

Question #1 of 133

Question ID: 463100

If the growth rate in dividends is too high, it should be replaced with:

- ✓ **A) a growth rate closer to that of gross domestic product (GDP).**
- ✗ **B) the growth rate in earnings per share.**
- ✗ **C) the average growth rate of the industry.**

Explanation

A firm cannot, in the long term, grow at a rate significantly greater than the growth rate of the economy in which it operates. If the growth rate in dividends is too high, then it is best replaced by a growth rate closer to that of GDP.

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Question ID: 463117

An analyst for a small European investment bank is interested in valuing stocks by calculating the present value of its future dividends. He has compiled the following financial data for Ski, Inc.:

	<i>Earnings per Share (EPS)</i>
Year 0	\$4.00
Year 1	\$6.00
Year 2	\$9.00
Year 3	\$13.50

Note: Shareholders of Ski, Inc., require a 20% return on their investment in the high growth stage compared to 12% in the stable growth stage. The dividend payout ratio of Ski, Inc., is expected to be 40% for the next three years. After year 3, the dividend payout ratio is expected to increase to 80% and the expected earnings growth will be 2%. Using the information contained in the table, what is the value of Ski, Inc.'s, stock?

- ✗ **A) \$43.04.**
- ✗ **B) \$39.50.**
- ✓ **C) \$71.38.**

Explanation

The dividends in the next four years are:

Year 1: $6 \times 0.4 = 2.4$
Year 2: $9 \times 0.4 = 3.6$
Year 3: $13.5 \times 0.4 = 5.4$

Year 4: $(13.5 \times 1.02) \times 0.8 = 11.016$

The terminal value of the firm (in year 3) is $11.016 / (0.12 - 0.02) = 110.16$. Value per share = $2.4 / (1.2)^1 + 3.6 / (1.2)^2 + 5.4 / (1.2)^3 + 110.16 / (1.2)^3 = \71.38 .

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Question ID: 463067

The value per share for Burton, Inc. is \$32.00 using the Gordon Growth model. The company paid a dividend of \$2.00 last year. The estimates used to calculate the value have changed. If the new required rate of return is 12.00% and expected growth rate in dividends is 6%, the value per share will *increase* by:

- ☒ A) 4.17%.
- ☐ B) 9.51%.
- ☒ C) 10.42%.

Explanation

The value per share using the new estimates is $\$35.33 = [\$2.0(1.06) / 0.12 - 0.06]$ and the percentage increase in the value per share will be $10.42\% = [(35.33 - 32.00) / 32.00] \times 100\%$.

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Question ID: 463095

If the value of an 8%, fixed-rate, perpetual preferred share is \$134, and the par value is \$100, what is the required rate of return?

- ☒ A) 6%.
- ☐ B) 8%.
- ☐ C) 7%.

Explanation

The required rate of return is 6%: $V_0 = (\$100\text{par} \times 8\%) / r = \134 , $r = 5.97\%$

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Question ID: 463030

Multi-stage growth models can become computationally intensive. For this reason they are often referred to as:

- ☐ A) quadratic models.
- ☐ B) R-squared models.
- ☒ C) spreadsheet models.

Explanation

The computationally intensive nature of these models make them a perfect application for a spreadsheet program, hence the name spreadsheet models.

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Question ID: 463146

Which of the following is *least likely* a valid approach to determining the appropriate discount rate for a firm's dividends?

- ☒ A) Capital asset pricing model (CAPM).
- ☐ B) Arbitrage pricing theory (APT).
- ☒ C) Free cash flow to firm (FCFF).

Explanation

FCFF is another discounted cash flow model, not a method to determine required returns. Each of the other answers is a valid approach to determining an appropriate discount rate.

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Question ID: 463103

Which of the following models would be *most* appropriate for a firm that is expected to grow at an initial rate of 10%, declining steadily to 6% over a period of five years, and to remain steady at 6% thereafter?

- ☒ A) A two-stage model.
- ☐ B) The Gordon growth model.
- ☒ C) The H-model.

Explanation

The H-model is the best answer, as it avoids an immediate drop to 6% like a two-stage would. The Gordon growth model would not be appropriate.

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Question ID: 463071

Suppose the equity required rate of return is 10%, the dividend just paid is \$1.00 and dividends are expected to grow at an annual rate of 6% forever. What is the expected price at the end of year 2?

- ☒ A) \$29.78.
- ☐ B) \$27.07.
- ☐ C) \$28.09.

Explanation

The terminal value is \$29.78, and that is the price an investor should be willing to pay at the end of year 2. The correct answer is shown below.

Year	Dividend
1	\$1.0600
2	\$1.1236
3	\$1.1910

$$V_2: \$1.191/(0.10 - 0.06) = \$29.78$$

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Question ID: 463107

Which of the following models would be *most* appropriate for a firm that is expected to grow at 8% for the next three years, and at 6% thereafter?

- ☒ A) The H-model.
- ☐ B) The Gordon growth model.
- ☒ C) A two-stage model.

Explanation

A firm that is expected to experience two growth stages with a fixed rate of growth for each stage should be evaluated with a two-stage dividend discount model.

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Question ID: 463058

Deployment Specialists pays a current (annual) dividend of \$1.00 and is expected to grow at 20% for two years and then at 4% thereafter. If the required return for Deployment Specialists is 8.5%, the current value of Deployment Specialists is *closest* to:

- ☒ A) \$30.60.
- ☐ B) \$33.28.
- ☐ C) \$25.39.

Explanation

First estimate the amount of each of the next two dividends and the terminal value. The current value is the sum of the present value of these cash flows, discounted at 8.5%.

$$V_0 = \frac{1.20}{1.085} + \frac{1.44}{(1.085)^2} + \frac{1.04(1.44)}{(0.085 - 0.04)(1.085)^2}$$
$$V_0 = 30.60$$

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Question ID: 463111

Most firms follow a pattern of growth that includes several stages. The second stage of growth is referred to as the:

- ☐ A) H-stage.
- ☐ B) mature stage.
- ☒ C) transitional stage.

Explanation

The second stage is often referred to as the transitional stage. During this stage, the firm's growth begins to slow as competitive forces build.

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Question ID: 463097

The Gordon growth model is well suited for:

- ✓ **A) utilities.**
- x **B) telecom companies.**
- x **C) biotech firms.**

Explanation

Gordon growth model is best suited to firms that have a stable growth comparable to or lower than the nominal growth rate in the economy and have well established dividend payout policies. Utilities, with their regulated prices, stable growth and high dividends, are particularly well suited for this model.

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Question ID: 463060

If a stock expects to pay dividends of \$2.30 per share next year, what is the value of the stock if the required rate of return is 12% and the expected growth rate in dividends is 4%?

- x **A) \$29.90.**
- x **B) \$19.17.**
- ✓ **C) \$28.75.**

Explanation

Using the Gordon growth model, the value per share = $DPS_1 / (r - g) = 2.30 / (0.12 - 0.04) = \28.75 .

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Question ID: 463118

A company's stock beta is 0.76, the market return is 10%, and the risk-free rate is 4%. The stock will pay no dividends for the first two years, followed by a \$1 dividend and \$2 dividend, respectively. An investor expects to sell the stock for \$10 at the end of four years. What price is an investor willing to pay for this stock?

- ✓ **A) \$9.42.**
- x **B) \$10.16.**
- x **C) \$11.03.**

Explanation

The first step is to determine the required rate of return as $4\% + [(10\% - 4\%) \times 0.76]$ or 8.56% per year. The second step is to determine the present value of all future expected cash flows, including the terminal \$10 stock price, discounted back four years to today. The solution is shown below.

Year CF

1 0

2 0

3 1

4 2

4 10

$$0/1.0856 + 0/(1.0856)^2 + 1/(1.0856)^3 + (2 + 10)/(1.0856)^4 = \$9.42$$

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Question ID: 463152

If a firm has a return on equity of 15%, a current dividend of \$1.00, and a sustainable growth rate of 9%, what are the firm's current earnings?

☒ A) \$1.50.

☒ B) \$2.50.

☒ C) \$1.75.

Explanation

The earnings can be determined by solving for earnings in the sustainable growth formula:

$$9\% = [1 - (\$1 / \$Earnings)] \times 0.15 \text{ or } \$1 / 0.4 = \$Earnings = \$2.50$$

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Question ID: 463116

An analyst has compiled the following financial data for ABC, Inc.:

ABC, Inc. Valuation Scenarios				
Item	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Year 0 Dividends per Share	\$1.50	\$1.50	\$1.50	\$1.50
Long-term Treasury Bond Rate	4.0%	4.0%	5.0%	5.0%
Expected Return on the S&P 500	12.0%	12.0%	12.0%	12.0%
Beta	1.4	1.4	1.4	1.4
g (growth rate in dividends)	0.0%	3.0%	Years 1-3, g=12.0% After Year 3, g=3.0%	Year 1, g=20% Year 2, g=18% Year 3, g=16% Year 4, g=9% Year 5, g=8% Year 6, g=7%

				After Year 6, g=4%
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If year 0 dividend is \$1.50 per share, the required rate of return of shareholders is 15.2%, what is the value of ABC, Inc.'s stock price using the H-Model? Assume that the growth in dividends has been 20% for the last 8 years, but is expected to decline 3% per year for the next 5 years to a stable growth rate of 5%.

✓ **A) \$20.95.**

x **B) \$24.26.**

x **C) \$19.85.**

Explanation

Use the H-Model to value the firm. The H-Model assumes that the initial growth rate (g_a) will decline linearly to the stable growth rate (g_n). The high growth period is assumed to last $2H$ years. Hence, the value per share = $DPS_0(1 + g_n) / (r - g_n) + DPS_0 \times H \times (g_a - g_n) / (r - g_n)$

$$(1.5 \times 1.05) / (0.152 - 0.05) + [1.5 \times (5 / 2) \times (0.20 - 0.05)] / (0.152 - 0.05)$$

$$1.575 / 0.102 + 0.5625 / 0.102$$

$$15.44 + 5.51 = \$20.95$$

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Question ID: 463138

If we know the forecast growth rates for a firm's dividends and the current dividends and current value, we can determine the:

✓ **A) required rate of return.**

x **B) sustainable growth rate.**

x **C) net margin of the firm.**

Explanation

Just as we can determine the current value of the shares from the current dividends, growth forecasts and required return, we can solve for any one of them if we know the other three factors.

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Question ID: 463130

Given that a firm's current dividend is \$2.00, the forecasted growth is 7% for the next two years and 5% thereafter, and the current value of the firm's shares is \$54.50, what is the required rate of return?

x **A) Can't be determined.**

x **B) 10%.**

✓ **C) 9%.**

Explanation

The equation to determine the required rate of return is solved through iteration.

$$\$54.50 = \$2(1.07) / (1 + r) + \$2(1.07)^2 / (1 + r)^2 + \{[\$2(1.07)^2(1.05)] / (r - 0.05)\} / [(1 + r)^2]$$

Through iteration, $r = 9\%$

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Question ID: 463158

Heather Callaway, CFA, is concerned about the accuracy of her valuation of Crimson Gate, a fast-growing telecommunications-equipment company that her firm rates as a top buy. Crimson currently trades at \$134 per share, and Callaway has put together the following information about the stock:

Most recent dividend per share	\$0.55
Growth rate, next 2 years	30%
Growth rate, after 2 years	12%
Trailing P/E	25.6
Financial leverage	3.4
Sales	\$1198 per share
Asset turnover	11.2
Estimated market rate of return	13.2%

Callaway's employer, Bates Investments, likes to use a company's sustainable growth rate as a key input to obtaining the required rate of return for the company's stock.

Crimson's sustainable growth rate is *closest* to:

- ☒ A) 13.2%.
- ☒ B) 16.6%.
- ☒ C) 14.8%.

Explanation

Sustainable growth rate = ROE × retention rate

Earnings per share = price / (P/E) = \$134 / 25.6 = \$5.23

The retention rate represents the portion of earnings not paid out in dividends. = $(5.23 - 0.55) / 5.23 = 0.89$ or 89%

ROE = profit margin × asset turnover × financial leverage

ROE = $5.23 / 1198 \times 11.2 \times 3.4 = 16.6\%$

Sustainable growth rate = $89\% \times 16.6\% = 14.8\%$

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Question ID: 472544

Which of the following dividend discount models (DDMs) is most appropriate for modeling a mature company?

