Residual Income Valuation

Test ID: 7441466

Question #1 of 63

Question ID: 463488

Creative Gardening is expected to have a return on equity (ROE) of 13% for the next five years and 10% thereafter, indefinitely. Its current book value per share as of the *beginning* of year 1 (i.e., the end of year 0) is $7.50 per share and its required rate of return is 10%. The premium over book value at the end of five years is expected to be 30%. All earnings are reinvested. The sum of the present values of the residual income estimates over the next five years is $1.10. The projected ending book value in year 5 is $13.83. What is the value of Creative Gardening using these inputs?

✓ **A) $11.18.**

✗ **B)** $8.60.

✗ **C)** $13.83.

Explanation

Applying the finite horizon residual income valuation model:

> $V_0 = B_0$ + sum of discounted RIs + discounted premium
> $= 7.50 + 1.10 + [(0.30)(13.83)/(1.10)^5] = \$11.18$

Question #2 of 63

Question ID: 463464

Economic value added (EVA®) is calculated as net operating profit after taxes minus:

✓ **A) a charge for total capital.**

✗ **B)** a charge for equity capital.

✗ **C)** capital expenditures.

Explanation

EVA = NOPAT - (C% × TC), where NOPAT is a firm's net operating profit after taxes, C% is the cost of capital, and TC is total capital.

Question #3 of 63

Question ID: 463527

An analyst uses the financial statements of Advanced Instruments to generate the following estimates:

- Book Value per share = 4.00
- Dividend retention ratio = 75%
- ROE = 17%

If the required rate of return is 15%, and the current share price is $7.56 per share, the stock (using a single-stage residual income model) is *most likely*:

✓ **A) correctly valued.**

✗ **B)** undervalued.

✗ **C)** overvalued.

Explanation

g = retention ratio × ROE = (0.75) × 0.17 = 0.1275 or 12.75%

$$V_0 = \$4.00 + \left(\frac{0.17 - 0.15}{0.15 - 0.1275} \times \$4.00\right) = \$7.56$$

Question #4 of 63

Question ID: 463510

The present value of GB Industries' projected residual income (RI) for the next five years is 70 per share. Beyond that time horizon, a key analyst projects that the firm will sustain a RI of 15 per share, which is the RI for year 5. Given a cost of equity of 12%, what is the terminal value of the stock as of year 5?

✓ **A) £125.00.**

✗ **B)** £500.00.

✗ **C)** £560.00.

Explanation

The stock's terminal value as of year 5 is:

> TV = 15.00/0.12 = 125.00

Question #5 of 63

Question ID: 463520

The residual income approach is NOT appropriate when:

✓ **A) the clean surplus accounting relation is violated significantly.**

✗ **B)** a firm does not pay dividends or the stream of payments is too volatile to be sufficiently predictable.

✗ **C)** expected free cash flows are negative for the foreseeable future.

Explanation

The residual income approach is not appropriate when the clean surplus accounting relation is violated significantly. Both remaining responses describe circumstances in which the approach is appropriate.

Question #6 of 63

Question ID: 463498

Midland Semiconductor has a book value of $10.50 per share. The company's return on equity is 20%, and its required return on equity is 17%. The dividend payout ratio is 30%. What is the value of the shares using a single-stage residual income model?

✓ **A) $21.00.**

✗ **B)** $10.50.

✗ **C)** $31.50.

Explanation

g = retention ratio × ROE = (1 − 0.30) × 0.20 = 0.14 or 14%

$$V_0 = \$10.50 + \left(\frac{0.20 - 0.17}{0.17 - 0.14} \times \$10.50\right) = \$21.00$$

Question #7 of 63

Question ID: 463492

Professor Cliff Webley made the following statements in his asset-valuation class:

Statement 1: "Residual income approaches generally model ROE as approaching zero over time."

Statement 2: "If actual return on equity equals required return on equity, the residual income model sets the company's proper market value equal to its book value."

Statement 3: "Using consistent assumptions, the single-stage residual income model should give you the same valuation as the Gordon Growth Dividend-discount model."

Which of Webley's statements is *least* accurate?

✗ **A) Statement 2.**

✗ **B)** Statement 3.

✓ **C)** Statement 1.

Explanation

In a competitive market, ROE has been found to decline over time -- not to zero but to the cost of equity. Thus, residual income approaches often model ROE fading toward the cost of equity. As ROE approaches the cost of equity, residual income approaches zero. The other two statements are accurate.

Question #8 of 63

Question ID: 463489

Brown Manufacturing's recent financial statements reported a book value of $9.50 per share; its required rate of return is 10%. Analyst Tony Giancola, CFA, wants to calculate the company's intrinsic value using a multistage residual income with a high-growth RI for the next 5 years. Giancola creates the following estimates:

- PV of interim high-growth RI for the next 5 years is $3.10
- At the end of year 5, the PV of continuing RI is $10.00
- Estimated Book Value in 5 years is $25.00

Which of the following is *closest to* the current intrinsic value of Brown Manufacturing?

✗ **A) $13.10.**

✓ **B)** $18.81.

✗ **C)** $22.60.

Explanation

Applying the multistage residual income model:

> $V_0 = B_0$ + PV of interim high-growth RI + PV of continuing RI
> $= 9.50 + 3.10 + [(10.00) / (1.10)^5] = \$18.81$

Question #9 of 63

Question ID: 463503

An investor is considering the purchase of Microscopics, which has a price to book value (P/B) ratio of 4.00. Return on equity (ROE) is expected to be 12%, current book value per share is $12.00, and the cost of equity is 10%. What growth rate is implied by the current P/B rate?

✓ **A) 9.33%.**

✗ **B)** 10.00%.

✗ **C)** 0.67%.

