
Ability to raise taxes	Low	High	Medium
One year change in value of currency/US\$	-15%	-25%	-20%

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13. Based on the data in Exhibit 1, using traditional credit analysis, which company *most likely* displays the strongest capacity to pay its obligations?
- A. Belmont.
  - B. Andover.
  - C. Wellesley.

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14. Based on the data in Exhibit 2, which company would *most likely* rank as the strongest credit based on cash flow analysis?

- A. Belmont.
- B. Andover.
- C. Wellesley.

15. Which of the covenants in Andover's bank agreement is an affirmative covenant?

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

16. Diaz is *least likely* correct with regard to which of the factors he applies to the analysis of ABS?

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

17. Are Diaz's comments regarding investments in securities issued by high yield companies *most likely* correct?

- A. Yes.
- B. No, he is incorrect regarding bank loans.
- C. No, he is incorrect regarding holding company bonds.

18. Based on criteria established by the rating agencies to assess sovereign debt, Alvarez would *most likely* invest in the local currency bonds of which country?

- A. Country A.
- B. Country B.
- C. Country C.

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## Petr Riha Case Scenario

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Montfort University, a private university, just received a \$150 million donation for its newly formed endowment fund. The endowment, which will receive additional funds in the near future, will be used to support the University's sports related expenses in perpetuity.

The University has engaged Petr Riha, an investment consultant, to assist in establishing the endowment fund portfolio. Riha is attending the first meeting of the Investment Committee and is preparing to discuss the steps involved in the investment planning process.

Riha explains that the first step of the portfolio management process is planning step, which comprises four parts:

- Part 1 - identify the investment objectives and constraints
- Part 2 - create an investment policy statement
- Part 3 - form a set of capital market expectations
- Part 4 - determine a strategic asset allocation

Riha makes the following recommendations to the Committee members regarding the endowment fund portfolio's objectives and constraints:

- The endowment should seek to earn a rate of return that will cover the university's annual sports-related expenses.
- The risk tolerance is average to above average and is determined by the amount of assets relative to needs.
- The time horizon is short to intermediate term, since expenses have to be paid annually.

Maria Landis, a member of the Investment Committee, suggests to Riha that the university may be better served by choosing a passive rather than active management approach. Landis suggests that passive management is more cost effective because active managers charge higher fees and markets are so efficient that most active managers are unable to outperform the market.

Riha responds that he can help the Committee find managers that have a track record of outperforming the market and are expected to continue to do so. He provides two reasons for why active management might add value in an efficient market environment.

- "There is an economic argument that can be made in favor of active management. If active managers were not able to consistently beat a passive investment strategy, investors would not be willing to pay high fees for active managers and funds under active management would cease to exist. Since there are many active managers, economic logic suggests they must be outperforming passive strategies.
- There is also empirical evidence that shows some managers have consistently produced excess returns relative to a passive strategy, suggesting skill rather than luck."

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As the discussion of active versus passive management continues, Riha tells the Committee that his firm has the ability, using the Treynor-Black model, to determine the most appropriate combination of active and passive portfolios for their clients. He makes the following statements about the Treynor-Black model:

- Statement 1: The model assumes that active managers can identify mispriced securities and select and weight them optimally in the active portfolio.
- Statement 2: Active and passive portfolios are optimally combined to achieve the highest Sharpe Ratio.
- Statement 3: Investors' degree of risk aversion is needed to construct the optimal risky portfolio which is a combination of active and passive portfolios.

Committee member Sunil Pillai asks Riha, "How do you determine the weights of the mispriced securities to construct the active portfolio?"

Riha responds, "In order to use the Treynor-Black model to determine the weightings of securities in the active portfolio, we need to estimate, for each security, the abnormal return or alpha, the beta, and the variance of returns."

James Warner is the faculty representative on the Committee. He comments that the accuracy of the model depends on the ability of analysts to forecast the alpha for individual securities. Warner wants to know if there is a way to adjust analysts' forecasts based on their past forecasting accuracy.

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19. Does Riha accurately list the required parts of the step of the portfolio management process he discusses with the Investment Committee?
- A. Yes.
  - B. No, because he does not include evaluation of the performance of the portfolio.
  - C. No, because he does not include the selection of assets or managers for the portfolio.
20. With regard to the Endowment Fund's investment objectives and constraints, Riha is *least likely* correct with respect to:
- A. time horizon.
  - B. risk tolerance.
  - C. return objective.
21. In his response to Landis, are Riha's two justifications regarding active management *most likely* accurate?
- A. Yes.
  - B. No, he incorrectly describes the economic argument.
  - C. No, he incorrectly characterizes the empirical evidence.

