



Gestão Financeira II / Corporate Finance II

Undergraduate Programs

Mid-Term Test

November 12th, 2011

11:30-12:45

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. _____

Q	A	B	C	D
1		■		
2				■
3			■	
4			■	
5				■
6			■	
7	■			
8		■		

Good luck!



1. Your great aunt Matilda put some money in an account for you on the day you were born. This account pays 8% interest per year. On your 21st birthday the account balance was \$5,033.83. The amount of money that would be in the account if you left the money there until your 65th birthday is closest to:
- A. \$29,556
 - B. \$148,780**
 - C. \$168,824
 - D. \$748,932

r		8%				
t		0	1	2 ...	21 ...	65
CF	X	$X(1+8\%)$	$X(1+8\%)^2$...	$X(1+8\%)^{21}$	$5033.83(1+8\%)^{(65-21)}$
					5033,83	148779,7

2. Which of the following statements is false?
- A. The yield curve changes over time.
 - B. The formulas for computing present values of annuities and perpetuities cannot be used in situations in which cash flows need to be discounted at different rates.
 - C. We can use the term structure to compute the present and future values of a risk-free cash flow over different investment horizons.
 - D. The yield curve tends to be inverted as the economy comes out of a recession.**
3. ART Enterprises just announced that it plans to cut its dividend from \$3.50 to \$3.00 per share and use the extra funds to expand its operations. Prior to this announcement, ART's dividends were expected to grow at 3% per year and ART's stock was trading at \$29.00 per share. With the new expansion, ART's dividends are expected to grow at 5% per year indefinitely. Assuming that ART's risk is unchanged by the expansion, the value of a share of ART after the announcement is closest to:
- A. \$25.00
 - B. \$15.00
 - C. \$30.00**
 - D. \$29.00

Before:		After		
Div1		3,5	3	
g		3%	5%	
PO		29	?	$3/(15\%-3\%)=29,79452$
Re		$3,5/29+3\%=15\%$		



4. 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 no-arbitrage price of a default-free, coupon paying, 3-year bond, with a face value of \$1000 and an annual coupon rate of 7%, is closest to:

- A. \$1000
- B. \$920
- C. \$1118
- D. \$1079

CF 3-year 7%-coupon paying bond		70	70	1070
PV(CF)		67,2469	65,21	985,45
Price		1117,9082		

5. Consider the zero-coupon yields on default-free securities in the following table:

Maturity (years)	1	2	3	4	5
Zero-coupon YTM	3.00%	3.10%	3.50%	4.00%	4.20%

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. 3.10%
- B. 3.30%
- C. 3.50%
- D. 4.30%

$$F_3 = (1 + 3.5\%)^3 / (1 + 3.1\%)^2 - 1$$

6. Which of the following adjustments to EBIT is not correct if you are trying to calculate cash flow from operating activities?
- A. Add increases in accounts payable
 - B. Add back depreciation
 - C. Add increases in accounts receivable
 - D. Deduct increases in inventory



7. Consider the following returns:

Year End	Stock X Realized Return	Stock Y Realized Return	Stock Z Realized Return
2004	20.1%	-14.6%	0.2%
2005	72.7%	4.3%	-3.2%
2006	-25.7%	-58.1%	-27.0%
2007	56.9%	71.1%	27.9%
2008	6.7%	17.3%	-5.1%
2009	17.9%	0.9%	-11.3%

The Volatility on Stock X's returns is closest to:

- A. 35%
- B. 10%
- C. 13%
- D. 42%

Average Return Stock X	Deviations	Squared Deviations	Variance Returns Stock X	Volatility Returns Stock X
0,247667	-4,67%	0,002178	0,125447	0,354186
	47,93%	0,22976		
	-50,47%	0,254688		
	32,13%	0,103255		
	-18,07%	0,03264		
	-6,87%	0,004715		

8. Suppose you invest in a portfolio with two stocks (BZZ and BAH). The expected return of BZZ is 15%, and its volatility is 22%. BAH's expected return is 8.5% and its volatility is 14%. If the expected return of your portfolio is 11%, the portfolio weight of BZZ is closest to:

- A. 50%
- B. 38%
- C. 22%
- D. 46%

$$11\% = W_{BZZ} * 15\% + (1 - W_{BZZ}) * 8.5\%$$

$$W_{BZZ} = 0.384615$$

9. (4 points) Consider a 3-year project – Project BAMBI – with the following financial projections (corporate tax rate is 35%):

Year	1
Revenues	150

Revenues in years 2 and 3 grow at 5% per year. The costs of goods sold (excluding depreciation) are approximately 30% of the revenues. Net working capital is 10% of next year's revenues. Capital expenditures today are 240, in equipment with a life of 4 years (straight-line depreciation). In year 3 this equipment will be sold for 100. In order to go ahead with the project the company is going to use an old building which is rented out for 50 per year. Investors require an annual return of 12%.

- 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.

t	0	1	2	3
Sales	0	150	157,5	165,375
COGS	0	45	47,25	49,6125
Lost Rent	0	50	50	50
Depreciat	0	60	60	60
EBIT	0	-5	0,25	5,7625
Taxes	0	-1,75	0,0875	2,016875
Unlevered NI	0	-3,25	0,1625	3,745625
Depreciat	0	60	60	60
CapEx	240	0	0	-86
NWC	15	15,75	16,5375	0
Increase NWC	15	0,75	0,7875	-16,5375
FCF	-255	56	59,375	166,2831

NPV -39,3096 < 0 bad project.

STOP

- b. (2 points) Without making further computations, how does the IRR of the project compare to the cost of capital (12%)? Please explain.

Because the NPV is negative with a discount rate of 12% and because the cash flows are well-behaved in order to interpret the IRR (i.e., cash flows change sign only once, starting negative), we can conclude that the IRR is **lower** than 12%.



EXTRA SPACE TO COMPLETE QUESTION 9



SCRAP PAPER