- ☐ A) H-model.
- ☒ B) Gordon growth model.
- ☐ C) Two-stage DDM.

Explanation

The Gordon growth model assumes that dividends grow at a constant rate forever. It is most suited for mature companies with low to moderate growth rates and well-established dividend payout policies.

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Question ID: 463093

A \$100 par, perpetual preferred share pays a fixed dividend of 5.0%. If the required rate of return is 6.5%, what is the current value of the shares?

- ☒ A) \$76.92.
- ☐ B) \$88.64.
- ☐ C) \$100.00.

Explanation

The current value of the shares is \$76.92:

$$V_0 = (\$100 \times 0.05) / 0.065 = \$76.92$$

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Question ID: 463066

Jax, Inc., pays a current dividend of \$0.52 and is projected to grow at 12%. If the required rate of return is 11%, what is the current value based on the Gordon growth model?

- ☐ A) \$58.24.
- ☐ B) \$39.47.
- ☒ C) unable to determine value using Gordon model.

Explanation

The Gordon growth model cannot be used if the growth rate exceeds the required rate of return.

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Question ID: 463155

The sustainable growth rate, g , equals:

- ☐ A) pretax margin divided by working capital.
- ☐ B) dividend payout rate times the return on assets.

✓ **C)** earnings retention rate times the return on equity.

Explanation

The formula for sustainable growth is: $g = b \times \text{ROE}$, where g = sustainable growth, b = the earnings retention rate, and ROE equals return on equity.

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Question ID: 463154

Sustainable growth is the rate that earnings can grow:

✓ **A) indefinitely without altering the firm's capital structure.**

x **B)** with the current assets.

x **C)** without additional purchase of equipment.

Explanation

Sustainable growth is the rate of earnings growth that can be maintained indefinitely without the addition of new equity capital.

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Question ID: 463115

Q-Partners is expected to have earnings in ten years of \$12 per share, a dividend payout ratio of 50%, and a required return of 11%. At that time, ROE is expected to fall to 8% in perpetuity and the trailing P/E ratio is forecasted to be eight times earnings. The terminal value at the end of ten years using the P/E multiple approach and DDM is *closest to*:

<u>P/E multiple</u>	<u>DDM</u>
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✓ A) 96.00	89.14
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x B) 96.32	85.71
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x C) 96.32	89.14
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Explanation

Terminal Value = P/E × EPS
= 8 × 12 = 96

$$D_{10} = 0.5 \times 12 = 6$$

$$g = 0.50 \times 0.08 = 4\%$$

$$P_{11} = \frac{D_{10} (1 + g)}{r - g}$$

$$= \frac{6(1.04)}{(0.11 - 0.04)}$$

$$= 89.14$$

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Question ID: 463109

The most appropriate model for analyzing a profitable high-tech firm is the:

- ✓ **A) three-stage dividend discount model (DDM).**
- ✗ **B) H-model.**
- ✗ **C) zero growth cash flow model.**

Explanation

Most of high-tech firms grow at very high rates and are expected to grow at those rates for an initial period. These rates are expected to decline as the firm grows in size and loses its competitive advantage. Of the models provided, the three-stage DDM is most appropriate to analyze high-tech firms because of its flexibility. H-model may not be appropriate, because a linear decline from the high growth rate to the constant growth rate cannot be assumed and the dividend payout ratio is fixed.

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Question ID: 463147

Financial models such as the DDM represent a cornerstone of equity valuation from an academic standpoint. But in the real life, many analysts do not use the DDM. The *least likely* reason for this is:

- ✗ **A) some of the assumptions required are impractical.**
- ✓ **B) modern research has shown that many of the old standbys do not work.**
- ✗ **C) the model lacks the flexibility required to model values in the real world.**

Explanation

The DDM requires assumptions that many analysts find impractical. In addition, the model lacks the flexibility to adapt to changing circumstances. Both of these problems can be overcome, to a large extent, by using spreadsheet modeling to forecast cash flows and other variables.

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Question ID: 463032

If an investor were attempting to capture an asset's alpha returns, the expected holding period return (HPR) would be:

- ✗ **A) lower than the required return.**
- ✗ **B) the same as the required return.**
- ✓ **C) higher than the required return.**

Explanation

Alpha returns are returns in addition to the required returns, so the expected HPR would be higher than the required return.

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Question ID: 463087

A firm has the following characteristics:

- Current share price \$100.00.
- Current earnings \$3.50.
- Current dividend \$0.75.
- Growth rate 11%.
- Required return 13%.

Based on this information and the Gordon growth model, what is the firm's justified trailing price to earnings (P/E) ratio?

- ☐ A) 8.9.
- ☐ B) 11.3.
- ☒ C) 11.9.

Explanation

The justified trailing P/E is 11.9:

$$P_0 / E_0 = [(\$0.75)(1 + 0.11) / \$3.50] / (0.13 - 0.11) = 11.8929$$

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Question ID: 463031

Historical information used to determine the long-term average returns from equity markets may suffer from survivorship bias, resulting in:

- ☐ A) deflating the mean return.
- ☒ B) inflating the mean return.
- ☐ C) unpredictable results.

Explanation

Survivorship bias refers to the weeding out of underperforming firms, resulting in an inflated value for the mean return.

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Question ID: 463164

In its most recent quarterly earnings report, Smith Brothers Garden Supplies said it planned to increase its dividend at an annual rate of 5% for the foreseeable future. Analyst Anton Spears is using a required return of 9.5% for Smith Brothers stock. Smith Brothers stock trades for \$52.17 per share and earned \$3.01 per share over the last 12 months. The company paid a dividend of \$2.15 per share during the last 12-month period, and its dividend-growth rate for the last five years was 9.2%. Using the Gordon Growth model, the share price for Smith Brothers stock is *most likely*:

- ☒ A) overvalued.
- ☐ B) correctly valued.
- ☐ C) undervalued.

Explanation

The Gordon Growth model is as follows:

$$\text{Value} = [\text{dividend} \times (1 + \text{dividend growth rate})] / [\text{required return} - \text{growth rate}]$$

$$\begin{aligned}\text{Value} &= [2.15 \times 1.05] / [0.095 - 0.05] \\ &= 2.2575 / [0.095 - 0.05] \\ &= 50.17\end{aligned}$$

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Question ID: 463143

Given an equity risk premium of 3.5%, a forecasted dividend yield of 2.5% on the market index and a U.S. government bond yield of 4.5%, what is the consensus long-term earnings growth estimate?

- ✓ **A) 5.5%.**
- ✗ B) 10.5%.
- ✗ C) 8.0%.

Explanation

Equity risk premium = forecasted dividend yield + consensus long term earnings growth rate - long-term government bond yield.

Therefore,

Consensus long term earnings growth rate =

Equity risk premium - forecasted dividend yield + long-term government bond yield

Consensus long term earnings growth rate = 3.5% - 2.5% + 4.5% = 5.5%

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Question ID: 463148

Relative to traditional financial models like the dividend discount model, the biggest advantage of spreadsheet modeling is:

- ✗ A) simplicity of computations.
- ✓ **B) quantity of computations.**
- ✗ C) accuracy of computations.

Explanation

Computations are no simpler or more complicated on a spreadsheet as opposed to a calculator. Accuracy tends to be improved with the use of a spreadsheet, because you don't have to punch numbers into a calculator at any stage. However, someone truly concerned with accuracy can do a fine job with a calculator. The spreadsheet stands out when it comes to quantity. Analysts can program many permutations and scenarios into a spreadsheet, using minutes to do what would take hours or even days or weeks with a calculator.

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Question ID: 463038

Which of the following dividend discount models has the limitation that a sudden *decrease* to the lower growth rate in the second stage may NOT be realistic?

- ✓ **A) Two-stage dividend discount model.**
- ✗ B) Gordon growth model.

☒ C) H model.

Explanation

The two-stage DDM has the limitation that a sudden decrease to the lower growth rate in the second stage may not be realistic. Further, the model has the difficulty in trying to estimate the length of the high-growth stage.

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Question ID: 463039

Which of the following is *least likely* a potential problem associated with the three-stage dividend discount model (DDM)? The:

- ☒ A) stable period payout ratio may be too high resulting in an extremely low value.
- ☒ B) beta in the stable period is too high, resulting in an extremely low stock value.
- ☒ C) high-growth and transitional periods are too long, resulting in an extremely high stock value.

Explanation

If the stable period payout ratio is too low it may result in an extremely low value because the terminal value will be lower due to the smaller dividends being paid out.

Question #36 of 133

Question ID: 463091

A firm has the following characteristics:

- Current share price \$100.00.
- One-year earnings \$3.50.
- One-year dividend \$0.75.
- Required return 13%.
- Justified leading price to earnings 10.

Based on the dividend discount model, what is the firm's assumed growth rate?

- ☒ A) 12.4%.
- ☒ B) 8.6%.
- ☒ C) 10.9%.

Explanation

The assumed growth rate is 10.9%:

$$P_0 / E_1 = (\$0.75 / \$3.50) / (0.13 - g) = 10, g = 10.86\%$$

Questions #37-42 of 133

Julie Davidson, CFA, has recently been hired by a well-respected hedge fund manager in New York as an investment analyst. Davidson's responsibilities in her new position include presenting investment recommendations to her supervisor, who is a

principal in the firm. Davidson's previous position was as a junior analyst at a regional money management firm. In order to prepare for her new position, her supervisor has asked Davidson to spend the next week evaluating the fund's investment policy and current portfolio holdings. At the end of the week, she is to make at least one new investment recommendation based upon her evaluation of the fund's current portfolio. Upon examination of the fund's holdings, Davidson determines that the domestic growth stock sector is currently underrepresented in the portfolio. The fund has stated to its investors that it will aggressively pursue opportunities in this sector, but due to recent profit-taking, the portfolio needs some rebalancing to increase its exposure to this sector. She decides to search for a suitable stock in the pharmaceuticals industry, which, she believes, may be able to provide an above average return for the hedge fund while maintaining the fund's stated risk tolerance parameters.

Davidson has narrowed her search down to two companies, and is comparing them to determine which is the more appropriate recommendation. One of the prospects is Samson Corporation, a mid-sized pharmaceuticals corporation that, through a series of acquisitions over the past five years, has captured a large segment of the flu vaccine market. Samson financed the acquisitions largely through the issuance of corporate debt. The company's stock had performed steadily for many years until the acquisitions, at which point both earnings and dividends accelerated rapidly. Davidson wants to determine what impact any additional acquisitions will have on Samson's future earnings potential and stock performance.

The other prospect is Wellborn Products, a manufacturer of a variety of over-the-counter pediatric products. Wellborn is a relatively new player in this segment of the market, but industry insiders have confidence in the proven track record of the company's upper management who came from another firm that is a major participant in the industry. The market cap of Wellborn is much smaller than Samson's, and the company differs from Samson because it has grown internally rather than through the acquisition of its competitors. Wellborn currently has no long-term debt outstanding. While the firm does not pay a dividend, it has recently declared that it intends to begin paying one at the end of the current calendar year.

Select financial information (year-end 2005) for Samson and Wellborn is outlined below:

Samson:

Current	\$36.00
Price:	
Sales:	\$75,000,000
Net	\$5,700,000
Income:	
Assets:	\$135,000,000
Liabilities:	\$95,000,000
Equity:	\$60,000,000

Wellborn:

Current Price:	\$21.25
Dividends expected to be received at the end of 2006:	\$1.25
Dividends expected to be received at the end of 2007:	\$1.45
Price expected at year-end 2007:	\$27.50
Required return on equity:	9.50%
Risk-free rate:	3.75%

Other financial information:

One-year forecasted dividend yield on market index:	1.75%
Consensus long-term earnings growth rate:	5.25%
Short-term government bill rate:	3.75%
Medium-term government note rate:	4.00%
Long-term government bond rate:	4.25%

It is the beginning of 2006, and Davidson wants use the above data to identify which will have the greatest expected returns. She must determine which valuation model(s) is most appropriate for these two securities. Also, Davidson must forecast sustainable growth rates for each of the companies to assess whether or not they would fit within the fund's investment parameters.