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22. Which of the three statements that Riha makes regarding the Model he proposes to use is *least likely* correct?

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

23. In his response to Pillai, Riha is *least likely* correct with respect to:

- A. beta.
- B. abnormal return.
- C. variance of returns.

24. Riha's *most* appropriate response to Warner's question would be to indicate that the adjustment can be made using the:

- A. mean absolute deviation of past forecasted alphas.
- B. squared correlation coefficient of the regression used to estimate each equity's alpha.
- C. squared correlation coefficient from the regression of the analysts' past forecast of alpha with actual alpha.



## Sagara Case Scenario

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Sagara is a resource-abundant West African country. Although the majority of its population is impoverished, Sagara has a long history of advanced education and is committed to technological progress. Newly elected President Benjamin Banantoumou appoints Fatima N'Diarra, Ph.D., as Economic Development Secretary, and asks her to help him develop economic policies to promote growth.

Shortly after his election, Banantoumou attends a summit of international leaders, where he learns that a country's government can provide incentives to its population to pursue certain activities. These activities, in turn, should help a country experience consistent economic growth. He cites the following activities as important in fostering consistent economic growth:

- Discovery of new technologies to increase productivity;
- Investment in human capital to boost literacy and technical skills; and
- Increasing consumption through population growth, including immigration.

N'Diarra, who has studied growth accounting and the New Growth Theory, believes that Sagara's primary goal should be to raise its per capita GDP, which depends on increasing the country's growth rate of capital per hour of labor. Her two recommendations, therefore, are to:

1. provide tax incentives to stimulate savings, and
2. invest in education to raise the population's productivity.

Banantoumou is convinced that a significant industrial capital investment will persuade foreign direct investors that he is serious about economic development. He announces that the Sagara government will construct a large tire factory to take advantage of the country's rubber resources. The factory will increase Sagara's per capita investment in physical capital by 10%. Banantoumou expects that due to this investment, per capita GDP will rise at a similar rate.

N'Diarra is not as optimistic. She cautions Banantoumou that, without improvements in technology (and holding all else constant), the rubber factory investment will raise per capita GDP at a lower rate, perhaps by as little as 3%, due to the impact of the law of diminishing returns on capital investment.

N'Diarra knows that according to the Classical Growth Theory gains in per capita GDP are temporary, as the resulting population explosion will lower per capita GDP back to subsistence real wage levels. She considers New Growth Theory to be more realistic, however, believing that gains will spur new technological discoveries which, as public goods, will raise per capita GDP in the long-term. As a result, N'Diarra expects that Sagara's technology-related investments will negate the law of diminishing returns and will raise Sagara's overall standard of living instead.

In the years after Banantoumou's election, Sagara's GDP grows over 10% annually, the per capita GDP increases commensurately, and the country's literacy rate doubles. Banantoumou believes that the next important step is to provide electricity beyond the capital city into rural regions, and begins negotiations with a multinational utility company to be the sole provider of this infrastructure.

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Banantoumou and N'Diarra discuss the role of a new regulatory department, which will oversee the utility company with the objective to create a system that provides the service at a fair price. Banantoumou suggests that a fair price would be to require the utility to set the price equal to its marginal cost. N'Diarra warns Banantoumou that if a monopoly is forced to operate where price is set equal to marginal cost, the monopoly will suffer a loss. Furthermore, N'Diarra states that while regulation of monopolies may appear to control costs, the total social cost of regulation includes numerous unobserved indirect costs that impact delivery of electricity.

Continuing their discussion, N'Diarra notes that attempts to regulate firms' behavior sometimes result in the industry being "captured" by the regulators. Regulators have also been known to sometimes adopt a "share-the-gains, share-the-pains" approach to regulation. She points out that under the capture hypothesis, the government takes full ownership and control of the industry (i.e., captures the industry) while under the share-the-gains, share-the-pains approach, the industry remains privately owned and operated while regulators act in their own interests to keep their jobs in addition to taking into account the often conflicting concerns of legislators, consumers, and the industry.

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25. Which of the activities, cited by Banantoumou after the international leaders' summit, is *least* important for fostering consistent growth?

- A. Discovery of new technologies to increase productivity.
- B. Investment in human capital to boost literacy and technical skills.
- C. Increasing consumption through population growth, including immigration.

