The two-stage FCFE model is suitable for valuing firms that:

**A)** have very high but declining growth rate in the initial stage.  ❌

**B)** have moderate growth in the initial phase that declines gradually to a stable rate.  ❌

**C)** are in an industry with significant barriers to entry.  ✅

### Explanation

The two-stage FCFE model is suitable for valuing firms in industries with significant barriers to entry. Where these are present it is possible for the firm to maintain a high growth rate during an initial phase of low competition, and that the rate will drop sharply to a normalized rate when competition ultimately appears.

(Study Session 11, Module 28.5, LOS 28.i)

### Related Material

SchweserNotes - Book 3

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## Question #2 of 144

Question ID: 1209907

A firm has:

- Free cash flow to the firm = $4.0 million.
- Weighted average cost of capital = 10%.
- Total debt = $30.0 million.
- Long-term expected growth rate = 5%.
- Value of the firm = $50.00 per share.

What will happen to the value of the firm if the weighted average cost of capital increases to 12%?

**A)** The value will decrease.  ✅

**B)** The value will increase.  ❌

**C)** The value will remain the same.  ❌

### Explanation

Everything else being constant, an increase in the relevant required rate of return should decrease the value of the firm.

(Study Session 11, Module 28.5, LOS 28.k)

### Related Material

SchweserNotes - Book 3

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## Question #3 of 144

Question ID: 1209771

Valuation with free cash flow to equity and free cash flow to the firm:

**A)** both use the cost of equity.  ❌

**B)** both use the after-tax cost of debt.  ❌

**C)** use different discount rates. ✅

**Explanation**

Free cash flow to the firm uses the weighted average cost of capital and free cash flow to equity uses the cost of equity. The key is to use a discount rate that reflects the opportunity cost of the indicated investor group.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #4 of 144

If the investment in fixed capital and working capital offset each other, free cash flow to the firm (FCFF) may be proxied by:

**A)** net income plus after-tax interest. ❌

**B)** net income plus non-cash charges plus after-tax interest. ✅

**C)** earnings before interest and taxes (EBIT). ❌

**Explanation**

The answer is indicated by the definition of FCFF: FCFF = NI + NCC + Int (1 – tax rate) – FCInv – WCInv. The relationship between net income and FCFF is indicated by: NI = EBIT (1 – tax rate) – Int (1 – tax rate).

(Study Session 11, Module 28.5, LOS 28.h)

**Related Material**

SchweserNotes - Book 3

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Michael Ballmer is an equity analyst with New Horizon Research. The firm has historically relied on dividend and residual income valuation models to value equity, but the firm's director of research, Doug Leads, has decided that the firm needs to incorporate free cash flow valuations into its practices. Therefore, Leads decides to send Ballmer to a seminar on free cash flow valuation.

Upon his return from the convention, Ballmer is excited to share his newfound knowledge with his co-workers. Ballmer is asked to give a debriefing to New Horizon's team of equity analysts, where he makes the following statements:

| | |
|---|---|
| Statement 1: | Free cash flow to the firm is the amount of the firm's cash flow that is free for the firm to use in making investments after cash operating expenses have been covered. |
| Statement 2: | Free cash flow to equity, then, is the amount of the firm's cash flow that is free for equity holders after covering cash operating expenses, working capital and fixed capital investments, interest principal payments to bondholders, and required divided payments. |
| Statement 3: | One of the benefits of free cash flow valuation is that the value of the firm and the value of equity can be found by discounting free cash flow to the firm and free cash flow to equity, respectively, by the WACC. |

As part of his presentation, Ballmer includes a short example of how to calculate free cash flow to equity. The figures from his example are included below.

**Example Balance Sheet**

| | 20X2 | 20X1 |
|---|---|---|
| Cash | $632 | $245 |

| | | |
|---|---|---|
| Accounts receivable | $208 | $105 |
| Inventory | $8,249 | $8,209 |
| Current assets | $9,089 | $8,559 |
| Gross PPE | $22,499 | $22,722 |
| Accumulated depreciation | ($3,251) | ($2,875) |
| **Total assets** | **$28,337** | **$28,406** |
| | | |
| Accounts payable | $4,864 | $4,543 |
| Short-term debt | $2,491 | $2,996 |
| Current liabilities | $7,355 | $7,539 |
| Long-term debt | $4,528 | $5,039 |
| Common stock | $729 | $735 |
| Retained earnings | $15,725 | $15,093 |
| **Total liabilities and owner's equity** | **$28,337** | **$28,406** |

**Example Cash Flow From Operations**

| | 20X2 | 20X1 |
|---|---|---|
| Net income | $1,783 | $2,195 |
| Depreciation | $376 | $267 |
| WCInv | ($178) | $357 |
| **Cash flow from operations** | **$2,337** | **$2,819** |

After discussing the calculation of free cash flow to the firm and free cash flow to equity from historical information, Ballmer proceeds to explain the major approaches for forecasting free cash flow. He focuses his discussion on forecasting the components of free cash flow as this method is more flexible. During his presentation, several of the analysts notice that the formula for forecasting free cash flow to equity does not include net borrowing. They bring this to Ballmer's attention, and he states that he will look into the formula and send out an updated presentation after the meeting.

A week after the meeting, Jonathan Hodges approached Ballmer regarding two issues he had while applying free cash flow based valuations. The first issue that Hodges had was that he calculated the equity value of a firm using both free cash flow to equity based and dividend-based valuations and arrived at different values. The second issue that Hodges came across was the effect of a change in a firm's target leverage on FCFE. One of the firms that Hodges was analyzing may reduce leverage, and Hodges needs to know if this will affect his valuation.

Regarding statements 1 and 2, are Ballmer's interpretations of free cash flow to the firm (FCFF) and free cash flow to equity (FCFE) CORRECT?

**A)** No, only one interpretation is correct. ❌

**B)** No, neither interpretation is correct. ✅

**C)** Yes, both interpretations are correct. ❌

**Explanation**

Free cash flow to the firm (FCFF) is the cash flows that are free to investors after cash operating expenses (including taxes but excluding interest expense), working capital investments, and fixed capital investments have been made. Free cash flow to equity (FCFE) is FCFF less interest payments to bondholders and net borrowing from bondholders.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #6 - 10 of 144

Is Ballmer's third statement regarding the computation of firm value and equity value CORRECT?

**A)** No, both free cash flow to the firm and free cash flow to equity should be discounted at the required rate of return on equity. ❌

**B)** No, free cash flow to equity should be discounted at the required return on equity. ✅

**C)** Yes. ❌

**Explanation**

The value of a firm is the expected future free cash flow to the firm (FCFF) discounted at the firm's weighted average cost of capital (WACC). The value of the firm's equity is the expected future free cash flow to equity discounted at the required return on equity.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #7 - 10 of 144

Based on Figure 1 and Figure 2, the 20X2 free cash flow to equity (FCFE) for Ballmer's example firm is:

**A)** $1,010. ❌

**B)** $1,693. ❌

**C)** $1,544. ✅

**Explanation**

Free cash flow to equity (FCFE) can be computed as:

FCFE = CFO − FCInv + net borrowing

Based on the figures included in the example, fixed capital investment (FCInv) is −$223 (= $22,499 − $22,722) and net borrowing is −$1,016 (= $2,491 + $4,528 − $2,996 − $5,039).

FCFE is therefore: FCFE = $2,337 + $223 − $1,016 = $1,544.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

Which of the following statements regarding forecasting FCFE using the components of free cash flow method and net borrowing is *most* accurate?

**A)** Investment in fixed capital and net borrowing are assumed to offset each other. ❌

**B)** Net income already accounts for interest expense; therefore, net borrowing is not needed. ❌

**C)** The target debt-to-asset ratio accounts for the financing of new investment in fixed capital and working capital. ✅

**Explanation**

When forecasting FCFE, it is common to assume that a firm will maintain a target debt-to-asset ratio for new investments in fixed capital and working capital. Based on this assumption, the formula for forecasting FCFE is:

$$FCFE = NI - [(1 - DR) \times (FCInv - Dep)] - [(1 - DR) \times WCInv]$$

By multiplying the fixed capital and working capital investments by one minus the target debt-to-asset ratio, you are left with the investment amount less the amount financed by debt, which is the net borrowing amount. Therefore, this formula accounts for net borrowing through the target debt-to-asset ratio.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

Should dividend-based and free cash flow from equity (FCFE) based valuations result in different equity values for a firm?

**A)** Yes, dividend-based valuations would be higher for firms with large, consistent dividends. ❌

**B)** Yes, the free cash flow from equity valuation would be higher if there were a premium associated with control of the firm. ✅

**C)** No, both models should result in the same value. ❌

**Explanation**

The ownership perspectives of dividend-based and FCFE based valuations are different. Dividend-based valuations take the perspective of minority shareholders, while FCFE based valuations take the perspective of an acquirer who will assume a controlling position in the firm. If investors were willing to pay a premium for a controlling position in the firm, then the equity value computed under the FCFE approach would be higher.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

Which of the following statements regarding the effect a decrease in leverage has on a firm's free cash flow from equity (FCFE) is *most* accurate?

**A)** Current year FCFE decreases, but future FCFE will be increased. ✅

**B)** Current year FCFE increases, but future FCFE will be reduced. ⊗

**C)** FCFE is unaffected by changes in leverage. ⊗

### Explanation

Changes in leverage do have a small effect on FCFE. A decrease in leverage will cause the current year FCFE to decrease through the repayment of debt. Future FCFE will be increased because interest expense will be lower.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #11 of 144

An analyst has prepared the following scenarios for Schneider, Inc.:

Scenario 1 Assumptions

- Tax Rate is 40%.
- Weighted average cost of capital (WACC) = 12%.
- Constant growth rate in free cash flow = 3%.
- Last year, free cash flow to the firm (FCFF) = $30.
- Target debt ratio = 10%.

Scenario 2 Assumptions

- Tax Rate is 40%.
- Expenses before interest and taxes (EBIT), capital expenditures, and depreciation will grow at 15% for the next three years.
- After three years, the growth in EBIT will be 2%, and capital expenditure and depreciation will offset each other.
- Weighted average cost of capital (WACC) during high growth stage = 20%.
- Weighted average cost of capital (WACC) during stable growth stage = 12%.
- Target debt ratio = 10%.

| Scenario 2 FCFF | Year 0 (last year) | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|---|
| EBIT | $15.00 | $17.25 | $19.84 | $22.81 | $23.27 |
| Capital Expenditures | 6.00 | 6.90 | 7.94 | 9.13 | |
| Depreciation | 4.00 | 4.60 | 5.29 | 6.08 | |
| Change in Working Capital | 2.00 | 2.10 | 2.20 | 2.40 | 2.40 |
| FCFF | | 5.95 | 7.06 | 8.25 | 11.56 |

Given the assumptions contained in Scenario 2, what is the value of the firm?

**A)** $81.54. ✓

**B)** $96.92. ⊗

**C)** $70.39. ⊗

### Explanation

Use the two-stage FCFF model to value the firm. The Terminal Value of the firm as of Year 3 = 11.56 / (0.12 - 0.02) = 115.60. The value = 5.95 / (1.20) + 7.06 / $(1.20)^2$ + (8.25 + 115.62) / $(1.20)^3$ = 81.54.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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## Question #12 of 144

Free cash flow (FCF) approaches are the *best* source of value when:

**A)** a firm is paying a dividend that is higher than the industry average.　　❌

**B)** FCFs track profitability closely over the analyst's forecast horizon.　　✅

**C)** a firm has preferred stock.　　❌

**Explanation**

FCF approaches are best when those flows are a good indication of a firm's profitability over the analyst's forecast horizon.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #13 of 144

BOX, Inc., earned $4.55 per share last year. The firm had capital expenditures of $1.75 per share and depreciation expense of $1.05. BOX, Inc., has a target debt ratio of 0.25.

| | High-GrowthPeriod | Transitional Period | Stable-Growth Period |
|---|---|---|---|
| Duration | 2 Years | 5 Years | |
| Earnings growth rate | 45% | Will decline 8% per year to5% in the stable-growth period | 5% |
| Growth in CapitalExpenditures | 30% | Increases by 8% per year | Same $ amount as Depreciation |
| Growth in Depreciation | 30% | Increases by 13% per year | Same $ amount as Capital Expenditures |
| Change in Working Capital | Given Below | Given Below | $2.25 per share in Year 8 |
| Shareholder Required Return | 25% | 15% | 10% |

| | Yr 0 | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 |
|---|---|---|---|---|---|---|---|---|
| Earnings per share (EPS) | 4.55 | 6.60 | 9.57 | 13.11 | 16.91 | 20.46 | 23.12 | 24.27 |
| Capital Expenditures | 1.75 | 2.28 | 2.96 | 3.19 | 3.45 | 3.73 | 4.02 | 4.35 |
| Depreciation | 1.05 | 1.37 | 1.77 | 2.01 | 2.27 | 2.56 | 2.89 | 3.27 |
| Change in working capital (WC) | 0.90 | 1.10 | 1.40 | 1.60 | 1.80 | 2.00 | 2.20 | 2.10 |
| Free cash flow to equity (FCFE) | | | 7.63 | 11.01 | 14.67 | 18.08 | 20.62 | 21.89 |

What is the present value of BOX, Inc.?

**A)** $212.91. ❌

**B)** $195.71. ✅

**C)** $223.65. ❌

**Explanation**

Year 1 FCFE = Earnings per share − (Capital Expenditures − Depreciation)(1 − Debt Ratio) − (Change in working capital)(1 − Debt Ratio) = 6.60 − (2.28 − 1.37) (1 − 0.25) − (1.1)(1 − 0.25) = 5.09.

Year 8 FCFE = Earnings per share − (Capital Expenditures − Depreciation)(1 − Debt Ratio) − (Change in working capital)(1 − Debt Ratio) = 24.27 × 1.05 − 0 − (2.25)(1 − 0.25) = 23.79.

The Terminal Value (as of Year 7) = 23.79 / (0.10 − 0.05) = 475.80.

The value of BOX, Inc., stock would be equal to: $5.09 / 1.25 + 7.63 / 1.25^2 + 11.01 / [(1.25)^2(1.15)^1] + 14.67 / [(1.25)^2(1.15)^2] + 18.08 / [(1.25)^2(1.15)^3] + 20.62 / [(1.25)^2(1.15)^4] + 21.89 / [(1.25)^2(1.15)^5] + 475.80 / [(1.25)^2(1.15)^5] =$

   4.07 + 4.88 + 6.13 + 7.10 + 7.61 + 7.55 + 6.97 + 151.40 = 195.71

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

A three-stage free cash flow to the firm (FCFF) is typically appropriate when:

**A)** the required rate of return is less than the growth rate in the last stage. ❌

**B)** growth is currently high and will move through a transitional stage to a steady-state growth rate. ✅

**C)** growth is currently low and will move through a transitional stage to a final stage wherein growth exceeds the required rate of return. ❌

**Explanation**

The three-stage model using either FCFE or FCFF typically assumes that growth is currently high and will move through a transitional stage to a steady-state growth rate. Multi-stage models assume that the required rate of return exceeds the growth rate in the last stage.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

Industrial Light currently has:

- Expected free cash flow to the firm in one year = $4.0 million.
- Cost of equity = 12%.
- Weighted average cost of capital = 10%.
- Total debt = $30.0 million.
- Long-term expected growth rate = 5%.

