**Corporate Finance**

**Tutorial**

**Homework 1:**

**Investment Decision Rules**

**Capital Budgeting**



Following are 20 questions, each worth five points. For the Multiple Choice questions, select the answer you think is most correct.

**Investment Decision Rules Chapter 7**

1) Which of the following statements is FALSE?

A) About 75% of firms surveyed used the NPV rule for making investment decisions.

B) If you are unsure of your cost of capital estimate, it is important to determine how sensitive your analysis is to errors in this estimate.

C) To decide whether to invest using the NPV rule, we need to know the cost of capital.

D) NPV is positive only for discount rates greater than the internal rate of return.

2 Which of the following statements is FALSE?

A) In general, the difference between the cost of capital and the IRR is the maximum amount of estimation error in the cost of capital estimate that can exist without altering the original decision.

B) The IRR can provide information on how sensitive your analysis is to errors in the estimate of your cost of capital.

C) If you are unsure of your cost of capital estimate, it is important to determine how sensitive your analysis is to errors in this estimate.

D) If the cost of capital estimate is more than the IRR, the NPV will be positive.

***Use the table for the question(s) below.***

Consider a project with the following cash flows:

|  |  |
| --- | --- |
| **Year** | **Cash Flow** |
| 0 | -10,000 |
| 1 | 4000 |
| 2 | 4000 |
| 3 | 4000 |
| 4 | 4000 |

3) If the appropriate discount rate for this project is 15%, then the NPV is closest to:

A) $6000

B) -$867

C) $1420

D) $867

***Use the following information to answer the question(s) below.***

Sarah Palin reportedly was paid a $11 million advance to write her book *Going Rogue*. The book took one year to write. In the time she spent writing, Palin could have been paid to give speeches and appear on TV news as a political commentator. Given her popularity, assume that she could have earned $8 million over the year (paid at the end of the year) she spent writing the book.

4) Assuming that Palin's cost of capital is 10%, then the NPV of her book deal is closest to:

A) $2.00 million

B) $2.20 million

C) $3.00 million

D) $3.75 million

5) The IRR of Palin's book deal is closest to:

A) -27.25%

B) -37.50%

C) 27.25%

D) 37.50%

***Use the table for the question(s) below.***

Consider the following two projects:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Year 0****C/F** | **Year 1****C/F** | **Year 2****C/F** | **Year 3****C/F** | **Year 4****C/F** | **Year 5****C/F** | **Year 6****C/F** | **Year 7****C/F** | **Discount****Rate** |
| Alpha | -79 | 20 | 25 | 30 | 35 | 40 | N/A | N/A | 15% |
| Beta | -80 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 16% |

6) The NPV for project Alpha is closest to:

A) $20.96

B) $16.92

C) $24.01

D) $14.41

7) The NPV for project Beta is closest to:

A) $24.01

B) $16.92

C) $20.96

D) $14.41

***Use the information for the question(s) below.***

Boulderado has come up with a new composite snowboard. Development will take Boulderado four years and cost $250,000 per year, with the first of the four equal investments payable today upon acceptance of the project. Once in production the snowboard is expected to produce annual cash flows of $200,000 each year for 10 years. Boulderado's discount rate is 10%.

8) The NPV for Boulderado's snowboard project is closest to:

A) $228,900

B) $46,900

C) $51,600

D) $23,800

9) The NPV profile graphs:

A) the project's NPV over a range of discount rates.

B) the project's IRR over a range of discount rates.

C) the project's cash flows over a range of NPVs.

D) the project's IRR over a range of NPVs.

*Use the following information to answer the question(s) below.*

Frank Dewey Esquire from the firm of Dewey, Cheatum, and Howe, has been offered an upfront retainer of $30,000 to provide legal services over the next 12 months to Taggart Transcontinental. In return for this upfront payment, Taggart Transcontinental would have access to 8 hours of legal services from Frank for each of the next 12 months. Frank's normal billable rate is $250 per hour for legal services.

10) Assuming that Dewey's cost of capital is 12% EAR, then the NPV of his retainer offer is closest to:

A) -$7500

B) -$7400

C) $6000

D) $7400

**Capital Budgeting Chapter 8**

***Use the information for the question(s) below.***

Ford Motor Company is considering launching a new line of Plug-in Electric SUVs. The heavy advertising expenses associated with the new SUV launch would generate operating losses of $35 million next year. Without the new SUV, Ford expects to earn pre-tax income of $80 million from operations next year. Ford pays a 30% tax rate on its pre-tax income.