26. Are N'Diarra's recommendations appropriate to achieve the primary goal she sets for Sagara?

- A. Yes.
- B. No; because investment in education is subject to the law of diminishing returns.
- C. No; because providing tax incentives to increase savings does not stimulate productivity.

27. Is N'Diarra correct in cautioning Banantoumou about the potential rise in per capita GDP from the tire factory?

- A. Yes.
- B. No, because, the law of diminishing returns only applies to labor.
- C. No, because GDP per capita does not depend on technological change.

28. N'Diarra's understanding of the two growth theories is *most* accurate with regard to:

- A. New Growth Theory only.
- B. Classical Growth Theory only.
- C. both Classical Growth Theory and New Growth Theory.

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29. N'Diarra's warnings regarding the impact of regulation on the utility company's profit/loss and total social costs of regulation are *most likely*:

- A. correct regarding both.
- B. only correct regarding profit/loss.
- C. only correct regarding social costs of regulation.

30. N'Diarra's descriptions of the capture hypothesis and the share-the-gains, share-the-pains approach to regulation are *most accurate* with respect to:

- A. both.
- B. only the capture hypothesis.
- C. only the share-the-gains, share-the-pains approach.

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## Austell Industries Case Scenario

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Gordon Rowland, a non-executive (independent) director of Austell Industries PLC is reviewing information related to the company's executive compensation prior to an upcoming meeting of the Remuneration Committee of the Board. Austell is a large public company with revenues of approximately £8,500 million, trading on the London Stock Exchange. Austell prepares its financial statements in accordance with International Financial Reporting Standards (IFRS).

Existing remuneration has four components: i) fixed compensation which includes base salary and benefits ii) short-term performance linked bonus, iii) long-term performance linked incentives, and iv) post-employment benefits. The purpose of the upcoming meeting is to approve changes to the long-term incentive plan and review the policies and performance related to the post-employment benefits plans.

The current long-term incentive plan (LTIP) provides for management to receive options, as determined by the Board, on ordinary (common) shares. The exercise price of the options is 10% above market price on the day of granting and the options require a service period of 6 years.

The first proposed change would add the requirement of meeting certain financial performance objectives to the conditions to be met before the options can be exercised. The proposed performance metrics relate to Earnings Before Interest, Tax, Depreciation and Amortization (EBITDA) and a target growth in earnings per share.

The second proposed change pertains to the assumptions used in the application of the option pricing model used to value the stock options. These assumptions are reviewed every three years, based on economic factors and share price history. The company currently uses the Black-Scholes model to determine the fair value of granted stock options and Exhibit 1 contains the current and proposed assumptions.

**Exhibit 1**  
**Input assumptions used by Austell Industries PLC**  
**in the valuation of stock options using Black-Scholes Model**

	Current Assumptions	Proposed Assumptions
Risk-free rate	5.0%	4.5%
Volatility	20%	18%
Expected life of options	6 years	6 years
Dividend yield	4%	3.5%

Rowland reviews the information in Exhibit 2 concerning the stock options granted this year under the LTIP.

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**Exhibit 2**  
**Austell Industries PLC**  
**Stock Option Data 2010**

	<b>2010</b>	
	<b>Number of Options</b>	<b>Weighted Average Exercise Price</b>
Balance beginning of the year	3,666,500	£3.06
Granted during the year	872,000	£3.30
Exercised during the year	(278,400)	£2.88
Forfeited during the year	(123,700)	£2.96
Balance end of year	4,136,400	£3.13
Exercisable at end of the year	827,280	£2.90

All options granted during 2010 were granted on 1 July 2010. The market price of the shares at key dates during the year and the fair value of stock options on those dates are in Exhibit 3.

**Exhibit 3**  
**Share Prices and Option Values in 2010**

	<b>Share Price</b>	<b>Option Fair Value</b>
1 January 2010	£2.85	£0.370
1 July 2010	3.00	0.390
31 December 2010	3.06	0.400
Average for 2010	2.97	0.386

Rowland now turns his attention to the information provided about the company pension plan. Increasing pension costs have been a concern for several years. The increasing pension costs combined with the impact on pension assets from the economic downturn had resulted in a funding deficit in the plan during 2010. In an attempt to better control pension costs Austell had made the following changes to the plan over the past two years:

- During 2009 the company had changed the early retirement benefits for members who joined the plan before 2000.
- During 2010 Austell capped the salary increases that were eligible for pensionable benefits to 1%.