What is the value of equity?

**A)** $50,000,000. ✅

**B)** $44,440,000. ❌

**C)** $80,000,000. ❌

**Explanation**

The overall value of the firm is $4,000,000 / (0.10 – 0.05) = $80,000,000. Thus, the value of equity is $80,000,000 – $30,000,000 = $50,000,000.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

Which of the following types of company is the E-Model, a three-stage free cash flow to equity (FCFE) Model, best suited for? Companies:

**A)** growing at a rate similar to or less than the nominal growth rate of the economy. ❌

**B)** with patents or firms in an industry with significant barriers to entry. ❌

**C)** in high growth industries that will face increasing competitive pressures over time, leading to a gradual decline in growth to a stable level. ✓

**Explanation**

The three-stage FCFE model, or E-Model, is most suited to analyzing firms currently experiencing high growth that will face increasing competitive pressures over time, leading to a gradual decline in growth to a stable level. The two-stage model is best suited to analyzing firms in a high growth phase that will maintain that growth for a specific period, such as firms with patents or firms in an industry with significant barriers to entry. Companies growing at a rate similar to or less than the nominal growth rate of the economy are best suited for the Stable Growth FCFE Model. A firm that pays out all of its earnings as dividends will have a growth rate of zero (remember $g$ = RR × ROE) and would not be valued using the three-stage FCFE model.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

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## Question #17 of 144

In what ways are dividends different from free cashflow to equity (FCFE)?

**A)** There is no difference. Dividends must equal FCFE. ✗

**B)** Companies often use FCFE as a signal of positive future growth prospects while dividends are not used for signaling. ✗

**C)** Dividends are often viewed as "sticky." Managers are reluctant to radically change the dividend payout policy while FCFE often has immense variability. ✓

**Explanation**

*Dividends* and the FCFE are often different and dividends are used as a signal to the market not FCFE. Dividends viewed as sticky is the true statement.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

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The following information was collected from the financial statements of Hiller GmbH, a German consulting company, for the year ending December 31, 2013:

- Earnings per share = €4.50.
- Capital Expenditures per share = €3.00.
- Depreciation per share = €2.75.
- Increase in working capital per share = €0.75.
- Debt financing ratio = 30.0%.
- Cost of equity = 12.0%.
- Cost of debt = 6.0%.
- Tax rate = 30.0%.
- Outstanding shares = 100 million.
- New debt borrowing = €15.0 million.
- Debt repayment = €30.0 million.
- Interest expense = €7.1 million.

The financial leverage for the firm is expected to be stable. Hiller uses IFRS accounting standards and records interest expense as cash flow from financing (CFF).

Two analysts are valuing Hiller stock; both are basing their analysis on FCFE approaches.

Analyst #1 remarks: "Hiller is a relatively mature company; a constant growth model is the better approach."

Analyst #1 estimates FCFE based on the information above and a growth rate of 5.0%.

Analyst #2 states: "Hiller just acquired a rival that should change their growth pattern. I think a three stage growth model based on industry growth patterns should be used."

Analyst #2 estimates FCFE per share as €3.85. Growth rate estimates are listed below, and from year 7 and thereafter the estimated growth rate is 3.0%.

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7+ |
|---|---|---|---|---|---|---|---|
| Growth rates | 12.5% | 12.5% | 12.5% | 8.0% | 6.5% | 5.0% | 3.0% |

## Question #18 - 23 of 144

Question ID: 1209807

The FCFE based on Analyst #1's estimates for the base-year is *closest* to:

**A)** €3.00. ❌

**B)** €3.80. ✅

**C)** €4.85. ❌

### Explanation

Base-year FCFE = EPS − (capital expenditures − depreciation) × (1 − debt ratio) − increase in working capital × (1 − debt ratio) = €4.50 − (€3.00 − €2.75)(1 − 0.30) − €0.75(1 − 0.30) = €3.80.

(Study Session 11, Module 28.5, LOS 28.e)

### Related Material

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## Question #19 - 23 of 144

Question ID: 1209808

Using the stable-growth FCFE model as suggested by Analyst #1, the value of Hiller stock is *closest* to:

**A)** €51.58. ❌

**B)** €57.00. ✅

**C)** €54.29. ❌

### Explanation

Value per share = (€3.80 × 1.05) / (0.12 − 0.05) = €57.00.

(Study Session 11, Module 28.5, LOS 28.e)

### Related Material

SchweserNotes - Book 3

## Question #20 - 23 of 144

Question ID: 1209809

Based on Analyst #2's estimates, the sum of the terminal value plus the FCFE for year 6 is *closest* to:

**A)** €60.70. ❌

**B)** €75.80. ❌

**C)** €82.40. ✅

**Explanation**

Estimates for the future FCFE based on supplied growth rates are:

| Year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Growth rate | | 12.5% | 12.5% | 12.5% | 8.0% | 6.5% | 5.0% | 3.0% |
| FCFE/share | €3.850 | €4.331 | €4.873 | €5.482 | €5.893 | €6.335 | €6.620 | €6.818 |

Terminal value year 6 = 6.818/(12.0% − 3.0%) = €75.76

The nominal cash flow for year 6 is €75.76 + €6.62 = €82.38, which is the terminal cash flow plus the FCFE value for the year.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

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Based on Analyst #2's estimates, the value of Hiller stock is *closest* to:

**A)** €59.70. ❌

**B)** €60.70. ✅

**C)** €57.00. ❌

**Explanation**

| Year | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Growth rate | | 12.5% | 12.5% | 12.5% | 8.0% | 6.5% | 5.0% | 3.0% |
| FCFE/share | €3.850 | €4.331 | €4.873 | €5.482 | €5.893 | €6.335 | €6.620 | €6.818 |

Terminal value year 6 = 6.818/(12.0% − 3.0%) = €75.76

For the calculator find NPV: CF0 = 0, CF1 = €4.33, CF2 = €4.87, CF3 = €5.48, CF4 = €5.89, CF5 = €6.34, CF6 = €82.38, I/Y = 12. The result is €60.73.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

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The appropriate discount rate for valuing Hiller on a free cash flow basis is *closest* to:

**A)** 6.54%. ❌

**B)** 9.66%. ✅

**C)** 12.00%. ❌

**Explanation**

The appropriate discount rate is the weighted average cost of capital. The formula is:
WACC = $w_d \times r_d \times$ (1 − tax rate) + $w_e \times r_e$ = (0.30 ) × (0.06) × (1-0.30) + (0.70 ) × (0.12)=0.0966 or 9.66%.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

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## Question #23 - 23 of 144

If Hiller's total free cash flow to equity is €380 million and the growth rate of the firm is 3.5%, the value of Hiller (Firm) using the stable growth model is *closest* to:

**A)** €8.9 billion. ❌

**B)** €6.7 billion. ✅

**C)** €4.8 billion. ❌

**Explanation**

> FCFF = FCFE − Net borrowing + interest expense × (1 − tax rate).

> FCFF = €380 million + (€7.1 million (1 − 0.3)) − (−€15 million) = €399.7 million.

The weighted average cost of capital is: (0.30) × (0.06) × (1 − 0.30) + (0.70) × (0.12) =0.0966 or 9.66%.

The value of the firm is then: [€399.7 million × (1 + 0.035)] / (0.0966 − 0.035) = €6,720 million.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

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## Question #24 of 144

The one-stage (stable growth) free cash flow models assume:

**A)** the required rate of return exceeds the growth rate. ✅

**B)** a constant growth rate for *n* years and a high growth rate forever thereafter. ❌

**C)** the required rate of return is less than the growth rate. ❌

**Explanation**

The one-stage model using either free cash flow to equity (FCFE) or free cash flow to the firm (FCFF) assumes that the required rate of return exceeds the growth rate. If this was not the case, the model would produce an unrealistic negative price.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

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## Question #25 of 144

Which of the following statements regarding dividends and free cash flow to equity (FCFE) is *least* accurate?

**A)** Required returns are higher in FCFE discount models than they are in dividend discount models, since FCFE is more difficult to estimate. ✓

**B)** FCFE can be negative but dividends cannot. ✗

**C)** FCFE discount models usually result in higher equity values than do dividend discount models (DDMs). ✗

**Explanation**

Although FCFE may be more difficult to estimate than dividends, the required return is based on the risk faced by the shareholders, which would be the same under both models.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

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## Question #26 of 144

The following information pertains to the Harrisburg Tire Company (HTC) in 2000.

- Earnings (net income) = $600M.
- Dividends = $120M.
- Interest expense = $400M.
- Tax rate = 40%.
- Depreciation = $500M.
- Capital spending = $800M.
- Total assets = $10B (book value and market value).
- Debt = $4B (book value and market value).
- Equity = $6B (book value and market value).

The firm's working capital needs are negligible, and they plan to continue to operate at their current capital structure.

The free cash flow to the firm is:

**A)** $300M. ✗

**B)** $540M. ✓

**C)** $420M. ✗

**Explanation**

The free cash flow to the firm is:

FCFF = Net income + (Interest expense)(1 − T) − Capital expenditures + Depreciation

600M + 400M(1 − 0.40) − 800M + 500M = 540M

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

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## Question #27 of 144

An analyst is performing an equity valuation for a minority equity position in a dividend paying multinational. The appropriate model for this analysis is *most likely:*

**A)** FCFF approach. ❌

**B)** The Dividend Discount approach. ✅

**C)** FCFE approach. ❌

**Explanation**

The dividend discount model is most appropriate for valuing a minority equity position in a dividend-paying company. The free cash flow approach looks to the source of dividends from the perspective of an owner that has control rather than directly at dividends.

(Study Session 11, Module 28.1, LOS 28.b)

**Related Material**

SchweserNotes - Book 3

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## Question #28 of 144

In using FCFE models, the assumption of growth should be:

**A)** only consistent with the assumptions of capital spending and depreciation. ❌

**B)** consistent with assumptions of other variables. ✅

**C)** independent from the assumptions of other variables. ❌

**Explanation**

The assumption of growth should be consistent with assumptions about other variables. Net capital expenditures (capital expenditures minus depreciation) and beta (risk) used to calculate required rate of return should be consistent with assumed growth rate.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

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## Question #29 of 144

The stable-growth free cash flow to equity (FCFE) model is best suited for which of the following types of companies? Companies:

**A)** with significant barriers to entry. ❌

**B)** growing at a rate similar or less than the nominal growth rate of the economy. ✅

**C)** with patents that will not expire for 20 or more years. ❌

**Explanation**

Companies growing at a rate similar to or less than the nominal growth rate of the economy are best suited for the Stable Growth FCFE Model. The three-stage FCFE model is most suited to analyzing firms currently experiencing high growth that will face increasing competitive pressures over time, leading to a gradual decline in growth to a stable level. The two-stage model is best suited to analyzing firms in a high growth phase that will maintain that growth for a specific period, such as firms with patents or firms in an industry with significant barriers to entry.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

Free cash flow to the firm is equal to cash flow from operations minus fixed capital investment:

**A)** minus after-tax interest expense. ❌

**B)** plus after-tax interest expense. ✅

**C)** minus pre-tax interest expense. ❌

### Explanation

Free cash flow to the firm is equal to cash flow from operations minus fixed capital investment plus after-tax interest expense.

(Study Session 11, Module 28.3, LOS 28.c)

### Related Material

SchweserNotes - Book 3

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Harrisburg Tire Company (HTC) forecasts the following for 2013:

- Earnings (net income) = $600M.
- Dividends = $120M.
- Interest expense = $400M.
- Tax rate = 40.0%.
- Depreciation = $500M.
- Capital spending = $800M.
- Total assets = $10B (book value and market value).
- Debt = $4B (book value and market value).
- Equity = $6B (book value and market value).
- Target debt to asset ratio = 0.40.
- Shares outstanding = 2.0 billion

The firm's working capital needs are negligible, and HTC plans to continue to operate with the current capital structure.The tire industry demand is highly dependent on demand for new automobiles. Individual companies in the industry don't have much influence on the design of automobiles and have very little ability to affect their business environment. The demand for new automobiles is highly cyclical but demand forecast errors tend to be low.

The firm's earnings growth rate is *most accurately* estimated as:

**A)** 8.0%. ✅

**B)** 4.8%. ❌

**C)** 6.4%. ❌

### Explanation

The firm's estimated earnings growth rate is the product of its retention ratio and ROE:

$$g = RR \times (ROE) = [(600 - 120) / 600] \times (600 / 6000) = 0.08$$

(Study Session 11, Module 28.5, LOS 28.j)

### Related Material

SchweserNotes - Book 3

The 2013 forecasted free cash flow to equity is:

A) $300M. ❌

B) $420M. ✅

C) $340M. ❌

**Explanation**

Since working capital needs are negligible, the free cash flow to equity is:

FCFE = Net income − [1 − DR)] × [FCInv − Depreciation] − [(1 − DR) × WCInv]

FCFE = 600M − [1 − 0.4] × (800M − 500M) = 420M

where:

DR = target debt to asset ratio

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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If the total market value of equity is $6.0 billion and the growth rate is 8.0%, the cost of equity based on the stable growth FCFE model is *closest* to:

A) 7.0%. ❌

B) 15.0%. ✅

C) 14.0%. ❌

**Explanation**

Value of equity = $FCFE_1$/(Cost of equity – growth rate); so $6,000 = [$420/(Cost of equity − 0.08)]

(Cost of equity − 0.08) × $6,000 = $420

Cost of equity − 0.08 = 0.07

Cost of equity = 0.15 = 15.0%

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

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The beta for HTC is 1.056, the risk-free rate is 5.0% and the market risk premium is 10.0%. The weighted average cost of capital for HTC is *closest* to:

A) 11.74%. ✅

B) 13.34%. ❌

C) 15.56%. ❌

**Explanation**

Cost of equity = $r_f + (r_m - r_f)$ = 0.05 + 1.056(0.10) = 0.05 + 0.1056 = 0.1556

The best approximation for cost of debt is the interest expense divided by the market value of the debt.

Cost of debt = Interest expense/market value of debt = $400 million/$4.0 billion = 0.10

WACC = $w_d \times r_d \times (1 - t) + w_e \times r_e$ = 0.40 × 0.10 × (1 – 0.40) + 0.60 × 0.1556 = 0.1174

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

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## Question #35 - 35 of 144

Question ID: 1209883

FCFE for 2013 is $400.0 million; and HTC took on an additional debt of $40.0 million while repaying existing debt of $60.0 million. The growth rate for FCFF is 5.0% and the WACC is 11.5%. The value of the firm calculated using the stable growth model is *most* accurately described as:

**A)** greater than the market value of the firm by $0.7 billion. ✅

**B)** less than the market value of the firm by $3.3 billion. ❌

**C)** less than the market value of the firm by $7.5 billion. ❌

**Explanation**

FCFF = FCFE + Interest expense × (1 – t) – net borrowing = $400 million + $400 million × (1-0.40) – ($40 million - $60 million) = $660 million.