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Question ID: 463045

Using the Gordon growth model (GGM), what is the equity risk premium?

- ☐ A) 5.50%.
- ☒ B) 2.75%.
- ☐ C) 3.25%.

Explanation

The GGM calculates the risk premium using forward-looking or expectational data. The equity risk premium is estimated as the one-year forecasted dividend yield on market index, plus the consensus long-term earnings growth rate, minus the long-term government bond yield. Note that because equities are assumed to have a long duration, the long-term government bond yield serves as the proxy for the risk-free rate.

$$\text{Equity risk premium} = 1.75\% + 5.25\% - 4.25\% = 2.75\%$$

(Study Session 10, LOS 31.b)

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Question ID: 463046

Davidson is familiar with the use of the capital asset pricing model (CAPM) and arbitrage pricing theory (APT) to estimate the required rate of return for an equity investment. However, there are some limitations associated with both models that should be considered in her analysis. Which of the following is *least likely* a limitation of the CAPM and/or APT?

- ☒ A) Risk premium exposure, because it fails to consider the implications of an asset's sensitivity to the various risk factors in the market.
- ☐ B) Input uncertainty, because it is difficult to estimate the appropriate risk premiums accurately.
- ☐ C) Model uncertainty, because it is unknown if the use of either model is theoretically correct and appropriate.

Explanation

Both CAPM and APT consider the sensitivity of an asset's return to various risk factors. CAPM measures an asset's sensitivity

relative to the market portfolio with beta, while APT measures an asset's sensitivity to a variety of risk factors, such as investor confidence, time horizon, inflation, business-cycle and market-timing. (Study Session 10, LOS 31.c)

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Question ID: 463047

Which of the following valuation models would be *most* appropriate in the valuation analysis of Wellborn Products?

- ✓ **A) The free cash flow model, because the firm does not have a steady dividend payment history.**
- x B) The residual income approach, because the firm is likely to have negative free cash flow for the foreseeable future.
- x C) The dividend discount model (DDM), because the hedge fund's investment would represent a minority interest in the company.

Explanation

Free cash flow models are appropriate for firms such as Wellborn that do not have a dividend payout history. (Study Session 11, LOS 35.a)

Question #40 of 133

Question ID: 472542

Davidson needs to determine if the shares of Wellborn are currently undervalued or overvalued in the market relative to the shares' fundamental value. The estimated fair value of Wellborn shares, using a two-period dividend discount model (DDM), is:

- ✓ **A) \$25.29.**
- x B) \$27.58.
- x C) \$27.69.

Explanation

The value of Wellborn using a two-period DDM is:

$(\$1.25 / 1.095) + ((\$1.45 + \$27.50) / 1.095^2) = \25.29 (Study Session 11, LOS 35.b)

Question #41 of 133

Question ID: 463049

As a part of her analysis, Davidson needs to calculate return on equity for both potential investments. What is last year's return on equity (ROE) for Samson shares?

- x A) 17.10%.
- ✓ **B) 9.50%.**
- x C) 5.28%.

Explanation

ROE can be calculated using the DuPont formula, which is:

$ROE = \text{Net Income} / \text{Stockholder's Equity}$

$ROE = (\text{net income} / \text{sales}) \times (\text{sales} / \text{total assets}) \times (\text{total assets} / \text{stockholders' equity})$

Therefore: $ROE = (5,700,000 / 75,000,000) \times (75,000,000 / 135,000,000) \times (135,000,000 / 60,000,000) = (0.076) \times (0.556) \times$

$(2.25) = 0.095 = 9.50\%$.

(Study Session 11, LOS 35.o)

Question #42 of 133

Question ID: 463050

Davidson determines that over the past three years, Samson has maintained an average net profit margin of 8 percent, a total asset turnover of 1.6, and a leverage ratio (equity multiplier) of 1.39. Assuming Samson continues to distribute 35 percent of its earnings as dividends, Samson's estimated sustainable growth rate (SGR) is:

- ☐ A) 17.8%.
- ☒ B) 11.6%.
- ☐ C) 6.2%.

Explanation

Utilizing the PRAT model, where SGR is a function of profit margin (P), the retention rate (R), asset turnover (A) and financial leverage (T):

$$g = P \times R \times A \times T$$

$$g = 0.08 \times (1 - 0.35) \times 1.6 \times 1.39 = 0.116 = 11.6\%.$$

(Study Session 11, LOS 35.o)

Question #43 of 133

Question ID: 463135

Which of the following groups of statistics provides enough data to calculate an implied return for a stock using the two-stage DDM?

- ☐ A) Short-term growth rate, long-term growth rate, stock price, trailing 12-month profits.
- ☒ B) P/E ratio, trailing 12-month profits, short-term PEG ratio, long-term PEG ratio, yield.
- ☐ C) Yield, stock price, historical dividend-growth rate, historical profit-growth rate.

Explanation

To calculate an implied return using the two-stage DDM, we need the stock price, the dividend, a short-term growth rate, and a long-term growth rate. In the correct answer, we can derive the stock price from the P/E ratio and profits, then derive the dividend from the price and the yield. Given the P/E ratio, we can also distill growth rates using the PEG ratios. Admittedly, earnings-growth rates aren't the same as dividend-growth rates, but analysts routinely use either in their models. More to the point, this is the only answer in which we can come up with even imperfect data for all the needed variables. One choice does not provide us with a way to find the dividend. The other option does not give us the needed short-term and long-term growth rates.

Question #44 of 133

Question ID: 463040

The H-model is more flexible than the two-stage dividend discount model (DDM) because:

- ☒ A) terminal value is not sensitive to the estimates of growth rates.
- ☒ B) initial high growth rate declines linearly to the level of stable growth rate.
- ☒ C) payout ratio changes to adjust the changes in growth estimates.

Explanation

A sudden decline in high growth rate in two-stage DDM may not be realistic. This problem is solved in the H-model, as the initial high growth rate is not constant, but declines linearly over time to reach the stable-growth rate.

Question #45 of 133

Question ID: 463098

Which of the following would NOT be appropriate for the Gordon growth model?

- ☒ A) High-tech start-up firm with no dividends.
- ☒ B) Regulated utility company.
- ☒ C) Mature, slow growth automotive manufacturer.

Explanation

The Gordon growth model is inappropriate for a firm with supernormal growth that cannot be expected to continue. A multistage model is appropriate for such a firm.

Question #46 of 133

Question ID: 463079

Analyst Louise Dorgan has put together a short fact sheet on two companies, Benson Orchards and Terra Firma Development.

	<i>Benson Orchards</i>	<i>Terra Firma Development</i>
Price/earnings ratio	18.5	
Most recent dividend	\$0.56 per share	\$1.67 per share
Estimated stock return	15%	
Estimated market return		13%
Beta	1.2	1.7
Trailing profits	\$5.16 per share	
Stock-market value	\$123 million	\$1.678 billion
Shares outstanding		875 million

The risk-free rate is 3.6%, and Dorgan estimates the stock market's equity risk premium as 7.5%.

Using only the data presented above, can Dorgan create a Gordon Growth model for:

Benson Orchards Terra Firm
Development

- | | |
|---|-----|
| <input checked="" type="radio"/> A) No | No |
| <input checked="" type="radio"/> B) Yes | No |
| <input checked="" type="radio"/> C) Yes | Yes |

Explanation

To calculate a growth rate using the Gordon Growth model, we use four variables (one being the growth rate itself). If we have any three of the variables, we can solve for the fourth. The four variables are: stock price, dividend, required return, and dividend growth rate. The data presented are sufficient for the calculation of three of the variables for both companies.

Benson Orchards

We know the most recent dividend and the estimate stock return. From the P/E ratio and the trailing profits, we can determine the stock price. From those three pieces of data, we can calculate the dividend growth rate.

Terra Firma

We have the dividend. We can determine the stock price by dividing market value by shares outstanding. We can derive the estimated stock return using the capital asset pricing model. From those three statistics, we can create a Gordon Growth model and solve for the dividend-growth rate.

Question #47 of 133

Question ID: 463092

What is the value of a fixed-rate perpetual preferred share (par value \$100) with a dividend rate of 11.0% and a required return of 7.5%?

- ☒ A) \$147.
- ☒ B) \$138.
- ☒ C) \$152.

Explanation

The value of the preferred is \$147:

$$V_0 = (\$100 \text{par} \times 11\%) / 7.5\% = \$146.67$$

Question #48 of 133

Question ID: 463119

An analyst has forecast that Apex Company, which currently pays a dividend of \$6.00, will continue to grow at 8% for the next two years and then at a rate of 5% thereafter. If the required return is 10%, based on a two-stage model what is the current value of Apex shares?

- ☒ A) \$127.78.
- ☒ B) \$133.13.
- ☒ C) \$126.24.

Explanation

The current value of Apex shares is \$133.13:

$$V_0 = [(\$6 \times 1.08) / 1.10] + [(\$6 \times (1.08)^2) / 1.10^2] + [(\$6 \times (1.08)^2 \times 1.05) / (1.10^2 \times (0.10 - 0.05))] = \$133.13$$

Question #49 of 133

Question ID: 463064

IAM, Inc. has a current stock price of \$40.00 and expects to pay a dividend in one year of \$1.80. The dividend is expected to grow at a constant rate of 6% annually. IAM has a beta of 0.95, the market is expected to return 11%, and the risk-free rate of interest is 4%. The expected stock price two years from today is *closest* to:

- ✓ A) \$43.49.
- x B) \$41.03.
- x C) \$43.94.

Explanation

$$\text{CAPM: } r = 0.04 + [0.95 \times (0.11 - 0.04)] = 0.1065$$

$$D_3 = D_1 \times (1 + g)^2 = \$1.80 \times 1.06^2 = \$2.0225$$

$$P_2 = \frac{D_3}{r - g} = \frac{\$2.0225}{0.1065 - 0.06} = \$43.49$$

Question #50 of 133

Question ID: 463160

Supergro has current dividends of \$1, current earnings of \$3, and a sustainable growth rate of 10%. What is Supergro's return on equity?

- ✓ A) 15%.
- x B) 12%.
- x C) 20%.

Explanation

The ROE for Supergro can be determined by solving for ROE in the sustainable growth formula:

$$ROE = 10\% / [1 - (\$1/\$3)] = 15\%$$

Questions #51-56 of 133

Bernadine Nutting has just completed several rounds of job interviews with the valuation group, Ancis Associates. The final hurdle before the firm makes her an offer is an interview with Greg Ancis, CFA, the founder and senior partner of the group. He takes pride in interviewing all potential associates himself once they have made it through the earlier rounds of interviews, and puts candidates through a grueling series of tests. As soon as Nutting enters his office, Ancis tries to overwhelm her with financial information on a variety of firms, including AlphaBetaHydroxy, Inc., Turbo Financial Services, Aultman Construction, and Reality Productions.

He begins with AlphaBetaHydroxy, Inc., which trades under the symbol AB and has an estimated beta of 1.4. The firm

currently pays \$1.50 per year in dividends, but the historical dividend growth rate has varied significantly, as shown in the table below.

<i>AlphaBetaHydroxy, Inc. Historical Dividend Growth</i>	
Year	Dividend Growth Rate (%)
-1	+20
-2	+58
-3	-27
-4	-19
-5	+38
-6	+17
-7 and earlier	+3

Ancis says that, given AB's wildly varying historical dividend growth, he wants to value the firm using 3 different scenarios. The Low-Growth scenario calls for 3% annual dividend growth in perpetuity. The Middle-Growth scenario calls for 12% dividend growth in years 1 through 3, and 3% annual growth thereafter. The High-Growth scenario specifies dividend growth year by year, as follows:

<i>AlphaBetaHydroxy, Inc. High-Growth Scenario</i>	
Year	Dividend Growth Rate (%)
1	20
2	18
3	16
4	9
5	8
6	7
7 and thereafter	4

Nutting suggests that the scenarios are incomplete, saying that she'd like to include some additional assumptions for the various scenarios. For example, while she would estimate the return on the S&P 500 to be 12% regardless of AB's performance, she would want to vary the outlook for interest rates depending on the scenario. In specific, she'd use a long-term Treasury bond rate of 4% for the low-growth scenario, but raise it to 5% for the middle and higher-growth scenarios. Ancis then moves on to Turbo Financial Services. Ancis has been following Turbo for quite some time because of its impressive earnings growth. Earnings per share have grown at a compound annual rate of 19% over the past six years, pushing earnings to \$10 per share in the year just ended. He considers this growth rate very high for a firm with a cost of equity of 14%, and a weighted average cost of capital (WACC) of only 9%. He's especially impressed that the firm can achieve these growth rates while still maintaining a constant dividend payout ratio of 40%, which he expects the firm to continue indefinitely. With a market value of \$55.18 per share, Ancis considers Turbo a strong buy.

