**GROUP A**

1. The 2018 balance sheet of SAM Ltd, showed long-term debt of 2.225.000 TL, and the 2019 balance sheet showed long-term debt of 2.525.000 TL. The 2019 income statement showed an interest expense of 350.000 TL. what was the firm’s cash flow to creditors during 2019?

|  |  |  |  |
| --- | --- | --- | --- |
| *Inputarea:* | |  |  |
|  |  |  |  |
|  | Dec. 31, 2018 Long-term debt | 2.225.000 TL |  |
|  |  |  |  |
|  | Dec. 31, 2019 Long-term debt | 2.525.000 TL |  |
|  |  |  |  |
|  | Interest expense | 350.000 TL |  |
|  |  |  |  |
|  |  |  |  |
| **Outputarea:** | |  |  |
|  |  |  |  |
|  | Cash flowtocreditors | **50.000 TL** |  |
|  |  |  |  |

Cash flow to creditors = Interest paid – Net new borrowing

1. Calculate the payback period for each project. Which project has the shortest payback period?

|  |  |  |
| --- | --- | --- |
| Year | Project A | Project B |
| Year 0 | −20.000 | −20.000 |
| Year 1 | 5.500 | 7.000 |
| Year 2 | 5.500 | 3.000 |
| Year 3 | 5.500 | 4.500 |
| Year 4 | 5.500 | 2.500 |
| Year 5 | 5.500 | 5.000 |

For Project A:

|  |  |  |
| --- | --- | --- |
| Year | Project A | Accumulated cash flows |
| Year 1 | 5.500 | 5.500 |
| Year 2 | 5.500 | 11.000 |
| Year 3 | 5.500 | 16.500 |
| Year 4 | 5.500 | 22.000 |
| Year 5 | 5.500 | 27.500 |

Payback period for A: 3,64 years

For Project B:

|  |  |  |
| --- | --- | --- |
| Year | Project B | Accumulated cash flows |
| Year 1 | 7.000 | 7.000 |
| Year 2 | 3.000 | 10.000 |
| Year 3 | 4.500 | 14.500 |
| Year 4 | 2.500 | 17.000 |
| Year 5 | 5.000 | 22.000 |

Payback period for B: 4,60 years

1. Calculate the Net Present Value of the following Project X and Y for discount rates of 12%. And also calculate the Profitability Index for each investment, Which Project should you take?

|  |  |  |
| --- | --- | --- |
| Cash Flows | Investment X | Investment Y |
| Year 0 | −2000 TL | −1000 TL |
| Year 1 | 1200 | 200 |
| Year 2 | 800 | 600 |
| Year 3 | 1000 | 1300 |

For Investment X:

|  |  |  |  |
| --- | --- | --- | --- |
| Cash Flows | Investment X | 12% | Net present value of cash inflows |
| Year 1 | 1200 | 0,893 | 1.071,6 |
| Year 2 | 800 | 0,797 | 637,6 |
| Year 3 | 1000 | 0,712 | 712 |

NPVX= –2000 + 1200 / (1 + 0,12) + 800 / (1 + 0,12)2+ 1000 / (1 + 0,12)3 = 490,96

Profitability Index for X: NPV/Investment

PIX= 2.490,96/2000=1,21

For Investment Y:

|  |  |  |  |
| --- | --- | --- | --- |
| Cash Flows | Investment Y | 12% | Net present value of cash inflows |
| Year 1 | 200 | 0,893 | 178,6 |
| Year 2 | 600 | 0,797 | 478,2 |
| Year 3 | 1300 | 0,712 | 925,6 |

NPVY= –1000 + 200 / (1 + 0,12) + 600 / (1 + 0,12)2+ 1300 / (1 + 0,12)3 = 582,20

PIY=1.582,20/1000=1,58

1. Medco Corporation has a systematic risk of 0,9. The market risk premium is 7% and the risk-free rate is 8%. The yield on the company’s debt is 5%, and the firm has a 21% marginal tax rate. Long term debt of firm is 4,000,000 TL and equity is 8,000,000 TL. What is the Weighted Average of the company?