These changes were reported as plan amendments in the year made. The status of the plan as at 31 December 2010 is shown in Exhibit 4. Rowland wanted to determine the effect of those changes on the pension expense, operating cash flows and the plan's funding position. He was also aware that accounting policies allowed for some pension related costs to be smoothed and was concerned about whether the poor fund performance, resulting from the impact of the economic downturn, was appropriately reflected in the amounts recorded for the year.

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**Exhibit 4**  
**Austell Pension Plan Disclosures**  
**31 December 2010**

<b>All figures in £ millions</b>	<b>2010</b>	<b>2009</b>
Total market value of assets	3,307.5	4,038.0
Present value of pension liabilities	3,431.3	3,651.2
Net funded pension plan (deficit)	(123.8)	386.8

<b>Pension Plan Assets</b>	<b>2010</b>	<b>2009</b>
Fair value at the beginning of the year	4,038.0	4,182.0
Actual return on assets	(749.0)	(59.0)
Employer contributions	74.0	89.0
Employee contributions	1.5	1.0
Benefits paid	(57.0)	(175.0)
Fair value at the end of the year	3,307.5	4,038.0

<b>Pension Obligation</b>	<b>2010</b>	<b>2009</b>
Present value at beginning of the year	3,651.2	4,408.6
Current service cost	60.0	85.0
Plan amendments	(189.0)	(78.4)
Interest cost	239.4	227.0
Contributions from employees	1.5	1.0
Benefits paid	(57.0)	(175.0)
Actuarial gain	(274.7)	(817.0)
Present value at end of the year	3,431.3	3,651.2

<b>Pension Expense</b>	<b>2010</b>	<b>2009</b>
Current service cost	60.0	85.0
Plan amendments	(189.0)	(78.4)
less Expected return on assets	(267.7)	(274.2)
plus Interest on pension obligation	239.4	227.0
Total	(157.4)	(40.5)

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31. Which of the following statements regarding the first proposed change for the LTIP is *most likely* true? The proposed change will:
- A. no longer require the use of an option pricing model to value the compensation expense.
  - B. increase the incentive for management to intervene in the external financial reporting process.
  - C. result in the expense being recognized at the end of the service period when the performance metrics become known.
32. In the second proposed change for the LTIP, which individual change in the assumptions summarized in Exhibit 1 will *most likely* result in an increase in compensation expense?
- A. Volatility.
  - B. Risk-free rate.
  - C. Dividend yield.
33. The portion of the compensation expense related to the stock option component of the LTIP earned in 2010 is *closest* to:
- A. £28,340.
  - B. £56,680.
  - C. £66,816.
34. The economic expense (in millions) for Austell's pension plan in 2010 is *closest* to:
- A. £436.6.
  - B. £584.6.
  - C. £1,024.4.
35. The *most likely* effect of the poor performance of the pension plan in 2010 is that it:
- A. had no effect on the pension expense.
  - B. increased the pension expense by £749.
  - C. increased the pension expense by £1,017.
36. If Austell uses the indirect method in the preparation of cash from operations, the adjustment to net income in 2010 related to the pension plan, ignoring income taxes, is *closest* to a(n):
- A. decrease of £83.4.
  - B. increase of £157.4.
  - C. decrease of £231.4.

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## Cupernico-Strawberry Case Scenario

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Cupernico, Inc., Strawberry Mines Corp. and Glace, S.A. are global copper mining companies. Cupernico and Strawberry are both headquartered in the U.S. and comply with U.S. GAAP. Glace is a French company that follows International Financial Reporting Standards (IFRS).

### The Initial Agreement

On 1 January 2009 the three companies combined their Peruvian operations into a separate company, AdOre Ventures. AdOre's ownership structure is presented in Exhibit 1. Cupernico is considered to have control over AdOre because of its ownership interest and representation on AdOre's board of directors. Both Strawberry Mines and Glace are considered to have significant influence. At the time the operations were combined, the fair value of each company's assets was equal to their respective reported (book) values. The fair value of assets contributed by each company was in proportion to its ownership interest shown in Exhibit 1.

**Exhibit 1**  
**AdOre Ownership Structure**

Cupernico, Inc.	50%
Strawberry Mines	30%
Glace, S.A.	20%

### The Subsequent Merger

On 1 January 2010, Glace acquired Strawberry Mines. Given AdOre's relatively brief operating history, Glace determined that the fair value of assets remained equal to the value at which they were carried on AdOre's books. Since the merger left Glace and Cupernico with equal economic interests in AdOre, the two negotiated a joint control agreement. As a result, Glace elected to use proportionate consolidation to account for its investment in AdOre.

