



MSc. in Business Administration
September/December 2009

COURSE: Advanced Corporate Finance

EXAM

TIME: 3 h

Lecturer: Maria Manuela Athayde Marques

(13/01/10)

I (60m.)
(7 marks)

OPTICS ELECTRONICS is a *start-up* that has just approached a venture capitalist investor. The company has no debt because the nature of its assets simply does not allow it. Currently, **OPTICS ELECTRONICS** has no profits and does not envisage any profits over the next three years. A positive net income of 15,196 M€ however is expected on year 4, which should grow thereafter at a yearly rate of 6%. The company is considering going public at that time (end of year 4). The average leading PER of the sector is 63 while unlevered beta is 1,15. The riskless interest rate is 3% and the market risk premium is 4%. The target rate of return demanded by the venture capitalist is 35%.

- (10%) 1. Estimate a possible fair market value for **OPTICS ELECTRONICS** at the date of going public.
- (10%) 2. Build the Balance Sheet of the firm at today's fair market value ($t=0$).
- (30%) 3. If the venture capitalist investor demands a minimum participation of 25% in the firm's capital, what is the minimum capital he would be willing to invest in **OPTICS ELECTRONICS**? What will be the effective minimum participation (%) of the venture capitalist investor in the capital of **OPTICS ELECTRONICS** if the amount of capital required today for the start of the company's operations is 125 M€?

Assume now that, 4 years later, **OPTICS ELECTRONICS** went public after a well succeeded offer for sale. The venture capitalist investor was the only selling shareholder. He exited the investment through the sale of the 75,000,000 shares he owned. The estimated intrinsic value per share at the time was €8. Transaction costs were 1,5% of the gross amount of the operation. Underwriters used a fixed price mechanism to set the offering price. Following the IPO, the shares of **OPTICS ELECTRONICS** closed at €13 at the end of the first day of *trading*.

- (10%) 4. Calculate the offering price.
- (10%) 5. What anomaly associated with IPOs is present in the text? Please, provide possible explanations for it?

- (10%) 6. Who won and lost with this anomaly in the case of **OPTICS ELECTRONICS**?
Please, explain but do not use any calculations at this point.
- (10%) 7. Quantify the gains and losses involved in this operation.
- (10%) 8. What was the effective annual return for the venture capitalist investor over the period of his investment in **OPTICS ELECTRONICS**?

II (60 m.)

(7 marks)

A. **Company X** has presently 600 thousand shares outstanding (nominal value €), trading at €1,75 each in the market. **X** wants to invest 1 million euros in a project with an estimated NPV of 250 thousand euros. The project is to be financed through a seasoned cash offering. Transaction costs with the equity issue will amount to 50 thousand euros (paid out of the gross proceeds of the issue). Registered underpricing in the market is typically 3%, on average. Simultaneous with the cash offering, **Company X** will carry out a reserve incorporation operation for the amount of 450 thousand euros.

- (20%) 1. Estimate the market price of **Company X**'s shares after the announcement of the project and the operations mentioned above.
- (05%) 2. What will be the amount of wealth (in euros) transferred from the old to the new shareholders?

B. **Company Y** shows at present the following balance sheet in market value terms:

BALANCE SHEET *cum-div* (euros)

Cash & Mark. Sec.	750.000	Debt (D=P) (i = 5,34%)	3.750.000
Other Assets	8.500.000	Equity (E)	5.500.000
	9.250.000		9.250.000
V		D + E	

Consider a perfect market context. The firm's equity is made up of 500 thousand shares with a nominal value of 5€ Current share price in the market reflects the expectation the firm will go on paying dividends of 500 thousand euros a year in perpetuity, just as it has been doing in the past.

Dividends for the closing year will be paid tomorrow out of the existing balance of cash and marketable securities. The company further pretends to reduce its debt level to 2,5 million euros and launch a rights issue offering for the purpose. The issue price will be € per share.

(40%) 1. Construct the new balance sheet for the company in market value terms after the operations above, and calculate:

B.1.1) The number of shares to issue,

B.1.2) The new share price,

B.1.3) The value of each right,

B.1.4) The TSR for a shareholder who will exercise his/her rights. Please comment on the return obtained.

B.1.5) The WACC and the r_A of the firm's activity before and after the change in capital structure.

(35%) 2. Now, consider the presence of income taxes ($T_c = 30\%$) and that the rights issue involves transaction costs (net of taxes) of 1% of the total gross proceeds of the issue. These costs will be paid out of the balance of cash and marketable securities of the firm. Furthermore, the equity issue will be of a smaller amount due to the fact that **Company Y** has decided to use the whole amount of cash from the annual distribution of dividends for the repayment of debt.

B.2.1) Please construct the new balance sheet for the company in market value terms and estimate the new share price. **Note: Take the balance sheet given in the previous page as the starting point, considering that it already reflects the presence of income taxes.**

III (60 m.)

(6 marks)

(25%) 1. Several research studies have reported the **non existence** of a **significant relationship** between firm size and capital structure. How surprising is this finding in the context of the trade-off model of capital structure, and of the pecking order hypothesis? Would you care to advance a few possible explanations for the non-existence of a significant relationship?

(15%) 2. In which of the following companies, indirect bankruptcy costs are likely to be higher? Justify your answer on the basis of the factors that in your opinion are more relevant.

- A pharmaceutical company or an agricultural company?
- A garden equipment manufacturer or a concert specialized piano manufacturer?
- An electric power company or an Internet access service company?

(10%) 3. In which of the following companies, direct bankruptcy costs are likely to be higher? Justify your answer on the basis of the factors that in your opinion are more relevant.

- A computer software company that gets financing strictly in its national financial market, or one that gets financing in the international financial market?
- An industrial company that has publicly issued bonds outstanding, or one that has exclusively only private debt outstanding with four local banks?

(15%) 4. Which of the following sentences are true or false? Please justify in no more than 3 lines each.

- a) Financial distress can benefit some firms by improving their bargaining positions with their stakeholders.
- b) Selecting projects with positive net present values can at times reduce the value of a levered firm's stock.
- c) If a firm's existing debt holders have a senior claim in the event of bankruptcy, a new debt issue can decrease the value of the existing debt.

(35%) 5. Nigel decides he can make zippers at night for one period and will have cash flows next period of €10 if the economy is favorable, and €6 if the economy is unfavorable. One-third of these proceeds must be paid out in taxes if the firm is all equity financed; however, because of the tax advantage of debt, Nigel saves €0,05 in taxes for every €1,00 of debt financing that he uses. Assume investors are risk neutral, the riskless rate is 10% per period, and the probability of each

sate is 50%. Also assume that if Nigel's firm goes bankrupt and debt holders take over, the legal fees and other bankruptcy costs total €20. If Nigel organizes his firm as all equity, what will it be worth? Suppose Nigel's firm sold a zero-coupon bond worth €14 at maturity next period. How much would the firm receive for the debt? With this debt level, how much would the equity be worth? Would the firm be worth more if it had a debt obligation of €70 next period?