Value of the firm = [$660 million × (1.05)]/(0.115 -0.05) = $10.662 billion. This is a difference of $0.662 billion compared to the $10.0 billion current market value.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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## Question #36 of 144

Question ID: 1209841

A firm in stable growth phase should have:

**A)** a required rate of return close to the market rate of return and capital expenditures that are not too large relative to depreciation expense. ✅

**B)** capital expenditures that are less than the depreciation expense. ❌

**C)** a growth rate higher than that of the economy and a required rate of return that is greater than the market rate of return. ❌

**Explanation**

A firm that is in a stable growth phase should have growth rate close to that of the economy, and the cost of equity should approximate the required rate of return on the market. In addition, the capital expenditures should not be disproportionately large relative to the depreciation expense.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

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## Question #37 of 144

What is the *most likely* reason that you get an extremely low value from the three-stage FCFE model? Capital expenditures are significantly:

**A)** higher than depreciation in the stable-growth phase. ✓

**B)** higher than depreciation during the high-growth phase. ✗

**C)** less than depreciation during the high-growth phase. ✗

### Explanation

If capital expenditures estimates are significantly higher than depreciation for the stable growth period, then the three-stage FCFE model might result in an extremely low value. One possible solution for the problem is to grow the capital expenditures more slowly than depreciation in the transition period to narrow the difference. Another is to assume that capital expenditures and depreciation will offset when growth normalizes.

(Study Session 11, Module 28.1, LOS 28.a)

### Related Material

SchweserNotes - Book 3

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## Question #38 of 144

Which of the following statements regarding the FCFF models is *most* accurate? The two-stage FCFF model is more useful than the stable-growth FCFF model when the firm is growing at a rate:

**A)** significantly higher than that of the overall economy. ✓

**B)** significantly lower than that of the overall economy. ✗

**C)** not significantly higher than that of the overall economy. ✗

### Explanation

The two-stage FCFF model is more useful in valuing a firm that is growing at a rate significantly higher than the overall economy. Since this cannot persist indefinitely, growth will eventually slow to a stable growth rate consistent with that of the economy.

(Study Session 11, Module 28.5, LOS 28.i)

### Related Material

SchweserNotes - Book 3

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## Question #39 of 144

Which of the following items is NOT subtracted from the net income to calculate free cash flow to equity (FCFE)?

**A)** Interest payments to bondholders. ✓

**B)** Increase in fixed assets. ✗

**C)** increase in accounts receivable. ✗

### Explanation

Interest payments to bondholders are included in the income statement and are already subtracted to calculate net income.

(Study Session 11, Module 28.1, LOS 28.c)

## Question #40 of 144

When using the two-stage FCFE model, if increases in working capital appear too high the analyst should:

**A)** use changes that are based upon a working capital ratio that is closer to the industry average. ✓

**B)** normalize them to be equal to zero. ✗

**C)** switch to a three-stage model. ✗

**Explanation**

The best solution is to use changes that are based upon a working capital ratio that approximates the industry average. The problem will not be eliminated by switching to a three-stage FCFE model.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

## Question #41 of 144

Which of the following free cash flow to equity (FCFE) models is *most* suited to analyze firms in an industry with significant barriers to entry?

**A)** Two-stage FCFE Model. ✓

**B)** FCFE Perpetuity Model. ✗

**C)** Stable Growth FCFE Model. ✗

**Explanation**

The two-stage FCFE model is most suited for analyzing firms in high growth that will maintain that growth for a specific period, such as firms with patents or firms in an industry with significant barriers to entry.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

## Question #42 of 144

An increase in financial leverage will cause free cash flow to equity (FCFE) to:

**A)** decrease in the year the borrowing occurred. ✗

**B)** decrease or increase, depending on its circumstances. ✗

**C)** increase in the year the borrowing occurred. ✓

**Explanation**

An increase in financial leverage will increase net borrowing and, hence, increase FCFE in the year the borrowing occurred because: FCFE = FCFF – [interest expense] (1 – tax rate) + net borrowing.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

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## Question #43 of 144

Dividends paid out to the shareholders:

**A)** are always equal to free cash flow to equity (FCFE).   ✗

**B)** may be higher than free cash flow to equity FCFE.   ✓

**C)** are always less than free cash flow to equity (FCFE).   ✗

**Explanation**

Dividends represent the cash that the firm chooses to pay to the shareholders and the amount of the dividend is subject to the discretion of the firm. Dividends can be equal to, lower or higher than FCFE. For example, sometimes firms may pay dividends in years when there is a net loss.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

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## Question #44 of 144

The difference between free cash flow to equity (FCFE) and free cash flow to the firm (FCFF) is:

**A)** earnings before interest and taxes (EBIT) less taxes.   ✗

**B)** after-tax interest and net borrowing.   ✓

**C)** before-tax interest and net borrowing.   ✗

**Explanation**

FCFE = FCFF – [interest expense] (1 – tax rate) + net borrowing.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

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Starshah Industries competes in a high-growth, emerging technology sector that is facing increasing competitive pressures. So far, the firm has been performing well, earning $4.55 per share in 2004. Investment requirements were high, with capital expenditures of $1.75 per share, depreciation expense of $1.05, and a net investment in working capital that year of $1.00 per share. However, despite Starshah's high growth rate and impressive profitability, Starshah's Chairman, Lorenzo di Stefano, has become concerned about the impact that a slowdown in expected growth may have on the firm's valuation.

Di Stefano asked Starshah's Director of Strategic Planning, Keisha Simmons, to make a presentation to Starshah's board at the end of 2004 about the future growth of the firm. The news was sobering. Simmons told the board members that Starshah could expect two more years of rapid growth, during which time earnings per share could be expected to rise

45% per year with 30% annual increases in capital spending and depreciation. During this high-growth period, Simmons estimates that the required return on equity for Starshah will be 25%. Starshah consistently maintains a target debt ratio of 0.25.

After the near-term spurt of high growth, however, she and her group expect Starshah to move eventually to a stable growth period. During the stable growth period, free cash flow to equity (FCFE) will rise only 5% per year and the annual return to shareholders will decline to 10%.

The strategy group expects the transitional period between high-growth and mature growth to last five years. During that time, capital expenditures will rise only 8% per year, with depreciation rising 13% per year. The growth in earnings should drop by eight percentage points per year, hitting 5% in the fifth year. During this transition, the expected return to shareholders will be 15% per year.

Throughout the high-growth and transitional growth periods, Simmons expects Starshah to be able to limit increases in the investment in working capital to 20 cents per year. In her analysis, the investment in working capital will peak in 2010, declining a dime to $2.10 per share in 2011.

After Simmons' presentation, the board debated what to do about the incipient slowdown in Starshah's growth. A majority of the board argued in favor of moving to offset this slowdown in organic growth through a new emphasis on growth by acquisition.

One potential target is TPX. TPX's current and expected FCFE: $425,000 in 2004, $500,000 in 2005, $600,000 the following year, and $700,000 in 2007. After that, Starshah expects FCFE at TPX to grow 3% per year indefinitely. Starshah would require a return on its equity investment of 20% per year in the high-growth stage and 12% per year in the stable growth stage.

Di Stefano and Simmons had a somber meeting the day after the board presentation. But despite the bleak news about future years, di Stefano had convinced himself it was worth staying around through the high-growth and transitional periods. He pointed out to Simmons that, if Simmons' projections were correct, the value of Starshah's stock would be in excess of $450 per share by the time the company hit the stable-growth phase. Di Stefano was very pleased with what that implied for the value of his stock options.

Simmons had done the same calculations herself, but she also realized that if required rates of return in 2012 rose from the very modest 10% she used in her board projections to only 15%, that would cut the terminal value of Starshah's stock in 2011 to only half the level di Stefano was counting on. She considered that valuation too small to make the wait worthwhile. Simmons said nothing to di Stefano, but planned to look for another job.

## Question #45 - 50 of 144

Which of the following FCFE models is *best* suited to analyzing TPX?

**A)** Two-stage FCFE model.  ✅

**B)** Three-stage FCFE model.  ❌

**C)** Stable growth FCFE model.  ❌

### Explanation

The two-stage FCFE model is most suited to analyzing TPX because we have specific forecasts for the first several years and then a stable growth pattern into the indefinite future.

(Study Session 11, Module 28.5, LOS 28.j)

### Related Material

SchweserNotes - Book 3

The FCFE for Starshah at the end of the transition period in 2011 is *closest* to:

**A)** $21.89. ✓

**B)** $23.42. ✗

**C)** $20.62. ✗

**Explanation**

In order to calculate FCFE for Starshah in 2011, we need to construct a table of the components of cash flow for Starshah.

We are given the 2004 values for net income, capital expenditures, depreciation, and change in working capital. We are also given growth rates for each of the three stages of Starshah's growth: high-growth for two years followed by transitional growth for five years, culminating in stable growth for the following years. Using the original values and their related growth rates, plus the formula for FCFE (see below), we can construct the following table:

|  | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** |
|---|---|---|---|---|---|---|---|---|
| EPS | 4.55 | 6.60 | 9.57 | 13.11 | 16.91 | 20.46 | 23.12 | 24.27 |
| Capital expenditures | 1.75 | 2.28 | 2.96 | 3.19 | 3.45 | 3.73 | 4.02 | 4.35 |
| Depreciation | 1.05 | 1.37 | 1.77 | 2.01 | 2.27 | 2.56 | 2.89 | 3.27 |
| Change in working capital | 1.00 | 1.20 | 1.40 | 1.60 | 1.80 | 2.00 | 2.20 | 2.10 |
| FCFE | 3.28 | 5.02 | 7.63 | 11.01 | 14.67 | 18.08 | 20.62 | 21.89 |

FCFE = Earnings per share − (Capital Expenditures − Depreciation) × (1 − Debt Ratio) − (Change in working capital × (1 − Debt Ratio)) = 24.27 − (4.35 − 3.27) × (1 − 0.25) − (2.10 × (1 − 0.25))

= 24.27 − 0.81 − 1.57 = 21.89

FCFE = $21.89 per share in 2011.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

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Regarding di Stefano's and Simmons' statements about the terminal value of Starshah stock in 2011:

**A)** only di Stefano is correct. ✗

**B)** only Simmons is correct. ✗

**C)** both are correct. ✓

**Explanation**

Starshah hits the stable growth phase in 2012. At that point,

Terminal Firm Value$_{2011}$ = (FCFE in year 2012) / (required rate of return – growth rate)

= $21.89 (1.05) / (0.10 − 0.05) = $22.98 per share / 0.05

= $460 per share. Di Stefano's statement is correct.

Terminal Firm Value$_{2011}$ = (FCFE in year 2012) / (required rate of return – growth rate) = $21.89 (1.05) / (0.15 − 0.05)

= $22.98 per share / 0.10 = $230 per share. Simmons' statement is also correct.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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## Question #48 - 50 of 144

Question ID: 1209872

Assuming Simmons is right that the required return on Starshah equity rises to 15% in 2012 and beyond, what is the value of Starshah stock at the end of 2004?

**A)** $63.71. ❌

**B)** $111.35. ❌

**C)** $117.49. ✅

### Explanation

In order to calculate the firm value, we need to know the discount rate that applies over each period. Since the discount rate changes, we can simplify the arithmetic by constructing a table of discount factors using 25% for each of the first two years and 15% for each of the following five years:

|  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|
| Discount factor | 1.25 | 1.56 | 1.80 | 2.07 | 2.38 | 2.73 | 3.14 |

We can then calculate firm value in 2004 using the FCFE values we calculated in question 1 and the stock value in the year 2012 (that we calculated in question 3).

Starshah equity value in 2004 = (5.02 / 1.25) + (7.63 / 1.56) + (11.01 / 1.80) + (14.67 / 2.07) + (18.08 / 2.38) + (20.62 / 2.73) + (21.89 / 3.14) + (230 / 3.14)

= 4.02 + 4.89 + 6.12 + 7.09 + 7.60 + 7.55 + 6.97 + 73.25

= 117.49

The value of Starshah stock at the end of 2004 is $117.49 per share.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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## Question #49 - 50 of 144

Question ID: 1209873

What is the *maximum* amount that Starshah would be willing to pay for TPX (in millions)?

**A)** $6.941. ❌

**B)** $5.102. ❌

**C)** $5.874. ✅

**Explanation**

Equity Value = $[500 / (1.20)^1] + [600 / (1.20)^2] + [700 / (1.20)^3] + [(700)(1.03) / (0.12 − 0.03) / (1.20)^3] = \$5,874$.

The most that Starshah could pay for TPX and still meet its required return targets is $5.874 million.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #50 - 50 of 144

Which of the following FCFE models is *best* suited to analyzing Starshah Industries?

**A)** Stable growth FCFE model.  ❌

**B)** Two-stage FCFE model.  ❌

**C)** Three-stage FCFE model.  ✅

**Explanation**

The three-stage FCFE model is most suited to analyze firms in high growth industries that will face increasing competitive pressures over time, since those competitive pressures will lead to a gradual decline in the firm's growth rate (second stage) to a stable level (third stage).

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #51 of 144

The repurchase of 20% of a firm's outstanding common shares will cause free cash flow to the firm (FCFF) to:

**A)** increase.  ❌

**B)** decrease.  ❌

**C)** remain the same.  ✅

**Explanation**

Share repurchases are a *use* of free cash flows, not a *source*. FCFF is cash flow that is available to all capital suppliers. Notice the conspicuous absence of repurchases in the following: FCFF = CFO + Int (1 – tax rate) – FCInv.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

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## Question #52 of 144

Which of the following statements about the three-stage FCFE model is *most* accurate?

**A)** There is a transition period where the growth rate is stable. ❌

**B)** There is a final phase when growth rate starts to decline. ❌

**C)** There is a transition period where the growth rate declines. ✅

**Explanation**

In the three-stage FCFE model, there is an initial phase of high growth, a transition period where the growth rate declines, and a steady-state period where growth is stable.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**
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## Question #53 of 144

Terminal value in a multi-stage free cash flow to equity (FCFE) valuation model is often calculated as the present value of:

**A)** free cash flow divided by the growth rate. ❌

**B)** a two-stage valuation model's price. ❌

**C)** FCFE divided by the total of required rate on equity minus growth. ✅

**Explanation**

Terminal values are usually calculated as the present value of the price produced by a constant-growth model as of the beginning of the last stage, which is FCFE / (required rate on equity – growth).

(Study Session 11, Module 28.5, LOS 28.l)

**Related Material**
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## Question #54 of 144

A firm has:

> Free cash flow to equity = $4.0 million.
> Cost of equity = 12%.
> Long-term expected growth rate = 5%.
> Value of equity per share = $57.14 per share.

What will happen to the value of the firm if free cash flow to equity decreases to $3.2 million?

**A)** The value will increase. ❌

**B)** There is insufficient information to tell. ❌

**C)** The value will decrease. ✅

**Explanation**

Everything else being constant, a decrease in free cash flow to equity should decrease the value of the firm.

