**Multiple Choice Questions (Chapter 12):**

1. Given are the following data for Golf Corporation:  
Market price/share = $12; Book value/share = $10; Number of shares outstanding = 100 million; Market price/bond = $800; Face value/bond = $1,000; Number of bonds outstanding = 1 million. Calculate the proportions of debt (*D*/*V*) and equity (*E*/*V*) for Golf Corporation that you should use for estimating its weighted average cost of capital (WACC): 

|  |  |
| --- | --- |
| **A.** | 40% debt and 60% equity. |

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| --- | --- |
| B. | 50% debt and 50% equity. |

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| --- | --- |
| C. | 45.5% debt and 54.5% equity. |

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| --- | --- |
| D. | 66.7% debt and 33.3% equity. |

Use market values (in millions):  
*E* = (12) × (100) = $1,200; *D* = (800) × (1) = $800; *V* = *D* + *E* = $2,000;  
*D*/*V* = 800/2,000 = 0.4 (40%); *E*/*V* = 1,200/2,000 = 0.6 (60%).

2. The after-tax weighted average cost of capital (WACC) is given by (corporate tax rate = *TC*): 

|  |  |
| --- | --- |
| A. | WACC = (*rD*)(*D*/*V*) + (*rE*)(*E*/*V*) |

|  |  |
| --- | --- |
| B. | WACC = (*rD*)(*D*/*V*) +[(*rE* )(*E*/*V*)/(1 - *TC*)] |

|  |  |
| --- | --- |
| C. | WACC = [(*rD*)(*D*/*V*) + (*rE*)(*E*/*V*)]/(1 - *TC*) |

|  |  |
| --- | --- |
| **D.** | WACC = (*rD*)(1 - *TC*)(*D*/*V*) + (*rE*)(*E*/*V*) |

3. One should determine the after-tax weighted average cost of capital by: 

|  |  |
| --- | --- |
| A. | multiplying the weighted average after-tax cost of debt by the weighted average cost of equity. |

|  |  |
| --- | --- |
| B. | adding the weighted average before-tax cost of debt to the weighted average cost of equity. |

|  |  |
| --- | --- |
| **C.** | adding the weighted average after-tax cost of debt to the weighted average cost of equity. |

|  |  |
| --- | --- |
| D. | dividing the weighted average before-tax cost of debt to the weighted average cost of equity. |

4. Minimizing the weighted average cost of capital (WACC) is the same as maximizing the: 

|  |  |
| --- | --- |
| **A.** | market value of the firm. |

|  |  |
| --- | --- |
| B. | book value of the firm. |

|  |  |
| --- | --- |
| C. | profits of the firm. |

|  |  |
| --- | --- |
| D. | liquidating value of the firm. |

5. Assume the following data for U&P Company: Debt (D) = $100 million; Equity (E) = $300 million; *rD* = 6%; *rE* = 12%; and *TC* = 30%. Calculate the after-tax weighted average cost of capital (WACC): 

|  |  |
| --- | --- |
| A. | 10.50% |

|  |  |
| --- | --- |
| B. | 15.00% |

|  |  |
| --- | --- |
| **C.** | 10.05% |

|  |  |
| --- | --- |
| D. | 9.45% |

After-tax WACC = (1/4)(1 - 0.3)(6) + (3/4)(12) = 10.05%.

6. Project M requires an initial investment of $25 million. The project is expected to generate $2.25 million in after-tax cash flow each year forever. If the weighted average cost of capital (WACC) is 9%, calculate the NPV of the project. 

|  |  |
| --- | --- |
| A. | -2.5 million |

|  |  |
| --- | --- |
| B. | +2.5 million |

|  |  |
| --- | --- |
| **C.** | zero |

|  |  |
| --- | --- |
| D. | +2.1 million |

NPV = -25 + 2.25/0.09 = 0.

7. Project M requires an initial investment of $25 million. The project is expected to generate $2.25 million in after-tax cash flow each year forever. Calculate the IRR for the project. 

|  |  |
| --- | --- |
| A. | 10% |

|  |  |
| --- | --- |
| **B.** | 9% |

|  |  |
| --- | --- |
| C. | 8% |

|  |  |
| --- | --- |
| D. | 7% |

-25 + 2.25/(IRR) = 0; IRR = 2.25/25 = 0.09 = 9%.

8. When using the weighted average cost of capital (WACC) to discount cash flows from a project, we assume the following:  
  
I) The project's risks are the same as those of the firm's other assets and remain so for the life of the project.  
II) The project supports the same fraction of debt to value as the firm's overall capital structure, and that fraction remains constant for the life of the project.  
III) The cash flows from the project occur in perpetuity. 

|  |  |
| --- | --- |
| A. | I only |

|  |  |
| --- | --- |
| B. | II only |

|  |  |
| --- | --- |
| **C.** | I and II only |

|  |  |
| --- | --- |
| D. | I, II, and III |

9. When one uses the weighted average cost of capital (WACC) to value a levered firm, the interest tax shield is: 

|  |  |
| --- | --- |
| A. | not accounted for by the use of the WACC |

|  |  |
| --- | --- |
| B. | considered by deducting the interest payment from the cash flows |

|  |  |
| --- | --- |
| **C.** | automatically considered because the after-tax cost of debt is included within the WACC formula |

|  |  |
| --- | --- |
| D. | capitalized by the levered cost of equity |

10. Consider the following data:  
FCF1 = $7 million; FCF2 = $45 million; FCF3 = $55 million. Assume that free cash flow grows at a rate of 4% for year 4 and beyond. If the weighted average cost of capital is 10%, calculate the value of the firm. 

|  |  |
| --- | --- |
| A. | $953.33 million |

|  |  |
| --- | --- |
| **B.** | $801.12 million |

|  |  |
| --- | --- |
| C. | $716.25 million |

|  |  |
| --- | --- |
| D. | $736.02 million |

Horizon value in year 3 = (55)(1.04)/(0.10 - 0.04) = $953.33 million;  
PV = (7/1.10) + (45/1.10^2) + [(55 + 953.33)/(1.10^3)] = $801.12 million.

11. The bonds of Casino, Inc., trade in the market at a yield of 10.8%, have a 12% coupon rate, and a promised yield of 14.0%. However, investors only expect Casino to pay in full with 65% probability. What cost of debt should be used in Casino's WACC? 

|  |  |
| --- | --- |
| A. | 14.0% |

|  |  |
| --- | --- |
| **B.** | 10.8% |

|  |  |
| --- | --- |
| C. | 12.0% |

|  |  |
| --- | --- |
| D. | 9.1% |

WACC uses the expected return on debt rather than the promised return.