Explanation

The P/B ratio of 4.00 and the current book value per share of $12.00 imply a current market price of $48.00. This implies a growth rate of:

$g = r - [\{B_0(ROE - r)\} / \{V_0 - B_0\}] = 0.10 - [\{12.00(0.12 - 0.10)\} / \{48.00 - 12.00\}] = 0.0933 = 9.33\%$.

Note that the reading in the curriculum does not provide this expression directly.

Question #10 of 63

Question ID: 463518

The residual income approach is appropriate when:

✗ **A) a firm pays high dividends that are quite stable.**

✗ **B)** the clean surplus accounting relation is violated significantly.

✓ **C)** expected free cash flows are negative for the foreseeable future.

Explanation

The residual income approach is appropriate when expected free cash flows are negative for the foreseeable future. It is not appropriate when the clean surplus accounting relation is violated significantly. A firm that pays high dividends that are quite stable is also a poor candidate for the approach.

Question #11 of 63

Question ID: 463499

Big Sky Ranches reported the following for the end of its fiscal year:

- Revenues = $40.8 million.
- Pretax income = $8.6 million.
- Assets = $53.2 million.
- Liabilities = $27.8 million.

- Dividends per share = $0.35.
- Shares outstanding = 8 million.
- Tax rate = 35%.

The beta for Big Sky Ranches is 1.2, the current risk-free rate is 4.5%, and the expected return on the market is 12.5%. What is the value of the shares using a single-stage residual income model?

✗ **A) $8.10.**

✓ **B)** $11.28.

✗ **C)** $23.23.

Explanation

After tax earnings = Pretax earnings × (1 − T) = 8.6 million × (1 − 0.35) = $5.59 million

EPS = After tax earnings/shares outstanding = $5.59 million / 8 million = $0.70

Retention ratio = (0.70 − 0.35) / 0.70 = 0.50 or 50%

Equity = Assets − liabilities = $53.2 million − $27.8 million = $25.4 million

Book value per share = Total equity/shares outstanding = $25.4 million / 8 million = $3.18

ROE = $0.70 / $3.18 = 0.22 or 22%

g = retention ratio × ROE = (0.50) × 0.22 = 0.11 or 11.00%

Expected return = 0.045 + [0.125 − 0.045]1.2 = 0.1410 or 14.10 %

$$V_0 = \$3.18 + \left(\frac{0.22 - 0.141}{0.141 - 0.11} \times \$3.18\right) = \$11.28$$

Question #12 of 63

Question ID: 463505

Continuing residual income is defined as the:

✓ **A) residual income that is expected beyond the initial forecast time horizon.**

✗ **B)** residual income that forces the net present value to zero.

✗ **C)** permanent as opposed to the transitory part of residual income.

Explanation

Continuing residual income is defined as the residual income that is expected beyond the initial forecast time horizon. It comes into play when RI is forecast for a defined time horizon and a terminal value based on continuing RI is estimated at the end of that time frame.

Question #13 of 63

Question ID: 463487

The residual income approach is appropriate when:

✓ **A) a firm does not pay dividends or the payments are too volatile to be sufficiently predictable.**

✗ **B)** the clean surplus accounting relation is violated significantly.

✗ **C)** a firm pays high dividends that are quite stable.

Explanation

The residual income approach is appropriate when a firm does not pay dividends or the payments are too volatile to be sufficiently predictable. It is not appropriate when the clean surplus accounting relation is violated significantly. A firm that pays high dividends that are quite stable is also a poor candidate for the approach.

Question #14 of 63

Question ID: 463475

Travel Advisors has earnings before interest and taxes (EBIT) of $200 million, interest expense of $83 million, taxes of $46.8 million, and total debt of $125 million. It is also financed with total equity of $650 million, which has a required rate of return of 12 percent. What is Travel Advisors' residual income? A:

✓ **A) loss of $7.8 million.**

✗ **B)** profit of $70.2 million.

✗ **C)** loss of $70.2 million.

Explanation

Net income = 200,000,000 - 83,000,000 - 46,800,000 = $70,200,000. The equity capital charge is 650,000,000 × 0.12 = $78,000,000. Thus, residual income = 70,200,000 - 78,000,000 = -$7,800,000.

Question #15 of 63

Question ID: 463477

Cognitive Products (CP) designs decision-making software. The book value of its assets is $3.2 billion, which is financed with $2.0 billion in equity and $1.2 billion in debt. Its before-tax cost of debt is 6.5%, while its relevant tax rate is 34%. CP has a cost of equity of 12.46%. Its abbreviated income statement is:

Earnings before interest and taxes (EBIT)	$213,000,000
Interest expense	(30,000,000)
Pretax income	183,000,000
Income tax expense	(62,220,000)
Net income	$120,780,000

The residual income (RI) for CP is *closest* to:

✗ **A) -$128,369,000.**

✓ **B)** -$128,420,000.

✗ **C)** -$128,471,000.

Explanation

The dollar-based equity charge is:

> equity charge = equity capital × cost of equity = $2.0 billion × 0.1246 = $249,200,000.

RI is calculated as:

Net Income	$120,780,000
(Less) Equity charge	(249,200,000)
RI	−$128,420,000

Question #16 of 63

Question ID: 463525

Big Sky Ranches reported the following for the end of its fiscal year:

- Book Value = $3.18
- ROE = 22%
- Retention Ratio = 50%
- Required Return = 14.1%

The current share price is $11.28 per share. The shares (relative to a single-stage residual income model) are *most likely*:

✓ **A) correctly valued.**

✗ **B)** undervalued.

✗ **C)** overvalued.

