

Financial Management

Capital investment and risk

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WACC

- Cost of Equity – DGM
- CAPM

CAPM Issues

Difference between systematic and unsystematic risk and how they relate to Beta

Calculation of Beta using comparative company

Betas

WACC

Cost of Debt and Preference Shares

- Redemeable
- Irredemable
- Convertible

Class Exercise

- Calculate the WACC for Regenerator

Calculate the WACC

- Refer to attachment

Financing

- What is cheaper debt or equity
- 5 reasons why equity is more risky than debt
- Effect of change in gearing on the value of the project

Finance Question

- Electric Bolt

Investment Appraisal

Analysis of required

(a)	<p>Prepare a memorandum to the Board of Directors of Savusa in which you critically review and advise on the valuation performed by Ms Grape.</p> <p>Include an analysis of and commentary on the following:</p> <ul style="list-style-type: none"> • The financial forecasts of Oxus; • Any errors of principle contained in the valuation; • The discount rate used to discount future cash flows of Oxus; and • The reasonability of the valuation derived. <p>At least half of your report should be devoted to an analysis of and commentary on the financial forecasts included in the valuation.</p> <p>Assume that the mathematical calculations in the discounted cash flow valuation presented in the table in the scenario are correct.</p> <p><i>Communication skills – structure and layout and appropriate style</i></p>	21	
		3	24

		Marks
(a)	Identify, with reasons, any errors in and omissions from the cash flow forecasts and discounted future cash flows of the Augrabies division of PowerSmart Ltd as prepared by the CFO of ElectriBolt Ltd.	16
(b)	Identify and describe any advantages and disadvantages of ElectriBolt Ltd settling the purchase consideration due to PowerSmart Ltd using its own cash resources.	6
(c)	<p>With regard to ElectriBolt Ltd evaluating the financing of the acquisition of the Augrabies division of PowerSmart Ltd through obtaining the medium-term loan or through the issue of the preference shares –</p> <p>(i) calculate and determine which instrument will be more cost effective for ElectriBolt Ltd to use; and</p> <p>(ii) discuss any other factors ElectriBolt Ltd should consider in deciding which instrument to use.</p>	10 6
Presentation marks: Arrangement and layout, clarity of explanation, logical argument and language usage.		2

Analysis of required

(a)	<p>Calculate the net present value of the expected cash flows associated with supplying Mandlovu with the required roof trusses.</p> <ul style="list-style-type: none"> • Ignore inflation. • Assume that, unless otherwise stated, cash flows occur at the end of the year and that Apex Assist has sufficient taxable income from its current operations to absorb any tax losses. 	25	
	<i>Communication skills – structure and layout</i>	2	27

Types of questions

- Criticise an exercise already done
- Perform an assessment using the different methods
- Other factors to consider
- Maybe integrated with a financing question or financial statements analysis question

What is expected of you?

- To apply the principles
- To focus on relevant issues
- To make meaningful assumptions
- To think especially on discussion questions

Things to look out for...

- When criticizing consider
 - Reasonableness of the figures done i.e do we expect with our knowledge of the business the business to grow at 15%
 - Assumptions used – Do they make sense
 - Apparent errors of principle – i.e inclusion of non-cash items
 - Errors of omission
 - Errors on the discount rate

Capital Budgeting

- Objective
 - The efficient allocation of scarce resources in order to maximise wealth from limited capital.
- Methods
 - Return on investment.
 - Payback period.
 - Discounted payback.
 - Internal rate of return. (DCF)
 - Net present value. (DCF)
 - Modified Internal rate of return

NPV vs IRR

- NPV and IRR methods give the same accept/reject decisions for specific projects.
- However, ranking of projects may differ where:
 - Cost of one project is larger than that of the other.
 - The timing of the projects' cash flows differ and the IRR is not equal to the cost of capital.
- Should use NPV.

Modified Internal Rate of Return (MIRR)

- $$\text{MIRR} = \left[\frac{\text{PV}_R}{\text{PV}_i} \right]^{1/n} \times (1+r_e) - 1$$

PV_R – present value of return phase

PV_i – present value of the investment phase

R_e – cost of capital

Or $\text{MIRR} = \sqrt[n]{(\text{terminal value of return phase} / \text{PV of investment phase})} - 1$

Consider a project requiring initial investment of \$24500, with cashflows of \$15 000 in years 1& 2 and cash inflows of \$30 000 in years 3 & 4. Cost of capital is 10%.