Ancis believes that Turbo will have one more year of strong earnings growth, with EPS rising by 20% in the coming year. He then expects EPS growth to fall 5 percentage points per year for each of the following two years, and achieve its long-term sustainable growth rate of 5% beginning in year four.

Finally, Ancis turns to Aultman Construction, trading at \$22 per share (with current EPS of \$2.50 and a required return of 18%), and Reality Productions, which currently trades at \$30 per share. Reality Production's current dividend is the same as AB's (\$1.50), but the historical dividend growth rate has been a stable 10%. Dividend growth is expected to decline linearly over six years to 5%, and then remain at 5% indefinitely.

Ancis begins the valuation test by asking Nutting to value AB with both the two-stage DDM model and the Gordon Growth model, using the scenario most suited to each modeling technique. Nutting answers that the Gordon Growth model gives a valuation for AB that is \$1.32 higher than the valuation using the DDM model. After reviewing her analysis, Ancis says that her valuation is incorrect because she should have applied the Gordon Growth model to the High-Growth scenario.

Unhappy with her misuse of the Gordon Growth Model, Ancis asks Nutting to explain the appropriate uses of two other valuation tools: the H-model and three-stage DDM. She says that the H-model is most suited to sustained high-growth companies while three-stage DDM is only appropriate to companies where the dividend growth rate is expected to decline in stages. Ancis says that three-stage DDM does not require a company's growth rate to decline - it could equally well apply when a company's growth is expected to be higher in the final stage than in the first. Nutting loses the job.

Question #51 of 133

Question ID: 463124

Which of the following statements is *least* accurate? The two-stage DDM is most suited for analyzing firms that:

- ☐ A) own patents for a very profitable product.
- ☒ B) are in an industry with low barriers to entry.
- ☐ C) are expected to grow at a normalized rate after a fixed period of time.

Explanation

The two-stage DDM is well suited to firms that have high growth and are expected to maintain it for a specific period. The assumption that the growth rate drops sharply from high-growth in the initial phase to a stable rate makes this model appropriate for firms that have a competitive advantage, such as a patent, that is expected to exist for a fixed period of time. The model is not useful in analyzing a firm that is in an industry with low barriers to entry. Low barriers to entry are likely to result in increased competition. Therefore, the length of the initial phase of the growth period is indeterminate and probably uneven. (Study Session 11, LOS 35.i)

Question #52 of 133

Question ID: 463125

Regarding the statements made by Ancis and Nutting about the correct valuation models and values for AB:

- ☒ A) both are incorrect.
- ☐ B) only Nutting is correct.
- ☐ C) only Ancis is correct.

Explanation

Both Ancis's and Nutting's statements are incorrect.

The Gordon Growth Model assumes that dividends increase at a constant rate perpetually. That fits the Low-Growth scenario, not the Middle or High-Growth scenarios. Thus, Ancis's statement is incorrect.

In the Low-Growth scenario:

The required rate of return is $(r) = 0.04 + 1.4(0.12 - 0.04) = 0.152$.

The value per share is $DPS_0(1 + g_n) / (r - g_n) = [(1.50)(1.03)] / (0.152 - 0.03) = \12.66 .

The two-stage DDM model is most suited to a company that has one dividend growth rate for a specified time period and then shifts suddenly to a second dividend growth rate. That best fits the Middle-Growth scenario. In the Middle-Growth scenario,

The required rate of return is $(r) = 0.05 + (1.4)(0.12 - 0.05) = 0.148$.

The value per share is:

$$V_0 = \frac{1.50(1.12)}{1.148} + \frac{1.50(1.12)^2}{1.148^2} + \frac{1.50(1.12)^3}{1.148^3} + \frac{1.50 \times 1.12^3 \times 1.03}{1.148^3 \times (0.148 - 0.03)} = \$16.44$$

The two-stage DDM gives a value for AB that is $(\$16.44 - \$12.66) = \$3.78$ higher than the value given by the Gordon Growth Model. Thus Nutting's statement is also incorrect. (Study Session 11, LOS 35.I, m)

Question #53 of 133

Question ID: 463126

What is the implied required rate of return for Reality Productions?

- ☐ A) 11.75%.
- ☐ B) 12.50%.
- ☒ C) 11.00%.

Explanation

The H-model applies to firms where the dividend growth rate is expected to decline linearly over the high-growth stage until it reaches its long-run average growth rate. This most closely matches the anticipated pattern of growth for Reality Productions.

The H-model can be rewritten in terms of r and used to solve for r given the other model inputs:

$$r = D_0 / P_0 \times [(1 + g_L) \times [H \times (g_S - g_L) + g_L]] + g_L$$

Here, $r = 1.5 / 30 \times [(1 + 0.05) + [(6.0 / 2) \times (0.10 - 0.05)]] + 0.05 = 0.11$ (Study Session 11, LOS 35.m)

Question #54 of 133

Question ID: 463127

Regarding the statements made by Ancis and Nutting about the appropriate uses of the H-model and three-stage DDM:

- ☐ A) both are correct.
- ☐ B) both are incorrect.
- ☒ C) only one is correct.

Explanation

Ancis's statement is technically correct. Although three-stage DDM traditionally uses progressively lower growth rates in each stage, that is not necessary. Three-stage DDM applies when growth rates vary in any manner, as long as they do so in three distinct stages. Nutting's statement is incorrect because the H-model is not appropriate for a company with sustained dividend growth at any level (high or not). The H-model assumes that the company's dividend growth rate declines linearly. (Study Session 11, LOS 35.i)

Question #55 of 133

Question ID: 463128

Based upon its current market value, what is the implied long-term sustainable growth rate of Turbo Financial Advisors?

- ☐ A) 19.0%.

☒ B) 0.3%.

☐ C) 4.0%.

Explanation

The implied long-term rate is the rate that will cause the present value of expected dividends to equal its current market value. Since Ancis provides specific growth rates for Turbo over the next three years, we can use a multi-stage dividend discount model and solve for the long-term growth rate that makes the present value equal to the current market value.

First, we calculate Turbo's expected dividends.

$D_0 = \$10.00$ current EPS times the dividend payout ratio of 40%

$D_0 = \$4.00$ dividend per share in year 0.

Note that the 19% historical dividend growth rate is irrelevant to the current value of the firm. Since the dividend payout ratio is expected to remain constant at 40%, we can use the expected growth rate in earnings to estimate future dividends. EPS growth is forecast at 20% in year 1, 15% in year 2, and 10% in year 3.

Multiplying each year's expected dividend times the relevant forecast growth rate, we calculate:

$D_1 = (\$4.00 \text{ dividend in year 0}) \times (1.20) = \4.80

$D_2 = (\$4.80 \text{ dividend in year 1}) \times (1.15) = \5.52

$D_3 = (\$5.52 \text{ dividend in year 2}) \times (1.10) = \6.07

Discounting these back to their present value in year 0 using the cost of equity (the WACC is irrelevant), we find:

Present Value ($D_1 + D_2 + D_3$) = $(\$4.80 / 1.14^1) + (\$5.52 / 1.14^2) + (\$6.07 / 1.14^3)$

= $\$4.21 + \$4.25 + \$4.10$

= $\$12.56$

Thus, we know that \$12.56 of the current \$55.18 market value represents the present value of the expected dividends in years 1, 2 and 3. Therefore, the present value of the firm's dividends for years 4 and beyond must equal $(\$55.18 - \$12.56) = \$42.62$. Since the present value of the firm's dividends beginning in year 4 equals \$42.62, the future value in year four will equal $(\$42.62 \times 1.14^3) = \63.14 .

Now that we know the value in year 4 of the future stream of steady-growth dividends, we can solve for the growth rate using the Gordon Growth Model:

$P_3 = [(\$6.07)(1 + x)] / (0.14 - x) = \63.14

$63.14 (0.14 - x) = 6.07 (1+x)$

$8.84 - 63.14x = 6.07 + 6.07x$

$2.77 = 69.21x$

$x = 0.04$

The long-term growth rate that makes Turbo fairly valued is 4% per year.

We can check our calculation by plugging the 4% growth rate we just solved for into the Gordon Growth Model and then plugging that result into the basic multi-stage dividend discount model:

$P_3 = [(\$6.07)(1 + 0.04)] / (0.14 - 0.04)$

$P_3 = 6.313 / (.10)$

$P_3 = 63.13$

(Note that this value varies from the previous calculation by 0.01 because of rounding error.)

$P_0 = (\$4.80 / 1.14^1) + (\$5.52 / 1.14^2) + (\$6.07 / 1.14^3) + (\$63.13 / 1.14^3) = \$55.18$, which is the current market value. At a 4%

growth rate, Turbo is fairly valued.

Note that on the exam, it may be faster to plug each growth rate into the Gordon Growth Model and then plug each of those terminal values into the basic multi-stage formula than to solve for the growth rate. This trial and error method is especially effective if you start with the "middle" growth rate and then decide which value to test next depending on the results of the first calculation. For example, if the first growth rate gives a value for the firm that is too high, you can eliminate all the higher growth rates and try the next lower one. (Study Session 11, LOS 35.o)

Question #56 of 133

Question ID: 463129

What is the present value of Aultman's future investment opportunities as a percentage of the market price?

- ☐ A) 13.9%.
- ☐ B) 8.1%.
- ☒ C) 36.9%.

Explanation

The present value of the company's future investment opportunities is also known as PVGO, which can be calculated using the formula: $\text{Value} = (E / r) + \text{PVGO}$

where:

E = earnings per share

r = required return

(E / r) is the value of the assets in place

Here, $\$22 = (\$2.5 / 0.18) + \text{PVGO}$

PVGO = \$8.11

The PVGO as a percentage of the market price equals $(\$8.11 / \$22.00) = 36.9\%$. (Study Session 11, LOS 35.e)

Question #57 of 133

Question ID: 463131

Recent surveys of analysts report long-term earnings growth estimates as 5.5% and a forecasted dividend yield of 2.0% on the market index. At the time of the survey, the 20-year U.S. government bond yielded 4.8%. According to the Gordon growth model, what is the equity risk premium?

- ☐ A) 7.5%.
- ☒ B) 2.7%.
- ☐ C) 0.4%.

Explanation

Equity risk premium = 2.0% + 5.5% - 4.8% = 2.7%

Question #58 of 133

Question ID: 463065

A firm currently pays a dividend of \$1.77, which is expected to grow at a rate of 4%. If the required return is 10%, what is the current value of the shares using the Gordon growth model?

✓ **A) \$30.68.**

x **B) \$29.50.**

x **C) \$29.76.**

Explanation

The current value of the shares is \$30.68:

$$V_0 = [\$1.77(1 + 0.04)] / (0.10 - 0.04) = \$30.68$$

Question #59 of 133

Question ID: 463035

If the three-stage dividend discount model (DDM) results in extremely high value, the:

x **A) transition period is too short.**

x **B) growth rate in the stable growth period is lower than that of gross national product (GNP).**

✓ **C) growth rate in the stable growth period is probably too high.**

Explanation

If the three-stage DDM results in an extremely high value, either the growth rate in the stable growth period is too high or the period of growth (high plus transition) is too long. To solve these problems, an analyst should use a growth rate closer to GNP growth and use shorter high-growth and transition periods.