(Study Session 11, Module 28.5, LOS 28.k)

**Related Material**
SchweserNotes - Book 3

A common approach to forecasting free cash flows is to:

**A)** project net income and expected capital expenditures. ❌

**B)** project earnings before interest and taxes (EBIT) and expected capital expenditures. ❌

**C)** calculate historical free cash flow and apply an expected growth rate. ✅

**Explanation**

Historical free cash flows are often used for forecasting.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**
SchweserNotes - Book 3

SOX, Inc., expects high growth in the next 4 years before slowing to a stable future growth of 3%. The firm is assumed to pay no dividends in the near future and has the following forecasted free cash flow to equity (FCFE) information on a per share basis in the high-growth period:

|  | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| FCFE | $3.05 | $4.10 | $5.24 | $6.71 |

High-growth period assumptions:

SOX, Inc.'s, target debt ratio is 40% and a beta of 1.3.
The long-term Treasury Bond Rate is 4.0%, and the expected equity risk premium is 6%.

Stable-growth period assumptions:

SOX, Inc.'s, target debt ratio is 40% and a beta of 1.0.
The long-term Treasury Bond Rate is 4.0% and the expected equity risk premium is 6%.
Capital expenditures are assumed to equal depreciation.
In year 5, earnings are $8.10 per share while the change in working capital is $2.00 per share.
Earnings and working capital are expected to grow by 3% a year in the future.

What is the present value on a per share basis for SOX, Inc.?

**A)** $64.24. ❌

**B)** $77.15. ✅

**C)** $70.49. ❌

**Explanation**

The required rate of return in the high-growth period is (r) = 0.04 + 1.3(0.06) = 0.118.

The required rate of return in the stable-growth period is (r) = 0.04 + 1.0(0.06) = 0.10.

The Present Value (PV) of the FCFE in the high-growth period is $(3.05 / 1.118) + (4.10 / 1.118^2) + (5.24 / 1.118^3) + (6.71 / 1.118^4) = 14.06$.

The Terminal Price = Expected $FCFE_{n+1} / (r - g_n)$ with $FCFE_{n+1}$ = FCFE in year 5 = $_{Earnings}$ per share − (Capital Expenditures − Depreciation)(1 − Debt Ratio) − (Change in working capital)(1 − Debt Ratio) = 8.10 − 0(1 − 0.4) − 2.00(1 − 0.4) = 6.90.

The Terminal Price = 6.90 / (0.10 − 0.03) = 98.57.

The PV of the Terminal Price = $(98.57 / 1.118^4) = 63.09$.

The value of a share today is the PV of the FCFE in the high-growth period plus the PV of the Terminal Price = 14.06 + 63.09 = 77.15.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #57 of 144

In the two-stage FCFE model, the required rate of return for calculating terminal value should be:

**A)** higher than the required rate of return used for the high-growth phase. ❌

**B)** lower than the required rate of return used for the high-growth phase. ✅

**C)** equal to the average required rate of return for the industry. ❌

**Explanation**

In most cases, the required rate of return used to calculate the terminal value should be lower than the required rate of return used for initial high-growth phase. During the stable period the firm is less risky and the required rate of return is therefore lower.

(Study Session 11, Module 28.5, LOS 28.l)

**Related Material**

SchweserNotes - Book 3

## Question #58 of 144

Which of the following statements is *least* accurate? A firm's free cash flows to equity (FCFE) is the cash available to stockholders after funding:

**A)** capital expenditure requirements. ❌

**B)** debt principal repayments. ❌

**C)** dividend payments. ✅

**Explanation**

A firm's FCFE is the cash available to stockholders after funding capital expenditures and debt principal repayments.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

If a firm is valued using FCFF, the relevant discount rate is the:

**A)** before-tax cost of equity.  ✗

**B)** after-tax weighted average cost of capital.  ✓

**C)** before-tax weighted average cost of capital.  ✗

**Explanation**

Since the FCFF is the cash available to all the investors, the after-tax weighted average cost of capital should be used as the discount rate in FCFF models.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

Which of the following is *least likely* to change as the firm changes leverage?

**A)** Free cash flows to equity (FCFE).  ✗

**B)** Free cash flows to firm (FCFF).  ✓

**C)** Weighted average cost of capital (WACC).  ✗

**Explanation**

The FCFFs are normally unaffected by the changes in leverage, as these are the cash flows before the debt payments.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

Free cash flow to the firm (FCFF) adjusts earnings before interest and taxes (EBIT) by:

**A)** subtracting investments in fixed capital and working capital.  ✗

**B)** deducting taxes, adding back depreciation, and deducting the investments in fixed capital and working capital.  ✓

**C)** adding taxes, deducting depreciation, and adding back the investments in fixed capital and working capital.  ✗

**Explanation**

As presented in the reading: FCFF = EBIT (1 – tax rate) + Dep – FCInv – WCInv.

(Study Session 11, Module 28.3, LOS 28.c)

**Related Material**

SchweserNotes - Book 3

## Question #62 of 144

The value of stock under the two-stage FCFE model will be equal to:

**A)** present value (PV) of FCFE during the extraordinary growth period plus the terminal value. ❌

**B)** present value (PV) of FCFE during the extraordinary growth and transitional periods plus the PV of terminal value. ❌

**C)** present value (PV) of FCFE during the extraordinary growth period plus the PV of terminal value. ✅

**Explanation**

The value of stock under the two-stage FCFE model will be equal to the *present value* of FCFE during the extraordinary growth period plus the *present value* of the terminal value at the end of this period.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #63 of 144

In five years, a firm is expected to be operating in a stage of its life cycle wherein its expected growth rate is 5%, indefinitely; its required rate of return on equity is 11%; its weighted average cost of capital is 9%; and the free cash flow to equity in year 6 will be $5.25 per share. What is its projected terminal value at the end of year 5?

**A)** $51.93. ❌

**B)** $131.25. ❌

**C)** $87.50. ✅

**Explanation**

Terminal value = FCFE / (k − g) = $5.25 / (0.11 − 0.05) = $87.50

(Study Session 11, Module 28.5, LOS 28.l)

**Related Material**
SchweserNotes - Book 3

## Question #64 of 144

Which of the following types of companies is the two-stage free cash flow to equity (FCFE) model best suited for? Companies:

**A)** growing at a rate similar to or less than the nominal growth rate of the economy. ❌

**B)** with patents or firms in an industry with significant barriers to entry. ✅

**C)** in high growth industries that will face increasing competitive pressures over time, leading to a gradual decline in growth to a stable level. ❌

**Explanation**

The two-stage model is best suited to analyzing firms in a high growth phase that will maintain that growth for a specific period, such as firms with patents or firms in an industry with significant barriers to entry. Companies growing at a rate similar to or less than the nominal growth rate of the economy are best suited for the single-stage FCFE Model. Companies in high growth industries correspond to the three-Stage FCFE Model.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

## Question #65 of 144

The two-stage (stable growth) free cash flow to equity (FCFE) and free cash flow to the firm (FCFF) models typically assume:

**A)** high growth in free cash flow for $n$ years and then constant growth in free cash flow forever after. ✓

**B)** growth of free cash flow that declines to the required rate of return in the last stage. ✗

**C)** a high level of free cash flow for n years and then a lower level of free cash flow thereafter ✗

**Explanation**

The two-stage model using either FCFE or FCFF typically assumes a high growth of free cash flow for $n$ years and then a constant growth in free cash flow forever after. Multi-stage models assume that the required rate of return exceeds the growth rate in the last stage. In a two-stage free cash flow models, the growth rate in the second stage represents the long-run sustainable growth rate, which is generally a low rate that is close to the GDP growth rate.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

## Question #66 of 144

Using the information below, value the stock of Symphony Publishing, Inc. using the free cash flow from equity (FCFE) valuation method.

Required return of 13.0%.

Value at the end of year 3 of 13 times $FCFE_3$.

Shares outstanding: 10.0 million.

Net income in year 1 of $10.0 million, projected to grow at 10% for the next two years.

Depreciation per year of $3.0 million.

Capital Expenditures per year of $2.5 million.

Increase in working capital per year of $1.0 million.

Principal repayments on debt per year of $1.5 million.

The value per share of Symphony Publishing is approximately:

**A)** $14.10. ✗

**B)** $11.21. ✓

**C)** $112.10. ✗

**Explanation**

*Step 1: Calculate each year's FCFE and discount at the required return.*

FCFE = net income + depreciation − capital expenditures − increase in working capital − principal repayments + new debt issues

Year 1: 10.0 + 3.0 − 2.5 − 1.0 − 1.5 = 8.0,

PV = 7.08 = 8.0 / $(1.13)^1$, or FV = −8.0, I = 13, PMT = 0, N = 1, Compute PV

Year 2: 10.0 × 1.10 + 3.0 − 2.5 − 1.0 − 1.5 = 9.0,

PV = 7.05 = 9.0 / $(1.13)^2$, or FV = −9.0, I = 13, PMT = 0, N = 2, Compute PV

Year 3: 10.0 × $(1.10)^2$ + 3.0 − 2.5 − 1.0 − 1.5 = 10.10

PV = 7.00 = 10.10 / $(1.13)^3$, or FV = −10.10, I = 13, PMT = 0, N = 3, Compute PV

*Step 2: Calculate Present Value of final cash flow times FCFE multiple.*

Value at end of year 3 = FCFE3 × multiple = 10.10 × 13 = 131.30

PV = 91.00 = 131.30 / $(1.13)^3$ , or using calculator, N = 3, FV = −131.30, I = 13, PMT = 0, Compute PV

*Step 3: Calculate per share value.*

Add up PV of FCFE and end value and divide by number of shares outstanding
= (7.08 + 7.05 + 7.00 + 91.0) / 10.0 = 11.21

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

**Question #67 of 144**

Question ID: 1209822

An analyst has prepared the following scenarios for Schneider, Inc.:

Scenario 1 Assumptions:

   Tax rate is 40%.
   Weighted average cost of capital (WACC) = 12%.
   Constant growth rate in free cash flow = 3%.
   Last year, free cash flow to the firm (FCFF) = $30.
   Target debt ratio = 10%.

Scenario 2 Assumptions:

   Tax rate is 40%.
   Expenses before interest and taxes (EBIT), capital expenditures, and depreciation will
   grow at 15% for the next three years.
   After three years, the growth in EBIT will be 2%, and capital expenditure and
   depreciation will offset each other.
   WACC during high growth stage = 20%.
   WACC during stable growth stage = 12%.
   Target debt ratio = 10%.

| Scenario 2 FCFF | Year 0 (last year) | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|---|
| EBIT | $15.00 | $17.25 | $19.84 | $22.81 | $23.27 |
| Capital Expenditures | 6.00 | 6.90 | 7.94 | 9.13 | |
| Depreciation | 4.00 | 4.60 | 5.29 | 6.08 | |
| Change in Working Capital | 2.00 | 2.10 | 2.20 | 2.40 | 2.40 |
| FCFF | | 5.95 | 7.06 | 8.25 | 11.56 |

Assuming that Schneider, Inc., slightly increases its financial leverage, what should happen to its firm value? The firm value should:

**A)** decline due to the increase in risk.  ❌

**B)** increase due to the additional value of interest tax shields.  ✅

**C)** not change because financial leverage has no relationship with firm value.  ❌

**Explanation**

For small changes in leverage, the additional value added by the interest tax shields will more than offset the additional risk of bankruptcy / financial distress. Given the tax advantage of debt, the firm's WACC should decline, not increase with small changes in leverage.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**
SchweserNotes - Book 3

**Question #68 of 144**

Question ID: 1209801

On a per share basis for a firm:

> Sales are $10.00.
>
> Earnings per share (EPS) is $4.00.
>
> Depreciation is $3.00.
>
> After-tax interest is $2.40.
>
> Investment in working capital is $1.50.
>
> Investment in fixed capital is $2.00.

What is the firm's expected free cash flow to the firm (FCFF) per share?

**A)** $5.90.  ✅

**B)** $7.50.  ❌

**C)** $2.90.  ❌

**Explanation**

FCFF = EPS + net non-cash charges + after-tax interest − FCInv − WCInv

FCFF= $4.00 + 3.00 +$2.40 − $2.00 −1.50 = $5.90

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

Currently, a firm has no outstanding debt. If the firm would add a small amount of leverage to its balance sheet, what should be the impact on the firm's value? There would be:

**A)** a decrease in value due to higher interest expense.  ❌

**B)** an increase in value due to interest tax shields.  ✅

**C)** no change in firm value.  ❌

**Explanation**

The amount of financial leverage used by a firm will affect its value. For small amounts of leverage, the additional bankruptcy risk will be low, and will be more than offset by the additional value of interest tax shields.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

Using the stable growth free cash flow to the firm (FCFF) model, what is the value of Quality Builders under the assumptions contained in the table below?

**Quality Builders**

**Free Cash Flow to the Firm**

**Year 0**

| | |
|---|---|
| EBIT | $500 |
| Depreciation | $200 |
| Capital Spending | $300 |
| Working Capital Additions | $30 |
| Tax Rate | 40% |
| Assumed Constant Growth Rate in Free Cash Flow | 5% |
| Weighted-average Cost of Capital | 11% |

A) $6,475.00.   ✗

B) $2,975.00.   ✓

C) $2,833.33.   ✗

**Explanation**

The stable growth FCFF model assumes that FCFF grows at a constant rate forever. FCFF in Year 0 is equal to EBIT(1 − tax rate) + Depreciation − Capital Spending − Working Capital Additions = 500(1 − 0.4) + 200 − 300 − 30 = 170. The Firm Value = $FCFF_1$ / (r − $g_n$) = 170(1.05) / (0.11 − 0.05) = $2,975.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

A firm has:

- Free cash flow to equity = $4.0 million.
- Cost of equity = 12%.
- Long-term expected growth rate = 5%.
- Value of equity per share = $57.14 per share.

What will happen to the value of equity if the cost of equity decreases to 10%?

A) The value will decrease.   ✗

B) The value will increase.   ✓

C) There is insufficient information to tell.   ✗

**Explanation**

Everything else being constant, a decrease in the relevant required rate of return should increase the value of the equity per share.

(Study Session 11, Module 28.5, LOS 28.k)

**Related Material**

SchweserNotes - Book 3

BOX Inc. earned $4.55 per share last year. The firm had capital expenditures of $1.75 per share and depreciation expense of $1.05. BOX Inc. has a target debt ratio of 0.25.

| | High-Growth Period | Transitional Period | Stable-Growth Period |
|---|---|---|---|
| Duration | 2 Years | 5 Years | |
| Earnings growth rate | 45% | Will decline 8% per year to 5% in the stable-growth period | 5% |
| Growth in Capital Expenditures | 30% | Increases by 8% per year | Same as Depreciation |
| Growth in Depreciation | 30% | Increases by 13% per year | Same as Capital Expenditures |
| Change in Working Capital | Given Below | Given Below | $2.25 per share in Year 8 |
| Shareholder Required Return | 25% | 15% | 10% |

| | Yr 0 | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 |
|---|---|---|---|---|---|---|---|---|
| EPS | 4.55 | 6.60 | 9.57 | 13.11 | 16.91 | 20.46 | 23.12 | 24.27 |
| Capital Expenditures | 1.75 | 2.28 | 2.96 | 3.19 | 3.45 | 3.73 | 4.02 | 4.35 |
| Depreciation | 1.05 | 1.37 | 1.77 | 2.01 | 2.27 | 2.56 | 2.89 | 3.27 |
| Change in WC | 0.90 | 1.10 | 1.40 | 1.60 | 1.80 | 2.00 | 2.20 | 2.10 |
| FCFE | | | 7.63 | 11.01 | 14.67 | 18.08 | 20.62 | 21.89 |

In year 1, what is the free cashflow to equity (FCFE) for BOX Inc.?

