4. Steps involved in evaluation of investments(Cont'd)

b) Terminal cash inflows

Terminal cash inflows These are cash offlows that accrue in the final year of the useful lie of that exercise the terminal cash flows differ from intermediate ones with the terminal cash flows differ from intermediate ones with respect to the expected net realizable value from disposal of the assets in its final year of use.

The net salvage value would be Sv (1-t); where Sv is the realizable value on selling scrap of the asset and t is the tax rate to which incomes of the business are subjected.

• Referring to the earlier example, the form would be adjusted as follows:

4. Steps involved in evaluation of investments(Cont'd):

PERIOD	1	2	3	4	5
Revenues	XXX	OxUK	XXX	XXX	XXX
Cost savings	Sax	XXX	XXX	XXX	XXX
Total projected benefits from 6 of	x v x	XXX	XXX	XXX	XXX
LESS OPERAGING COSTS OF					
Salaries & wages	XXX	XXX	XXX	XXX	XXX
Utilities	XXX	XXX	XXX	XXX	XXX
Selling expenses	XXX	XXX	XXX	XXX	XXX
Depreciation	XXX	XXX	XXX	XXX	XXX
Others	XXX	XXX	XXX	XXX	XXX
EBT	XXX	XXX	XXX	XXX	XXX
Less Tax	XXX	XXX	XXX	XXX	XXX
EAT	XXX	XXX	XXX	XXX	XXX
Add back depreciation	XXX	XXX	XXX	XXX	XXX
Add net salvage value	-	-	-	-	XXX
CASE FLOW FOR THE PERIOD YEAR 2 BE	AXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXX	XXX	XXX	XXX

4.3 Internal rate of return(Cont'd): rule

IRR is a yield – what we earn, on average perfear. Compare the IRR to the required (risk-adjusted) rate are deturn

If IRR > required fisk-adjusted return: → Accept project

If IRR < required risk-adjusted return: → Reject project

• Multiple IRR

When capital budgeting project has initial outflows, followed by inflows, then by more outflows, such cash flows are known as non-normal. In such cases, multiple internal rate of returns are likely to occur. Using any of these discount rates may give an NPV of zero, so all are correct. Since this is confusing, managers should rely in the NPV method when ranking capital budgeting projects with such cash flows.

4.3 Internal rate of return (Cont'd)

Example 2:

• A company is considering a project which is expected to last 4 years, and requires an immediate investment of RWF20,000 on plant. Inflows are estimated at RWF7,000 for each of the first two years and RWF6,000 for each of the last two years. The company's cost of capital is 10% and the plane would have project and act the end of the 4 years. Calculate the NPV and recommend if the project should be accepted.

Year	Cash flows	Disc. Factor @ 10%	PV
0	(20,000)	1	(20,000)
1	7,000	0.909	6,363
2	7,000	0.826	5,782
3	6,000	0.751	4,506
4	6,000	0.683	4,098
		NPV	749

Using the cash flow from the example above, a discount rate of 10 %, produced a NPV of RWF749. In an attempt to find a negative NPV try a higher rate of 15%.



We now know that the real rate of return is > 10% (+NPV) but < 15% (- NPV). The IRR is calculated by "Linear Interpolation". It will only be an approximation of the actual rate as it assumes that the NPV falls in a straight line (linear form + RWF755 at 10% to -RWF1,245 at 15%. The NPV, in fact, falls in a curved line but nevertheless the interpolation method is accurate enough. In this example the IRR is:

$$IRR = L + \left[\frac{N_L}{N_L - N_H} x (H - L)\right] \qquad 10\% + \frac{755}{755 + 1,245} x (15\% - 10\%) = 11.9\%$$

4.3 Internal rate of return (Cont'd)

a) Advantages:

otesale.co.uk The IRR has a number of benefits:

- Considers the time value of
- Is a percentage and therefore easily understood ٠
- Use sn flows not
- Considers the whole life of the project ۲
- Means a firm selecting projects where the IRR exceeds the cost of capital ۲ should increase shareholders' wealth

b) Disadvantages:

- It is not a measure of absolute profitability ۲
- Interpolation only provides an estimate and an accurate estimate requires ٠ the use of a spreadsheet programme
- It is fairly complicated to calculate ۲
- Non-conventional cash flows may give rise to multiple IRRs which means ۲ the interpolation method can't be used.

4.4 The Profitability Index (PI) rule PI (ratio) rule intuition. Nock for projects with Prepv(capabilitows) > PV(cash outflows)

 $PI = \frac{PV(cash inflows)}{PV(cash outflows)}$

If $PI > 1 \rightarrow Accept project$ If $PI = 1 \rightarrow indifference$ If $PI < 1 \rightarrow Reject project$

4.5 Accounting Rate of Return

- The accounting rate of return method calculates the estimated overall profits or loss on an investment project and relates that profit to the amount of capital investment to the period for which it is required.
- A business will have a required minimum rate of return for any investment. This is related to the cost of capital of the business.
- If an investment yields a return greater than the cost of capital, then the investment would be considered suitable and profitable.
- The accounting rate of return is an average rate of return calculated by expressing average annual profit as a percentage of the average value of the investment.