



## Corporate Finance

Mid-Term Exam – Spring 2010/2011

VERSION 1

1 hour and 30 minutes

This exam consists of 20 questions. Each question is worth 1 point. Work out the problems on scratch paper without any rounding up the partial results. Write down the correct answer with two decimal places on the line provided. No explanation is required. **No partial credit will be given even if the mistake that is made is obvious.**

This is a closed book exam. You are allowed one double-sided A4 sheet of notes. Calculators are permitted. Good luck!

---

*Print Name*

---

*Print Number*

Name:

Number:

**Use the following information to answer Problems 1-3:**

Matthew currently has €2,000 in a bank account with a 4% stated annual interest rate with annual compounding. He is starting to work today. He will receive an annual salary of €18,000 starting one year from today and will work for 50 years. He will save 20% of his income in each year in his bank account.

**Problem 1**

If Matthew does not save any additional money until he retires, how much will he have when he retires in 50 years?

Answer: \_\_\_\_\_

**Problem 2**

What is the present value of his saving plan if his salary does not grow?

Answer: \_\_\_\_\_

**Problem 3**

What is the present value of his saving plan if his salary grows at an annual inflation rate of 2%?

Answer: \_\_\_\_\_

**Use the following information to answer Problems 4-6:**

Helena wants to buy an apartment in Lisbon that costs €350,000. She got a loan of 70% of the house price that will be paid (starting next month) throughout 40 years with a stated annual interest rate of 6% with monthly installments.

**Problem 4**

How much will Helena pay every month?

Answer: \_\_\_\_\_

**Problem 5**

How much will Helena owe to the bank in 10 years?

Answer: \_\_\_\_\_

**Problem 6**

What is the total amount of interest paid during the first 10 years of the loan?

Answer: \_\_\_\_\_

Name:

Number:

**Use the following information to answer Problems 7-11:**

Maturity (in years)	0.25	0.75	1	2	3	4	5
Spot rates	?	3%	4%	5%	7%	8%	9%

**Problem 7**

What is the 0.25-year spot rate if the 0.25-year zero coupon bond price is 99.50616?

Answer: \_\_\_\_\_

**Problem 8**

What is the forward rate between year 2 and year 5?

Answer: \_\_\_\_\_

**Problem 9**

What is the clean price today of a 5% coupon (paid annually) bond with 4 years to maturity?

Answer: \_\_\_\_\_

**Problem 10**

What is the dirty price of a 0.25-year maturity bond with an annual coupon rate of 4% (paid semi-annually)?

Answer: \_\_\_\_\_

**Problem 11**

What is the clean price of a 0.75-year maturity bond with an annual coupon rate of 4% (paid semi-annually)?

Answer: \_\_\_\_\_

Name:

Number:

**Use the following information to answer Problems 12-16:**

CIMSPA is a publicly listed company in Portugal. CIMSPA was expected to pay a dividend of €1 per share (plowback was 60%) next year and dividends were expected to grow at 2% per year thereafter. Unexpectedly, CIMSPA announces today that dividends will grow at 5% until year 6 and afterwards they will grow at 2%. The discount rate is 12%

**Problem 12**

What was CIMSPA stock price right before the announcement?

Answer: \_\_\_\_\_

**Problem 13**

What was CIMSPA price-earnings ratio before the announcement considering that the plowback is 60%?

Answer: \_\_\_\_\_

**Problem 14**

What was CIMSPA's NPVGO before the announcement?

Answer: \_\_\_\_\_

**Problem 15**

How much should be return on equity such that NPVGO is zero?

Answer: \_\_\_\_\_

**Problem 16**

What is CIMSPA stock price after the announcement?

Answer: \_\_\_\_\_

Name:

Number:

**Use the following information to answer Problems 17-20:**

A company will be operating a new machine for 3 years. The machine requires an initial investment of €1,000,000 and will be depreciated over 5 years (straight-line method). The machine is expected to be sold by its book value 3 years from now. The financial forecasts are the following:

	Year 1	Years 2 and 3
Sales	€ 400,000	€ 600,000
EBIT (% of sales)	30%	40%

Net working capital is 10% of the next year sales. Corporate tax rate is 30%. The discount rate for the project is 10%.

**Problem 17**

What is the Free Cash Flow in year 0?

Answer: \_\_\_\_\_

**Problem 18**

What is the Free Cash Flow in years 1 and 2?

Answer: \_\_\_\_\_

**Problem 18**

What is the Free Cash Flow in year 3?

Answer: \_\_\_\_\_

**Problem 20**

What is the Profitability Index?

Answer: \_\_\_\_\_

Name:

Number:

Name:

Number:

Name:

Number:



Name:

Number:

Name:

Number: