Instituto Superior de Economia e Gestão
UNIVERSIDADE TÉCNICA DE LISBOA

A

Gestão Financeira II / Corporate Finance II

Undergraduate Programs

Mid-Term Test

April 14th, 2012

11:00-12:30

IMPORTANT INFORMATION TO READ BEFORE SOLVING THE TEST:

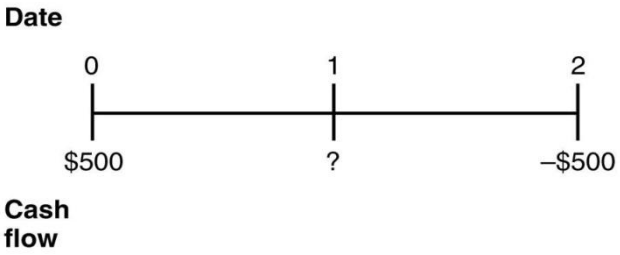
1. The test has 8 questions of multiple choice (each correct answer scores 2 marks, no answer awards you 0, and an incorrect answer penalizes 0.25 marks) and 1 question (worth 4 points) in which you must present all steps of your solution.
2. You must **answer the multiple choice questions (1 to 8) in the grid presented below in this page**.
3. Fill in your name and student number.
4. You can use pens, pencils and a calculator. Nothing else. A set of formulae is provided together with the questions.
5. You cannot un-staple your test.

Name: _____ No. _____

Question	A	B	C	D
1				X
2		X		
3		X		
4			X	
5	X			
6			X	
7			X	
8	X			

Good luck!

1. Consider the following timeline:



If the current market rate of interest is 8%, then the value as of year 1 is closest to:

A. $0
B. $1003
C. $540
D. $77

$$PV_1 = 500(1 + 0.08) - \frac{500}{1.08} = 77.037$$

2. Suppose the interest rate is 9% APR with monthly compounding. Then the present value of an annuity that pays $250 every three months for the next five years is closest to:

A. $2,280
B. $3,985
C. $3,990
D. $3,995

$$EAR = \left(1 + \frac{0.09}{12}\right)^{12} - 1 = 0.0938$$

$$Equivalent\ Quarterly\ Rate = (1 + 0.0938)^{\frac{1}{4}} - 1 = 0.022669$$

$$PV = 250 \times \frac{1}{0.0227}\left[1 - \frac{1}{(1 + 0.0227)^{20}}\right]$$

3. When using the internal rate of return (IRR) investment rule, we compare

A. the average return on the investment opportunity to returns on all other investment opportunities in the market.
B. the average return on the investment opportunity to returns on other alternatives in the market with equivalent risk and maturity.
C. the NPV of the investment opportunity to the average return on the investment opportunity.
D. the average return on the investment opportunity to the risk-free rate of return.

4. Which of the following statements is false?

A. If the bond trades at a discount, an investor who buys the bond will earn a return both from receiving the coupons and from receiving a face value that exceeds the price paid for the bond.
B. Most coupon bond issuers choose a coupon rate so that the bonds will initially trade at, or very near to, par.
C. Coupon bonds always trade for a discount.
D. At any point in time, changes in market interest rates affect a bond's yield to maturity and its price.

5. Consider the following prices for default-free zero-coupon bonds (face value of $1000):

Maturity (years)	1	2	3	4
Price	960.67	931.61	920.98	824.26

The forward rate for year 3 (the forward rate quoted today for an investment that begins in two years and matures in three years) is closest to:

A. 1.10%
B. 2.80%
C. 3.00%
D. 3.60%

$$ytm_2 = \left(\frac{1000}{931.61}\right)^{\frac{1}{2}} - 1 = 0.036$$

$$ytm_3 = \left(\frac{1000}{920.98}\right)^{\frac{1}{3}} - 1 = 0.0278$$

$$f_3 = \frac{(1+0.0278)^3}{(1+0.036)^2} - 1 = 0.011542$$

6. You expect that Bean Enterprises will have earnings per share of $2 for the coming year. Bean plans to retain all of its earnings for the next three years. For the subsequent two years, the firm plans on retaining 50% of its earnings. It will then retain only 25% of its earnings from that point forward. Retained earnings will be invested in projects with an expected return of 20% per year. If Bean's equity cost of capital is 12%, then the price of a share of Bean's stock is closest to:

