

EXERCISE 1

Indebted Company A has a capital stock divided into 2,000 shares. At the present time, the beginning of year 1 (immediately after payment of the dividend from the previous year), the company expects to receive a cash flow of € 200,000 at the end of the year (EBIT of year 1) and a cash flow of € 125,000 at the end of the following year (EBIT of year 2). Both flows correspond to the typical company project (and are therefore subject to the same economic risk). The company will be liquidated at the end of year 2 for € 175,000 (liquidation amount in which the EBIT for year 2 is not included).

There is no cause of imperfection (taxes, transaction costs, insolvency costs, agency costs, etc.) in the financial market. No reserves are ever established (the annual profit is distributed in full as a dividend). The return required by the shareholders is 12% per year. The Modigliani-Miller model is applicable.

- a) Compute the expected dividend of the company at the end of years 1 and 2, and the company's expected dividend per share at the end of years 1 and 2.
- b) Compute the ex-dividend price of each share on January 1st of year 1, the full price of each share at the end of year 1, the ex-dividend price of each share on January 1st of year 2 and the full price of each share at the end of year 2.
- c) Compute the market value of the company on January 1st of year 1 and at the end of year 1. Also compute the market value of the company on January 1st of year 2 and at the end of year 2.

No shareholder is assumed to have sufficient influence to motivate a change in the company's dividend policy. The circumstances of three shareholders are known:

- d) Mr. A is the owner of 600 shares in the company. He expects the global liquidity (via dividends and sales on the Stock Market) provided by his portfolio of shares to be the same in year 2 as it was in year 1.
- e) Mr. B owns € 700 worth of shares of the company. He expects the global liquidity (via dividends and sales on the Stock Market) provided by his portfolio of shares to be € 180 per share at the end of year 2.

f) Mr. C owns 400 shares of the company. He expects the global liquidity (via dividends and sales on the Stock Market) provided by his portfolio of shares in year 1 to be 1.5 times that of year 2.

EXERCISE 2

Ms. Rosa is the owner of 400 of the 1,000 shares of Company B (never indebted; never with established reserves). This company will be liquidated when two annual exercises have elapsed from today (current moment: January 1st of year 1). The expected net cash flows per share are € 20 at the end of year 1 and € 30 at the end of year 2 (including settlement income). The required return on the share is 8% per annum. There are no imperfections (taxes, transaction costs, insolvency costs, agency costs, etc.) and the market is in equilibrium.

Ms. Rosa expects that her portfolio of Company B shares will provide her with the same liquidity in both years (at the end of year 1 and at the end of year 2).

- a) Compute the ex-dividend price of each share on January 1st of year 1 and the market value of the company on January 1st of year 1.
- b) Compute the ex-dividend price of each share on January 1st of year 2 and the market value of the company on January 1st of year 2.
- c) Ms. Rosa's strategy at the end of year 1.

Exercise 3

Two companies, A and B, present the same risk. Shareholders expect company A to pay a dividend of 50 euros per share at the end of the year and the final price of the share (after dividends) to be 525 euros. Company B has a policy of not paying dividends. Currently, on January 1st, company B's shares are selling at 500 euros each and company A's are selling at 494,565 euros each. Company B's shareholders expect a pre-tax capital gain of 75 euros over the next year.

Neither company is ever in debt or ever establishes reserves. A single potential cause of financial market imperfection exists due to the existence of personal tax rates on dividends from shares that are different from those on capital gains from shares:

The tax rate on dividends is $t_d = 30\%$ per year.

The tax rate on capital gains from shares is $t_{gc} = 20\%$ per year.

The Modigliani-Miller model is applicable.

a) In relation to company B before taxes, calculate the dividend per share, the expected capital gain, and the expected return on dividend.

b) In relation to company B after personal taxes, calculate the dividend per share, the expected capital gain, and the expected return on dividend.

c) In relation to company A before taxes, calculate the dividend per share, the expected capital gain, and the expected return on dividend.

d) In relation to company A after personal taxes, calculate the dividend per share, the expected capital gain, and the expected return on dividend.