Rf = 0,08

Rm−Rf = 0,07

Rm = 0,15

β = 0,9

RE = Rf + β (Rm−Rf)

= 0,08 + 0,9 x 0,07 = 0,143

Kd = Yield (1 – T)

= 0,05 (1 – 0,21) = 0,0395

**Weights:** for equity = 8000000/(4000000+8000000)=0,67

For debt = 4000000/(4000000+8000000) = 0,33

**WACC** = (0,67 x 0,143) + (0,33 x 0,0395) = 0,108845 = 10,88 %

1. Which capital budgeting methods consider time value of money?

* Discounted Payback Period
* Net Present Value
* Profitability Index
* Internal Rate of Return

**GROUP B**

1. Calculate the payback period for each project. Which project has the shortest payback period?

|  |  |  |
| --- | --- | --- |
| Year | Project A | Project B |
| Year 0 | −20.000 | −20.000 |
| Year 1 | 5.500 | 4.000 |
| Year 2 | 5.500 | 7.000 |
| Year 3 | 5.500 | 5.500 |
| Year 4 | 5.500 | 4.500 |
| Year 5 | 5.500 | 5.000 |

For Project A:

|  |  |  |
| --- | --- | --- |
| Year | Project A | Accumulated cash flows |
| Year 1 | 5.500 | 5.500 |
| Year 2 | 5.500 | 11.000 |
| Year 3 | 5.500 | 16.500 |
| Year 4 | 5.500 | 22.000 |
| Year 5 | 5.500 | 27.500 |

Payback period for A: 3,64 years

For Project B:

|  |  |  |
| --- | --- | --- |
| Year | Project B | Accumulated cash flows |
| Year 1 | 4.000 | 4.000 |
| Year 2 | 7.000 | 11.000 |
| Year 3 | 5.500 | 16.500 |
| Year 4 | 4.500 | 21.000 |
| Year 5 | 5.000 | 26.000 |

Payback period for B: 3,17 years

1. Medco Corporation has a systematic risk of 0,9. The market risk premium is 7% and the risk-free rate is 8%. The yield on the company’s debt is 5%, and the firm has a 21% marginal tax rate. Long term debt of firm is 3,000,000 $ and equity is 6,000,000 $ What is the Weighted Average of the company?

Rf = 0,08

Rm−Rf = 0,07

Rm = 0,15

β = 0,9

RE = Rf + β (Rm−Rf)

= 0,08 + 0,9 x 0,07 = 0,143

Kd = Yield (1 – T)

= 0,06 (1 – 0,21) = 0,0474

**Weights:** for equity = 8000000/(4000000+8000000)=0,67

For debt = 4000000/(4000000+8000000) = 0,33

**WACC** = (0,67 x 0,143) + (0,33 x 0,0395) = 0,108845 = 10,88 %

1. Calculate the Net Present Value of the following Project X and Y for discount rates of 12%. And also calculate the Profitability Index for each investment, Which Project should you take?

|  |  |  |
| --- | --- | --- |
| Cash Flows | Investment X | Investment Y |
| Year 0 | −1000 TL | −500 TL |
| Year 1 | 700 | 200 |
| Year 2 | 300 | 400 |
| Year 3 | 300 | 100 |

For Investment X:

|  |  |  |  |
| --- | --- | --- | --- |
| Cash Flows | Investment X | 12% | Net present value of cash inflows |
| Year 1 | 700 | 0,893 | 625,1 |
| Year 2 | 300 | 0,797 | 239,1 |
| Year 3 | 300 | 0,712 | 213,6 |

NPVX= –1000 + 700 / (1 + 0,12) + 300 / (1 + 0,12)2+ 300 / (1 + 0,12)3 = 77,8

Profitability Index for X: NPV/Investment

PIX= 1.077,8/1000=1,077

For Investment Y:

|  |  |  |  |
| --- | --- | --- | --- |
| Cash Flows | Investment Y | 12% | Net present value of cash inflows |
| Year 1 | 200 | 0,893 | 179 |
| Year 2 | 400 | 0,797 | 319 |
| Year 3 | 100 | 0,712 | 71 |

NPVY= –500 + 200 / (1 + 0,12) + 400 / (1 + 0,12)2+ 100 / (1 + 0,12)3 = 69

PIY= 569/500=1,13

1. Which capital budgeting methods do not consider time value of money?

* Payback Period Method

1. The 2018 balance sheet of SAM Ltd, showed long-term debt of 1.250.000 TL, and the 2019 balance sheet showed long-term debt of 1.600.000 TL. The 2019 income statement showed an interest expense of 90.000 TL. what was the firm’s cash flow to creditors during 2019?

|  |  |  |  |
| --- | --- | --- | --- |
| *Inputarea:* | |  |  |
|  |  |  |  |
|  | Dec. 31, 2018 Long-term debt | 1.250.000 TL |  |
|  |  |  |  |
|  | Dec. 31, 2019 Long-term debt | 1.600.000 TL |  |
|  |  |  |  |
|  | Interest expense | 90.000 TL |  |
|  |  |  |  |
|  |  |  |  |
| **Outputarea:** | |  |  |
|  |  |  |  |
|  | Cash flowtocreditors | **−260.000 TL** |  |
|  |  |  |  |

Cash flow to creditors = Interest paid – Net new borrowing