A. $17.00
B. $10.75
C. $27.75
D. $43.50

t	EPS	Div	Retained	plowback	RONI	g	
1	2	0	2	1	20%	0,2	
2	2,4	0	2,4	1	20%	0,2	
3	2,88	0	2,88	1	20%	0,2	
4	3,456	1,728	1,728	0,5	20%	0,1	
5	3,8016	1,9008	1,9008	0,5	20%	0,1	
6	4,18176	3,13632	1,04544	0,25	20%	0,05	perp

Re	12%

$$P_0 = \frac{1.728}{1.12^4} + \frac{1.9008}{1.12^5} + \frac{\frac{3.13632}{0.12 - 0.05}}{1.12^5} = 27.60$$

7. You expect Whirlpool Corporation (WHR) to have earnings per share of $6.10 over the coming year, and an EBITDA of $40 million. WHR also has 5 million shares outstanding and debt of 100 million (net of cash). If the Enterprise Value to EBITDA ratio for the appliance industry sector is 7.0, the value of a share of Whirlpool stock based upon the comparables approach is closest to:

A. $15
B. $25
C. $35
D. $45

EPS	6,1	
EBITDA	40	million
#shares	5	million
D	100	million
EV/EBITDA	7	

$$EV = 7 \times 40m = 280m$$

$$EquityValue = 280m - 100m = 180m$$

$$Price = \frac{180m}{5m} = 36$$

8. Consider the following Price and Dividend data for General Electric Company:

Date	Price ($)	Dividend ($)
December 31, 2008	$14.64	
January 26, 2009	$13.35	$0.10
April 28, 2009	$9.14	$0.10
July 29, 2009	$10.74	$0.10
October 28, 2009	$8.02	$0.10
December 30, 2009	$7.72	

Assume that you purchased General Electric Company stock at the closing price on December 31, 2008 and sold it at the closing price on December 30, 2009. Your realized annual return for the year 2009 is closest to:

A. -45.1%
B. -44.5%
C. -48.5%
D. -47.3%

Price ($)	Dividend ($)	Return	(1+Return)
14,64			
13,35	0,1	-0,08128	0,918716
9,14	0,1	-0,30787	0,692135
10,74	0,1	0,185996	1,185996
8,02	0,1	-0,24395	0,756052
7,72		-0,03741	0,962594
	Holding Period Return		0,548845

Average Annual Return=0.548845-1=-0.451

9. (4 points) Consider a new 3-year project – Project BADO – for production of a new line of clothes:

Year	**1**	**2**	**3**
Revenues	200	175	200

The costs of goods sold (excluding depreciation) are approximately 25% of the revenues. Net working capital is 11% of next year's revenues. Capital expenditures today are 120, in a machine with a life of 2 years (straight-line depreciation). In year 2 a new machine will be bought for 130, with a useful life of 2 years, but to be sold in year 3 for its book value (straight line depreciation). In order to go ahead with the project the company is going to use an old building which is currently being rented out for 40 per year. Investors require an annual return of 14%. The corporate tax rate is 26.5%.

a. (2 points) Compute the free cash flows of the project and its NPV. Explain why we should go ahead or why we should stop the project.

Year	**1**	**2**	**3**
Revenues	200	175	200
COGS	25%	Revenues	
NWC	11%	next year Revenues	
CapEx_0	120		
Dep1	60		
Dep2	60		
CapEx_2	130		
Dep3	65		
BV_3	65		
Lost Rent	40	annual	
R	14%		
Tc	26,50%		

T	**0**	**1**	**2**	**3**
Revenues	0	200	175	200
COGS	0	50	43,75	50
Lost Rent	0	40	40	40
Depreciation	0	60	60	65
EBIT	0	50	31,25	45
EBIT(1-Tc)	0	36,75	22,96875	33,075
CapEx	120	0	130	-65
NWC	22	19,25	22	0
Inc in NWC	22	-2,75	2,75	-22
FCF	-142	99,5	-49,7813	185,075

NPV	31,90

Go ahead, since NPV is non-negative.

b. (2 points) **Without making further computations**, what can you say about the project's IRR? Please explain.

The profile of the cash flows does not allow concluding anything about the IRR just based on the NPV, because the cash flows change sign more than once.

EXTRA SPACE TO COMPLETE QUESTION 9

SCRAP PAPER