**A)** $6.10.  ❌

**B)** $5.09.  ✅

**C)** $3.35.  ❌

**Explanation**

Year 1 FCFE = Earnings per share − (Capital Expenditures − Depreciation) (1 − Debt Ratio) − Change in working capital (1 − Debt Ratio)

Year 1 FCFE = 6.60 − (2.28 − 1.37)(1 − 0.25) − (1.1)(1 − 0.25) = 5.09

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

In the stable-growth FCFE model, an extremely low value can result from all of the following *EXCEPT*:

**A)** capital expenditures are too high relative to depreciation.  ✗

**B)** the expected growth rate is too high for a stable firm.  ✓

**C)** the required rate of return is too high for a stable firm.  ✗

**Explanation**

If the expected growth rate is too high for a stable firm, the value obtained using the stable-growth FCFE model will be extremely high.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #74 of 144

Free cash flow (FCF) approaches are the *best* source of value when:

**A)** dividends are paid but do not reflect the company's capacity to pay dividends.  ✓

**B)** a firm has significant minority interest.  ✗

**C)** a firm has no preferred stock.  ✗

**Explanation**

FCF approaches are best when dividends are paid but do not appear to be representative of the firm's capacity to pay them. Both remaining responses have nothing to do with the decision.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #75 of 144

Free cash flow to equity valuation uses which discount rate?

**A)** After-tax cost of debt.  ✗

**B)** Weighted average cost of capital.  ✗

**C)** Cost of equity.  ✓

**Explanation**

Free cash flow to equity valuation uses the opportunity cost relevant to stockholders, which is the cost of equity.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

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## Question #76 of 144

The three-stage FCFE model might result in an extremely high value if:

**A)** the growth rate in the stable-period is too low.  ✗

**B)** the growth rate in the stable-period is equal to that of GNP. ❌

**C)** the growth rate in the stable-period is too high. ✅

**Explanation**

If the growth rate in the stable-period is too high or the high-growth and transition periods are too long, the three-stage FCFE model might result in an extremely high value.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**

SchweserNotes - Book 3

## Question #77 of 144

SOX Inc. expects high growth in the next 4 years before slowing to a stable future growth of 3%. The firm is assumed to pay no dividends in the near future and has the following forecasted free cash flow to equity (FCFE) information on a per share basis in the high-growth period:

|  | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|
| FCFE | $3.05 | $4.10 | $5.24 | $6.71 |

High-growth period assumptions:

> SOX Inc.'s target debt ratio is 40% and a beta of 1.3.
> The long-term Treasury Bond Rate is 4.0%, and the expected equity risk premium is 6%.

Stable-growth period assumptions:

> SOX Inc.'s target debt ratio is 40% and a beta of 1.0.
> The long-term Treasury Bond Rate is 4.0% and the expected equity risk premium is 6%.
> Capital expenditures are assumed to equal depreciation.
> In year 5, earnings are $8.10 per share while the change in working capital is $2.00 per share.
> Earnings and working capital are expected to grow by 3% a year in the future.

In year 5, what is the free cash flow to equity (FCFE) for SOX Inc.?

**A)** $6.90. ✅

**B)** $7.30. ❌

**C)** $6.10. ❌

**Explanation**

In year 5, FCFE = Earnings per share − (Capital Expenditures − Depreciation) (1 − Debt Ratio) − (Change in working capital)(1 − Debt Ratio) = 8.10 − 0(1 − 0.4) − 2.00(1 − 0.4) = 6.90.

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

## Question #78 of 144

Optimal capital structure is the mix of debt and equity that will maximize the value of the firm and minimize:

**A)** the amount of taxable profit reported. ❌

**B)** the firm's cost of capital. ✅

**C)** agency costs of equity. ❌

**Explanation**

The optimal capital structure is the mix of debt and equity that will maximize the value of the firm and minimize weighted average cost of capital (i.e. the firm's cost of capital or "WACC").

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

## Question #79 of 144

In computing free cash flow, the most significant non-cash expense is usually:

**A)** deferred taxes. ❌

**B)** depreciation. ✅

**C)** capital expenditures. ❌

**Explanation**

Depreciation is usually the largest non-cash expense.

(Study Session 11, Module 28.3, LOS 28.c)

**Related Material**

SchweserNotes - Book 3

## Question #80 of 144

The repayment of a significant amount of outstanding debt will cause free cash flow to equity (FCFE) to:

**A)** increase. ❌

**B)** decrease. ✅

**C)** remain the same. ❌

**Explanation**

Debt repayment will decrease net borrowing and, hence, decrease FCFE because: FCFE = FCFF – [interest expense] (1 – tax rate) + net borrowing.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**

SchweserNotes - Book 3

Beachwood Builders merged with Country Point Homes in December 31, 1992. Both companies were builders of mid-scale and luxury homes in their respective markets. In 2004, because of tax considerations and the need to segment the businesses between mid-scale and luxury homes, Beachwood decided to spin-off Country Point, its luxury home

subsidiary, to its common shareholders. Beachwood retained Bernheim Securities to value the spin-off of Country Point as of December 31, 2004.

When the books closed on 2004, Beachwood had $140 million in debt outstanding due in 2012 at a coupon rate of 8%, a spread of 2% above the current risk free rate. Beachwood also had 5 million common shares outstanding. It pays no dividends, has no preferred shareholders, and faces a tax rate of 30%. When valuing common stock, Bernhiem's valuation models utilize a market risk premium of 11%.

The common equity allocated to Country Point for the spin-off was $55.6 million as of December 31, 2004. There was no long-term debt allocated from Beachwood.

The Managing Director in charge of Bernheim's construction group, Denzel Johnson, is prepping for the valuation presentation for Beachwood's board with Cara Nguyen, one of the firm's associates. Nguyen tells Johnson that Bernheim estimated Country Point's net income at $10 million in 2004, growing $5 million per year through 2008. Based on Nguyen's calculations, Country Point will be worth $223.7 million in 2008. Nguyen decided to use a cost of equity for Country Point in the valuation equal to its return on equity at the end of 2004 (rounded to the nearest percentage point).

Nguyen also gives Johnson the table she obtained from Beachwood projecting depreciation (the only non-cash charge) and capital expenditures:

| $(in millions) | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| Depreciation | 5 | 6 | 5 | 6 | 5 |
| Capital Expenditures | 7 | 8 | 9 | 10 | 12 |

Looking at the numbers, Johnson tells Nguyen, "Country Point's free cash flow (FCF) will be $25 million in 2006." Nguyen adds, "That's FCF to the Firm (FCFF). FCF to Equity (FCFE) will be lower."

## Question #81 - 86 of 144

Regarding the statements by Johnson and Nguyen about FCF in 2006:

**A)** only Johnson is incorrect.  ❌

**B)** only Nguyen is incorrect.  ❌

**C)** both are incorrect.  ✅

**Explanation**

To estimate FCF, we can construct the following table using the table given and the information about growth in net income:

| $(in millions) | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|
| Net Income | 10 | 15 | 20 | 25 | 30 |
| Plus: Depreciation | 5 | 6 | 5 | 6 | 5 |
| Less: Capital Expenditures | 7 | 8 | 9 | 10 | 12 |
| *Free Cash Flow* | 8 | 13 | 16 | 21 | 23 |

The estimated free cash flow for 2006 is $16 million. Johnson's statement is incorrect. Since none of Beachwood's debt is allocated to Country Point, all the financing is in the form of equity, so FCFF and FCFE are equal. Nguyen's statement is also incorrect.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

If FCInv equals Fixed Capital Investment and WCInv equals Working Capital Investment, which statement about FCF and its components is *least* accurate?

**A)** FCFE = (EBIT × (1 − tax rate)) + Depreciation − FCInv − WCInv. ✓

**B)** WCInv is the change in the working capital accounts, excluding cash and short-term borrowings. ✗

**C)** FCFF = (EBITDA × (1 − tax rate)) + (Depreciation × tax rate) − FCInv − WCInv. ✗

**Explanation**

The correct version of this equation is:

$$FCFF = (EBIT \times (1 - \text{tax rate})) + \text{Depreciation} - FCInv - WCInv$$

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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**Question #83 - 86 of 144**

Question ID: 1209887

What is the cost of capital that Nguyen used for her valuation of Country Point?

**A)** 18%. ✓

**B)** 15%. ✗

**C)** 17%. ✗

**Explanation**

Since there is no debt allocated to Country Point, the cost of capital will equal the cost of equity. Nguyen said that she used a cost of equity equal to Country Point's Return on Equity (ROE) at year-end, rounded to the nearest percentage point. Since the net income at the end of 2004 was $10 million and the allocated common equity was $55.6 million, the return of equity is (10 million / 55.6 million) = 18%

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

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**Question #84 - 86 of 144**

Question ID: 1209888

Given Nguyen's estimate of Country Point's terminal value in 2008, what is the growth assumption she must have used for free cash flow after 2008?

**A)** 7%. ✓

**B)** 3%. ✗

**C)** 9%. ✗

**Explanation**

We know the terminal value in 2008 is $223.7 million. We can calculate the free cash flow in 2008 to be $23 million (= $30 million net income + $5 million depreciation − $12 million capital expenditures). (See the table in question 1). Thus, we can solve for the estimated growth rate:

Terminal value = [CF@2008 × (growth rate + 1)] / (discount rate − growth rate)

223.7 million = ($23 million × (growth rate + 1)) / (0.18 − growth rate)

223.7 million × (0.18 − growth rate) = 23 million × (growth rate + 1)

40.266 − (223.7 × growth rate) = 23 million + (23 × growth rate)

17.266 = 246.7 × (growth rate)

growth rate = 0.07

Nguyen's growth rate assumption is 7% per year

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #85 - 86 of 144

The value of beta for Country Point is:

**A)** 1.09. ✓

**B)** 1.00. ✗

**C)** 1.27. ✗

**Explanation**

The risk free rate is (8% − 2%) = 6%. We are told that the market risk premium is 11%, and we calculated the cost of equity (required return) to be (10 million / 55.6 million =) 18%. Since we know the risk-free rate, the market risk premium, and the discount rate, we can use the capital asset pricing model to solve for beta:

Required rate of return = 0.18 = 0.06 + (b × 0.11)

0.18 − 0.06 = b × 0.11

0.12 = b × 0.11

b = 1.09

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #86 - 86 of 144

What is the estimated value of Country Point in a proposed spin-off?

**A)** $144.5 million. ✗

**B)** $178.3 million. ✗

**C)** $162.6 million. ✓

**Explanation**

Using the discounted cash flow approach on the levels of cash flow we calculated (see the table in question 1):

$$\text{Firm value} = (\$13 / 1.18^1) + (\$16 / 1.18^2) + (\$21 / 1.18^3) + (\$23 / 1.18^4) + (\$223.7 / 1.18^4)$$

$$= \$11.0 + \$11.5 + \$12.8 + \$11.9 + \$115.4$$

$$= \$162.6 \text{ million}$$

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #87 of 144

Industrial Light currently has:

Free cash flow to equity = $4.0 million.

Cost of equity = 12%.

Weighted average cost of capital = 10%.

Total debt = $30.0 million.

Long-term expected growth rate = 5%.

What is the value of equity?

**A)** $57,142,857. ❌

**B)** $60,000,000. ✅

**C)** $27,142,857. ❌

**Explanation**

The value of equity is $[(\$4,000,000)(1.05) / (0.12 - 0.05)] = \$60,000,000$.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #88 of 144

Terminal value in multi-stage free cash flow valuation models is often calculated as the present value of:

**A)** a two-stage valuation model's price. ❌

**B)** a constant growth model's price as of the beginning of the last stage. ✅

**C)** free cash flow divided by the growth rate. ❌

**Explanation**

Terminal values are usually calculated as the present value of the price produced by a constant-growth model as of the beginning of the last stage.

(Study Session 11, Module 28.5, LOS 28.l)

**Related Material**
SchweserNotes - Book 3

A firm currently has the following per share values:

> Cash flow from operations (CFO) is $49.50.
>
> Investment in fixed capital is $40.00.
>
> Net borrowing is $7.50.

What is the current per share free cash flow to equity (FCFE)?

**A)** $16.50.  ❌

**B)** $97.00.  ❌

**C)** $17.00.  ✅

**Explanation**

FCFE = CFO − FCInv + net borrowing = $49.50 − $40.00 + $7.50 = $17.00

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**

SchweserNotes - Book 3

The following information is derived from the financial records of Brown Company for the year ended December 31, 2004:

| | |
|---|---|
| Sales | $3,400,000 |
| Cost of Goods Sold (COGS) | (2,100,000) |
| Depreciation | (300,000) |
| Interest Paid | (200,000) |
| Gain on Sale of Old Equipment | 400,000 |
| Income Taxes Paid | (300,000) |
| Net Income | $900,000 |

> Brown issued bonds on June 30, 2004 and received proceeds of $4,000,000.
>
> Old equipment with a book value of $2,000,000 was sold on August 15, 2004 for $2,400,000 cash.
>
> Brown purchased land for a new factory on September 30, 2004 for $3,000,000, issuing a $2,000,000 note and paying the balance in cash.

Cash flow from operations less capital expenditures is:

**A)** $6,200,000.  ❌

**B)** $2,200,000.  ❌

**C)** $200,000.  ✅

**Explanation**

Brown's cash flow from operations (CFO) was $800,000 = ($900,000 Net Income + $300,000 depreciation − $400,000 gain).

Capital expenditure cash flows were −$3,000,000 for the factory and $2,400,000 cash received from sale of the old equipment for a net outflow of cash of $600,000.

$200,000 = ($800,000 - $600,000).

(Study Session 11, Module 28.3, LOS 28.c)

**Related Material**

SchweserNotes - Book 3

## Question #91 of 144

A control perspective is most consistent with which of the following valuation approaches?

**A)** Free cash flow (FCF). ✅

**B)** Dividends. ❌

**C)** Price to enterprise value. ❌

**Explanation**

Dividend policy can be changed by the buyer of a firm. Thus, the FCF perspective looks to the source of dividends in a position of control rather than directly at dividends. The price to enterprise value approach does not focus on cash flows.

(Study Session 11, Module 28.1, LOS 28.b)

**Related Material**

SchweserNotes - Book 3

The following information was collected from the financial statements of Bankers Industrial Corp (BIC) for the year ended December 31, 2013.

Earnings before interest and taxes (EBIT) = $6.00 million.

Capital expenditures = $1.25 million.

Depreciation expense = $0.63 million.

Working capital additions = $0.59 million.

Cost of debt = 10.50%.

