

# FINANCE

This Assignment is worth 100% of the final mark.

**Submission Deadline:** As announced by the school's Mater/MBA Program Coordinator. Submissions after the deadline will receive a zero (F).

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**Exam Structure: 10 questions - You must select 5 questions to answer, all are equal in value.**

Please answer these on a new Word.docx document and clearly indicate the Numbers of the Questions you are answering.

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It may be necessary to consult research material to answer the questions. Please note that material consulted to support your answers must be well referenced. If your answers are not well-reasoned and your sources are not well-cited (Harvard style), plagiarism penalties may apply.

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## Question 1 ( 20 marks)

The one-year interest rate is 9% and the expected annual inflation rate is 6%.

- a. What is the expected real interest rate? (10 marks)
  
- b. If the expected inflation suddenly rises to 8%, using Fisher's theory, critically discuss how would the nominal interest rate be affected? What about real interest rate? How would your answer change if the expected inflation rate suddenly decreases to 4%? (10 marks)

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## Question 2 ( 20 marks)

Some people believe firmly, even passionately, that ranking projects on IRR is OK if each project's cash flows can be reinvested at the project's IRR. They also say that the NPV rule "assumes that

cash flows are reinvested at the opportunity cost of capital.” Think carefully about these statements. Are they valid? Are they helpful? Critically discuss your answer (hint: refer to the formula of IRR).

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### Question 3 ( 20 marks)

A bond's credit rating provides a guide to its price. In early 2012, Aaa bonds yield 5.15% and Baa bonds yield 5.85%. If some bad news causes a five-year bond with a coupon rate of 5% paid annually to be unexpectedly downrated from AAA to BBB, critically discuss what would be the effect on the bond price?

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### Question 4 (20 marks)

- a) The cost of a new automobile is \$10,000. If the interest rate is 5%, how much would you have to set aside now to provide this sum in five years? (10 marks)
  - b) You have to pay \$12,000 a year in school fees at the end of each of the next six years. If the interest rate is 8%, how much do you need to set aside today to cover these bills? (10 marks)
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### Question 5 (20 marks)

Several years ago *The Wall Street Journal* reported that the winner of the Massachusetts State Lottery prize had the misfortune to be both bankrupt and in prison for fraud. The prize was \$9,420,713, to be paid in 20 equal annual installments were the first payment was made at the beginning of the first period. The bankruptcy court judge ruled that the prize should be sold off to the highest bidder and the proceeds used to pay off the creditors. If the interest rate was 8%, how much would you have been prepared to bid for the prize?

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**Question 6 (20 marks)**

- a) You purchase a 10-year US Government bond (T-bond) with a par value of 4,000. The bond has an annual coupon rate of 4.86%, paid semi-annually. If investors demand a 0.986% semiannual return, what is the price of the bond? (10 marks)
- b) A 7-year bond is issued with a face value of \$10,000, paying interest of \$950 a year. If yields to maturity decrease shortly after the T-bond is issued, what happens to the bond's
- a. Coupon rate?
  - b. Price?

(10 marks)

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**Question 7 (20 marks)**

Consider the following three stocks

- a) Stock A is expected to provide a dividend of \$8.5 a share forever.
- b) Stock B is expected to pay a dividend of \$3 next year. Thereafter, dividend growth is expected to be 4% a year forever.
- c) Stock C is expected to pay a dividend of \$3 next year. Thereafter, dividend growth is expected to be 15% a year for five years (i.e., years 2 through 6) and zero thereafter.

7.1) If the market capitalization rate for each stock is 7%, which stock is the most valuable?

(10 marks)

7.2) Your company forecasts to pay a \$20 dividend next year, which represents 100% of its earnings. This will provide investors with a 18% expected return. Instead, we decide to plowback 60% of the earnings at the firm's current return on equity of 20%. What is the value of the stock before and after the plowback decision?

(10 marks)

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**Question 8 (20 marks)**

Project A and B are mutually exclusive and are expected to produce the following real cash flows:

Cash Flows (\$ thousands)					
Machine	C <sub>0</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>
A	-120	55	60	80	150
B	-125	60	65	-30	200

The real opportunity cost of capital is 10.5%.