### AdOre Financial Performance

Certain financial data related to AdOre are presented in Exhibit 2. Since copper prices are set globally in U.S. dollars, AdOre's functional currency is the dollar.

**Exhibit 2**  
**Selected Financial Results for AdOre (in \$ thousands)**

	2010	2009
Revenue	63,546	63,546
Net income	18,182	18,182
Annual dividend (paid on 31 December)	10,000	10,000
Cash flow from operations	35,466	21,818
Long-term debt, 31 December	40,000	40,000
Beginning equity (1 January)	47,378	39,196
Ending equity (31 December)	55,560	47,378

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### Glace 2010 Financial Information

Certain financial data for Glace in 2010, when it used proportional consolidation to account for its investment in AdOre are presented in Exhibit 3.

#### Exhibit 3

##### Selected Financial Information of Glace, S.A. 2010

Net income (in \$ thousands)	\$137,612
Debt/Equity ratio	0.75
Return on equity	20%

37. The *most* appropriate method to account for ownership interests in AdOre for the year 2009 was:

- A. the equity method by all three firms.
- B. proportionate consolidation by Glace.
- C. the consolidation method by Cupernico.

38. On its 2009 income statement, the amount of AdOre's net income (in thousands) that Strawberry Mines should have reported was *closest* to:

- A. \$2,455.
- B. \$3,000.
- C. \$5,455.

39. AdOre's contribution to Cupernico's 2009 U.S. GAAP financial statements *most likely* included (in thousands):

- A. \$14,091 of income.
- B. \$31,773 of revenue.
- C. \$40,000 of long-term debt.

40. In 2009, Strawberry Mines' share of the dividends received from AdOre was *most likely* reported as a(n):

- A. addition to net income.
- B. deduction from its investment in AdOre.
- C. addition to other comprehensive income.

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41. In 2010, if Glace uses the same method to account for its investment in AdOre as Cupernico does, Glace would *most likely* report:

- A. a lower net profit margin and return on equity.
- B. the same net profit margin and return on equity.
- C. a higher net profit margin but the same return on equity.

42. In 2010, if Glace had used the equity method to account for its investment in AdOre, its debt/equity ratio would have been *closest* to:

- A. 0.68.
- B. 0.72.
- C. 0.75.

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## John Earl Case Scenario

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John Earl is a project analyst for Kames Inc. Earl is currently reviewing the projected annual income statements for the five year life of Project #162 to determine the NPV of the project using an annual discount rate of 10% (see Exhibit 1).

**Exhibit 1:**  
**Project #162 Forecasted Income Statements**

	Year 1:	Year 2:	Year 3:	Year 4:	Year 5:
Sales	\$ 300,000	\$ 320,000	\$ 350,000	\$ 390,000	\$ 440,000
Cash Operating Expenses	210,000	224,000	245,000	273,000	308,000
Depreciation	30,000	30,000	30,000	30,000	30,000
Operating Income	60,000	66,000	75,000	87,000	102,000
Interest	13,500	10,800	8,100	5,400	2,700
Taxable Income	46,500	55,200	66,900	81,600	99,300
Tax (40%)	18,600	22,080	26,760	32,640	39,720
Net Income	27,900	33,120	40,140	48,960	59,580

The project will require an increase in fixed assets of \$150,000 that will be fully depreciated. Current assets are expected to increase by \$80,000 and current liabilities are expected to increase by \$45,000. This increase in net working capital will be recovered when the project is finished.

Just prior to completing the analysis, Earl finds out that the fixed assets can be depreciated using an accelerated method (see Exhibit 2).

**Exhibit 2:**  
**Project #162 Forecasted Income Statements with Accelerated Depreciation**

	Year 1:	Year 2:	Year 3:	Year 4:	Year 5:
Sales	\$ 300,000	\$ 320,000	\$ 350,000	\$ 390,000	\$ 440,000
Cash Operating Expenses	210,000	224,000	245,000	273,000	308,000
Depreciation	49,995	66,675	22,215	11,115	0
Operating Income	40,005	29,325	82,785	105,885	132,000
Interest	13,500	10,800	8,100	5,400	2,700
Taxable Income	26,505	18,525	74,685	100,485	129,300
Tax (40%)	10,602	7,410	29,874	40,194	51,720
Net Income	15,903	11,115	44,811	60,291	77,580

Given the use of the accelerated depreciation method, Earl concludes that the NPV of Project #162 increases to \$146,445.