Question #60 of 133

Question ID: 463150

Which of the following is NOT a component of the sustainable growth rate formula using the DuPont model?

x **A) Earnings retention ratio.**

✓ **B) EBIT/interest expense.**

x **C) Net income/sales.**

Explanation

$$\text{SGR} = b \times \text{ROE}$$

where:

b = earnings retention rate = (1 – dividend payout rate)

ROE = return on equity

The SGR is important because it tells us how quickly a firm can grow with internally generated funds. A firm's rate of growth is a function of both its earnings retention and its return on equity. ROE can be estimated with the DuPont formula, which presents the relationship between margin, sales, and leverage as determinants of ROE. In the 3-part version of the DuPont model: $\text{ROE} = (\text{NI/sales})(\text{sales/assets})(\text{assets/equity})$

Question #61 of 133

Question ID: 463063

JAD just paid a dividend of \$0.80. Analysts expect dividends to grow at 25% in the next two years, 15% in years three and four, and 8% for year five and after. The market required rate of return is 10%, and Treasury bills are yielding 4%. JAD has a beta of 1.4. The estimated current price of JAD is *closest* to:

✓ A) \$29.34.

x B) \$45.91.

x C) \$25.42.

Explanation

JAD's stock price today can be calculated using the three-stage model. Start by finding the value of the dividends for the next four years with the two different dividend growth rates.

$$D_1 = D_0(1+g) = \$0.80(1.25) = \$1.00$$

$$D_2 = D_1(1+g) = \$1.00(1.25) = \$1.25$$

$$D_3 = D_2(1+g) = \$1.25(1.15) = \$1.4375$$

$$D_4 = D_3(1+g) = \$1.4375(1.15) = \$1.6531$$

(Alternatively, you could use your financial calculators to solve for the future value to find D1, D2, D3, and D4.)

Next find the value of the stock at the beginning of the constant growth period using the constant dividend discount model:

$$P_4 = \frac{D_5}{r - g}$$

$$\text{CAPM: } r = 0.04 + [1.4 \times (0.10 - 0.04)] = 0.124$$

$$D_5 = D_4 \times (1 + g) = \$1.6531 \times 1.08 = \$1.785$$

$$P_4 = \frac{D_5}{r - g} = \frac{\$1.785}{0.124 - 0.08} = \$40.57$$

The easiest way to proceed is to use the NPV function in the financial calculator.

$$CF_0 = 0; CF_1 = 1.00; CF_2 = 1.25; CF_3 = 1.4375; CF_4 = 1.6531 + 40.57 = 42.22$$

$$I = 12.4; \text{NPV} = 29.34$$

The value of the firm today is \$29.34 per share.

Question #62 of 133

Question ID: 463136

If the risk-free rate is 6%, the equity premium of the chosen index is 4%, and the asset's beta is 0.8, what is the discount rate to be used in applying the dividend discount model?

✓ A) 9.20%.

x B) 7.80%.

x C) 10.80%.

Explanation

The discount rate = risk-free rate + beta (return expected on equity market less the risk-free rate). Here, discount rate = $0.06 + (0.8 \times 0.04) = 0.092$, or 9.2%.

Question #63 of 133

Question ID: 463141

An investor projects the price of a stock to be \$16.00 in one year and expected the stock to pay a dividend at that time of \$2.00. If the required rate of return on the shares is 11%, what is the current value of the shares?

- ✓ A) \$16.22.
- x B) \$15.28.
- x C) \$14.11.

Explanation

The value of the shares = $(\$16.00 + \$2.00) / (1 + 0.11) = \$16.22$

Question #64 of 133

Question ID: 463121

An analyst has forecasted dividend growth for Triple Crown, Inc., to be 8% for the next two years, declining to 5% over the following three years, and then remaining at 5% thereafter. If the current dividend is \$4.00, and the required return is 10%, what is the current value of Triple Crown shares based on a three-stage model?

- ✓ A) \$92.23.
- x B) \$91.11.
- x C) \$73.68.

Explanation

$$V_0 = \$4(1.08) / 1.10 + \$4(1.08)^2 / (1.10)^2 + [\$4(1 + 0.08)^2(3/2)(0.08 - 0.05) + \$4(1.08)^2(1.05)] / [(1.10)^2(0.10 - 0.05)] = \$92.23$$

Question #65 of 133

Question ID: 463122

James Malone, CFA, covers GNTX stock, which is currently trading at \$45.00 and just paid a dividend of \$1.40. Malone expects the dividend growth rate to decline linearly over the next six years from 25% in the short run to 6% in the long run. Malone estimates the required return on GNTX to be 13%. Using the H-model, the value of GNTX is *closest* to:

- x A) \$33.40.
- x B) \$17.55.
- ✓ C) \$32.60.

Explanation

The estimated value of GNTX using the H-model is calculated as follows:

$$V_0 = \frac{(\$1.4 \times 1.06) + \left[\$1.4 \times \left(\frac{6}{2} \right) \times (0.25 - 0.06) \right]}{0.13 - 0.06} = \$32.60$$

Question #66 of 133

Question ID: 463083

Tri-coat Paints has a current market value of \$41 per share with a earnings of \$3.64. What is the present value of its growth opportunities (PVGO) if the required return is 9%?

- ✓ **A) \$0.56.**
- ✗ **B) \$1.27.**
- ✗ **C) \$3.92.**

Explanation

The PVGO is \$0.56:

$$PVGO = \$41 - (\$3.64 / 0.09) = \$0.56$$

Question #67 of 133

Question ID: 463156

In computing the sustainable growth rate of a firm, the earnings retention rate is equal to:

- ✗ **A) 1 – (dividends / assets).**
- ✓ **B) 1 – (dividends / earnings).**
- ✗ **C) Dividends / required rate of return.**

Explanation

Earnings retention rate = 1 – (dividends / earnings).

Question #68 of 133

Question ID: 463151

Dynamite, Inc., has current earnings of \$26, current dividend of \$2, and a returned on equity of 18%. What is its sustainable growth?

- ✗ **A) 14.99%.**
- ✓ **B) 16.62%.**
- ✗ **C) 13.37%.**

Explanation

$$g = [1 - (\$2 / \$26)]0.18 = 16.62\%$$

Question #69 of 133

Question ID: 463159

Demonstrate the use of the DuPont analysis of return on equity in conjunction with the sustainable growth rate expression. The following statistics are selected from Kyle Star Partners (Kyle) financial statements:

Sales \$100 million
Net Income \$15 million
Dividends \$5 million
Total
Assets \$150 million
Total Equity \$50 million

What is Kyle's sustainable growth rate?

- ☐ A) 33.3%.
- ☒ B) 20.0%.
- ☐ C) 24.5%.

Explanation

$$\begin{aligned}\text{SGR} &= \text{ROE} \times [(\text{net income} - \text{dividends}) / \text{net income}] \\ &= (15 \text{ million} / 50 \text{ million}) \times (15 \text{ million} - 5 \text{ million}) / 15 \\ &\quad \text{million} \\ &= 20.0\%\end{aligned}$$

Question #70 of 133

Question ID: 463137

In using the capital asset pricing model (CAPM) to determine the appropriate discount rate for discounted cash flow models (DCF), the asset's beta is used to determine the amount of:

- ☐ A) risk-free rate applicable to the time period of the investment.
- ☒ B) equity premium.
- ☐ C) the expected return in addition to the return required by the risk of the position.

Explanation

Beta measures the correlation between the equity market or index for which the market risk premium is calculated and the particular asset being valued. Beta is used to approximate the proportion of the equity risk premium applicable to the asset (in relation to the market or index used).

Question #71 of 133

Question ID: 463144

Given that a firm's current dividend is \$2.00, the forecasted growth is 7%, declining over three years to a stable 5% thereafter, and the current value of the firm's shares is \$45, what is the required rate of return?

- ☐ A) 7.8%.
- ☐ B) 10.5%.
- ☒ C) 9.8%.

Explanation

The required rate of return is 9.8%.

$$r = (\$2/\$45) [(1 + 0.05) + (3/2)(0.07 - 0.05)] + 0.05 = 0.0980$$

Since the H-model is an approximation model, it is possible to solve for r directly without iteration.

Question #72 of 133

Question ID: 463110

In which of the following stages is a firm *most likely* to distribute the highest proportion of its earnings in the form of dividends?

- ☐ A) Transition stage.
- ☐ B) Initial growth stage.
- ☒ C) Mature stage.

Explanation

As a firm matures, the forces of competition begin to deny it opportunities to earn greater than the required return. Faced with this situation, most earnings are distributed to shareholders as dividends. An alternate way of returning capital is through stock repurchases.

Question #73 of 133

Question ID: 463132

CAB Inc. just paid a current dividend of \$3.00, the forecasted growth is 9%, declining over four years to a stable 6% thereafter, and the current value of the firm's shares is \$50, what is the required rate of return?

- ☒ A) 12.7%.
- ☐ B) 9.8%.
- ☐ C) 10.5%.

Explanation

The required rate of return is 12.7%.

$$r = (\$3 / \$50)[(1 + 0.06) + (4 / 2)(0.09 - 0.06)] + 0.06 = 12.7\%$$

Since the H-model is an approximation model, it is possible to solve for r directly without iteration.

Question #74 of 133

Question ID: 463080

Zephraim Axelrod, CFA, is trying to determine whether Allegheny Mining is a good investment. He decides to use the Gordon Growth model to calculate how much dividend growth shareholders can expect. To that end, he determines the following:

- Share price: \$18.12.
- Dividend: \$0.32 per share.
- Beta: 1.94.
- Industry average estimated returns: 15%.
- Risk-free rate: 5.5%.

- Equity risk premium: 6.3%

Based only on the information above, the implied dividend growth rate is *closest* to:

- ☒ A) 19.89%.
- ☐ B) 10.27%.
- ☒ C) 15.68%.

Explanation

We have the price and dividend. We need the required rate of return to use the Gordon Growth model to calculate implied dividend growth. Using the capital asset pricing model, the required return = risk-free rate + (beta × equity risk premium) = 17.72%.

$$\text{Price} = [\text{dividend} \times (1 + \text{dividend growth rate})] / [\text{required return} - \text{growth rate}]$$

$$18.12 = [0.32 \times (1 + \text{dividend growth rate})] / [0.1772 - \text{dividend growth rate}]$$

$$18.12 \times [0.1772 - \text{dividend growth rate}] = 0.32 + 0.32 \times \text{dividend growth rate}$$

$$3.2112 - 18.12 \times \text{dividend growth rate} = 0.32 + 0.32 \times \text{dividend growth rate}$$

$$2.8912 = 18.44 \times \text{dividend growth rate}$$

$$1 = 6.3779 \times \text{dividend growth rate}$$

$$\text{Dividend growth rate} = 15.68\%$$

Question #75 of 133

Question ID: 463061

An investor projects that a firm will pay a dividend of \$1.00 next year and \$1.20 the following year. At the end of the second year, the expected price of the shares is \$22.00. If the required return is 14%, what is the current value of the firm's shares?

- ☒ A) \$18.73.
- ☐ B) \$15.65.
- ☐ C) \$19.34.

Explanation

The current value of the shares is \$18.73:

$$V_0 = \$1.00 / 1.14 + \$1.20 / (1.14)^2 + \$22.00 / (1.14)^2 = \$18.73$$

Question #76 of 133

Question ID: 463036

The H model will NOT be very useful when:

- ☐ A) a firm has a constant payout policy.
- ☒ B) a firm has low or no dividends currently.
- ☐ C) a firm is growing rapidly.

Explanation

The H model is useful for firms that are growing rapidly but the growth is expected to decline gradually over time as the firm

gets larger and faces increased competition. The assumption of constant payout ratio makes the model inappropriate for firms that have low or no dividend currently.

Question #77 of 133

Question ID: 463081

In its most recent quarterly earnings report, Smith Brothers Garden Supplies said it planned to increase its dividend at an annual rate of 13% for the foreseeable future. Analyst Clinton Spears has an annual return target of 15.5% for Smith Brothers stock. He decides to use the dividend-growth rate to back out another return estimate to test against his. Smith Brothers stock trades for \$55 per share and earned \$3.01 per share over the last 12 months. The company paid a dividend of \$2.15 per share during the 12-month period, and its dividend-growth rate for the last five years was 9.2%.