Explanation

g = retention ratio × ROE = (0.50) × 0.22 = 0.11 or 11.00%

$$V_0 = \$3.18 + \left(\frac{0.22 - 0.141}{0.141 - 0.11} \times \$3.18 \right) = \$11.28$$

Question #17 of 63

Question ID: 463466

Market value added is calculated as:

✗ **A) market value of the company minus a charge for equity capital.**

✓ **B)** market value of the company minus total capital.

✗ **C)** net operating profit after taxes minus a charge for total capital.

Explanation

Market value added is the market value of the company minus total capital. It is used to measure the effect on value of management's decisions since the firm's inception.

Question #18 of 63

Question ID: 463524

In general, firms making aggressive accounting decisions will report *future* earnings that are:

✗ **A) higher.**

✗ **B)** inflation-adjusted.

✓ **C)** lower.

Explanation

In general, firms making aggressive (conservative) accounting decisions will report higher (lower) book values and lower (higher) *future* earnings.
Firms may adopt aggressive accounting practices that overstate the value of earnings by, for example, accelerating revenues to the current period or deferring expenses to a later period. Current earnings will be higher, but *future* earnings will be lower.

Question #19 of 63

Question ID: 463504

An analyst is considering the purchase of Delphos Machinery, which has a price-to-book value (P/B) ratio of 8.00. Return on equity (ROE) is expected to be 14%, current book value per share is $12.00, and the cost of equity is 11%. What growth rate is implied by the current P/B rate?

✓ **A) 10.57%.**

✗ **B)** 11.00%.

✗ **C)** 8.43%.

Explanation

The P/B ratio of 8.00 and the current book value per share of $12.00 imply a current market price of $96.00. This implies a growth rate of:

$g = r - [B_0(ROE - r)] / (V_0 - B_0) = 0.11 - [12.00(0.14 - 0.11)] / (96.00 - 12.00) = 0.1057 = 10.57\%$.

(Note: the curriculum does not provide this expression directly.)

Question #20 of 63

Question ID: 463501

An investor is considering the purchase of Robust Econometrics, Inc., which has a price-to-book (P/B) value ratio of 4.50. Return on equity (ROE) is expected to be 14%, the current book value per share (BVPS) is Sf22.50, and the cost of equity is 12%. The growth rate implied by the current P/B ratio is *closest* to:

✓ **A) 11.43%.**

✗ **B)** 8.00%.

✗ **C)** 12.57%.

Explanation

The P/B ratio of 4.50 and the current BVPS of Sf22.50 imply a market price of Sf101.25(4.5 × 22.5). This implies a growth rate

of:

$$g = r - \frac{B_0 \times (ROE - r)}{V_0 - B_0} = 0.12 - \frac{Sf22.50 \times (0.14 - 0.12)}{Sf101.25 - Sf22.50} = 0.1143 = 11.43\%$$

Question #21 of 63

Question ID: 463516

Which statement *best* describes the relationship between the residual income model and the free cash flow to equity model?

✗ **A) They do not rely on accounting assumptions.**

✗ **B)** They both discount a future stream of cash flows.

✓ **C)** Intrinsic value calculated by both should be the same if the assumptions are the same.

Explanation

Theoretically the intrinsic value calculated by both should be the same, but since they use different approaches the values are often different in practice. Residual income relies on book value and discounts income, not cash flow.

Question #22 of 63

Question ID: 463496

Assuming that the growth rate is less than the required rate of return (*r*), a decrease in initial book value will cause value in a residual income (RI) model to:

✓ **A) decrease.**

✗ **B)** there is insufficient information to determine the effect on RI.

✗ **C)** increase.

Explanation

A decrease (increase) in initial book value decreases (increases) value. This is revealed by the RI valuation expression:

> $V_0 = B_0 + [(ROE - r) / (r - g)]B_0$

Question #23 of 63

Question ID: 463486

A residual income model would be *least appropriate* as a tool to measure which of the following?

✓ **A) Operating leverage.**

✗ **B)** Economic income.

✗ **C)** Goodwill impairment.

Explanation

Operating leverage is not measured directly by residual income models, although operating leverage may have an effect on the residual income measured. Residual income models are intended as a measure of economic income, and are often used to measure goodwill impairment.

Question #24 of 63

Question ID: 463513

An argument for using the residual income (RI) valuation approach is that:

✓ **A) the models focus on economic rather than just on accounting profitability.**

✗ **B)** the models rely on accounting data that can be manipulated by management.

✗ **C)** the clean surplus relation fails to hold.

Explanation

The models focus on economic rather than just on accounting profitability. Both remaining responses are arguments against using the RI approach.

Question #25 of 63

Question ID: 463476

Residual income is defined as:

✗ **A) operating income plus depreciation and amortization.**

✗ **B)** net income less a charge for capital investment.

✓ **C)** net income less a charge that measures stockholders' opportunity cost in generating that income.

Explanation

Residual income is defined as net income less a charge that measures stockholders' opportunity cost in generating that income.

Question #26 of 63

Question ID: 463521

Analyst Brett Melton, CFA, is looking at two companies. Happy Cow Dairies has volatile cash flows, and its free cash flow is often negative. The company pays no dividends. Glitter and Gold, a maker of girls' clothing, has a fairly steady stream of earnings and cash flows but takes a lot of charges against equity. Is the residual income model suitable for valuing the two companies?

	Happy Cow Dairies	Glitter and Gold
✓ **A)**	**Yes**	**No**
✗ **B)**	No	Yes
✗ **C)**	No	No

Explanation

Residual income models work for companies with no dividends and volatile or negative cash flows. They do not work, however, when the clean surplus relation does not hold, as is the case when companies take charges against equity.

Question #27 of 63

Question ID: 463512

An argument for using the residual income (RI) valuation approach is that:

✗ **A) reliance on accounting data requires numerous and significant adjustments.**

✓ **B)** terminal value does not dominate total present value as is the case in dividend and free cash flow valuation models.

