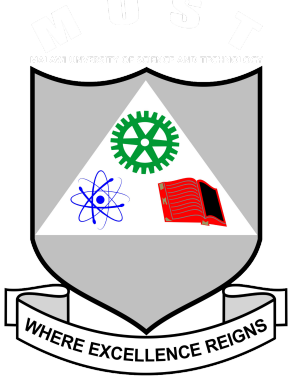

CORPORATE FINANCE(FCOF-310)

Individual Assignment

Examiner: Professor James Kamwachale Khomba

Deadline: Friday, 30th September, 2022

Submitted By:

Chawanangwa Kamanga (BIT/023/19)

Question One

a) Sibongile wants her investment in 3 years. Using the payback period method we can calculate how long it will take to recover her initial investment as follows:

Total Initial Investment = Capital Outlay + working Capital

= $140 000 + $20 000

= $1600 000

YEAR	NET CASH FLOW (ANNUAL RETURN) $	CUMULATIVE CASH FLOW (CASH INFLOW) $
0	(160,000)	(160,000)
1	40,000	(120,000)
2	50,000	(70,000)
3	90,000	20,000
4	25,000	45,000
5	15,000	60,000
6	28,000	88,000

The payback period is determined by counting the number of years it takes to recover the funds invested

In this case the payback period is between 2 and 3 years

The exact time can be calculated as:

Payback period = 2yrs + $\frac{\$70000}{\$90000}$

= 2.778 years

= 2.778 x 12 Months.

= 2 years and 9 Months.

The payback period is 2 years and 9 months.

Decision:

Since Sibongire wanted her investment to pay back in 3 years, she can therefore continue with this project because it returns the initial investment within this period(2 years and 9 months).

b) Advantages

- The payback period method is **easy and straightforward to calculate**. The method needs very few inputs and is relatively easier to calculate than other capital budgeting methods. All that you need to calculate the payback period is the project's initial cost and annual cash flows. (Borad, 2022)
- The payback period method is **easy to understand** since the calculations are straightforward. This makes it easy to explain to other stakeholders who are not finance experts as to how you got the solution that made you make your final decision about a project.
- This method is **most relevant to businesses with cash flow problems**. Cash flow refers to the net balance of cash moving into and out of a business at a specific point in time (Stobierski, 2022). Businesses with cash flow problems can't afford to take the risk of leaving their investment to payback at a very late period, because they need the money as soon as possible for their daily business operations.
- The payback period **emphasizes speed of return** which is good in rapidly changing markets. In markets like Technology, you can not take the risk of scoping your investments late because technology products become obsolete very fast, hence you need to get back your investments quickly.

Disadvantages

- Payback period method **ignores money received after payback**. If there are two investments,A & B which both start from an initial investment of 1 million kwacha. Assuming that Investment A has a payback period of 3 years but after 3 years it then adds 200,000 kwacha in year 4 & 5 and investment B has a payback period of 4 years but it add 500, 000 kwacha in year 5, using this method you will choose investment A since its payback period is smaller.
- Using this method it can be **difficult to establish a target payback period**. In the situation where you use years it requires you to add months or days but when the period gets shorter it can be difficult to get the actual period.
- The payback period method **completely ignores the time value of money** which is a very important business concept. As per the concept of the time value of money, the money received sooner is worth more than the one coming later because of its potential to earn an additional return if it is reinvested. The payback period method doesn't consider such a thing, thus distorting the true value of the cash flows. (Borad, 2022)
- The payback period is **not realistic**. Usually, capital investments are not just one-time investments. Instead, such projects need further investments in the following years as well. Also, projects usually have irregular cash inflows. (Borad, 2022)

c)

YEAR	CASH FLOWS $	DF(15%)	PRESENT VALUE $	DF(20%)	PRESENT VALUE $
0	(160,000)	1.0000	(160,000.00)	1.0000	(160,000.00)
1	40,000	0.8696	34,784.00	0.8330	33,332.00
2	50,000	0.7561	37,805.00	0.6944	34,720.00
3	90,000	0.6575	59,175.00	0.5787	52,083.00

YEAR	CASH FLOWS $	DF(15%)	PRESENT VALUE $	DF(20%)	PRESENT VALUE $
0	(160,000)	1.0000	(160,000.00)	1.0000	(160,000.00)
1	40,000	0.8696	34,784.00	0.8330	33,332.00
4	25,000	0.5718	14,295.00	0.4823	12,057.50
5	15,000	0.4972	7,458.00	0.4019	6,028.50
6	28,000	0.4323	12,104.40	0.3349	9,377.20
NET PRESENT VALUE (NPV)			**5621.40**		**(12,401.80)**

d) The Internal Rate of Return(IRR) is the rate of interest that makes the sum of all cash flows zero and it is used to estimate the profitability of potential investment.

