FINAP – sample test Name:

1. A company profit (before deducting interest and taxes) is CZK 5m. The company uses a total capital of CZK 20m. Debt interest rate is 10%, the profit tax rate is 20%. Assuming the company's debt ratio is 60%, calculate

a) return on equity;

b) the degree of financial leverage.

c) Calculate the total leverage provided that the company has zero fixed costs.

a) ROE = EAT / Equity Equity = Capital – Debt = 20 – 20 . 0.6 = 8m

EAT = EBIT – I – T = (5 – I) . (1 – t) I = Debt . i = 20 . 0.6 . 0.1 = 1.2m

EAT = (5 – 1.2) . (1 – 0.2) = 3.04m

R0E = 3.04 / 8 = 0.38

b) DFL = EBIT / EBT = 5 / 3.8 = 1.32

c) DTL = DOL . DFL

If no fixed cost then DOL = 1

DTL = 1.32

2. The relationship between inputs and production can be described by a production function $P = 50 \cdot DM^{0.6} \cdot PEP^{0.3}$. Assume long-term assets (production assets) in the amount of DM = 30,000 and PEP = 20.

a) Calculate the value of the technical equipment of work.

b) Calculate average asset efficiency.

c) Calculate the marginal efficiency of assets.

d) Calculate the marginal rate of an asset substitution by workers.

e) Draw an isoquant function for the required production volume P = 70,000 and determine the required number of workers if the DM = 35,000.

f) Determine the degree of homogeneity of the production function.

a) Technical equipment of work = fixed assets / workers = 30000 / 20 = 1500

b) Average assets efficiency = Production / assets

Production = $50 \cdot 30000^{0.6} \cdot 20^{0.3} = 59642$

Average assets efficiency = 1.99

c) Marginal assets efficiency = average assets efficiency . coefficient of assets = 1.99 . 0.6 = 1.19

d) MRS = - marginal assets efficiency / marginal labour productivity = - 1.19 / 895 = - 0.0013

e) $70000 = 50 \cdot 35000^{0.6} \cdot PEP^{0.3}$

$PEP = 25$

f) r = b1 + b2 = 0.9

3. By using the Altman model, you have prepared the 2015 bankruptcy forecast for 20 companies based on 2015 financial statements. At the end of 2016, you verified the success rate of these forecasts. Based on the table with actual and estimated groupings (B = bankruptcy, N = non-bankrupt), compile a classification matrix and determine the overall model reliability, model sensitivity and model specificity (1 point).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Reality	**B**	**B**	**B**	**B**	**B**	**B**	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Model	**B**	**B**	**B**	N	N	N	N	N	**B**	N	N	N	N	N	**B**	N	N	**B**	N	N

Classification matrix

		Model	
		B	N
Reality	B	3	3
	N	3	11

Total accuracy = (TP + TN) / n = 14 / 20 = 70%

Sensitivity = TP / (TP + FN) = 3 / 6 = 50%

Specifity = TN / (TN + FP) = 11 / 14 = 78.6%

4. Theory

a) Characterize the principle of operational and financial leverage.

Operating leverage arises from the involvement of fixed costs in the operating area, financial leverage arises from the involvement of fixed costs (interest) in the financial area. They are calculated as follows:

OL = ΔEBIT / ΔSales

FL = ΔEPS / ΔEBIT

b) How are the terms "business bankruptcy" and "financial stress of an enterprise" defined?

Bankruptcy is a term defined in the Bankruptcy Act. It defines that a debtor is bankrupt if it has multiple creditors, and monetary liabilities for a period exceeding 30 days after the due date and is unable to meet these obligations; or if debtor has more creditors and the sum of its liabilities exceeds the value of its assets.

The term “financial distress” is defined in various ways, often based on losses lasting a certain period of time; non-payment of dividends on preference shares; default on bonds; large-scale redundancies; capital restructuring; accumulated losses or negative cash flow.

c) Explain the principle of fixed-base and chain indexes.

Chain indices compare the assessed value with the immediately preceding period. Fixed-base indices always compare each evaluated value of the indicator with a value from fixed base period.