10) The amount that Ford Motor Company will owe in taxes next year without the launch of the new SUV is closest to:

A) $24.0 million

B) $56.0 million

C) $31.5 million

D) $13.5 million

11) The amount that Ford Motor Company will owe in taxes next year with the launch of the new SUV is closest to:

A) $13.5 million

B) $31.5 million

C) $56.0 million

D) $24.0 million

***Use the information for the question(s) below.***

Food For Less (FFL), a grocery store, is considering offering one hour photo developing in their store. The firm expects that sales from the new one hour machine will be $150,000 per year. FFL currently offers overnight film processing with annual sales of $100,000. While many of the one hour photo sales will be to new customers, FFL estimates that 60% of their current overnight photo customers will switch and use the one hour service.

12) The level of incremental sales associated with introducing the new one hour photo service is closest to:

A) $90,000

B) $150,000

C) $60,000

D) $120,000

13) Suppose that of the 60% of FFL's current overnight photo customers, half would start taking their film to a competitor that offers one hour photo processing if FFL fails to offer the one hour service. The level of incremental sales in this case is closest to:

A) $60,000

B) $150,000

C) $90,000

D) $120,000

14) Which of the following cash flows are relevant incremental cash flows for a project that you are currently considering investing in?

A) The tax savings brought about by the project's depreciation expense

B) The cost of a marketing survey you conducted to determine demand for the proposed project

C) Interest payments on debt used to finance the project

D) Research and Development expenditures you have made

***Use the information for the question(s) below.***

The Sisyphean Corporation is considering investing in a new cane manufacturing machine that has an estimated life of three years. The cost of the machine is $30,000 and the machine will be depreciated straight line over its three-year life to a residual value of $0.

The cane manufacturing machine will result in sales of 2000 canes in year 1. Sales are estimated to grow by 10% per year each year through year three. The price per cane that Sisyphean will charge its customers is $18 each and is to remain constant. The canes have a cost per unit to manufacture of $9 each.

Installation of the machine and the resulting increase in manufacturing capacity will require an increase in various net working capital accounts. It is estimated that the Sisyphean Corporation needs to hold 2% of its annual sales in cash, 4% of its annual sales in accounts receivable, 9% of its annual sales in inventory, and 5% of its annual sales in accounts payable. The firm is in the 35% tax bracket, and has a cost of capital of 10%.

15) The required net working capital in the first year for the Sisyphean Corporation's project is closest to:

A) $3600

B) $3960

C) $2880

D) $5400

16) The required net working capital in the second year for the Sisyphean Corporation's project is closest to:

A) $3960

B) $4360

C) $3190

D) $5940

17) The change in Net working capital from year one to year two is closest to:

A) A decrease of $360

B) An increase of $360

C) An increase of $396

D) A decrease of $396

***Use the following information to answer the question(s) below.***

Galt Motors currently produces 500,000 electric motors a year and expects output levels to remain steady in the future. It buys armatures from an outside supplier at a price of $2.50 each. The plant manager believes that it would be cheaper to make these armatures rather than buy them. Direct in-house production costs are estimated to be only $1.80 per armature. The necessary machinery would cost $700,000 and would be obsolete in 10 years. This investment would be depreciated to zero for tax purposes using a 10-year straight line depreciation. The plant manager estimates that the operation would require additional working capital of $40,000 but argues that this sum can be ignored since it is recoverable at the end of the ten years. The expected proceeds from scrapping the machinery after 10 years are estimated to be $10,000. Galt Motors pays tax at a rate of 35% and has an opportunity cost of capital of 14%.

18) The incremental cash flow that Galt Motors will incur today (Year 0) if they elect to manufacture armatures in house is closest to:

A) -740,000

B) -700,000

C) -660,000

D) 740,000

19) The incremental cash flow that Galt Motors will incur in year 4 if they elect to manufacture armatures in house is closest to:

A) 25,000

B) 350,000

C) 375,000

D) 1,250,000

20) The incremental cash flow that Galt Motors will incur in year 10 if they elect to manufacture armatures in house is closest to:

A) 40,000

B) 335,000

C) 375,000

D) 415,000