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Ollscoil na hÉireann, Gaillimh

National University of Ireland, Galway

Autumn Examinations 2002

Bachelor of Commerce Degree Examination

Business Finance II (AY 314)

Higher Diploma in Business Studies Examination

Financial Management II (AY 875)

Professor N. Garrod;
Professor S. Collins.

Time Allowed: Two Hours.

Answer both questions in Section A, and one question from Section B.

Separate answer books are not required for each section

Present Value tables and a table of Financial Formulae are attached.

Section A

(Answer BOTH Questions)

Question 1:

Uppsala plc and **Geneva plc** are two companies which have the same business risk and are identical in all respects except for their capital structures and their total market values. Both companies have expected earnings before interest of €1 million per year, and because each company distributes all net profits as dividends, this level of expected earnings should remain constant each year in perpetuity.

The companies are currently valued in the market as follows:

	Uppsala plc.	**Geneva plc.**
Ordinary Shares (Equity)	€ 5,000,000	€ 4,000,000
8% Debt	-	2,000,000
Total Market Values	€ 5,000,000	€ 6,000,000

Required:

(a) Assume you own 5% of the ordinary shares of Geneva plc., and that capital markets are perfect in all respects. Illustrate the actions you could take to improve your financial position (without changing your risk), and calculate the financial benefits of this strategy.

(10 Marks)

(b) Assume instead that corporate taxes are levied at a rate of 35% on profits after charging interest, but that markets are otherwise perfect and are in equilibrium. In this new environment, Uppsala has a market value (and an equity value) of €4,500,000. The Board of Uppsala now decides to borrow €2 million at the market interest rate of 8% and to use the proceeds to redeem equity with a market value of €2 million. Using the propositions of Modigliani and Miller, calculate the effect this change in capital structure would have (i) on the company's total value, (ii) on its cost of equity, and (iii) on its overall cost of capital.

(12 Marks)

(c) Modigliani and Miller's theory of capital structure may be regarded as unrealistic. Discuss the problems with this theory that may concern a financial manager who wishes to use it to determine an optimal capital structure for her company.

(13 Marks)

(Total: 35 Marks)

Question 2 begins on the next page **P.T.O ⇒**

Question 2:

(a) Explain the distinction between the *Systematic Risk* and the *Total (Standard Deviation) Risk* of an investment, and outline why the CAPM expresses Expected Returns as a function of Systematic Risk only.

(10 Marks)

(b) **Beaufort Plc.** is a diversified industrial holding company with a wide variety of subsidiaries engaged in different lines of business. The following data relates to Beaufort, and to general conditions in the capital market:

	Beaufort Plc	Market
Expected Return	24%	20%
Standard Deviation of Returns	15%	8%
Correlation with Market	0.8	1.0
Beta	1.5	1.0
Risk Free Rate	-	12%

Using the *Capital Market Line*, identify whether or not Beaufort Plc. is an efficiently diversified portfolio, and explain the implications of your results for an investor who is considering buying shares in Beaufort.

(5 Marks)

(c) Beaufort Plc. (as in part (b) above) has recently identified a new investment project with an expected rate of return of 26% and a standard deviation of returns of 7%. The correlation between the returns on the new project and those of Beaufort Plc. is *minus* 0.4, and the new project will require an investment equal to one third of the net asset value of Beaufort. Using this information, calculate the expected returns and the standard deviation risk of Beaufort Plc., assuming it invests in the project.

(6 Marks)

(d) The correlation between the returns on the project and those on the market portfolio is estimated as +0.3. Estimate the beta of the project, and the revised beta of Beaufort assuming the project investment is made.

(5 Marks)

(e) Taking into consideration the risk-return characteristics of the project, and its impact on the risk-return characteristics of Beaufort, consider whether or not the project is desirable from the point of view of:

- A diversified shareholder in Beaufort Plc.
- A non-diversified shareholder in Beaufort Plc.

(9 Marks)

(Total: 35 Marks)

Section B begins on the next page *P.T.O.* ⇒

Section B

(Answer One Question)

Question 3:

Healthcare Associates is a healthcare organisation which operates a number of clinics in the Galway region. The Board has decided in principle to acquire an MRI scanner to improve its capacity to serve the community, and more particularly, to add sophisticated diagnostic procedures to its existing range of services. As Financial Director of the company, you have been asked to prepare a recommendation on the financing of the new equipment. Since the Board has already decided that it should use debt-type financing, the central issue is what form of debt financing is cheaper, and accordingly, whether lease financing or a bank loan should be used to finance the acquisition.

Leasing Services Ltd. has offered a five-year finance lease on the equipment. The lease requires annual lease payments of €62,000, payable in advance, with the first payment becoming due when the equipment is installed. The Bank of Connaught has offered the company a five-year term loan at a fixed interest rate of 10% per annum to finance the purchase of the equipment.

The following additional information is available:

- The MRI equipment costs €288,000, and it has an estimated useful life of five years.
- Where relevant, depreciation is allowed for tax purposes using the straight-line method, based on original cost, over the five-year life of the asset.
- The supplier guarantees a residual value of €50,000 for the equipment at the end of five years.
- Maintenance costs on the MRI equipment are estimated at €30,000 per year. However, since maintenance is very specialised, Leasing Services Ltd. will not include maintenance services with the lease.

Required:

(a) Assume that Healthcare Associates is a private sector 'for-profit' healthcare provider paying taxes on profits at a rate of 30%. Assume also that taxes are payable immediately at the end of the year in which the liability arises, and that the company has sufficient taxable profits to absorb any losses for tax purposes arising from the leasing or the purchase of the MRI equipment. Given these assumptions, prepare suitable calculations to determine whether the MRI equipment should be financed using the lease offered by Leasing Services Ltd., or using the bank loan offered by the Bank of Connaught. (20 Marks)

(b) Suppose instead that Healthcare Associates is a charitable organisation, and is therefore exempt from taxes on profits. Prepare a revised analysis to show which financing approach is more advantageous in these new circumstances. (10 Marks)

(Total: 30 Marks)

Question 4 begins on the next page **P.T.O.** ⇒

<u>Question 4</u>:

(a) In the context of currency risk management, distinguish between the following risk exposures:

- Transaction Exposure
- Translation Exposure

(12 Marks)

(b) Explain how the following currency markets, instruments or methods may be used to reduce or eliminate a company's foreign currency transaction risk exposures:

- Forward Markets
- Currency Options
- Leading and Lagging

(18 Marks)

(Total: 30 Marks)

<u>Question 5</u>:

(a) Explain the concepts of 'Operating Leverage' and 'Financial Leverage', and discuss the general effects of leverage on the risk - return position of an equity investor in a company.

(15 Marks)

(b) Outline the procedure one could use to estimate the cost of capital appropriate to the evaluation of a project which has a degree of business risk significantly different to that of the company proposing to invest in the project.

(15 Marks)

(Total: 30 Marks)

End of Question Paper