Formula and Calculation for IRR

IRR = $a + \frac{A}{A-B} \times (b - a)$

Where;

a is the Lowest Rate of interest

b is the Higher Rate of interest

A is the NPV at lower rate of interest

B is the NPV at higher rate of interest

According to this a = 15%, b = 20%, A = $5,621.40, B= $12,401.80

IRR = $15\% + \frac{\$5621.40}{\$5621.40 - (-12401.80)} \times (20\% - 15\%)$

IRR = $15\% + \frac{\$5621.40}{\$18023.2} \times 5\%$

IRR = $0.15 + 0.31189799 \times 0.05$

IRR = $0.1655949 \times 100\%$

IRR = 16.56%

e) Advantages

- NPV **considers the time value of money**: a dollar today is worth more than a dollar tomorrow owing to its earning capacity. The computation under NPV considers the discounted net cash flows of an investment to determine its viability. (Wallstreetmojo, 2022)
- The NPV method also tells us whether an investment will create value for the company or the investor, and by how much in terms of dollars. That is if it has a **positive return then it's worth doing**.
- **NPVs are additive**. If you have multiple projects and excess capital, you can add up projects to get a sense of aggregate wealth creation from all investable projects. (Mendell, 2022)

Disadvantages

- **Time consuming**: This method requires multiple multiplications and mostly refers to the NPV table again and again which is time consuming when it's done manually.
- **More difficult to understand**: for some, it is an intuitively difficult concept to grasp due to its complicated calculations.
- NPV also assumes the discount rate is the same over the life of the investment or project. Discount rates, like interest rates, can and do change year-to-year. (Mendell, 2022)

Question Two

a) To calculate the value of the land at a future date based on an assumed rate of growth we can use the formula below:

$$FV = PV(1 + r)^n$$

Where:

PV is the present value

r is the interest rate

n is the number of years

Since the current year is 2022 the years past (n) can be calculated as:

n = 2022 - 1891

n = 131

$$FV = £6(1 + 23\%)^{131}$$

$$FV = £6(1 + 23\%)^{131}$$

$$FV = £6(1.237)^{131}$$

FV = £7561046375339.55

Therefore the same land in 2022 is worth £7,561,046,375,339.55

b) From the above calculations, you can see that the land which was once worth £6 in 1891 is now worth £7,561,046,375,339.55. Unless he has enough money to repossess this land and unless he is sure that the initial investment can be scoped back, he should not try to buy back the land because of the current price hike. That is if there are no other social, political, spiritual factors associated with the land and he is looking at it only from a financial point of view.

c) Other factors that Senior Chief Wandale must consider include:

Other developments on the land: when he sold the land in 1891 there were no developments on it, but now the British government may have built other buildings on the land which may further increase its value. This will make it even harder to buy back the land now.

Political issues: in 1891 there was the British colony which thrived on exploitation and hence they bought land at a very cheap price but now the government has changed and hence the price may be a bit fair. But this will heavily depend on the relationship between the local government and the British government.

Question Three

a) The cost of equity can be calculated using the formula:

$$K_e = \frac{D_1}{P_0} + g$$

Where:

k_e is the cost of equity

D_1 is next divided

P_0 is market price of share

g is growth rate in dividends

$$D_1 = D_0 \times (1 + g)$$

Where:

D_0 is the dividend just paid

$$D_1 = K34.58 \times (1 + 14.37\%)$$

$$D_1 = K34.58 \times (1.1437)$$

$$D_1 = K39.55$$

$$K_e = \frac{K39.55}{K193.79} + 14.37\%$$

$$K_e = 0.204082491 + 0.1437$$

$$K_e = 0.347782491$$

$$K_e = 34.77\%$$

b)

Source	Amount (K)	Cost of Capital	Capital Structure
Debt	100 million	12%	$\frac{100\ million}{400\ million} \times 100\% = 25\%$
Common Shares	180 million	14%	$\frac{180\ million}{400\ million} \times 100\% = 45\%$
Preference Shares	120 million	10%	$\frac{120\ million}{400\ million} \times 100\% = 30\%$
Total	**400 million**		**100%**

The cost of debt can be calculated as:

$$K_{dt} = K_d(1 - T)$$

Where:

K_{dt} is the cost of debt after tax

K_d is the cost of debt before tax

T is marginal tax rate

From the table K_d = 12%, T = 35%

$$K_{dt} = 12\%(1 - 35\%)$$

$$K_{dt} = 12\%(1 - 35\%)$$

$$K_{dt} = 7.8\%$$

Source	Amount (K)	Cost of Capital	Capital Structure
Debt	100 million	7.8%	$\frac{100\ million}{400\ million} \times 100\% = 25\%$
Common Shares	180 million	14%	$\frac{180\ million}{400\ million} \times 100\% = 45\%$
Preference Shares	120 million	10%	$\frac{120\ million}{400\ million} \times 100\% = 30\%$
Total	**400 million**		**100%**

$$WACC = (7.8\% \times 25\%) + (14\% \times 45\%) + (10\% \times 30\%)$$

$$WACC = 1.95\% + 6.3\% + 3\%$$

$$WACC = 11.25\%$$