Cost of equity = 16.00%.

Stable growth rate for FCFF = 7.00%.

Stable growth rate for FCFE = 10.00%.

Market value of debt = $20.00 million.

Book value of debt = $22.50 million.

Outstanding shares = 500,000.

Interest expense = $2.00 million.

New Debt borrowing = $3.30 million.

Debt repayment = $2.85 million.

Growth rates for two-stage growth model for FCFE:

25.0% for Years 1-3.

6.0% for Years 4 and thereafter.

BIC is currently operating at their target debt ratio of 40.00%. The firm's tax rate is 40.00%.

## Question #92 - 97 of 144

The free cash flow to the firm (FCFF) for the current year is *closest* to:

**A)** $2.39 million. ✓

**B)** $3.57 million. ✗

**C)** $2.31 million. ✗

**Explanation**

The FCFF for the current year is [$6.00m × (1 − 0.40)] + $0.63m − $1.25m − $0.59m = $2.39m.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #93 - 97 of 144

The appropriate discount rate to apply in valuing BIC using FCFF is *closest* to:

**A)** 12.1%. ✓

**B)** 16.0%. ✗

**C)** 13.8%. ✗

**Explanation**

The appropriate discount rate to use is the weighted average cost of capital (WACC), and this is WACC = (0.60 × 0.16) + [0.40 × 0.105 × (1 − 0.40)] = 12.12%.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #94 - 97 of 144

The estimated value of the firm is *closest* to:

**A)** $38 million. ✗

**B)** $47 million. ✗

**C)** $50 million. ✓

**Explanation**

The value of BIC using a stable-growth FCFF model is $49.95 million, calculated as:

FCFF = [$6.00m × (1 − 0.40)] + $0.63m − $1.25m − $0.59m. = $2.39m

WACC = (0.60 × 0.16) + [0.40 × 0.105 × (1 × 0.40)] = 12.12%.

Estimated value = ($2.39m × 1.07) / (0.1212 − 0.07)= $49.95 million.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

If the estimated value of the firm is $50.0 million, the value per share of BIC stock should be *closest* to:

**A)** $28.  ✗

**B)** $30.  ✗

**C)** $60.  ✓

**Explanation**

Equity value = Firm value – market value of debt; $50 million - $20 million = $30 million:

$30,000,000/500,000 = $60.00 per share.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

If the estimated value of the free cash to the firm (FCFF) for year 0 is $2.4 million, the value per share of BIC stock, based on the stable growth model, is *closest* to:

**A)** $39  ✗

**B)** $55  ✗

**C)** $61  ✓

**Explanation**

FCFE = FCFF – Interest expense × (1 − tax rate) + Net borrowing = $2.40 million – [$2.00 million × (1 − 0.40)] + $3.30 million − $2.85 million = $1.65 million.

The value of equity is: [$1.65 million × (1+0.10) ] /(0.16 − 0.10) = $30.25 million.

On a per share basis: $30.25 million/500,000 = $60.50

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

The current market price of BIC is $62.50 per share, and the current year's FCFE is $1.75 million. Using a two-stage growth model to find the estimated the firm's value, the current market price BIC is most accurately described as:

**A)** overvalued.  ✓

**B)** undervalued.  ✗

**C)** fairly valued.  ✗

**Explanation**

FCFE = FCFF − Interest expense × (1 − T) + New borrowing.

| Year | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Growth rate | | 25.0% | 25.0% | 25.0% | 6.0% |
| FCFE in mil$ | $1.750 | $2.188 | $2.734 | $3.418 | $3.623 |

The terminal value is $3,623/(0.16 – 0.06) = $36,230 million. The calculator inputs: CF0 = 0, CF1 = $2,188, CF2 = $2,734, CF3 = $3,418 + $36,230 = $39,648, I = 16, NPV = $29.319 million.

Per share price is $29,319,000/500,000 = $58.64. The stock appears to be overvalued at the current market price of $62.50 per share, as our estimated value of $58.64 suggests that the market price is too high.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #98 of 144

Question ID: 1209877

A firm's free cash flow to equity (FCFE) in the most recent year is $50M and is expected to grow at 5% per year forever. If its shareholders require a return of 12%, the value of the firm's equity using the single-stage FCFE model is:

**A)** $750M. ✓

**B)** $714M. ✗

**C)** $417M. ✗

**Explanation**

The value of the firm's equity is: $50M × 1.05 / (0.12 − 0.05) = $750M

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #99 of 144

Question ID: 1209773

Free cash flow approaches are the *best* source of value when:

**A)** return on assets is falling. ✗

**B)** a firm has significant minority interest. ✗

**C)** dividends are not paid. ✓

**Explanation**

Free cash flow approaches are best when dividends are not paid. Both remaining responses have nothing to do with the decision.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**
SchweserNotes - Book 3

Free cash flow to the firm valuation uses which discount rate?

**A)** Cost of equity. ❌

**B)** After-tax cost of debt. ❌

**C)** Weighted average cost of capital. ✅

**Explanation**

Free cash flow to the firm valuation uses the opportunity cost relevant to the overall firm, which is the weighted average cost of capital.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

Mark Washington, CFA, uses a two-stage free cash flow to equity (FCFE) discount model to value Texas Van Lines. His analysis yields an extremely low value, which he believes is incorrect. Which of the following is *least likely* to be a cause of this suspect valuation estimate?

**A)** Earnings are temporarily depressed because of a one-time extraordinary accounting charge in the most recent fiscal year. ❌

**B)** The forecast of working capital as a percentage of revenues in the stable growth period is not large enough to maintain the long-term sustainable growth rate. ✅

**C)** The cost of equity estimate in the stable growth period is too high for a stable firm. ❌

**Explanation**

The larger the estimate of working capital as a percentage of revenues, the larger the investment in net working capital, and the lower the FCFE in the stable period. A low stable-period FCFE estimate will result in a low estimate of value today. The solution is to use a working capital ratio closer to the long-run industry average.

If the cost of equity estimate in the stable growth period is too high, the terminal value will be too low. Because the terminal value typically makes up a large portion of the current value, this will cause the current value estimate to be too low. The solution is to use a cost of equity estimate based on a beta of one.

If earnings are temporarily depressed, all the FCFE estimates will be low, and the current value estimate will be low. The solution is to use an estimate of long-run normalized earnings.

(Study Session 11, Module 28.1, LOS 28.a)

**Related Material**

SchweserNotes - Book 3

The stable-growth free cash flow to the firm (FCFF) model is *most* useful in valuing firms that:

**A)** have capital expenditures that are not significantly higher than depreciation. ✅

**B)** are growing at a rate significantly lower than that of the overall economy. ❌

**C)** have capital expenditures that are significantly higher than depreciation. ❌

**Explanation**

The stable-growth FCFF model is useful for valuing firms that are expected to have growth rates close to that of the overall economy. Since the rate of growth approximates that for the overall economy, these firms should have capital expenditures that are not significantly different than depreciation.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**
SchweserNotes - Book 3

TOY, Inc. is a company that manufactures dolls, games, and other items to entertain children.

The following table provides background information for TOY, Inc. on a per share basis in the year 0:

| Current Information | Year 0 |
|---|---|
| Earnings | $5.00 |
| Capital Expenditures | $2.40 |
| Depreciation | $1.80 |
| Change in Working Capital | $1.70 |
| Cost of equity | 12.0% |
| Target debt ratio | 30.0% |
| Market value of stock | $56.00 |
| Shares outstanding | 5.0 million |
| Interest expense | $7.2 million |
| Cash & short-term investments | $40.0 million |
| Tax rate | 37.5% |

Earnings, capital expenditures, depreciation, and working capital are all expected to grow by 5.0% per year in the future.

## Question #103 - 108 of 144

Question ID: 1209914

In year 1, the forecasted free cash flow to equity (FCFE) for TOY, Inc. is *closest* to:

**A)** $3.56. ✅

**B)** $4.53. ❌

**C)** $4.31. ❌

**Explanation**

FCFE year 0 = Earnings per share − [(Capital Expenditures − Depreciation) × (1 − Debt Ratio)] − [(Change in working capital) × (1 − Debt Ratio)] = 5.00 − [(2.40 − 1.80) × (1 − 0.30)] − [(1.70) × (1 − 0.30)] = 3.39.

FCFE for year 1 = FCFE year 0 × (1 + growth rate) = 3.39 × (1.05) = $3.56.

(Study Session 11, Module 28.5, LOS 28.m)

**Related Material**
SchweserNotes - Book 3

The value of TOY, Inc.'s stock given the above assumptions, is *closest* to:

**A)** $50.86. ✅

**B)** $61.57. ❌

**C)** $64.71. ❌

**Explanation**

The value of the stock = $FCFE_1 / (r - g_n)$ = 3.56 / (0.12 − 0.05) = 50.86.

(Study Session 11, Module 28.5, LOS 28.m)

**Related Material**
SchweserNotes - Book 3

Comparing the current market value of TOY to our estimate of the stock's current market value, it is *most likely* that at the current market price of $56.00, TOY Inc. stock is:

**A)** overvalued. ✅

**B)** fairly valued. ❌

**C)** undervalued. ❌

**Explanation**

Our calculated value of the stock = $FCFE_1 / (r - g_n)$ = 3.56 / (0.12 − 0.05) = $50.86. The current market price is $56.00, because the market price is greater than the estimated price, the stock is overvalued in the market.

(Study Session 11, Module 28.5, LOS 28.m)

**Related Material**
SchweserNotes - Book 3

Senior management of TOY Inc. is considering selling the company to a rival firm that has offered $450 million. If the current market price represents the fair value of equity and TOY Inc. maintains its target capital structure, the bid represents a price that is:

**A)** less than the total value of the firm. ❌

**B)** greater than the total value of the firm. ✅

**C)** about the same total value of the firm. ❌

**Explanation**

The total value of a firm is the total market value of equity plus the total market value of debt. The total value of equity is $56.00 per share × 5,000,000 shares = $280 million. Equity represents 70.0% of the capital structure. The total value of the firm is thus $280 million/0.70 = $400 million. An offer of $450 million is a premium of $50 million – a price greater than the current value of the firm.

(Study Session 11, Module 28.5, LOS 28.m)

**Related Material**

## Question #107 - 108 of 144

The EV/EBITDA ratio for TOY Inc. is *closest* to:

**A)** 4.3x ✗

**B)** 7.1x ✗

**C)** 6.4x. ✓

### Explanation

The total value of the firm is the total market value of equity plus the total market value of debt. The total value of equity is $56.00 per share × 5,000,000 shares = $280.0 million. Equity represents 70.0% of the capital structure. The total value of the firm is $280.0 million/0.70 = $400.0 million. The enterprise value is the total value of the firm minus the cash and short-term investments;

$400.0 million − $40.0 million = $360.0 million.

Earnings before taxes = $25.0 million/(1-0.375) = $40.0 million

EBITDA = $40.0 million + $7.2 million + $1.80 × 5.0 million shares = $56.2 million.

EV/EBITDA = $360.0/$56.2 = 6.4x

(Study Session 11, Module 28.5, LOS 28.m)

### Related Material

SchweserNotes - Book 3

## Question #108 - 108 of 144

One year later the enterprise value increased by 5.0% while the EBITDA is $59.0 million. If the EV/EBITDA for the industry is 7.0×, relative to its peers, TOY is *most likely*:

**A)** fairly valued. ✗

**B)** overvalued. ✗

**C)** undervalued. ✓

### Explanation

The total value of the firm is the total market value of equity plus the total market value of debt. The total value of equity is $56.00 per share × 5,000,000 shares = $280.0 million. Equity represents 70.0% of the capital structure. The total value of the firm is $280.0 million/0.70 = $400.0 million. The enterprise value for year 0 is the total value of the firm minus the cash and short-term investments $400.0 million − $40.0 million = $360.0 million. Enterprise value one year later is $360 million × (1.05) = $378.0 million.

EV/EBITDA = $378.0/$59.0 = 6.4x. The EV/EBITDA ratio of TOY is less than the industry ratio. TOY is undervalued in the market.

(Study Session 11, Module 28.5, LOS 28.m)

### Related Material

SchweserNotes - Book 3

## Question #109 of 144

Sudbury Industries expects FCFF in the coming year of 400 million Canadian dollars ($), and expects FCFF to grow forever at a rate of 3 percent. The company maintains an all-equity capital structure, and Sudbury's required rate of return on equity is 8 percent.

Sudbury Industries has 100 million outstanding common shares. Sudbury's common shares are currently trading in the market for $80 per share.

Using the Constant-Growth FCFF Valuation Model, Sudbury's stock is:

**A)** overvalued. ❌

**B)** fairly valued. ✅

**C)** undervalued. ❌

### Explanation

Based on a free cash flow valuation model, Sudbury Industries shares appear to be fairly valued.

Since Sudbury is an all-equity firm, WACC is the same as the required return on equity of 8%.

The firm value of Sudbury Industries is the present value of FCFF discounted by using WACC. Since FCFF should grow at a constant 3 percent rate, the result is:

Firm value = $FCFF_1$ / WACC−g = 400 million / 0.08−0.03 = 400 million / 0.05 = $8,000 million

Since the firm has no debt, equity value is equal to the value of the firm. Dividing the $8,000 million equity value by the number of outstanding shares gives the estimated value per share:

$V_0$ = $8,000 million / 100 million shares = $80.00 per share

(Study Session 11, Module 28.5, LOS 28.m)

**Related Material**
SchweserNotes - Book 3

Ashley Winters, CFA, has been hired to value Goliath Communications, a company that is currently experiencing rapid growth and expansion. Winters is an expert in the communications industry and has had extensive experience in valuing similar firms. She is convinced that a value for the equity of Goliath can be reliably obtained through the use of a three-stage free cash flow to equity (FCFE) model with declining growth in the second stage. Based on up-to-date financial statements, she has determined that the current FCFE per share is $0.90. Winters has prepared a forecast of expected growth rates in FCFE as follows:

| | |
|---|---|
| Stage 1: | 10.5% for years 1 through 3 |
| Stage 2: | 8.5% in year 4, 6.5% in year 5, 5.0% in year 6 |
| Stage 3: | 3.0% in year 7 and thereafter |

Moreover, she has determined that the company has a beta of 1.8. The current risk-free rate is 3.0%, and the equity risk premium is 5.0%.