In an initial discussion with a fellow analyst, David North, about Project #162, Earl tells North: "I have prepared the analysis using nominal values and a nominal discount rate".

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North responds:

“Even though the analysis is in nominal terms, the discount rate should be increased by an inflation rate of 2% based on the historical inflation rate.”

Later Earl and North continue their discussion. Earl explains:

“I intend to also calculate the economic profit by subtracting the dollar cost of capital from the net income. Do you have any further suggestions for analysis?”

North replies:

“I suggest you determine the key inputs for the analysis and then examine each input separately by varying its value between plus or minus one or two percent. This will give you better insight about the project’s profitability.”

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43. Given the information in Exhibit 1, the after-tax operating cash flow (in thousands) for Year 1 for Project #162 is *closest* to:

- A. \$36.0.
- B. \$66.0.
- C. \$71.4.

44. The initial investment outlay (in thousands) for Project #162 is *closest* to:

- A. \$185.
- B. \$230.
- C. \$275.

45. By switching to an accelerated depreciation method, the increase in NPV for Project #162 is *closest* to:

- A. \$4,445.
- B. \$6,667.
- C. \$11,112.

46. In their initial discussion, North’s response to Earl is *most likely*:

- A. correct.
- B. incorrect because the discount rate does not need to be adjusted.
- C. incorrect because the inflation rate adjustment should be based on expected inflation.

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47. Earl's statement in regard to economic profit is most likely:

- A. correct.
- B. incorrect because it is a residual income calculation.
- C. incorrect because the calculation should not be based on net income.

48. North's last statement *most* accurately suggests using:

- A. scenario analysis.
- B. sensitivity analysis.
- C. Monte Carlo analysis.

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## Abhishek Alahtab Case Scenario

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### Cuyahoga River Navigators, Inc. (CRN)

Cleveland, OH, USA

Ticker: CRN

Current Market Price: \$24.50

Current Recommendation: Hold

Cuyahoga River Navigators, Inc. (CRN) has a fleet of 30 watercraft consisting of riverboats, yachts, barges, and ships navigating the Cuyahoga River and Lake Erie. It is the market leader in dinner cruises and other recreational sailings on the river and the lake. Recently, CRN benefited from various positive developments including designation of the Cuyahoga as an American Heritage River, the Green Bulkhead Project, National Public Radio program about Cleveland-Cuyahoga County Port Authority and initiatives for a cross-lake ferry linking Cleveland to picturesque Port Stanley, Ontario, Canada. CRN is a high beta stock and its market liquidity is quite low. Insiders own over 50% and institutions own fewer than 30% of the firm's common stock. The company pays dividends and it follows a constant payout ratio policy. The company's management is confident of a huge increase in revenue growth over the next four to five years. To meet the capital needs for growth opportunities, CRN's management is contemplating issuance of debt or common stock.

Abhishek Alahtab is a Junior Equity Analyst at Cleveland Investment Research, LLC, and he follows regional small-cap stocks trading the Over-the-Counter market. Amit Jatin, a Senior Equity Analyst at Cleveland Investment Research, asks Alahtab to evaluate CRN and prepare a research report for updating the firm's recommendation about the stock. He gives Alahtab CRN's financial data contained in Exhibits 1, and 2.

Alahtab uses the Gordon growth model to estimate CRN's intrinsic value. He takes the firm's sustainable growth rate for the Year 2010 as a measure of dividend growth. Using the Capital Asset Pricing Model (CAPM) he arrives at 11% as the required rate of return on the stock.

Jatin disagrees with Alahtab's preference for the Gordon growth model. He thinks that CRN's stock should be valued using sophisticated techniques that correctly account for the huge increase in revenues expected over the next four to five years. In particular, he suggests a couple of two-stage valuation models—the H-model and the free cash flow to equity (FCFE) model. Upon a closer examination of the data and expectations of high growth from the increased tourism and transportation on the revitalized Cuyahoga River, Jatin suggests that Alahtab incorporate the following as inputs into his H-model and FCFE model computations.

- A growth rate of 20% per year over the next four years (2011 thru 2014) and a 6% constant growth rate beyond the Year 2014
- Estimate of FCFE: \$0.96 per share for 2011
- Addition of a small-firm risk premium of 2% to the rate of return on the stock
- A tax rate of 35%

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Additionally, Jatin makes the following three statements concerning the valuation models that he prefers.

