OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG | WW | FAKULTÄT FÜR WIRTSCHAFTSWISSENSCHAFT

Chair of Business Taxation | Prof. Dr. Sebastian Schanz

Closed Book Exam
Business Taxation and Financial Decisions
Summer Term 2011

Course Number 20374

Magdeburg, July 11th 2011

Instruction: *You can reach a maximum of 60 points. Please be aware that the number of points you can receive per question is correlated to the time you need for answering it. The exam consists of 2 parts. All parts have to be answered. You are allowed to use a calculator.*

Part I: Neutral Income Tax Systems (35 P.)

Suppose you are an entrepreneur having the possibility to conduct an investment in the furniture industry. You are endowed with equity to the amount of € 150,000. The following investment alternative is available:

t	0	1	2	3	4
CF_t (in €)	−150,000	45,000	50,000	75,000	95,000

The investment is depreciated by applying the straight line method over a period of 4 years. The interest rate is 7%. Your marginal tax rate is 42%. Interest income is taxed by applying a flat tax of 25%. Please assume that the after-tax cash flows are withdrawn at the end of each period.

(a) Calculate the before-tax net present value (NPV). Would you conduct the investment?

(b) What is the after-tax net present value (NPV^τ) in case of a cash flow tax with a tax rate of 42%? It is not necessary to provide a financial plan.

(c) Provide four problems of an implementation of a cash flow tax for business entities.

(d) Now suppose you are resident in a country where an allowance for corporate equity tax system (ACE) with a tax rate of 42% is applied. Please set up the complete financial scheme for the investment alternative above and calculate the after-tax net present value (NPV^τ). This financial scheme must at minimum include the fixed capital in each period as well as the resulting tax base for this tax system.

(e) Now suppose you are resident in a country that applies a tax system in which interest income is subject of taxation. All profits (i.e. including interest income) are taxed at a tax rate of 42%. How high does the depreciation of the investment have to be in each period in order to achieve neutral income taxation? Please confirm the decision neutrality of this system by calculating the after-tax net present value (NPV^T).

(f) Applying the tax system of g) what does the depreciation amount to if the investment is only depreciated in period 3 and neutral income taxation shall be achieved (given that an immediate full loss-offset is allowed)? 12

Part II: Asset Deal **(25 P.)**

Carl Canon studied engineering in the late fifties. After his studies he set up his own business and started to produce printers. Since he was not tired to improve his products and create new designs he owns a production line being able to produce high-tech printers, now. The rest of his life he wants to do world trips and spend time with his wife. That is why he is looking for an investor who is willing to buy his sole proprietorship. Since he bought his production line many years ago it is already totally written off (book value equals zero). Nevertheless it is still in good condition and Carl could achieve a price of € 120,000 if he sells it (without the long time contracts that are not capitalizable). Carl's marginal tax rate is 45% and an alternative financial investment yields 6% before taxes. Interest income is taxed by applying a flat tax of 25%. Due to his contracts signed for a long run he can predict future cash flows to be € 60,000 for t = 1,...,∞ for sure.

(a) Calculate the amount that an investor has to pay Carl for his business entity in order to be indifferent of selling and keeping. Capital gains are taxed at Carl's marginal tax rate of 45% (in variance from other capital income).

(b) Suppose Carl finds an appropriate investor in Chris because Chris is young and an engineer as well. If Chris' marginal tax rate is 30%, step-ups are depreciated over 5 years and legal depreciation of goodwill is supposed to be 15 years, what amount is Chris willing to pay Carl maximally? What does the yearly depreciation of goodwill amount to?

(c) Is the transaction carried out?