Using the Gordon Growth model, the required annual return for Smith Brothers stock is *closest* to:

- ✓ **A) 17.42%.**
- x B) 13.47%.
- x C) 19.18%.

Explanation

The Gordon Growth model is as follows:

$$\text{Price} = [\text{dividend} \times (1 + \text{dividend growth rate})] / [\text{required return} - \text{growth rate}]$$
$$55 = [2.15 \times 1.13] / [\text{required return} - 0.13]$$
$$55 = 2.4295 / [\text{required return} - 0.13]$$
$$22.6384 = 1 / [\text{required return} - 0.13]$$
$$[\text{Required return} - 0.13] = 0.04417$$
$$\text{Required return} = 0.17417 = 17.42\%$$

Question #78 of 133

Question ID: 463105

The three-stage dividend discount model (DDM) *allows* for an initial period of:

- x **A) high growth, a transitional period of stable growth and a final declining growth phase.**
- ✓ **B) high growth, a transitional period of declining growth and a final stable growth phase.**
- x C) stable growth, a transitional period of high growth and a final declining growth phase.

Explanation

The three-stage DDM combines the features of the two-stage DDM and the H model. It allows for an initial period of high growth, a transitional period of declining growth and a final stable growth phase.

Question #79 of 133

Question ID: 463070

Jand, Inc., currently pays a dividend of \$1.22, which is expected to grow at 5%. If the current value of Jand's shares based on the Gordon

model is \$32.03, what is the required rate of return?

- ☐ A) 8%.
- ☐ B) 7%.
- ☒ C) 9%.

Explanation

The required return is 9%: $r = [\$1.22(1 + 0.05) / \$32.03] + 0.05 = 0.09$ or 9%.

Question #80 of 133

Question ID: 463094

What is the value of a fixed-rate perpetual preferred share (par value \$100) with a dividend rate of 7.0% and a required return of 9.0%?

- ☒ A) \$78.
- ☐ B) \$56.
- ☐ C) \$71.

Explanation

The value of the preferred is \$78:

$$V_0 = (\$100 \text{par} \times 7\%) / 9\% = \$77.78$$

Question #81 of 133

Question ID: 463134

If we increase the required rate of return used in a dividend discount model, the estimate of value produced by the model will:

- ☐ A) remain the same.
- ☒ B) decrease.
- ☐ C) increase.

Explanation

The required rate of return is used in the denominator of the equation. Increasing this factor will decrease the resulting value.

Question #82 of 133

Question ID: 463062

An investor projects that a firm will pay a dividend of \$1.25 next year, \$1.35 the second year, and \$1.45 the third year. At the end of the third year, she expects the asset to be priced at \$36.50. If the required return is 12%, what is the current value of the shares?

- ☒ A) \$29.21.
- ☐ B) \$32.78.
- ☐ C) \$31.16.

Explanation

The current value of the shares is \$29.21: $V_0 = (\$1.25 / 1.12) + (\$1.35 / (1.12)^2) + (\$1.45 / (1.12)^3) + (\$36.50 / (1 + 0.12)^3) = \29.21

Question #83 of 133

Question ID: 463153

GreenGrow, Inc., has current dividends of \$2.00, current earnings of \$4.00 and a return on equity of 16%. What is GreenGrow's sustainable growth rate?

- ☒ A) 9%.
- ☒ B) 6%.
- ☒ C) 8%.

Explanation

GreenGrow's sustainable growth rate is 8%.

$$g = [1 - (\$2/\$4)](0.16) = 8\%$$

Question #84 of 133

Question ID: 463099

Applying the Gordon growth model to value a firm experiencing supernormal growth would result in:

- ☒ A) overstating the value of the firm.
- ☒ B) a zero value.
- ☒ C) understating the value of the firm.

Explanation

Applying the Gordon growth model to such a firm would result in an estimate of value based on the assumption that the supernormal growth would continue indefinitely. This would overstate the value of the firm.

Question #85 of 133

Question ID: 463106

What is the difference between a standard two-stage growth model and the H-model?

- ☒ A) In the standard two-stage model, a fixed rate of growth is assumed for each stage, while the H-model assumes a linearly declining rate of growth in one stage.
- ☒ B) The H-model assumes that earnings will dip in the middle of each stage and return to the previous rate by the period's end.
- ☒ C) The H-model assumes a terminal value, while the standard two-stage model does not.

Explanation

The H-model provides an estimate of the firm's value based on the assumption that the rate of growth will change linearly over the initial stage.

Question #86 of 133

Question ID: 463163

The current market price per share for High-on-the-Hog, Inc. is \$52.50, and an analyst is using the Gordon Growth model to determine whether this is a fair price. The company paid a dividend of \$3.00 last year on earnings of \$4.50 a share. If the required rate of return is 11.00% and the expected growth rate in earnings and in dividends is 5%, the current market price is *most likely*:

- ✓ **A) correctly valued.**
- ✗ B) undervalued.
- ✗ C) overvalued.

Explanation

The value per share using the estimates is $\$52.50 = [\$3.00(1.05) / 0.11 - 0.05]$.

Question #87 of 133

Question ID: 463114

Kyle Star Partners is expected to have earnings in year five of \$6.00 per share, a dividend payout ratio of 50%, and a required rate of return of 11%. For year 6 and beyond the dividend growth rate is expected to fall to 3% in perpetuity. Estimate the terminal value at the end of year five using the Gordon growth model.

- ✗ A) \$37.50.
- ✗ B) \$27.27.
- ✓ **C) \$38.63.**

Explanation

The dividend for year 5 is expected to be \$3 (\$6 times 50%). The dividend for year 6 is then expected to be $\$3.00 \times 1.03 = \3.09 . The terminal value using the Gordon growth model is therefore:

terminal value = $3.09 / (0.11 - 0.03) = \$38.625$

$$P_5 = D_6 / (k - g)$$

Question #88 of 133

Question ID: 463088

A firm has the following characteristics:

- Current share price \$100.00.
- Next year's earnings \$3.50.
- Next year's dividend \$0.75.
- Growth rate 11%.
- Required return 13%.

Based on this information and the Gordon growth model, what is the firm's justified leading price to earnings (P/E) ratio?

- ✗ A) 8.7.
- ✓ **B) 10.7.**

☒ C) 11.3.

Explanation

The justified leading P/E is 10.7:

$$P_0 / E_1 = (D_1 / E_1) / (r - g) = (\$0.75 / \$3.50) / (0.13 - 0.11) = 10.71$$

Question #89 of 133

Question ID: 463034

Free cash flow to equity models (FCFE) are *most* appropriate when estimating the value of the firm:

- ☒ A) to equity holders.
- ☒ B) only for non-dividend paying firms.
- ☒ C) to creditors of the firm.

Explanation

FCFE models attempt to estimate the value of the firm to equity holders. The models take in to account future cash flows due to others, including debt and taxes, and amounts required for reinvestment to continue the firm's operations.

Question #90 of 133

Question ID: 463033

If an asset was fairly priced from an investor's point of view, the holding period return (HPR) would be:

- ☒ A) the same as the required return.
- ☒ B) lower than the required return.
- ☒ C) equal to the alpha returns.

Explanation

A fairly priced asset would be one that has an expected HPR just equal to the investor's required return.

Question #91 of 133

Question ID: 472543

Obsidian Glass Company has current earnings of \$2.22, a required return of 8%, and the present value of growth opportunities (PVG0) of \$8.72. What is the current value of Obsidian's shares?

- ☒ A) \$36.47.
- ☒ B) \$10.94.
- ☒ C) \$27.75.

Explanation

The current value is \$36.47. $V_0 = (\$2.22 / 0.08) + \$8.72 = \$36.47$

Question #92 of 133

Question ID: 463108

An analyst has collected the following data on two companies:

	<i>Middle Hickory Co.</i>	<i>Lower Elm Inc.</i>
FCFE	Negative	Positive and growing
Capital investment	Significant	Decreasing

Which dividend-discount model is the *best* option for valuing the two companies?

Middle Hickory Lower Elm

- ☒ A) Gordon Growth Three-stage
- ☒ B) Two-stage Gordon Growth
- ☒ C) Three-stage Two-stage

Explanation

Middle Hickory is in the initial-growth phase, while Lower Elm is in the transition phase. The three-stage model is appropriate for new, fast-growing companies. The two-stage model is appropriate for companies in the transitional phase.

Question #93 of 133

Question ID: 463112

In what stage of growth would a firm most likely NOT pay dividends?

- ☒ A) Declining stage.
- ☒ B) Initial growth stage.
- ☒ C) Transition stage.

Explanation

During the initial growth stage, the firm is able to exploit opportunities to earn greater than the required return. During this stage, earnings are reinvested in the growth opportunities rather than returned to the investors.

Question #94 of 133

Question ID: 463041

The volatility of equity returns requires us to use data from long time periods to compute mean returns. One problem that this causes is that:

- ☒ A) equity premiums vary over time with perceived risk.

☐ B) the past is rarely an indication of the future.

☐ C) inflation alters the value of the past returns.

Explanation

The primary problem with using returns gathered over a long time period is that equity premiums vary over time with the market's perception of risk and relative risk.

Question #95 of 133

Question ID: 472540

One of the limitations of the dividend discount models (DDMs) is that they:

☐ A) can only be used for companies that are experiencing stable growth

☒ B) are very sensitive to growth and required return assumptions.

☐ C) are conceptually difficult.

Explanation

DDMs are very sensitive to the growth and required return assumptions, and it is often wise to interpret the value as a range rather than a precise dollar amount. There are versions of DDM models that can be applied to companies transitioning from rapid growth to moderate growth, etc.

Questions #96-101 of 133

UC Inc. is a high-tech company that currently pays a dividend of \$2.00 per share. UC's expected growth rate is 5%. The risk-free rate is 3% and market return is 9%.

Question #96 of 133

Question ID: 463073

What is the beta implied by a market price of \$40.38?

☐ A) 1.02.

☒ B) 1.20.

☐ C) 1.16.

Explanation

$$40.38 = 2.10 / (r - 0.05)$$

$$r = 2.10 / 40.38 + 0.05 = 0.1020$$

From CAPM:

$$r = 0.03 + b(0.09 - 0.03)$$

$$0.1020 = 0.03 + 0.06b$$

$$b = 1.20$$

(LOS 35.c)

Question #97 of 133

Question ID: 463074

What is the value of the UC stock if beta is 1.12?

☒ A) \$9.72.

☐ B) \$44.49.

☒ C) \$42.37.

Explanation

From CAPM:

$$r = 0.03 + b(0.09 - 0.03)$$

$$r = 0.03 + 1.12(0.06)$$

$$r = 0.0972$$

$$V_0 = D_1 / (r - g)$$

$$= 2.00(1 + 0.05) / (0.0972 - 0.05)$$

$$= 2.10 / 0.0472 = \$44.49$$

(LOS 35.c)

Question #98 of 133

Question ID: 463075

Assuming a beta of 1.12, if UC is expected to have a growth rate of 10% for the first 3 years and 5% thereafter, what is the value of UC stock?

☒ A) \$50.87.

☒ B) \$46.89.

☒ C) \$53.81.

Explanation

$$D_1 = 2(1.10) = 2.20$$

$$D_2 = 2.20(1.10) = 2.42$$

$$D_3 = 2.42(1.10) = 2.662$$

$$D_4 = 2.662(1.05) = 2.795$$

$$V_3 = D_4 / (r - g)$$

$$= (2.795) / (0.0972 - 0.05)$$

$$= 59.22$$

$$V_0 = [2.20 / 1.0972] + [2.42 / (1.0972)^2] + [(2.662 + 59.22) / (1.0972)^3]$$

$$= \$50.87$$

(LOS 35.c)

Question #99 of 133

Question ID: 463076

Assuming a beta of 1.12, if UC's growth rate is 10% initially and is expected to decline steadily to a stable rate of 5% over the next three years, what is the price of UC stock?

☒ A) \$47.82.

☒ B) \$46.61.