1. The H-model assumes that the dividend growth begins at a high rate and declines linearly throughout the super-normal growth period until it reaches a normal growth rate at the end. A smoother transition to the mature phase growth rate would be more realistic than the erratic growth rate in dividends displayed by the data.
2. The free cash flow models would be appropriate because free cash flow is not impacted by the firm's dividend payout policy but any stock issuance in the future can have a significant impact on cash flow available to common stockholders.
3. I would further caution that an increase in leverage will lead to a decrease in FCFE in the year debt is issued, thereby potentially reducing the value per share.

Alahtab reevaluates the stock following Jatin's suggestions but prior to issuing the new price target and recommendation on CRN, Jatin and Alahtab meet with Julia Lederman, the Chief Investment Officer at Cuyahoga Investment Research, for her approval. By taking a close look at the data and analyses, Lederman makes the following three statements:

1. I suggest we use forward looking beta by making the Blume adjustment to CRN's raw beta. The adjustment increases the required return on CRN's stock as well as its intrinsic value.
2. It's good to see an adjustment for small-firm risk premium, but the Pastor-Stambaugh model should be used for estimating the required return on CRN's stock in order to capture the liquidity premium given the stock's low liquidity.
3. I also suggest using a residual income model because, unlike free cash flows, the accounting data used in residual income models may not require significant adjustments.

The meeting concludes with the understanding that Alahtab will redo the analyses per Lederman's suggestions and bring the results back for her approval.

**Exhibit 1**  
**Cuyahoga River Navigators, Inc. (CRN)**  
**Income Statement Excerpts**  
**Years ending 31 December (in millions)**

	<b>2010</b>	<b>2009</b>
EBITDA	\$ 275.0	\$ 250.0
Depreciation expense	<u>82.5</u>	<u>75.0</u>
Operating income	192.5	175.0
Interest expense	<u>16.0</u>	<u>14.9</u>
Income before taxes	176.5	160.2
Income taxes	<u>56.5</u>	<u>48.0</u>
Net income	\$ <u>120.0</u>	\$ <u>112.1</u>
Common dividend	\$ 48.0	\$ 44.8

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**Exhibit 2**  
**Cuyahoga River Navigators, Inc. (CRN)**  
**Balance Sheet**  
**Years ending 31 December (in millions)**

Assets	2010	2009
Cash	\$ 38.0	\$ 34.5
Accounts Receivable	126.5	115.0
Inventory	<u>189.7</u>	<u>172.5</u>
Current assets	354.2	322.0
Fixed assets	1,168.3	1,003.0
Less: Accumulated depreciation	<u>257.5</u>	<u>175.0</u>
Total assets	\$ <u>1,265.0</u>	\$ <u>1,150.0</u>
Accounts payable	\$ 128.2	\$ 97.7
Notes payable	<u>20.0</u>	<u>15.0</u>
Current liabilities	148.2	112.7
Long-term debt	157.5	150.0
Common stock (50 million shares)	800.0	800.0
Retained earnings	159.3	87.3
Total liabilities and equity	\$ <u>1,265.0</u>	\$ <u>1,150.0</u>

49. According to the Gordon growth model and the inputs used by Alahtab, CRN's intrinsic value per share as of 2010 is *closest* to:
- A. \$16.80.  
B. \$27.43.  
C. \$29.49.
50. Using the H-model and Jatin's estimates for growth and required return on the stock, the intrinsic value of CRN's stock as of 2010 is *closest* to:
- A. \$17.55.  
B. \$18.38.  
C. \$22.22.

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51. Using the data in Exhibits 1, and 2 and the tax rate suggested by Jatin, CRN's FCFE per share for 2010 is *closest* to:

- A. \$0.62.
- B. \$0.75.
- C. \$0.85.

52. Using Jatin's 2011 estimate for FCFE per share, and his other suggested inputs for growth and required return on the stock, the intrinsic value of CRN's stock as of 2010 is *closest* to:

- A. \$17.37.
- B. \$19.15.
- C. \$21.27.

53. In regard to his three statements concerning valuation models, Jatin is *most* accurate with respect to statement:

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

54. In regard to her three statements, Lederman is *most* accurate with respect to statement:

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

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## DongSun Electronics Case Scenario

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Kim Chung-hee, CFA, is an equity analyst with Incheon Securities. Kim is writing a research report on DongSun Electronics, a South Korean company that is dual-listed on a U.S. exchange and complies with U.S. GAAP. As part of his analysis, Kim wants to determine the intrinsic value of DongSun's common shares under both residual income and comparables valuation methods. He will also compare his earnings and return forecasts for DongSun with the consensus forecasts.