✗ **C)** the models rely on accounting data that can be manipulated by management.

Explanation

Terminal value does not dominate total present value as is the case in dividend and free cash flow valuation models. Both remaining responses are arguments against using the RI approach.

Question #28 of 63

Question ID: 463495

Among the various price multiples, the residual income model is *most closely* linked to which of the following?

✗ **A) Price to earnings (P/E).**

✗ **B)** Price to free cash flow (P/FCF).

✓ **C)** Price to book value (P/B).

Explanation

The residual income model is most closely linked to P/B because justified P/B is directly linked to expected residual future income.

Questions #29-34 of 63

Sue Clifton, CFA, is a senior portfolio manager at Lewiston Investments, a small research firm. Clifton has been assigned to help new hire Ralph Rawls get acclimated to his new job as a stock analyst. She discovers early on that Rawls is not too familiar with residual income valuation, a tool for determining economic profitability.

Clifton explains the basics of the residual-income model and the clean surplus relationship that underpins the system. Clifton then offers Rawls some reasons why residual income is useful:

> Reason 1: "Residual-income valuation works even when cash flows are volatile or negative."
>
> Reason 2: "Terminal value, the most uncertain aspect of dividend discount models, is less important in residual-income valuation."
>
> Reason 3: "The models depend on data that is easy to obtain and requires minimal modification."
>
> Reason 4: "All residual-income models are dependent on assumptions about earnings growth."

Clifton explains to Rawls that analysts use assumptions to make the residual-income models easier to interpret. She goes on to identify four commonly used assumptions: Residual income can be expected to:

- disappear immediately
- decline gradually as return on equity (ROE) declines
- stay at the same level indefinitely
- decline to the market average

After her initial review of residual income, Clifton gives Rawls a test. The answers depend on the use of the following information about CR Industries in Year X (in $ millions):

Invested capital	$225
Market capitalization	$231
Debt	$130
Sales	$90
Cost of goods sold (COGS)	$26
Selling, general & administrative (SG&A) expense	$10
Depreciation and amortization expense	$25
Interest expense	$6.5
Dividend expense	$6
Tax rate	40.0%
Pretax cost of equity	11.4%
Pretax cost of debt	5.00%

Question #29 of 63

Question ID: 463469

When a company's ROE is the same as the return required by the market, the stock's justified market value is *closest* to the:

✓ **A) book value.**

✗ **B)** actual market value plus residual income.

✗ **C)** book value plus residual income.

Explanation

When ROE is equal to the required return on equity, the justified market value of a share of stock is equal to its book value. In this case, there is no residual income. (Study Session 11, LOS 32.a, b)

Question #30 of 63

Question ID: 463470

Which of the following assumptions is not commonly used to simplify the calculation of residual income? Continuing residual income is expected to:

✗ **A) decline gradually as ROE declines.**

✗ **B)** disappear immediately.

✓ **C)** decline to the market average.

Explanation

A common assumption involves residual income declining to an average level consistent with a mature industry. This assumption makes sense, considering that we generally calculate residual income for an individual company, and the company's industry average is quite possibly the best benchmark for its future income-generation potential. The market average is not generally used as a proxy. Both remaining assumptions are commonly used. (Study Session 11, LOS 32.a)

Question #31 of 63

Question ID: 463471

Which of the following regarding the statements Clifton made about the usefulness of residual-income valuation is *most* accurate? Clifton is correct in regard to:

✗ **A) Reasons 1, 2, and 4, but incorrect in regard to Reason 3.**

✗ **B)** Reason 4, but incorrect in regard to Reasons 1, 2 and 3.

✓ **C)** Reasons 1 and 2, but incorrect in regard to Reasons 3 and 4.

Explanation

Clifton's Reasons 1 and 2 are correct. Residual-income models work when cash flows are volatile or negative and are not dominated by terminal value calculations.
Clifton's Reason 3 is incorrect. Residual-income models use accounting data that is easy to find, but often requires numerous adjustments.
Reason 4 is also incorrect. General residual-income models make no assumptions in regard to future earnings growth. They can be modified to include growth if the dividend rate and the growth rate are assumed to be constant. (Study Session 11, LOS 32.a, c)

Question #32 of 63

Question ID: 463472

Which of the following scenarios represents a violation of the clean surplus relationship?

✓ **A) The market value of securities held for sale changes.**

✗ **B)** Unusual charges against income are not charged against equity.

✗ **C)** A company stops paying dividends suddenly.

Explanation

The clean surplus relationship holds that ending book value equals the beginning book value plus earnings minus dividends, excluding ownership transactions. The relationship is violated when charges skip the income statement and go directly to equity. Changes in the market value of debt and equity classified as available for sale can affect equity without affecting earnings. Unusual charges should not be included in residual-value calculations because they are not expected to recur. Charges that do not affect equity will not violate the relationship. Cessation of dividends also does not violate the relationship. (Study Session 12, LOS 38.k)

Question #33 of 63

Question ID: 463473

The residual income of CR Industries is *closest* to:

✗ **A) −$1.83 million.**

✗ **B)** −$12.15 million.

✓ **C)** $2.67 million.

Explanation

Residual income = net income − equity charge.

Net income = (sales − COGS − SG&A expense − depreciation and amortization expense − interest expense) × (1 − tax rate) = $13.5 million.

Equity charge = equity × cost of equity.
(total capital - debt) × cost of equity = $95 million × 11.4% = $10.83 million.

Residual income = $13.5 million − $10.83 million = $2.67 million.

(Study Session 11, LOS 32.a)

Question #34 of 63

Question ID: 463474

The economic value added (EVA) of CR Industries is *closest* to:

✗ **A) −$4.53 million.**

✓ **B)** $2.67 million.

