2.4.2 Investment Appraisal Exercise

Unit: Unit 1 – Treasury Strategy

Module: Module 2 – Risk and return

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Summary: An exercise demonstrating how adjusting for different project risk can lead to different investment appraisal outcomes.

Keywords: WACC, investment appraisal, beta, risk and return, gearing, project appraisal

Background

You are responsible for evaluation of investment projects throughout the group. You have three projects awaiting evaluation which you intend to use to explore the impact of the three different methods of calculating WACCs.

<u>Assumptions for all methods</u>

Risk free rate	5%
Equity risk premium	5%
Geared beta	0.91
Marginal tax rate	30%
Cost of debt	6%
Group gearing policy	70% equity, 30% debt

	Project A	**Project B**	**Project C**
Initial cost of project	1600	1600	1600
Sustainable cash flow	90	100	130
Growth rate	2%	2%	2%
Risk category	Low	Average	High
Risk rating (ungeared	risk	risk	risk
non-diversifiable risk)	71.4%	100%	171.4%
Suggested gearing (D/E) for method	50/50	30/70	10/90

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Method 1

The established group policy is to use the same group weighted cost of capital for all projects.

Calculate the group WACC.

Calculate the values of all three projects using the following valuation method:

$$\text{value} = \frac{\text{sustainable cash flow} \times (1 + \text{growth rate})}{\text{WACC} - \text{growth rate}}$$

Method 2

Your director has asked you to explore the implications of flexing the required equity return and hence the WACC to allow for differing degrees of market-related risk (non-diversifiable) in different projects/divisions. The level of risk is indicated by the risk-rating percentage relative to the average project.

1) Calculate the different ungeared and geared betas for the high risk and low risk projects.
2) Calculate the respective WACCs and values.

Method 3

A new member of your team suggests that best-practice would also adjust the gearing ratio used in the calculation in line with overall project risks, i.e. high operational risk implies low financial risk and vice-versa.

Re-calculate the geared betas, WACCs and values for the two unusual risk projects using the different gearings which have been suggested based on overall riskiness.

Final Preference

What are the implications of using one or other of the different methods? Which method do you recommend?

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