

## MN20211 Firm X exercise 2011

### Capital Structure.

A firm has perpetual net cashflows (before tax) of £50,000 per annum. It pays tax of 40%. The firm is considering its capital structure policy. It has obtained the following estimates for cost of debt and cost of equity.

#### Case 1: Risk free Debt.

% Debt/ % equity.	Cost of Debt (%)	Cost of Equity (%)
0/100	5	15
10/90	5	16.2
20/80	5	17.5
30/70	5	19.3
40/60	5	21.7
50/50	5	25
60/40	5	30
70/30	5	38.5
80/20	5	55

#### Case 2: Risky Debt.

% Debt/ % equity.	Cost of Debt (%)	Cost of Equity (%)
0/100	5	15
10/90	5	16.2
20/80	5	17.5
30/70	5	19.3
40/60	5	21.7
50/50	5	25
60/40	6	30.5
70/30	7	39.4
80/20	8	57

#### **Required:-**

- Calculate the firm's WACC and market value for each capital structure in each of 4 cases; risk-free and risky debt, without tax and with tax.
- What is the optimal capital structure in each case?
- Draw the Miller-Modigliani diagrams in each case.
- Which case do you consider to be most realistic?
- Consider the impact of agency costs and signalling.