✗ **C)** −$8.13 million.

Explanation

EVA = NOPAT − (WACC × invested capital).

NOPAT = (sales − COGS − SG&A expense − depreciation and amortization expense) × (1 − tax rate) = $17.40 million.

To calculate the weighted average cost of capital (WACC), start by determining the percentage of equity and debt. $130 million in debt represented 57.78% of total capital. The remaining 42.22% is the equity portion. Don't forget to adjust the cost of debt for taxes.

WACC = 57.78% × (5% × [1 − 40%]) + (42.22% × 11.4%) = 6.55%.

EVA = $17.40 million − ($225 million × 6.55%) = $2.67 million.

Note that in this problem residual income and EVA are the same. This is true in a "perfect world" but you should not assume this will always be true on exam problems.

(Study Session 11, LOS 32.a)

Question #35 of 63

Question ID: 463526

Midland Semiconductor has a book value of $10.50 per share. The company's return on equity is 20%, and its required return on equity is 17%. The dividend payout ratio is 30%. The current share price is $21.00 per share. The shares (relative to a single-stage residual income model) are *most likely:*

✗ **A) overvalued.**

✓ **B)** correctly valued.

✗ **C)** undervalued.

Explanation

g = retention ratio × ROE = (0.7) × 0.20 = 0.14 or 14%

$$V_0 = \$10.50 + \left(\frac{0.20 - 0.17}{0.17 - 0.14} \times \$10.50\right) = \$21.00$$

Question #36 of 63

Question ID: 463490

Red Shoes's recent financial statements reported a book value of $11.00 per share; its required rate of return is 9%. Analyst Tony Giancola, CFA, wants to calculate the company's intrinsic value using a multistage residual income with a high-growth RI for the next 5 years. Giancola creates the following estimates:

- PV of interim high-growth RI for the next 5 years is $ 2.90
- At the end of year 5, the PV of continuing RI is $7.00
- Estimated Book Value in 5 years is $14.00

Which of the following is *closest to* the current intrinsic value of Red Shoes?

✓ **A) $18.45.**

✗ **B)** $20.90.

✗ **C)** $9.90.

Explanation

Applying the multistage residual income model:

> $V_0 = B_0$ + PV of interim high-growth RI + PV of continuing RI
> = 11.00 + 2.90 + [(7.00) / $(1.09)^5$] = $18.45

Question #37 of 63

Question ID: 463522

Reported accounting data are *most likely* to bias an estimate of residual income when:

✓ **A) standards allow charges directly to stockholders' equity while bypassing the income statement.**

✗ **B)** standards allow charges directly to stockholders' equity that are also reflected on the income statement.

✗ **C)** the clean surplus relation holds.

Explanation

Bias is likely when standards allow charges directly to stockholders' equity while bypassing the income statement. Both remaining responses are consistent with the use of data that will not introduce a bias.

Question #38 of 63

Question ID: 463463

Travel Advisors has earnings before interest and taxes (EBIT) of $200 million, interest expense of $83 million, taxes of $46.8 million, and total debt of $125 million. It is also financed with total equity of $850 million, which has a required rate of return of 12%. What is Travel Advisors' residual income?

✗ **A) A profit of $70.2 million.**

✗ **B)** A profit of $31.8 million.

✓ **C)** A loss of $31.8 million.

Explanation

Net income = 200,000,000 - 83,000,000 - 46,800,000 = $70,200,000. The equity capital charge is 850,000,000 × 0.12 = $102,000,000. Thus, residual income = 70,200,000 - 102,000,000 = -$31,800,000.

Question #39 of 63

Question ID: 463509

The present value of Raver Industries' projected residual income (RI) for the next five years is £60 per share. Beyond that time horizon, a key analyst projects that the firm will sustain a RI of £11 per share, which is the RI for year 5. Given a cost of equity of 12%, what is the terminal value of the stock as of year 5?

✗ **A) £500.00.**

✗ **B)** £560.00.

✓ **C)** £91.67.

Explanation

The stock's terminal value as of year 5 is:

> TV = 11.00 / 0.12 = 91.67

Question #40 of 63

Question ID: 463465

A common adjustment in calculating economic value added (EVA®) is to:

✓ **A) capitalize and amortize research and development expenses.**

✗ **B)** add back deferred taxes.

✗ **C)** treat capital leases as operating leases.

Explanation

It is common to capitalize and amortize research and development (R&D) expenses and add R&D expenses back to earnings. Deferred taxes are eliminated to pick up only cash taxes. Operating leases are treated as capital leases.

Question #41 of 63

Question ID: 463517

A use of the residual income (RI) valuation approach is:

✓ **A) providing a check of consistency between competing approaches like free cash flow of equity (FCFE) and dividend discount model (DDM) .**

✗ **B)** providing more reliable estimates of terminal value.

✗ **C)** deferring value more than in competing valuation approaches.

Explanation

A RI model can be used along with other models to assess the consistency of results. FCFE and DDM models forecast future cash flows while RI models start with a balance sheet measure of equity and add the present value of expected future RI.

Question #42 of 63

Question ID: 463493

Assuming that the growth rate is less than the required rate of return (*r*), an increase in return on equity (ROE) will cause value in a residual income (RI) model to:

✗ **A) there is insufficient information to derive the effects of increasing ROE on RI.**

✗ **B)** decrease if ROE is greater than the required rate of return.

✓ **C)** increase if ROE is greater than the required rate of return.

Explanation

An increase (decrease) in ROE increases (decreases) value if the ROE exceeds the required rate of return. This is revealed by the RI valuation expression:

> $V_0 = B_0 + [(ROE - r) / (r - g)]B_0$

Question #43 of 63

Question ID: 463494

The single-stage residual income model values a company at:

✗ **A) book value plus the terminal value discounted at the weighted average cost of capital.**

✗ **B)** book value times a factor determined by the discount rate.