✓ **C) \$47.67.**

Explanation

Given: $D_0 = 2.00$; $g_L = 0.05$; $g_S = 0.10$; $H = (3 / 2) = 1.50$; and $r = 0.0972$

$$V_0 = \{[D_0(1 + g_L)] + [D_0 \times H \times (g_S - g_L)]\} / (r - g_L)$$

$$V_0 = [2(1.05) + 2(1.50)(0.10 - 0.05)] / (0.0972 - 0.05)$$

$$= 2.25 / 0.0472 = \$47.67$$

(LOS 35.I)

Question #100 of 133

Question ID: 463077

The discounted dividend approach that we have used to value UC Inc. is *most appropriate* for valuing dividend-paying stocks in which:

- ☐ **A) free cash flow is negative.**
- ☐ **B) dividends differ substantially from FCFE.**
- ✓ **C) the investor takes a minority ownership perspective.**

Explanation

The discounted dividend approach is most appropriate for valuing dividend-paying stocks in a company that has an rational dividend policy with a clear relationship to the company's profitability, and where the investor takes a minority ownership (non-control) perspective. A free cash flow approach may be appropriate when a company's dividends differ significantly from FCFE. The residual income approach is most useful when a company's free cash flow is negative. (LOS 35.a)

Question #101 of 133

Question ID: 463078

UC Inc. had earnings of \$3.00/share last year and a justified trailing P/E of 15.0. Is the stock currently overvalued, undervalued, or fairly valued if we consider a security trading within a band of ± 10 percent of intrinsic value to be within a "fair value range"? At a market price of \$40.38, UC Inc. is *best described* as:

- ☐ **A) fairly valued.**
- ☐ **B) overvalued.**
- ✓ **C) undervalued.**

Explanation

The justified trailing P/E or P_0/E_0 is V_0/E_0 , where V_0 is the fair value based on the stock's fundamentals. The justified trailing P/E is given as 15, so the fair value V_0 based on an E_0 of \$3.00 can be computed as $15 \times 3.00 = \$45.00$. Thus at a market price of \$40.38, UC Inc. is undervalued by slightly more than 10%. (LOS 35.f)

Question #102 of 133

Question ID: 463149

Which of the following actions will be *least* helpful for an analyst attempting to improve the predictive power of his scenario analysis?

- ✓ **A) Limiting deviations from the core model.**

- ☐ B) Using a spreadsheet rather than a calculator.
- ☐ C) Acquiring more precise inputs.

Explanation

The whole point of scenario analysis is the flexibility to modify the inputs to see how changes in one factor affect others. In order to perform scenario analysis, you must deviate from the core model. Increased precision on the inputs will increase the predictive power of almost any model. Spreadsheets reduce the likelihood of computational inaccuracies and allow analysts to more easily modify models to reflect many scenarios.

Question #103 of 133

Question ID: 463102

Which of the following would NOT be appropriate to value a firm with two expected growth stages? A(an):

- ☐ A) H-model.
- ☐ B) free cash flow model.
- ☒ C) Gordon growth model.

Explanation

The Gordon growth model would not be appropriate for a firm with two stages of growth but is useful to value a firm with steady slow growth.

Questions #104-109 of 133

Flyaweight Foods is a vertically integrated producer and distributor of low-calorie food products operating on a consumer club model. They have enjoyed rapid growth in the southwest United States during their 5-year history and are planning rapid expansion throughout the rest of the country. To fund their expansion, they are soliciting investments from a variety of venture capital groups.

One of the groups considering a bid for Flyaweight is Angelcap Investors, a private equity fund run by Harry Moskowitz. Angelcap is interested in acquiring a 10% interest in Flyaweight. Moskowitz' partner, Bill Sharpless, runs the group doing due diligence on Flyaweight. He provides Moskowitz with financial data on the firm:

Table 1: Flyaweight Foods Historical Data
(Dollars per share)

	<i>FY1</i>	<i>FY2</i>	<i>FY3</i>	<i>FY4</i>	<i>FY5</i>
Sales per share	4.25	5.60	6.40	7.35	8.05
EPS	1.20	1.85	2.30	2.79	3.10
Dividends	0	0	0.10	0.20	0.35
Free Cash Flow	-2.50	-2.10	-1.85	-1.60	-1.25

Moskowitz suggests that a Dividend Discount Model (DDM) would be an appropriate means for valuing Flyaweight because Angelcap would be a minority shareholder. Sharpless points out that the primary advantage of using a DDM is that dividends

are more stable than earnings or cash flow.

They ask Merle Muller, an analyst at the firm, to calculate an appropriate required return on Flyaweight. Muller collects the following market consensus information:

Table 2: Current Market Conditions
(Consensus estimates)

Expected 5-year EPS growth	8.0%
Expected 1-year Dividend yield	2.2%
Current Treasury yield (10-year note)	4.8%
Food industry beta (specialty segment)	0.95

Muller says, "If we assume that the beta for Flyaweight should equal the beta of the specialty food industry, then our required rate of return is less than 10%." Moskowitz disagrees objects strongly to using a discount rate that low and insists on using a multi-factor model such as the Arbitrage Pricing Theory (APT) instead. Sharpless disagrees that the APT will solve the estimation problem, pointing out, "A principal limitation of both the Capital Asset Pricing Model (CAPM) and the APT is uncertainty about the correct measurement of the market and factor risk premiums."

Sharpless argues in favor of using the Gordon Growth Model (GGM). "We know what the company growth rate is, we know what the dividend is, and we can decide what our required rate of return is. The GGM will give us the most accurate valuation because it uses the inputs we can measure most accurately." Moskowitz points out, "An H-model would be more appropriate because it assumes a linear slowdown in growth to a constant rate in perpetuity."

While Sharpless and Moskowitz debate the appropriate valuation approach, Muller prepares forecasts for Flyaweight.

Table 3: Forecast Values for Flyaweight

	<i>Forecast</i>
Average total liabilities per share	\$14.40
Average owners' equity per share	\$12.70
Profit margin	29%
Sales per share	\$10.70
Dividend payout ratio	10%

Question #104 of 133

Question ID: 463052

Judging by the data in Table 1, the most appropriate method for valuing Flyaweight would be:

- ☐ A) justified P/E because it is a high-growth company.
- ☐ B) the DDM because the firm has a history of dividend growth.
- ☒ C) residual income because the firm is likely to have high capital demands and negative cash flow for the foreseeable future.

Explanation

A residual income model is appropriate for firms with long term negative free cash flow due to high capital demands. A DDM would not be appropriate since the dividend payout ratio is fluctuating widely. Justified P/E is not a preferred valuation method for high-growth companies because it assumes a constant growth rate in perpetuity. (Study Session 11, LOS 35.a)

Question #105 of 133

Question ID: 463053

Regarding Sharpless's statement about uncertainty surrounding estimates of inputs and risk premiums being a key limitation of both the CAPM and the APT, and Muller's statement that the required rate of return on Flyaweight is less than 10% if the beta of the specialty foods industry is used:

- ✓ **A) both are correct.**
- ✗ **B) only Sharpless is correct.**
- ✗ **C) only Muller is correct.**

Explanation

Sharpless is correct that uncertainty surrounding estimates of inputs and risk premiums is a key limitation of both the CAPM and the APT. Muller is correct that the required rate of return on Flyaweight is less than 10% if the beta of the specialty foods industry is used:

Equity risk premium:

one-year dividend growth + long-term EPS growth – long-term risk free rate

Equity risk premium = 2.2% + 8.0% - 4.8% = 5.4%

Thus the required rate of return is:

Required rate of return = Risk free rate + (beta × market risk premium)

Required rate of return = 4.8% + (0.95 × 5.4)

Required rate of return = 9.9%

(Study Session 9, LOS 28.b, c, d)

Question #106 of 133

Question ID: 463054

With respect to their statements about the use of the GGM and the H-model:

- ✓ **A) only Moskowitz is correct.**
- ✗ **B) both are correct.**
- ✗ **C) only Sharpless is correct.**

Explanation

Moskowitz is correct that an H-model assumes a linear slowdown in growth until a constant growth rate is achieved. Sharpless is incorrect that the GGM would be an appropriate technique for valuing Flyaweight because the GGM assumes a constant rate of growth in perpetuity and Flyaweight has not yet reached a constant growth rate. (Study Session 11, LOS 29.h, i)

Question #107 of 133

Question ID: 463055

Which of the following is *least likely* to be a characteristic of a company in the initial growth phase?

- ☐ A) High profit margin.
- ☒ B) Return on equity equal to the required rate of return.
- ☐ C) Low dividend payout ratio.

Explanation

Companies in the initial growth phase tend to have a return on equity higher than the required rate of return, along with high profit margins and a low dividend payout. (Study Session 9, LOS 29.j)

Question #108 of 133

Question ID: 463056

With respect to their statements about the use of DDMs:

- ☒ A) only Moskowitz is correct.
- ☐ B) only Sharpless is correct.
- ☐ C) both are correct.

Explanation

Moskowitz' statement is correct. A dividend discount approach is most appropriate when the perspective is that of a minority shareholder. Sharpless' statement is incorrect because the primary advantage of a DDM is that it is theoretically justified. The stability of dividends is an additional advantage. (Study Session 11, LOS 35.a)

Question #109 of 133

Question ID: 463057

Based on the forecast data in Table 3, Flyaweight's sustainable growth rate (SGR) is *closest to* which value? If asset turnover were to rise from the forecast level, what would be the impact on SGR?

<u>SGR</u>	<u>Impact on SGR</u>
<input type="radio"/> A) 24%	Increase
<input type="radio"/> B) 22%	Decline
<input checked="" type="radio"/> C) 22%	Increase

Explanation

Note that total assets for the firm must equal total liabilities plus owners' equity, so assets are $(\$14.40 + \$12.70) = \$27.10$.

Thus the Return on Equity (ROE) of the firm equals:

$ROE = \text{profit margin} \times \text{asset turnover} \times \text{financial leverage}$

$ROE = (0.29) \times (\$10.70 / \$27.10) \times (\$27.10 / \$12.70)$

$ROE = 0.244 = 24.4\%$

ROE will rise as asset turnover rises.

The SGR of the firm equals:

$$\text{SGR} = \text{retention rate} \times \text{ROE}$$

$$\text{SGR} = (1 - 0.10) \times 0.244$$

$$\text{SGR} = 0.90 \times 0.244$$

$$\text{SGR} = 0.22$$

The SGR of the firm is approximately 22%.

SGR will increase as rising asset turnover increases ROE.

(Study Session 9, LOS 29.o)

Question #110 of 133

Question ID: 463142

If the expected return on the equity market is 10% and the risk-free rate is 3%, the required return on an asset with beta of 0.6 is *closest to*:

- ☒ A) 6.0%.
- ☐ B) 9.0%.
- ☒ C) 7.2%.

Explanation

The required return on an asset is equal to the current expected risk-free return, plus the asset's beta times the difference between the expected return on the equity market and the risk-free rate. Required return = $0.03 + 0.6(0.10 - 0.03) = 0.072$ or 7.2%.

Question #111 of 133

Question ID: 463086

The required rate of return for an asset is often difficult to determine, but if we know the growth prospects and the current earnings of a firm we can determine the implied required rate of return from the:

- ☒ A) market price.
- ☐ B) earnings retention rate.
- ☐ C) dividend rate.

Explanation

The required rate of return is implicit in the asset's market price and can be determined with the present value of growth opportunities.

Question #112 of 133

Question ID: 463082

Xerxes, Inc. forecasts earnings to be permanently fixed at \$4.00 per share. Current market price is \$35 and required return is 10%. Assuming the shares are properly priced, the present value of growth opportunities is *closest to*:

- ☐ A) +\$3.50.
- ☐ B) +\$5.00.
- ☒ C) -\$5.00.

Explanation

Share price = (no-growth earnings / required return) + PVGO

$35 = (4 / 0.10) + PVGO$

PVGO = -\$5.00

Question #113 of 133

Question ID: 463113

Methods for estimating the terminal value in a DDM are *least likely* to include:

- ☒ A) PVGO.
- ☐ B) the Gordon Growth Model.
- ☐ C) the market multiple approach.