Other financial information:

| | |
|---|---|
| Outstanding shares | 10 million |
| Tax rate | 40.0% |
| Interest expense | $750,000 |
| Net borrowing | −$100,000 |
| Cost of debt | 7.5% |
| Debt-to-equity ratio | 25.0% |

Estimated growth rate for the firm      4.0%

## Question #110 - 115 of 144

The required return of equity is *closest* to:

**A)** 6.6%.     ❌

**B)** 12.00%     ✅

**C)** 9.0%.     ❌

**Explanation**

Based on the CAPM we can estimate a required return on equity as:

Required return = 3.0% + 1.8(5.0%) = 12%

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #111 - 115 of 144

The terminal value in year 6 is *closest* to:

**A)** $25.29.     ❌

**B)** $16.86.     ✅

**C)** $21.68.     ❌

**Explanation**

Estimates for the future FCFE based on supplied growth rates are:

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------|------|------|------|------|------|------|------|
| Growth rate | 10.5% | 10.5% | 10.5% | 8.5% | 6.5% | 5.0% | 3.0% |
| FCFE/share | $0.995 | $1.099 | $1.214 | $1.318 | $1.403 | $1.473 | $1.518 |

$R_\$ = 1.518/(12.0\% - 3.0\%) = 16.861$

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #112 - 115 of 144

The per-share value Winters should assign to Goliath's equity is *closest* to:

**A)** $16.87.     ❌

**B)** $20.24.     ❌

**C)** $13.55.     ✅

**Explanation**

We find the value of the equity/share by discounting all future FCFE/share by the required rate of return on equity.

$$\text{value of equity/share} = \frac{0.995}{(1.12)} + \frac{1.099}{(1.12)^2} + \frac{1.214}{(1.12)^3} + \frac{1.318}{(1.12)^4} + \frac{1.403}{(1.12)^5} + \frac{1.473+16.867}{(1.12)^6} = \$13.55/\text{sh}$$

Using our calculator, enter $CF_0$ = 0; C01 = 0.995; C02 = 1.099; C03 = 1.214; C04 = 1.318; C05 = 1.403; C06 = 1.473 + 16.867 = 18.34; I = 12; Compute →NPV = 13.55.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #113 - 115 of 144

The free cash flow to the firm (FCFF) is *closest* to:

**A)** $9.35 million.  ✗

**B)** $9.45 million.  ✗

**C)** $9.55 million.  ✓

**Explanation**

FCFE of $0.90 per share is given. There are 10 million shares outstanding. The total FCFE is $0.90 × 10,000,000 = $9,000,000.

The formula for FCFE is FCFE = CFO - FCInv + Net borrowing, and the formula for FCFF is FCFF = CFO - FCInv + interest expense × (1- tax rate).

FCFF = FCFE – Net borrowing + interest expense × (1- tax rate) = $9 million – (-$100,000) + $750,000 × (1- 0.40) = $9.55 million.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #114 - 115 of 144

The weighted average cost of capital (WACC) is *closest* to:

**A)** 11.1%.  ✗

**B)** 10.5%.  ✓

**C)** 10.9%.  ✗

**Explanation**

The debt-to-equity ratio of 25.0% means that the debt-to-total value is 25.0%/125.0% or 20.0%. The weight of debt is thus 20.0% and the weight of equity is 80.0%.

The WACC = [0.20 × (0.075) × (1 – 0.40)] + (0.80 × 0.12) = 10.5%

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #115 - 115 of 144

The value of the firm, based on the constant growth model, is *closest* to:

**A)** $124 million. ✗

**B)** $153 million. ✓

**C)** $140 million. ✗

**Explanation**

The estimated FCFF for year 0 is $9.55 million and the WACC is 10.5% as calculated. If the growth rate for the firm is estimated as 4.0%, the value of the firm is:

$9.55 million × (1.04)/(0.105 − 0.04) = $152,800,000.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #116 of 144

The following table provides forecasts for next year on a per share basis for TOY Inc.:

| Item | Forecast |
| --- | --- |
| Earnings | $5.00 |
| Capital Expenditures | $2.40 |
| Depreciation | $1.80 |
| Change in Working Capital | $1.70 |

TOY Inc.'s target debt ratio is 30% and has a required rate of return of 12%. Earnings, capital expenditures, depreciation, and working capital are all expected to grow by 5% a year in the future. Assume that capital expenditures and working capital are financed at the target debt ratio.

What is the forecasted free cashflow to equity (FCFE) for TOY Inc.?

**A)** $2.70. ✗

**B)** $4.31. ✗

**C)** $3.39. ✓

**Explanation**

FCFE = Earnings per share − (Capital Expenditures − Depreciation) (1 − Debt Ratio) − Change in working capital (1 − Debt Ratio) = 5.00 − (2.40 − 1.80)(1 − 0.3) − (1.7)(1 − 0.3) = 3.39.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

## Question #117 of 144

Which of the following is *most* useful in analyzing firms that have high leverage and high growth?

**A)** Stable-growth free cash flow to the firm (FCFF) model. ✗

**B)** Two-stage free cash flow to equity (FCFE) model. ❌

**C)** Two-stage free cash flow to the firm (FCFF) model. ✅

### Explanation

Of the cash flow valuation models mentioned above, the two-stage FCFF model is most useful in analyzing the firms that have high leverage and high growth. The high growth will make the stable growth models inapplicable, while the high leverage makes the FCFF model more attractive.

(Study Session 11, Module 28.5, LOS 28.i)

### Related Material

SchweserNotes - Book 3

## Question #118 of 144

The ownership perspective implicit in the free cash flow to equity valuation approach is of:

**A)** control. ✅

**B)** a minority position. ❌

**C)** a preferred stockholder. ❌

### Explanation

Dividend policy can be changed by the buyer of a firm. Thus, the free cash flow perspective looks to the source of dividends in a position of control rather than directly at dividends.

(Study Session 11, Module 28.1, LOS 28.b)

### Related Material

SchweserNotes - Book 3

## Question #119 of 144

In forecasting free cash flows it is *most* common to assume that:

**A)** historical levels of free cash flow will persist. ❌

**B)** the firm has no non-cash expenses. ❌

**C)** the firm capital structure is static. ✅

### Explanation

A firm's target debt ratio is usually assumed to remain constant. Historical cash flows are generally projected forward with a growth rate.

(Study Session 11, Module 28.5, LOS 28.e)

### Related Material

SchweserNotes - Book 3

## Question #120 of 144

The difference between the value estimate produced by the dividend discount model (DDM) and the one produced by the free cash flow to equity (FCFE) model can be accounted for by which of the following?

**A)** Different sales forecast. ❌

**B)** Different estimates of model risk. ❌

**C)** The value in controlling the firm's dividend policy. ✅

**Explanation**

The difference between the value estimate produced by the DDM and the one produced by the FCFE model can be interpreted as the value of controlling the firm's dividend policy.

(Study Session 11, Module 28.5, LOS 28.f)

**Related Material**
SchweserNotes - Book 3

## Question #121 of 144

Ignoring any costs related to financial distress, if a firm increases its financial leverage, the value of the firm should:

**A)** decrease because the required rate of return on debt is lower than that of equity. ❌

**B)** increase because the FCFF will increase. ❌

**C)** increase because the weighted average cost of capital will be lower due to interest tax shields. ✅

**Explanation**

When a firm adds leverage, its value may increase due to the tax shields on interest expense and the generally lower cost of debt. In theory, there is an optimal capital structure. If the amount of debt employed is greater than the optimal, the costs associated with risk of bankruptcy or financial distress begin to outweigh the advantage of interest tax shields.

(Study Session 11, Module 28.5, LOS 28.g)

**Related Material**
SchweserNotes - Book 3

## Question #122 of 144

The estimate of value from FCFE models will always be different than the value obtained using DDM, if:

**A)** FCFE is higher than dividends. ❌

**B)** FCFE is higher than dividends, and the excess is invested in zero NPV projects. ❌

**C)** FCFE is greater than dividends, and the excess is not invested in zero NPV projects. ✅

**Explanation**

The estimate of value from FCFE models will always be different from the value obtained using DDM, if the FCFE is greater than dividends, and the excess cash is not invested in zero NPV projects.

(Study Session 11, Module 28.5, LOS 28.f)

**Related Material**

SchweserNotes - Book 3

## Question #123 of 144

A firm's free cash flow to the firm (FCFF) in the most recent year is $80M and is expected to grow at 3% per year forever. If the firm has $100M in debt financing and its weighted average cost of capital is 10%. The value of the firm's equity using the single-stage FCFF model is:

**A)** $1,077M.  ✅

**B)** $1,043M.  ❌

**C)** $1,177M.  ❌

**Explanation**

The value of the firm's equity is equal to the value of the firm minus the value of the debt. Firm value = $80M × 1.03 / (0.10 − 0.03) = $1,177M, so equity value is $1,177M − $100M = $1,077M.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

Burcar-Eckhardt, a firm specializing in value investments, has been approached by the management of Overhaul Trucking, Inc., to explore the possibility of taking the firm private via a management buyout. Overhaul's stock has stumbled recently, in large part due to a sudden increase in oil prices. Management considers this an opportune time to take the company private. Burcar would be a minority investor in a group of friendly buyers.

Jaimie Carson, CFA, is a private equity portfolio manager with Burcar. He has been asked by Thelma Eckhardt, CFA, one of the firm's founding partners, to take a look at Overhaul and come up with a strategy for valuing the firm. After analyzing Overhaul's financial statements as of the most recent fiscal year-end (presented below), he determines that a valuation using Free Cash Flow to Equity (FCFE) is most appropriate. He also notes that there were no sales of PPE.

**Overhaul Trucking, Inc.**

**Income Statement**

**April 30, 2005**

**(Millions of dollars)**

|  | 2005 | 2006E |
|---|---|---|
| Sales | 300.0 | 320.0 |
| Gross Profit | 200.0 | 190.0 |
| SG&A | 50.0 | 50.0 |
| Depreciation | 70.0 | 80.0 |
| EBIT | 80.0 | 60.0 |
| Interest Expense | 30.0 | 34.0 |

| | 17.5 | 9.1 |
|---|---|---|
| **Net Income** | **32.5** | **16.9** |

Taxes (at 35 percent) 17.5 9.1

**Overhaul Trucking, Inc.**

**Balance Sheet**

**April 30, 2005**

**(Millions of dollars)**

| | 2005 | 2006E |
|---|---|---|
| Cash | 10.0 | 15.0 |
| Accounts Receivable | 50.0 | 55.0 |
| Gross Property, Plant & Equip. | 400.0 | 480.0 |
| Accumulated Depreciation | (160.0) | (240.0) |
| **Total Assets** | **300.0** | **310.0** |
| Accounts Payable | 50.0 | 70.0 |
| Long-Term Debt | 140.0 | 113.1 |
| Common Stock | 80.0 | 80.0 |
| Retained Earnings | 30.0 | 46.9 |
| **Total Liabilities & Equity** | **300.0** | **310.0** |

Eckhardt agrees with Carson's choice of valuation method, but her concern is Overhaul's debt ratio. Considerably higher than the industry average, Eckhardt worries that the firm's heavy leverage poses a risk to equity investors. Overhaul Trucking uses a weighted average cost of capital of 12% for capital budgeting, and Eckhardt wonders if that's realistic.

Eckhardt asks Carson to do a valuation of Overhaul in a high-growth scenario to see if optimistic estimates of the firm's near-term growth rate can justify the required return to equity. For the high-growth scenario, she asks him to start with his 2006 estimate of FCFE, grow it at 30% per year for three years and then decrease the growth rate in FCFE in equal increments for another three years until it hits the long-run growth rate of 3% in 2012. Eckhardt tells Carson that the returns to equity Burcar-Eckhardt would require are 20% until the completion of the high-growth phase, 15% during the three years of declining growth, and 10 percent thereafter. Eckhardt wants to know what Burcar could afford to pay for a 15% stake in Overhaul in this high-growth scenario.

Carson assembles a few spreadsheets and tells Eckhardt, "We could make a bid of just under $16 million for the stake in Overhaul if the high-growth scenario plays out." Eckhardt worries, though, that the value of their bid is extremely sensitive to the assumption for terminal growth, since in that scenario, the terminal value of the firm accounts for slightly more than two-thirds of the total value.

Carson agrees, and proposes doing a valuation under a "sustained growth" scenario. His estimates show Overhaul growing FCFE by the following amounts:

| | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Growth in FCFE | 40.0% | 15.7% | 8.6% | 9.1% | 8.3% |

In this scenario, he would project sustained growth of 6% per year in 2012 and beyond. With the more stable growth pattern in cash flow, Eckhardt and Carson agree that the required return to equity could be cut to a more moderate 12%.

Carson also decides to try valuing the firm on Free Cash Flow to the Firm (FCFF) using this same 12% required return. Using a single-stage model on the estimated 2006 figures presented in the financial statements above, he comes up with a valuation of $1.08 billion.

Which of the following is one of the differences between FCFE and FCFF? FCFF does not deduct:

**A)** working capital investment. ❌

**B)** operating expenses. ❌

**C)** interest payments to bondholders. ✅

**Explanation**

FCFF includes the cash available to all of the firm's investors, including bondholders. Therefore, interest payments to bondholders are not removed from revenues to derive FCFF. FCFE is FCFF minus interest payments to bondholders plus net borrowings from bondholders.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

Which of the following is the *least likely* reason for Carson's decision to use FCFE in valuing Overhaul rather than FCFF?

**A)** Overhaul's capital structure is stable. ❌

**B)** FCFE is an easier and more straightforward calculation than FCFF. ❌

**C)** Overhaul's debt ratio is significantly higher than the industry average. ✅

**Explanation**

The difference between FCFF and FCFE is related to capital structure and resulting interest expense. When the company's capital structure is relatively stable, FCFE is easier and more straightforward to use. FCFF is generally the best choice when FCFE is negative or the firm is highly leveraged. The fact that Overhaul's debt ratio is significantly higher than the industry average would argue against the use of FCFE. Hence, this is the least likely reason to favor FCFE.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

Assuming that Carson is using May 1, 2005 as his date of valuation, what is the estimated value of the firm's equity under the scenario most suited to using the two-stage FCFE method?

**A)** $173.3 million. ❌

**B)** $129.5 million. ❌

**C)** $125.2 million. ✅

**Explanation**

The "sustained-growth" scenario is the only scenario suitable for using the two-stage method, in part because the "high-growth" scenario uses three different required rates of return.

First, we need to calculate estimated FCFE in 2006. Since there were no sales of PPE, we can calculate FCInv as the change in Gross PPE.

FCFE >= NI + NCC − FCInv − WCInv + Net Borrowing

= 16.9 + 80 − (480 − 400) − [(55 − 70) − (50 − 50)] + (113.1 − 140)

= 16.9 + 80 − 80 + 15 − 26.9

= $5 million in 2006

Having calculated FCFE in 2006, we can calculate FCFE for 2007 through 2011 using the growth rates provided:

|  | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| Growth in FCFE | 40.0% | 15.7% | 8.6% | 9.1% | 8.3% |
| Implied level of FCFE (in millions) | $7.0 | $8.1 | $8.8 | $9.6 | $10.4 |

Now that we know FCFE, we can discount future FCFE back to the present at the cost of equity.

In the first stage of the two-stage model, we determine the terminal value at the start of the constant growth period as follows:

Terminal Value = (10.4 × 1.06)/(0.12 − 0.06) = $183.733 million.

In the second stage, we discount FCFE for the first six years and the terminal value to the present.

Equity Value = [5.0 / $(1.12)^1$] + [7.0 / $(1.12)^2$] + [8.1 / $(1.12)^3$] + [8.8 / $(1.12)^4$] + [9.6 / $(1.12)^5$] + [(10.4 + 183.7333) / $(1.12)^6$]

Equity Value = 4.46 + 5.58 + 5.77 + 5.59 + 5.45 + 98.35

Equity Value = $125.20 million

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**
SchweserNotes - Book 3

## Question #127 - 129 of 144

What is the expected growth rate in FCFF that Carson must have used to generate his valuation of $1.08 billion?