Capital Budgeting

- Relevant cash out/inflows
- Opportunity cash outflows
- Ignore non-cash items i.e. depr.
- Ignore financing cash flows i.e. interest
- Changes in working capital requirements
- Taxation cash flows
- Disposal of assets at the end of the project
- Discount at the WACC

Mutually Exclusive Projects

- Comparing mutually exclusive projects with different lives using net present values:
 - Calculate the NPVs.
 - Calculate the annuity equivalent by dividing the NPV by the COC annuity factor for period.
- This makes it possible to compare the two streams of normalised annual cash flows.

Capital rationing

- If the capital available exceeds all investment requirements, select all positive NPVs.
- If inadequate capital and project are divisible :
 - Maximise NPV per limiting factor i.e. highest profitability index (PI) where:

$$PI = PV / Investment$$

- If project are non-divisible – use trial and error to get the combination that maximises NPV

3.4 Example: Capital rationing

Suppose that Hard Times Co is considering four projects, W, X, Y and Z. Relevant details are as follows.

Project	Investment required \$	Present value of cash inflows \$	NPV \$	Profitability index (PI)	Ranking	
					as per NPV	Ranking as per PI
W	(10,000)	11,240	1,240	1.12	3	1
X	(20,000)	20,991	991	1.05	4	4
Y	(30,000)	32,230	2,230	1.07	2	3
Z	(40,000)	43,801	3,801	1.10	1	2

Without capital rationing all four projects would be viable investments. Suppose, however, that only \$60,000 was available for capital investment. Let us look at the resulting NPV if we select projects in the order of ranking per NPV.

Inflation

- To adjust for inflation:
 - Real cash flows can be discounted at the real discount rate,
OR
 - Nominal cash flows can be discounted at the nominal discount rate.
- Issues
 - Different rates of inflation – have to use a nominal approach.
 - Tax allowances – again best to use a nominal approach.

Discussion on risk

- To what extent are the assumed variables in the capital budget subject to uncertainty?
- To what extent can political risk undermine the project?
- To what extent can global and regional economic risk undermine the project?
- To what extent is there foreign exchange risk?
- To what extent is there interest rate risk?

Risk Analysis

- Risk Assessment
 - *Measuring the level of risk*
- Risk Adjustment
 - *Adjusting the required return or cash flows for a project's level of risk*
- Project Risk and Market Risk
 - *Project risk reflects the risk of the project on its own*
 - *Market risk recognises in evaluating project risk that shareholders hold diversified portfolios*

Expected Values: Some points

- A project's expected value may not reflect a possible outcome

Project L				
State	Prob.	Possible NPVs (Rm)		Expected Value
A	0.5	-100		-50
B	0.5	200		100
Expected NPV				50

- Although the project has a positive expected NPV, the firm may not be able to survive a possible negative NPV of R100m. Therefore the project may be rejected, although it may have a positive expected NPV.
- The size of an investment impacts on the risk of the project.
- Compare the expected value of a project for a large oil firm which is sinking many wells and a small firm sinking only one well. The larger firm will have a reduced risk of finding oil, but both firms will be at risk in relation to the oil price.