Explanation

No matter which dividend discount model we use, we have to estimate a terminal value at some point in the future. There are two ways to do this: using the Gordon growth model and the market multiple approach (i.e., a P/E ratio).

Question #114 of 133

Question ID: 463042

Which of the following is *least likely* a limitation of the two-stage dividend discount model (DDM)?

- ☒ A) Terminal value estimate is most sensitive to estimates of future dividends.
- ☐ B) the length of the high-growth stage is difficult to measure.
- ☐ C) most of the value is due to the terminal value.

Explanation

The Terminal value in two-stage DDM is most sensitive to estimates of growth and required rate of return.

Question #115 of 133

Question ID: 463165

The current market price per share for Burton, Inc. is \$33.33, and an analyst is using the Gordon Growth model to determine whether this is a fair price. The company paid a dividend of \$2.00 last year on earnings of \$2.50 a share. If the required rate of return is 12.00% and the expected growth rate in earnings and in dividends is 6%, the current market price is *most likely*:

- ☒ A) undervalued.
- ☐ B) overvalued.
- ☐ C) correctly valued.

Explanation

The value per share using the estimates is $\$35.33 = [\$2.00(1.06) / 0.12 - 0.06]$. This is higher than the current share price.

Question #116 of 133

Question ID: 463096

The Gordon growth model will NOT work when the:

- ☐ A) required rate of return is greater than growth rate.
- ☒ B) growth rate is greater than or equal to the required rate of return.
- ☐ C) growth rate is less than the required rate of return.

Explanation

The Gordon growth model, $P_0 = \text{DPS}_1 / (r - g)$, will not work if the growth rate is greater than or equal to the required rate of return.

Question #117 of 133

Question ID: 463157

Supergro has current dividends of \$1, current earnings of \$3, and a return on equity of 16%, what is its sustainable growth rate?

- ☐ A) 12.2%.
- ☒ B) 10.7%.
- ☐ C) 8.9%.

Explanation

$$g = (1 - 1/3)(0.16) = 0.107$$

Question #118 of 133

Question ID: 463140

An investor computes the current value of a firm's shares to be \$34.34, based on an expected dividend of \$2.80 in one year and an expected price of the share in one year to be \$36.00. What is the investor's required rate of return on this investment?

- ☐ A) 10%.
- ☒ B) 13%.
- ☐ C) 11%.

Explanation

The required return = $[(\$36.00 + \$2.80) / \$34.34] - 1 = 0.13$ or 13%.

Question #119 of 133

Question ID: 463162

In the five-part DuPont model $\text{ROE} = (\text{NI/EBT})(\text{EBT/EBIT})(\text{EBIT/sales})(\text{sales/assets})(\text{assets/equity})$, the product of the first

three terms is:

- ✓ **A) net profit margin.**
- ✗ **B) gross profit margin.**
- ✗ **C) operating profit margin.**

Explanation

$(NI/EBT)(EBT/EBIT)(EBIT/sales) = (NI/sales) = \text{net profit margin.}$

Question #120 of 133

Question ID: 463043

Multi-stage dividend discount models can be used to estimate the value of shares:

- ✗ **A) only under a limited number of scenarios.**
- ✓ **B) under an almost infinite variety of scenarios.**
- ✗ **C) only when the growth rate exceeds the required rate of return.**

Explanation

Multi-stage dividend discount models are very flexible, allowing their use with an almost infinite variety of growth scenarios.

Question #121 of 133

Question ID: 463120

An analyst has forecast that Hapex Company, which currently pays a dividend of \$6.00, will grow at a rate of 8%, declining to 5% over the next two years, and remain at that rate thereafter. If the required return is 10%, based on an H-model what is the current value of Hapex shares?

- ✗ **A) \$131.17.**
- ✓ **B) \$129.60.**
- ✗ **C) \$126.24.**

Explanation

The current value of Hapex shares is \$129.60:

$$V_0 = [\$6(1 + 0.05) + \$6(2/2)(0.08 - 0.05)] / (0.10 - 0.05) = \$129.60$$

Question #122 of 133

Question ID: 463161

If Cantel, Inc., has current earnings of \$17, dividends of \$3.50, and a sustainable growth rate of 11%, what is its return on equity (ROE)?

- ✓ **A) 13.85%.**
- ✗ **B) 17.64%.**
- ✗ **C) 11.91%.**

Explanation

Cantel's ROE is 13.85%:

$$ROE = 11\% / [1 - (\$3.50/\$17.00)] = 13.85\%$$

Question #123 of 133

Question ID: 463104

Which of the following dividend discount models assumes a high growth rate during the initial stage, followed by a linear decline to a lower stable growth rate?

- ☒ A) Three-stage dividend discount model.
- ☒ B) H model.
- ☒ C) Gordon growth model.

Explanation

The H model assumes a high growth rate during the initial stage, followed by a linear decline to a lower stable growth rate. It also assumes that the payout ratio is constant over time.

Question #124 of 133

Question ID: 463133

Analyst Kelvin Strong is arguing with fellow analyst Martha Hatchett. Strong insists that the dividend discount model can be used to calculate the required return for a stock, though only if the growth rate remains constant. Hatchett maintains that while such models are useful for calculating the value of a stock, they should not be used to calculate required returns. Who is CORRECT?

Strong

Hatchett

- | | |
|--|-----------|
| <input checked="" type="checkbox"/> A) Incorrect | Incorrect |
| <input checked="" type="checkbox"/> B) Correct | Incorrect |
| <input checked="" type="checkbox"/> C) Incorrect | Correct |

Explanation

Dividend discount models can be used to calculate required returns, assuming you have the stock price, dividends, and dividend-growth rates, so Hatchett is wrong. Strong is right about the fact that a DDM can calculate required returns, but wrong about the growth rate assumption. Multistage dividend discount models can account for expected changes in the growth rate.

Question #125 of 133

Question ID: 463145

A firm pays a current dividend of \$1.00 which is expected to grow at a rate of 5% indefinitely. If current value of the firm's shares is \$35.00, what is the required return applicable to the investment based on the Gordon dividend discount model (DDM)?

- ☐ A) 7.86%.
- ☐ B) 8.25%.
- ☒ C) 8.00%.

Explanation

The Gordon DDM uses the dividend for the period (t + 1) which would be \$1.05.

$$\$35 = \$1.05 / (\text{required return} - 0.05)$$

Required return = 0.08 or 8.00%

Question #126 of 133

Question ID: 463069

A firm's dividend per share in the most recent year is \$4 and is expected to grow at 6% per year forever. If its shareholders require a return of 14%, the value of the firm's stock (per share) using the single-stage dividend discount model (DDM) is:

- ☐ A) \$50.00.
- ☐ B) \$28.57.
- ☒ C) \$53.00.

Explanation

The value of the firm's stock is: $\$4 \times [1.06 / (0.14 - 0.06)] = \53.00

Question #127 of 133

Question ID: 463059

An analyst has compiled the following financial data for ABC, Inc.

ABC, Inc. Valuation Scenarios				
Item	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Year 0 Dividends per Share	\$1.50	\$1.50	\$1.50	\$1.50
Long-term Treasury Bond Rate	4.0%	4.0%	5.0%	5.0%
Expected Return on the S&P 500	12.0%	12.0%	12.0%	12.0%
Beta	1.4	1.4	1.4	1.4
g (growth rate in dividends)	0.0%	3.0%	Years 1-3, g=12.0% After Year 3, g=3.0%	Year 1, g=20% Year 2, g=18% Year 3, g=16% Year 4, g=9% Year 5, g=8% Year 6, g=7% After Year 6, g=4%

What is the value of ABC, Inc.'s stock price using the assumptions contained in Scenario 4?

☒ A) \$18.52.

☒ B) \$26.66.

☒ C) \$22.22.

Explanation

The required rate of return is $(r) = 0.05 + 1.4(0.12 - 0.05) = 0.148$

The future dividends are predicted as the following:

Year	Dividend
0	1.50
1	$1.50 \times 1.2 = 1.80$
2	$1.80 \times 1.18 = 2.124$
3	$2.124 \times 1.16 = 2.464$
4	$2.464 \times 1.09 = 2.686$
5	$2.686 \times 1.08 = 2.900$
6	$2.901 \times 1.07 = 3.103$
7	$3.103 \times 1.04 = 3.227$

Now discount the dividend stream to get the value per share. Use the Gordon growth model to discount the constant growth after period 6.

Value per share = $(1.8 / 1.148) + (2.124 / 1.148^2) + (2.464 / 1.148^3) + (2.686 / 1.148^4) + (2.900 / 1.148^5) + (3.103 / 1.148^6) + (3.227 / 1.148^6(0.148 - 0.04)) = 22.22$.

Question #128 of 133

Question ID: 463139

An investor buys shares of a firm at \$10.00. A year later she receives a dividend of \$0.96 and sells the shares at \$9.00. What is her holding period return on this investment?

☒ A) +1.2%.

☒ B) -0.8%.

☒ C) -0.4%.

Explanation

The holding period return = $(\$0.96 + \$9.00 / \$10.00) - 1 = -0.004$ or -0.4%

Question #129 of 133

Question ID: 463029

The debate over whether to use the arithmetic mean or geometric mean of market returns for the capital asset pricing model (CAPM):

☒ A) was settled by the work of Harry Markowitz in 1972.

☒ B) has little practical effect because they are both very close.

- ✓ **C)** limits its usefulness in estimating the required return of an asset.

Explanation

There are several characteristics of the CAPM that limit its usefulness in determining the required returns, including the uncertainty whether we should use arithmetic or geometric means as the appropriate measure of long-term average returns.

Question #130 of 133

Question ID: 463090

If an asset's beta is 0.8, the expected return on the equity market is 10.0%, and the appropriate discount rate for the Gordon model is 9.0%, what is the risk-free rate?

- ☒ **A)** 6.50%.
- ☒ **B)** 2.50%.
- ✓ **C)** 5.00%.

Explanation

Required return = risk-free rate + beta (expected equity market return - risk-free rate)

9% = risk-free rate + 0.8(0.10 - risk-free rate)

9% = 0.08 + 0.2(risk-free rate)

1% / 0.2 = risk-free rate = 0.05 or 5%

Question #131 of 133

Question ID: 463084

Ambiance Company has a current market price of \$42, a current dividend of \$1.25 and a required rate of return of 12%. All earnings are paid out as dividends. What is the present value of Ambiance's growth opportunities (PVGO)?

- ☒ **A)** \$38.85.
- ☒ **B)** \$16.71.
- ✓ **C)** \$31.58.

Explanation

The PVGO is \$31.58:

$$PVGO = \$42 - (\$1.25 / 0.12) = \$31.58$$

Question #132 of 133

Question ID: 463089

Stan Bellton, CFA, is preparing a report on TWR, Inc. Bellton's supervisor has requested that Bellton include a justified trailing price-to-earnings (P/E) ratio based on the following information:

Current earnings per share (EPS) = \$3.50.

Dividend Payout Ratio = 0.60.

Required return for TRW = 0.15.

Expected constant growth rate for dividends = 0.05.

TWR's justified trailing P/E ratio is *closest* to:

- ☐ A) 4.0.
- ☒ B) 6.3.
- ☐ C) 6.0.

Explanation

The dividend payout ratio (1 - b) is 0.60, so the retention ratio (b) is 0.4.

$$\frac{(0.60)(1 + 0.05)}{0.15 - 0.05} = 6.30$$

Question #133 of 133

Question ID: 463068

A company reports January 1, 2002, retained earnings of \$8,000,000, December 31, 2002, retained earnings of \$10,000,000, and 2002 net income of \$5,000,000. The company has 1,000,000 shares outstanding and dividends are expected to grow at a rate of 5% per year. What is the expected dividend at the end of 2003?

- ☐ A) \$3.00.
- ☒ B) \$3.15.
- ☐ C) \$13.65.

Explanation

The first step is to determine 2002 dividends paid as $(\$8,000,000 + \$5,000,000 - 10,000,000) = \$3,000,000$. The next step is to find the dividend per share $(\$3,000,000 / 1,000,000 \text{ shares}) = \3.00 per share. Applying the 5% growth rate, next year's expected dividend is \$3.15, or $\$3.00 \times 1.05$.