- Calculate the NPV of each machine. (5 marks)
- Calculate the equivalent annual cash flow from each machine. (5 marks)
- Which machine should you buy? Explain. (5 marks)
- As finance manager of the company you should advise the manager about the best investment criteria to use in this situation. You should explain to the board of directors the pros and cons of NPV method. In addition, in the meeting, one of the managers claims that we should consider IRR for the project as well, do you agree with his opinion? Explain your answer. (5 marks)

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**Question 9 (20 marks)**

You can invest in the following 8-year bond with a coupon of 6% and a yield to maturity/discount factor of 4%.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cash Flow	60	60	60	60	60	60	60	1060

- a) Calculate the duration (you could also use the following table). (10 marks)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Cash Flow	60	60	60	60	60	60	60	1060	
Duration									

### Question 9 (Cont'd)

b) Interpret the modified duration of the bond that you calculated in part a? Discuss how advisors and investors can use modified duration. (10 marks)

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### Question 10 (20 marks)

The DIGATIVA company is planning to issue 50 million shares at the price of \$50 per share. It is expected that at the end of one year, the company will pay a dividend of \$2.5 per share and the one-year target share price will be \$55 per share.

What expected rate of return can you declare to potential investors?

Would you invest in this company if opportunity cost of capital on the project with the same level of risk is equal to 10%?

What is the opportunity cost of capital is 20%?

Critically discuss your answer.

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Good Luck!

## REQUIREMENTS

This assignment should be answered entirely on one single Word.docx document of max. 6 pages (not including the cover or title page, table of contents, bibliography or appendix).

### Structure of the Assignment

1. Cover page: The first page must contain the full name of the student, the logo of the school as well as the name of the course and the name of the professor.
2. Main answers clearly numbered and,
  - Use sub-headings as you see fit.
  - Use figures, tables, etc. as you see fit.
  - Add citations and references as you see fit (using the Harvard Referencing System).
3. Bibliography: If you added citations or paraphrased others' work, you must use the **Harvard Referencing System**.
4. Appendix (if needed)

## SUBMISSION INSTRUCTIONS

The title of the student's submitted file should contain the following information:

- Name of this course
- Name of the Faculty Member / Teacher
- Student's full Name
- Student ID number
- Title of this assignment (Mid-Term / Final)

	Exceptional 90-100	Good 80-89	Fair 70-79	Marginal fail 60-69
<b>Knowledge &amp; Understanding (20%)</b>	Student demonstrates excellent understanding of the task, the key concepts, applies theory where useful or necessary, and uses vocabulary in an entirely appropriate manner.	Student demonstrates good understanding of the task and mentions some relevant concepts and demonstrates use of the relevant vocabulary.	Student understands the task and provides minimum conceptual and theoretical support, and uses only some of the relevant vocabulary.	Student understands the task and attempts to answer the question but does not mention key concepts or uses minimum amount of relevant vocabulary.
<b>Application (30%)</b>	Student applies fully relevant knowledge from the topics delivered in class.	Student applies mostly relevant knowledge from the topics delivered in class.	Student applies some relevant knowledge from the topics delivered in class. Misunderstanding may be evident.	Student applies little relevant knowledge from the topics delivered in class. Misunderstanding is evident.
<b>Critical Thinking (30%)</b>	Student critically assesses in excellent ways, drawing insightful conclusions based on readings from relevant authors. Student also makes clear and correct citations and uses the Harvard referencing method correctly.	Student critically assesses in good ways, drawing conclusions from relevant authors and references. Student knows how to use the Harvard referencing method correctly.	Student provides some insights but stays on the surface of the topic. References may not be relevant.	Student shows little or no critical thinking insights, does not quote appropriate authors, and does not provide valid sources.
<b>Communication (20%)</b>	Student communicates their ideas very well organized and extremely clearly and concisely, respecting word count, grammar and spellcheck.	Student communicates their ideas in an organized manner and concisely, respecting word count, grammar and spellcheck	Student communicates their ideas with some clarity and concision. It may be slightly over or under the wordcount limit. Some misspelling errors may be evident.	Student communicates their ideas in a somewhat unclear and unconcise way. Does not reach or does exceed wordcount excessively and misspelling errors are evident.