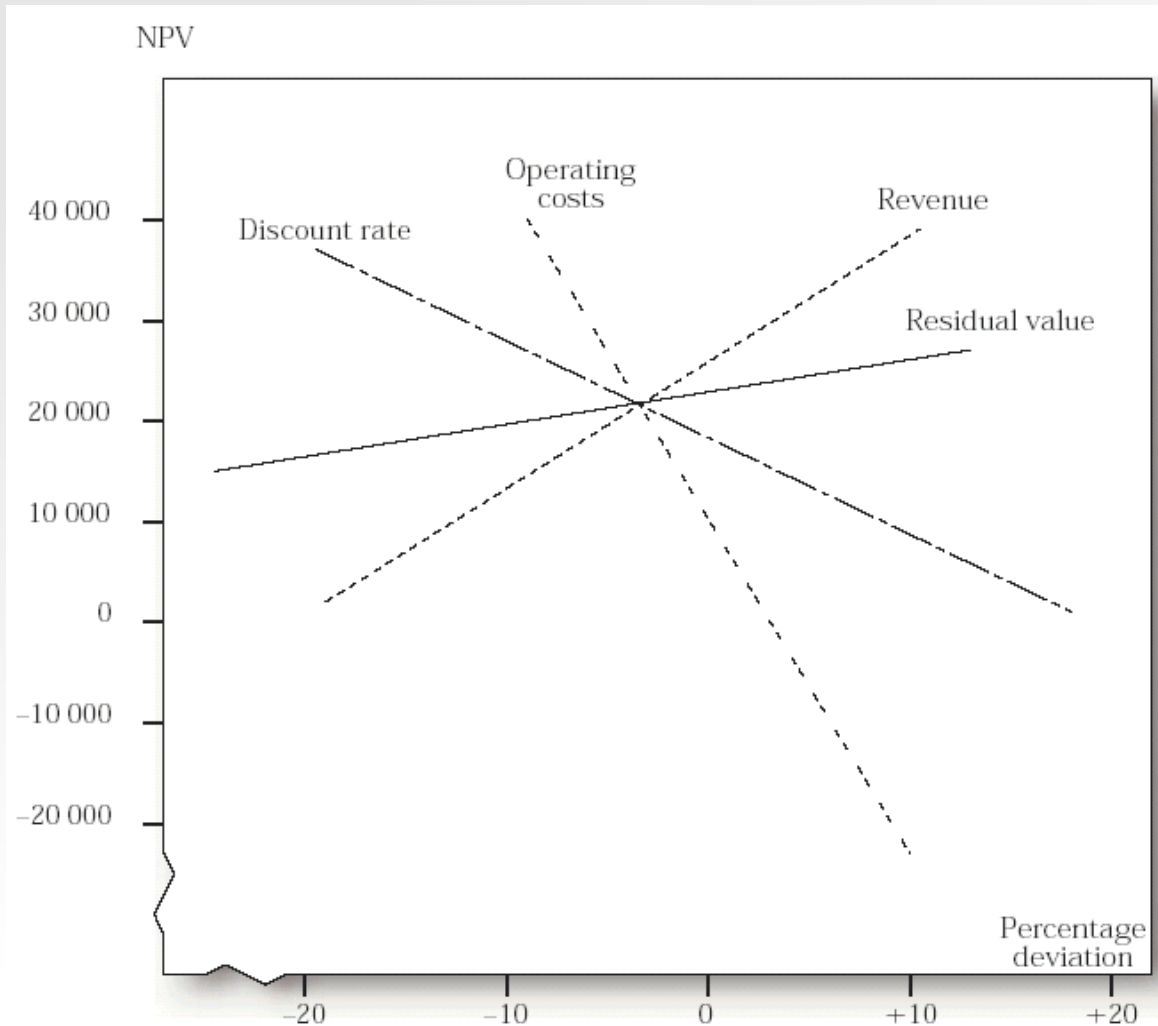
Risk Adjustment

- Once we have measured project risk, we need to make an adjustment for risk.
- If the project reflects a higher level of risk in relation to the average project, then we will increase the discount rate.
- The adjustment is subjective, and the experience of management will determine the change in the discount rate.

Sensitivity Analysis

- A project's NPV is based on best estimates for such factors as pricing, volumes, operating costs and expected project life.
- Sensitivity analysis measures how NPV changes due to a change in the value of any variable assuming other variables remain constant.
- For example, how will NPV change if the selling price is reduced by 10%?

Sensitivity Analysis Graph



Sensitivity Analysis

- The sensitivity analysis graph indicates that the project's NPV is very sensitive to changes in operating costs.
- It may be possible to reduce the effects of operating costs by analysing its causes, for example;
 - *Material prices* - is it possible to enter into forward purchasing contracts to fix prices
 - *Production efficiency* - is it possible to undertake pilot production, testing or further research that will reduce this uncertainty prior to full-scale production.

Sensitivity Analysis: Limitations

- As only one variable is changed at a time, this assumes that variables are independent. Yet, there are often inter-relationships between variables, such as pricing and sales volume. Scenario analysis can solve this problem.
- Sensitivity analysis may indicate range of NPVs but does not indicate the probability of occurrence.
- The evaluation of risk is subjective.

Business Valuation

- The methods

Methods

- Market Capitalisation
- Net assets

Discounted Cashflows

- Terminal Values
- Change in assets – WC and other assets
- Cashflows to the firm and to equity

Multiples

- Earnings multiples :

Estimating the maintainable earnings

Estimating the PE

- EBIT Multiples
- EBITDA Multiples
- Market to book ratio
- Sales multiples