While examining DongSun's financial data, Kim notices that the company is underutilizing its debt capacity and the debt ratio is well below the optimal level. To support the valuation process, Kim assembles in Exhibit 1 selected financial information from DongSun's 2010 and 2009 audited financial statements. Other financial data pertaining to the valuation of DongSun's shares at 31 December 2010 are shown in Exhibit 2.

**Exhibit 1**  
**Selected Information from DongSun's 2010 and 2009 Financial Statements**  
**South Korean Won (KRW) Amounts in Millions**

	<u>For the year ended</u> <u>31 December 2010</u>	
Net income	KRW 105,000	
Dividends	KRW 42,000	
Number of common shares outstanding	30,000,000	
	<u>KRW at 31 December,</u>	
	<u>2010</u>	<u>2009</u>
Total working capital	325,000	282,000
Total net fixed assets	875,000	855,000
Total long-term debt	450,000	450,000
Total stockholders' equity	750,000	687,000

**Exhibit 2**  
**Other Financial Data for DongSun Electronics**

Pre-tax cost of long-term debt	6%
Required return on equity	12%
Income tax rate	30%
Industry P/E ratio at 31 December 2010	18.1
Market price per share at 31 December 2010	KRW 62,000

### Kim's forecast

At 31 December 2010, Kim forecasts that DongSun will generate an expected long-term return on equity (ROE) of 15%, and will retain 60% of its earnings over the long term. Based on this information, Kim forecasts the company's sustainable growth rate.

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### Consensus forecast of analysts following DongSun

The consensus forecast for DongSun at 31 December 2010 included:

- earnings per share (EPS) of KRW 4,000 for 2010 and KRW 4,600 for 2011;
- dividends per share of KRW 1,600 for 2010 and KRW 1,840 for 2011;
- after 2011, DongSun's earnings and dividends will grow 8% per year.

Before applying the residual income approach to DongSun, Kim wants to determine whether adjustments should be made to the financial statement information in Exhibit 1. For this purpose, Kim considers three possible violations to clean surplus accounting:

1. Marketable securities classified as available-for-sale.
2. Foreign currency transactions with customers and suppliers.
3. Foreign currency translation adjustments from the consolidation of any self-sustaining subsidiary companies [where the local currency is the functional currency].

Kim's supervisor is concerned that the residual income model may not apply, and asks Kim to investigate possible clean surplus violations. Upon completing the analysis Kim concludes that the net effects are not material to the financial statements and, accordingly, makes no adjustments to the information in Exhibit 1.

Kim states the consensus forecast is too pessimistic with respect to DongSun's residual income prospects after 2011. In a recent conference call, DongSun's management presented their plan to improve future profitability, the Economic Value Added (EVA) in particular, by focusing on the following three strategic company goals:

1. Increase financial leverage to the optimal level
2. Implement efficiencies in administrative functions
3. Reduce interest costs by issuing preferred stock and paying down debt

As a final question Kim's supervisor asks him why he prefers the residual income model to other approaches.

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55. DongSun's residual income (in KRW millions) in 2010 is *closest* to:

- A. 15,000.
- B. 22,560.
- C. 63,000.

56. Using Kim's forecast and the information in Exhibit 2, the justified forward P/E ratio for DongSun common stock at 31 December 2010 is *closest* to:

- A. 10.0.
- B. 13.3.
- C. 15.5.

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57. Using the information in Exhibit 2, the consensus analysts' forecasts and the single-stage (constant growth) residual income approach, the justified price-to-book ratio at 31 December 2010 for DongSun common stock is *closest* to:
- A. 1.33.
  - B. 1.75.
  - C. 2.48.
58. With respect to the three items that Kim examined, which item is *least likely* to result in a clean surplus accounting violation?
- A. Item 1.
  - B. Item 2.
  - C. Item 3.
59. Which of management's three strategic goals will *least likely* result in a higher EVA for DongSun?
- A. Strategy 1
  - B. Strategy 2
  - C. Strategy 3
60. Which of the following is the *most* appropriate response Kim can make to his supervisor's final question?
- A. The analyst need not adjust book value of common equity for off-balance sheet items.
  - B. The analyst need not adjust the book value of common equity for non-recurring items.
  - C. The interest expense in the residual income model correctly captures the cost of debt capital.

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