**A)** 5%.   ❌

**B)** 12%.   ❌

**C)** 7%.   ✅

**Explanation**

Since Firm Value = FCFF$_1$ / (WACC − g), we first need to determine FCFF$_1$, which is FCFF in 2006: FCFF = NI + NCC + [Int × (1 − tax rate)] − FCInv − WCInv

= 16.9 + 80 + [34 × (1 − 0.35)] − (480 − 400) − [(55 − 70) − (50 − 50)]

= 16.9 + 80 + 22.1 − 80 − (−15) = 54

Firm Value = FCFF$_1$ / (WACC − g)

1080 = 54 / (0.12 − x)

[(1080)(0.12)] − 1080x = 54

129.6 − 1080x = 54

75.6 = 1080x

0.07 = x

The expected growth rate in FCFF that Carson must have used is 7%.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #128 - 129 of 144

If Carson had estimated FCFE under the assumption that Overhaul Trucking maintains a target debt-to-asset ratio of 36 percent for new investments in fixed and working capital, what would be his forecast of 2006 FCFE?

A) $16.9 million.  ❌

B) $9.6 million.  ❌

C) $26.5 million.  ✅

**Explanation**

FCFE = NI − [(1 − DR) × (FCInv − Dep)] − [(1 − DR) × WCInv]

Where: DR = target debt to asset ratio

FCFE = 16.9 − [(1 − 0.36) × (480 − 400 − 80)] − [(1 − 0.36) × ((55 − 70) − (50 − 50))]

= 16.9 − (0.64 × 0) − (0.64 × (−15))

= 16.9 + 0 + 9.6 = 26.5

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

## Question #129 - 129 of 144

Regarding the statements made by Carson and Eckhardt about the value of Overhaul in the high-growth scenario:

A) only one is correct.  ❌

B) both are correct.  ✅

C) both are incorrect.  ❌

**Explanation**

This is a complex problem. It would help to create a table:

| | 2006 (year 1) | 2007 (year 2) | 2008 (year 3) | 2009 (year 4) | 2010 (year 5) | 2011 (year 6) | 2012 (year 7) |
|---|---|---|---|---|---|---|---|
| Growth in FCFE (given) | n/a | 30% | 30% | 30% | 21% | 12% | 3% |
| Forecast FCFE (calculated) | 5.0 | 6.50 | 8.45 | 10.99 | 13.29 | 14.89 | 15.33 |
| Required return to equity (given) | 20% | 20% | 20% | 20% | 15% | 15% | 15% |
| Total discount factor (calculated) | 1.20 | $(1.20)^2$ | $(1.20)^3$ | $(1.20)^4$ | $(1.20)^4(1.15)$ | $(1.20)^4(1.15)^2$ | $(1.20)^4(1.15)^3$ |
| PV of FCFE | 4.17 | 4.51 | 4.89 | 5.30 | 5.57 | 5.43 | 4.86 |

We begin with the forecast growth rates in FCFE in line 1. Since we have previously calculated that FCFE is $5 million in 2006, we can use the growth rates from line 1 to forecast FCFE in each year on line 2.

Line 3, required return to equity, is given. Using that, we can calculate discount factors in line 4.

Notice that the total discount factor is simply each year's factor multiplied together. For example, the total discount factor for year 4 is $(1.20)^4$ so the total discount factor for year 5, when the year 5 required rate of return drops from 20% to 15%, becomes $(1.20)^4(1.15)$.

Using the total discount factors from line 4, we can calculate the present value of each year's cash flow in line 5. For example, the present value of year 2010 FCFE of $13.29 million will be $13.29 / [(1.20)^4(1.15)]$ or $5.57 million.

Once we have the discounted cash flows for each year, we need to calculate the terminal value. Terminal value will be:

TV = (15.33)(1.03) / (0.10 − 0.03)

TV = 15.7899 / 0.07

TV = $225.57 million

Note that the required rate of return used for the terminal value is the rate for the steady-growth period, which is lower than that used in the high-growth phase (stage) or the declining growth phase (stage two).

We now need to discount terminal value back using the total discount factor for 2012:

PV of terminal value = $225.57 million $/ [(1.20)^4(1.15)^3]$

PV of terminal value = $71.53 million

Adding together the discounted cash flows for each year with the discounted terminal value, we have:

Equity value = 4.17 + 4.51 + 4.89 + 5.30 + 5.57 + 5.43 + 4.86 + 71.53 = $106.26 million

Since the equity value of the firm is $106.26 million, Burcar should be willing to pay up to $106.26 × 0.15 = $15.94 million for a 15% stake in the firm. Since this is slightly less than $16 million, Carson's statement is correct. The terminal value represents ($71.53 / $106.26) = 67.3% of the firm's present value, so Eckhardt's statement is also correct.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

## Question #130 of 144

Question ID: 1209830

Assuming that the investment in fixed capital and working capital offset each other, free cash flow to the firm (FCFF) may be proxied by net income if:

**A)** non-cash charges and interest charges are zero. ✓

**B)** earnings before interest and taxes (EBIT) equals depreciation. ✗

**C)** non-cash charges and interest charges are equal. ✗

**Explanation**

The answer is shown by the relationship between FCFF and net income: FCFF = NI + NCC + Int (1 – tax rate) – FCInv – WCInv. Further: FCFF = EBIT (1 – tax rate) + Dep – FCInv – WCInv, which assumes that depreciation is the only non-cash charge.

(Study Session 11, Module 28.5, LOS 28.h)

**Related Material**

SchweserNotes - Book 3

## Question #131 of 144

Question ID: 1209803

In forecasting free cash flows it is common to assume that investment in working capital:

**A)** is greater than fixed capital investment during a growth phase. ✗

**B)** will be financed using the target debt ratio. ✓

**C)** will equal fixed capital investment. ✗

**Explanation**

It is usually assumed that the investment in working capital will be financed consistent with the target debt ratio.

(Study Session 11, Module 28.5, LOS 28.e)

**Related Material**

SchweserNotes - Book 3

## Question #132 of 144

Question ID: 1209875

A firm has projected free cash flow to equity next year of $1.25 per share, $1.55 in two years, and a terminal value of $90.00 two years from now, as well. Given the firm's cost of equity of 12%, a weighted average cost of capital of 14%, and total outstanding debt of $30.00 per share, what is the current value of equity?

**A)** $41.54. ✗

**B)** $74.10. ✓

**C)** $71.74. ✗

**Explanation**

Value of equity = $\$1.25 / (1.12)^{1} + \$1.55 / (1.12)^{2} + \$90.00 / (1.12)^{2} = \$74.10$

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

SchweserNotes - Book 3

An analyst has prepared the following scenarios for Schneider Inc.:

Scenario 1 Assumptions:

> Tax Rate is 40%.
> Weighted average cost of capital (WACC) = 12.0%.
> Constant growth rate in free cash flow (FCF) = 3.0%.
> Year 0, free cash flow to the firm (FCFF) = $30.0 million
> Target debt ratio = 10.0%.

Scenario 2 Assumptions:

> Tax Rate is 40.0%.
> Expenses before interest and taxes (EBIT), capital expenditures, and depreciation will grow at 20.0% for the next three years.
> After three years, the growth in EBIT will be 2.0%, and capital expenditure and depreciation will offset each other.
> Weighted average cost of capital (WACC) = 12.0%
> Target debt ratio = 10.0%.

| Scenario 2 FCFF (in $ millions) | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|---|
| EBIT | $45.00 | $54.00 | $64.80 | $77.76 | $79.70 |
| Capital Expenditures | 18.00 | 21.60 | 25.92 | 31.10 | |
| Depreciation | 12.00 | 14.40 | 17.28 | 20.74 | |
| Change in Working Capital | 6.00 | 6.30 | 6.60 | 7.20 | 7.20 |
| FCFF | | 18.90 | 23.64 | 29.09 | 40.62 |

Other financial items for Schneider Inc.:

Estimated market value of debt = $35.0 million

Cost of debt = 5.0%

Shares outstanding = 20 million.

## Question #133 - 138 of 144

Question ID: 1209849

Given the assumptions contained in Scenario 1, the value of the firm is *most* accurately estimated as:

**A)** $343 million.  ✓

**B)** $250 million.  ✗

**C)** $333 million  ✗

**Explanation**

Under the stable growth FCFF model, the value of the firm = $FCFF_{1} / (WACC - g_{n})$ = $30 million × (1.03) / (0.12 − 0.03) = $343.33 million.

(Study Session 11, Module 28.5, LOS 28.j)

**Related Material**

## Question #134 - 138 of 144

In Scenario 2, the year 0 free cash flow to the firm (FCFF) is *closest* to:

**A)** $16 million. ✗

**B)** $27 million. ✗

**C)** $15 million. ✓

#### Explanation

FCFF = EBIT × (1 − tax rate) + Depreciation − Capital Expenditures − Change in Working Capital = 45.0 × (1 − 0.4) + 12.0 − 18.0 − 6.0 = 15.00.

(Study Session 11, Module 28.5, LOS 28.j)

#### Related Material

SchweserNotes - Book 3

## Question #135 - 138 of 144

In Scenario 2, the present value of the terminal value is *closest* to:

**A)** $347 million. ✗

**B)** $258 million. ✗

**C)** $289 million. ✓

#### Explanation

The terminal value is: FCFF for year 4/(WACC − growth rate) = $40.62/(0.12 − 0.02) = $406.22 million in terms of year 3 dollars. The calculator inputs to solve for the present value is: FV = $406.22, N = 3, I/Y = 12 solve for PV. PV is $289.14 Million.

(Study Session 11, Module 28.5, LOS 28.j)

#### Related Material

SchweserNotes - Book 3

## Question #136 - 138 of 144

In Scenario 2, the value of the firm is *closest* to:

**A)** $315 million. ✗

**B)** $321 million. ✗

**C)** $346 million. ✓

#### Explanation

The value of the firm is the present value of Year 1-3 plus the terminal value. The terminal value is: FCFF for year 4/(WACC − growth rate) = $40.62/(0.12 − 0.02) = $406.22 million in terms of year 3 dollars. The calculator inputs to solve NPV for the value of the firm is: CF0 = $0, CF1 = $18.90, CF2 = $23.64, CF3 = $29.09 + $406.22 = $435.31, I =12. NPV = $345.57 million.

(Study Session 11, Module 28.5, LOS 28.j)

## Question #137 - 138 of 144

The cost of equity for Schneider Inc. is *closest* to:

**A)** 13.0%. ✓

**B)** 11.3%. ✗

**C)** 5.8%. ✗

**Explanation**

The weighted average cost of capital formula is WACC = $w_d \times r_d \times (1 - t) + w_e \times r_e$. The weight of debt is 10.0% − the weight of equity must be 90.0%.

$$0.12 = 0.10 \times 0.05 \times (1 - 0.40) + 0.90 \times r_e$$

$$0.120 - 0.003 = 0.90 \times r_e$$

$$0.117/0.9 = r_e$$

$$r_e = 13.0\%$$

(Study Session 11, Module 28.5, LOS 28.j)

## Question #138 - 138 of 144

The market value of Scheider Inc.'s stock is:

**A)** $15.75 per share ✓

**B)** $31.50 per share. ✗

**C)** $17.50 per share. ✗

**Explanation**

The estimated market value of debt is $35 million, which represents 10.0% of the value of the firm. The other 90.0% is the value of equity or $315 million. $315 million/20 million shares = $15.75 per share.

(Study Session 11, Module 28.5, LOS 28.j)

## Question #139 of 144

A firm currently has sales per share of $10.00, and expects sales to grow by 25% next year. The net profit margin is expected to be 15%. Fixed capital investment net of depreciation is projected to be 65% of the sales increase, and working capital requirements are 15% of the projected sales increase. Debt will finance 45% of the investments in net capital and working capital. The company has an 11% required rate of return on equity. What is the firm's expected free cash flow to equity (FCFE) per share next year under these assumptions?

A) $1.88. ❌

B) $0.38. ❌

C) $0.77. ✅

**Explanation**

FCFE = net profit – NetFCInv – WCInv + DebtFin = $1.88 – $1.63 – 0.38 + 0.90 = 0.77

(Study Session 11, Module 28.4, LOS 28.d)

**Related Material**
SchweserNotes - Book 3

## Question #140 of 144

The ownership perspective implicit in the dividend valuation approach is of:

A) a preferred stockholder. ❌

B) control. ❌

C) a common stockholder. ✅

**Explanation**

Dividends are most relevant to the stockholders who receive them and who have little control over their amount.

(Study Session 11, Module 28.1, LOS 28.b)

**Related Material**
SchweserNotes - Book 3

## Question #141 of 144

A biotech firm is currently experiencing high growth and pays no dividends. One of their product patents is scheduled to expire in 5 years. This firm would be a good candidate for which of the following valuation models?

A) Two-stage free cash flow to equity (FCFE). ✅

B) Single-stage free cash flow to equity (FCFE). ❌

C) Two-stage dividend discount model (DDM). ❌

**Explanation**

The two-stage FCFE model is well suited to value a firm that is currently experiencing high growth and will likely see this growth drop to a lower, more stable rate in the future.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**
SchweserNotes - Book 3

If the investment in fixed capital and working capital offset each other, free cash flow to the firm (FCFF) may be proxied by:

**A)** net income plus after-tax interest. ❌

**B)** after-tax EBIT plus non-cash charges. ✅

**C)** earnings before interest and taxes (EBIT). ❌

**Explanation**

The answer is indicated by the definition of FCFF: FCFF = EBIT (1 – tax rate) + Dep – FCInv – WCInv, which assumes that depreciation is the only non-cash charge. Further: FCFF = NI + NCC + Int (1 – tax rate) – FCInv – WCInv.

(Study Session 11, Module 28.5, LOS 28.h)

**Related Material**
SchweserNotes - Book 3

Which of the following free cash flow to the firm (FCFF) models is *most* suited to analyze firms that are growing at a faster rate than the overall economy?

**A)** High growth FCFF model. ❌

**B)** No growth FCFF model. ❌

**C)** Two-stage FCFF model. ✅

**Explanation**

The two-stage FCFF model is most suited for analyzing firms growing at a rate faster than the overall economy. The two-stage model assumes a high rate of growth for an initial period, followed by an immediate jump to a constant, stable growth rate.

(Study Session 11, Module 28.5, LOS 28.i)

**Related Material**
SchweserNotes - Book 3

The primary difference between the three-stage DDM and the FCFE model is:

**A)** growth rate assumptions. ❌

**B)** cost of equity. ❌

**C)** the definition of cash flows. ✅

**Explanation**

The primary difference between the dividend discount models and the free cash flow from equity models lies in the definition of cash flows. The FCFE model uses residual cash flows after meeting all financial obligations and investment needs. The DDM uses a strict definition of cash flows to equity, that is, the expected dividends on the stock.

(Study Session 11, Module 28.5, LOS 28.f)

**Related Material**

SchweserNotes - Book 3