✓ **C)** book value plus the present value of the firm's expected economic profits.

Explanation

The single-stage residual income model values a company at book value plus the present value of the firm's economic profits, or the additional value generated by the firm's ability to produce returns higher than the cost of equity.

Question #44 of 63

Question ID: 472545

Advanced Instruments reported the following for the end of its fiscal year:

- Revenues = $50.3 million.
- Assets = $33.8 million.
- Liabilities = $13.8 million.
- Earnings per share = $0.68.
- Dividends per share = $0.17.
- Shares outstanding = 5 million.

- Tax rate = 40%.

If the required rate of return is 15%, what is the value of the shares using a single-stage residual income model?

✓ **A) $7.56.**

✗ **B)** $4.78.

✗ **C)** $6.01.

Explanation

Retention ratio = (0.68 - 0.17) / 0.68 = 0.75 or 75%

Equity = Assets - liabilities = $33.8 million − $13.8 million = $20 million

Book value per share = Total equity / shares outstanding = $20 million / 5 million = $4.00

ROE = $0.68 / $4.00 = 0.17 or 17%

g = retention ratio × ROE = (0.75) × 0.17 = 0.1275 or 12.75%

$$V_0 = \$4.00 + \left(\frac{0.17 - 0.15}{0.15 - 0.1275} \times \$4.00\right) = \$7.56$$

Question #45 of 63

Question ID: 463467

SmallCo has the following characteristics:

- Long-term debt = $55 million
- Equity = $45 million
- WACC = 11%
- EBIT = $10 million
- Marginal tax rate = 30%

SmallCo's economic value added is *closest to*:

✗ **A) +$1 million.**

✗ **B)** -$1 million.

✓ **C)** -$4 million.

Explanation

Economic value added (EVA) measures the value added for shareholders by management during a given year. A company must produce EVA in order to increase its market value. EVA is calculated as:

EBIT(1 − t) − $WACC
10(1 − 0.30) − 0.11(55 + 45)
7 − 11
-4

Question #46 of 63

Question ID: 463515

Which description of the relationship among residual income, dividend discount (DDM) and free cash flow to equity (FCFE) models is *least* accurate?

✗ **A) Residual income differs from DDM and FCFE in that residual income starts with book value.**

✓ **B)** The different models should result in different intrinsic values because of the theoretical differences in the models.

✗ **C)** Residual income differs from DDM and FCFE in that it discounts income rather than cash.

Explanation

The three models should all produce the same intrinsic value as long as the underlying assumptions are the same. The differences in intrinsic values arise from difficulty in estimating the inputs, not from theoretical differences in the models. Since they should produce the same results, they can be used to assess consistency. Residual income differs from DDM and FCFE in the use of accounting assumptions, including book value and discounting income.

Question #47 of 63

Question ID: 463523

In general, firms making aggressive accounting decisions will report book values that are:

✗ **A) lower.**

✗ **B)** consistent with fair market value.

✓ **C)** higher.

Explanation

In general, firms making aggressive (conservative) accounting decisions will report higher (lower) book values and lower (higher) future earnings.

Question #48 of 63

Question ID: 463514

An argument against using the residual income (RI) valuation approach is that:

✗ **A) the models focus on economic rather than just on accounting profitability.**

✗ **B)** terminal value does not dominate total present value as is the case in dividend and free cash flow valuation models.

✓ **C)** the models rely on accounting data that can be manipulated by management.

Explanation

An argument against using the RI approach is that the models rely on accounting data that can be manipulated by management. Both remaining responses are arguments in favor of the approach.

Question #49 of 63

Question ID: 463508

A common assumption regarding continuing residual income (RI) is that RI:

✗ **A) manifests a generally increasing trend indefinitely.**

✗ **B)** falls to the average industry level.

✓ **C)** declines to zero as return on equity (ROE) drops to the cost of equity over time.

Explanation

It is common to assume that RI declines to zero as ROE drops to the cost of equity over time. Other assumptions analysts may make include RI continues indefinitely at a positive level or RI reflects a decline in ROE to a long-run average level.

Question #50 of 63

Question ID: 463485

Which of the following is the *most* appropriate tool to measure managerial effectiveness, goodwill impairment, and equity value?

✗ **A) Gordon growth model.**

✗ **B)** Free cash flow to the firm.

✓ **C)** Residual income.

Explanation

Residual income is commonly used to measure managerial effectiveness, goodwill impairment and equity value. The Gordon Growth Model (GGM) would not be appropriate in instances where the underlying assumptions (such as stable growth in perpetuity) do not apply. Free cash flow to the firm and price to sales would often not be appropriate tools to measure goodwill impairment.

Question #51 of 63

Question ID: 463507

If a multistage residual income model incorporates a persistence factor of zero, the analyst is *most likely* assuming that residual income will:

✗ **A) decline to zero over time.**

✗ **B)** persist at the current level forever.

✓ **C)** fall to zero immediately.

Explanation

A persistence factor of zero is used when residual income is expected to drop immediately to zero. A persistence factor of one is used when residual income is expected to persist at the current level forever. A persistence factor between zero and one is used when residual income is expected to decline over time.

Question #52 of 63

Question ID: 463519

Which of the following characteristics of a company would make it unsuitable for residual income valuation analysis?

✗ **A) Free cash flows are negative and likely to remain so for some time.**

✗ **B)** The forecast of terminal value is not reliable.

✓ **C)** Book-value estimates are not reliable.

Explanation

Residual income models can handle negative free cash flows and poor forecasts for terminal value. However, poor book-value estimates render the statistic less useful.

Questions #53-58 of 63

Geremiah Analytics provides litigation consulting services to the intellectual property industry. They specialize in patent infringement liability and software valuation. Mariah Hofstedt, CFO of Geremiah, projects that the firm will earn $3 million pre-tax income this year. Additional selected financial data on Geremiah are presented below.

> **Table 1: Selected Financial Data for Geremiah Analytics**
>
> | | |
> |---|---|
> | Total assets | $40 million |
> | Debt/assets | 60% |
> | Average coupon on debt | 8% |
> | Cost of equity | 12% |
> | Tax rate | 40% |

Hofstedt has not been happy with the firm's financial performance. She would like to increase return on equity (ROE) and improve revenue growth, and is considering various ways to deploy Geremiah's cash flow in order to meet these two goals. One possibility is using some of Geremiah's cash flow to make a strategic acquisition.

Hofstedt has been looking at a smaller boutique firm, Logiciels LaMarre, which provides consulting services to the software industry. Hofstedt and a Geremiah Analytics valuation team have performed a preliminary valuation on Logiciels LaMarre using a free cash flow to equity (FCFE) model. However, Theodore LaMarre, CEO of Logiciels LaMarre, is not pleased with the resultant valuation that Geremiah has placed on his firm.

Rather than argue about the inputs of the free cash flow (FCF) model, LaMarre takes the position that FCFE is an inappropriate model for valuing Logiciels LaMarre. He cites the firm's rapid growth and resultant need for capital investment as reasons that valuing the firm on projections of FCFE is not reliable.

LaMarre wants Geremiah to value Logiciels LaMarre using the residual income approach. LaMarre tells Hofstedt, "Valuation with residual income models is less sensitive to forecast error than valuation with FCFE models because residual income valuations rely on current book value."

Hofstedt feels substantial disagreement with LaMarre's approach on a variety of grounds. She views his arguments as negotiating ploys to raise the acquisition price of his firm, and does not agree with his assessment of the FCF valuation her team has developed. On a theoretical basis, Hofstedt considers the residual income approach an inappropriate tool for valuing a firm like Logiciels LaMarre. Hofstedt tells LaMarre, "It's not appropriate to use a residual income model to value Logiciels LaMarre because the impact of your currency translation gains and losses in shareholder equity causes the clean surplus accounting relation to be violated."

LaMarre ignores her concern and persists in his argument. He asserts, "The fact that our terminal value can be calculated with a high degree of certainty makes the use of a residual value model more appropriate than use of a FCFE model." Hofstedt counters that the residual income approach is not in LaMarre's interest. She points out, "Value tends to be recognized later in a residual income approach than in a FCFE approach."

There is, however, one point on which LaMarre and Hofstedt agree. They both recognize that competitive forces in the industry will drive the current high ROE of Logiciels LaMarre down to the cost of equity capital over time. Hofstedt concludes, "Given the assumption of a decline in ROE, we should use a persistence factor between zero and one." LaMarre disagrees, saying, "The assumption about ROE means that the present value of the continuing residual income at Logiciels LaMarre is the current residual income divided by the cost of equity capital."

Question #53 of 63

Question ID: 463479

Regarding their statements about the impact of the clean surplus accounting relation and terminal value on when it is appropriate to use a residual income model, who is correct?

	LaMarre	Hofstedt
✗ **A)**	**Correct**	**Incorrect**
✓ **B)**	Incorrect	Correct
✗ **C)**	Correct	Correct

Explanation

LaMarre is incorrect because residual income models are appropriate when terminal value is highly uncertain. Hofstedt is correct that a residual income approach is not appropriate if the clean surplus accounting relation is violated, for example by currency translation gains and losses going straight into equity. (Study Session 12, LOS 38.a, j)

Question #54 of 63

Question ID: 463480

A higher dividend payout ratio and higher ROE would *most likely* have what impact on Logiciels LaMarre's persistence factor?

	ROE	Dividend payout ratio
✓ **A)**	**Lower**	**Lower**
✗ **B)**	Higher	Lower
✗ **C)**	Lower	Higher

Explanation

A higher persistence factor is associated with a low dividend payout ratio, and vice versa. A high return on equity is associated with a lower persistence factor. (Study Session 12, LOS 38.h)

Question #55 of 63

Question ID: 463481

Regarding their statements about the forecast error in residual income models and when they recognize value, who is correct?

	LaMarre	Hofstedt
✗ **A)**	**Correct**	**Correct**
✓ **B)**	Correct	Incorrect
✗ **C)**	Incorrect	Incorrect

Explanation

LaMarre is correct that residual income models are less subject to forecast error than FCFE models because a large portion of intrinsic value in a residual income model is current book value. Hofstedt is incorrect because residual income models tend to recognize value earlier, not later, than other present value based approaches. (Study Session 12, LOS 38.j)

Question #56 of 63

Question ID: 463482

Which of the following is *least likely* to characterize the difference between a residual income model and a FCFE model?

- ✓ **A) Terminal value represents a higher proportion of intrinsic value in a residual income model than in a dividend discount model (DDM).**
- ✗ **B)** A residual income model is applicable to a firm that does not have FCF.
- ✗ **C)** Inputs to a residual income model are more easily manipulated by management.

Explanation

Terminal value represents a lower, not higher, proportion of intrinsic value in a residual income model than in other present value based approaches. A residual income model is applicable to a firm that does not have FCF and relies on accounting data that is generally easily found. However, the accounting data used in a residual income model are more easily manipulated by management than cash flow data. (Study Session 12, LOS 38.i)

Question #57 of 63

Question ID: 463483

The residual income of Geremiah Analytics is *closest* to:

- ✗ **A) $1,080,000.**
- ✗ **B)** $120,000.
- ✓ **C)** −$120,000.

Explanation

Geremiah's after-tax income is ($3 × (1 − 0.40)) = $1.8 million. They have ($40 × 0.60) = $24 million in debt and ($40 × (1 − 0.60)) = $16 million in equity. Their equity charge is ($16 × 0.12) = $1.92 million. Their residual income is ($1.8 − $1.92) = −$0.12 million, or −$120,000. (Study Session 12, LOS 38.a)

Question #58 of 63

Question ID: 463484

Regarding their statements about ROE and residual income, who is correct?

	LaMarre	Hofstedt
✗ **A)**	**Correct**	**Correct**

✓ **B)** Incorrect Correct

✗ **C)** Correct Incorrect

Explanation

LaMarre is incorrect because the present value of the continuing residual income for a firm is equal to the current value divided by the return on equity when residual income continues indefinitely, which is not the case if ROE declines to the return on equity capital. Hofstedt is correct that ROE declining to the cost of equity capital implies a decline in residual income and thus a persistence factor between zero and one. (Study Session 12, LOS 38.a, h)

Question #59 of 63

Question ID: 463506

The present value of Forman Electronics' projected residual income (RI) for the next five years is £80 per share. Beyond that time horizon a key analyst projects that the firm will sustain a RI of £17 per share, which is the RI for year 5. Given a cost of equity of 13%, what is the terminal value of the stock as of year 5?

✓ **A) £130.77.**

✗ **B)** £500.00.

✗ **C)** £19.96.

Explanation

The stock's terminal value as of year 5 is:

> TV = 17.00 / 0.13 = 130.77

Question #60 of 63

Question ID: 463491

Krieger String & Twine expects to generate a return on equity (ROE) of 13.6% in each of the next five years. The required ROE is 8.7%. Current book value is $12.40 per share and the firm pays no dividends. Krieger previously assumed residual income falls to zero immediately after five years, but has now decided to recalculate its estimated value using a persistence factor of 35%. The difference between the new valuation and the old one is *closest* to:

✓ **A) $0.32 per share.**

✗ **B)** $0.16 per share.

✗ **C)** $0.64 per share.

Explanation

To answer this question, we need to establish the residual values using the following equations:

Earnings = prior year book value × ROE
Equity charge = prior year book value × required ROE
Residual income = earnings − equity charge

Here is a table containing the relevant values.

	Equity Charge

Year	Earnings (ROE = 13.60%)	Book Value	(Required ROE = 8.70%)	Residual Income	PV of Residual Income
0		$12.40			
1	$1.69	$14.09	$1.08	$0.61	$0.56
2	$1.92	$16.00	$1.23	$0.69	$0.58
3	$2.18	$18.18	$1.39	$0.78	$0.61
4	$2.47	$20.65	$1.58	$0.89	$0.64
5	$2.81	$23.46	$1.80	$1.01	$0.67

Company value = $12.40 + the sum of the residual incomes

Assuming residual value drops to zero after year five, the company is valued at $15.46 per share.

Now, we modify the model to reflect the persistence factor of 35%. The only value that persistence factor effects is the terminal value. Instead of discounting the Year 5 residual income by 1 + required ROE, we discount it by 1 + required ROE − persistence factor. The new values are as follows:

	Book Value	Year 1	Year 2	Year 3	Year 4
Value	$12.40	$0.56	$0.58	$0.61	$1.62

Year 4 CF = Residual income in year 4 + PV Continuing residual income = 0.89 + 1.37 = 2.26

PV of continuing residual income (T=4) = RI(year 5)/1+r-w = 1.01/(1+0.087-0.35) = 1.37

PV(T=0) of 2.26(T=4)=1.62
For a total value of $15.78 per share, or $0.32 higher than the original value.

Question #61 of 63

Question ID: 463502

An analyst is considering the purchase of Rylinks, Inc., which has a price to book value (P/B) ratio of 6.00. Return on equity (ROE) is expected to be 13%, current book value per share is $13.00, and the cost of equity is 11%. What growth rate is implied by the current P/B rate?

✓ **A) 10.60%.**

✗ **B)** 0.40%.

✗ **C)** 11.00%.

Explanation

The P/B ratio of 6.00 and the current book value per share of $13.00 imply a current market price of $78.00. This implies a growth rate of:

$g = r - [\{B_0(ROE - r)\} / \{V_0 - B_0\}] = 0.11 - [\{13.00(0.13 - 0.11)\} / \{78.00 - 13.00\}] = 0.1060 = 10.60\%$.

Note that the reading in the curriculum does not provide this expression directly.

Question #62 of 63

Question ID: 463497

In a single-stage residual income model for a firm with return on equity (ROE) greater than the required rate of return, which

statement is *least* accurate?

✗ **A) The justified price-to-book value (P/B) ratio will be greater than one.**

✗ **B)** Market value will be greater than book value.

✓ **C)** Free cash flow to equity will be positive.

Explanation

In a single-stage residual income model with ROE greater than the required rate of return, justified P/B will be greater than one and market value will be greater than book. There is no clear relationship with free cash flow to equity.

Question #63 of 63

Question ID: 463511

Which of the following statements *least* accurately explains the relationship between the residual income (RI) model, the dividend discount model (DDM), and free cash flow to equity (FCFE):

✓ **A) FCFE models use historical cash flows.**

✗ **B)** RI models use an equity value from the balance sheet plus the present value of expected future residual income.

✗ **C)** All the models discount future cash flows or income at the required rate of return.

Explanation

In theory, the same value or total present value should be derived using expected dividends, expected FCFE, or book value plus expected residual income if the underlying assumptions are the same. However, the recognition of value is different because FCFE and DDM models forecast future cash flows, while residual income models start with a balance sheet measure of equity and add the present value of expected future residual income. A residual income model can be used along with other models to assess the consistency of results.