

Corporate Finance II

Undergraduate Programs

Final Exam

January 6th, 2015

2 HOURS

Name: _____ No. _____

PLEASE READ THE FOLLOWING INFORMATION BEFORE SOLVING THE EXAM:

- 1) The exam has a version in English (odd pages) and a version in Portuguese (even pages).
- 2) You are allowed to keep your pens, pencils and a calculator with you.
- 3) The structure of the exam is the following:
 - Questions 1 to 6 are multiple choice;
 - Questions 7 to 9 require explaining all the steps in your solutions;
- 4) Grading:
 - Each correct multiple-choice answer is worth 1.5 points. Each incorrect multiple-choice answer penalizes 0.25 points. No answer in a multiple-choice question is worth zero.
 - Question 7 is worth 4 points.
 - Question 8 is worth 5 points.
 - Question 9 is worth 2 points.
- 5) **Multiple choice questions must be answered in the grid.**
- 6) **You are not allowed to un-staple the exam.**

GOOD LUCK!

Gestão Financeira II

Licenciaturas

Exame Final

6 de janeiro de 2015

2 HORAS

Nome: _____ No. _____

POR FAVOR LEIA A SEGUINTE INFORMAÇÃO ANTES DE RESOLVER O EXAME:

- 1) O exame tem uma versão em Inglês (páginas ímpares) e uma versão em Português (páginas pares).
- 2) É permitido conservar consigo canetas, lápis e uma calculadora.
- 3) A estrutura do exame é a seguinte:
 - As Perguntas 1 a 6 são de escolha múltipla;
 - As Perguntas 7 a 9 requerem exposição dos vários passos da resolução;
- 4) Classificação:
 - Cada resposta correcta em escolha múltipla vale 1.5 valores. Cada resposta incorrecta às perguntas de escolha múltipla penaliza 0.25 valores. Uma pergunta de escolha múltipla sem resposta vale zero.
 - A pergunta 7 vale 4 valores.
 - A pergunta 8 vale 5 valores.
 - A pergunta 9 vale 2 valores.
- 5) **As perguntas de Escolha Múltipla têm de ser respondidas na grelha.**
- 6) **Não é permitido desagafar o exame.**

BOA SORTE!



GRID TO ANSWER MULTIPLE CHOICE QUESTIONS

Question #	A	B	C	D
1				
2				
3				
4				
5				
6				

GRELHA PARA RESPONDER ÀS PERGUNTAS DE ESCOLHA MÚLTIPLA

Pergunta #	A	B	C	D
1				
2				
3				
4				
5				
6				

1) (1.5, 0, or -0.25 points) Consider the following two projects:

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Discount
Project	FCF	FCF	FCF	FCF	FCF	FCF	FCF	FCF	Rate
Alpha	-79	20	25	30	35	40	N/A	N/A	15%
Beta	-80	25	25	25	25	25	25	25	16%

Which of the following statements is correct?

- A) You should invest in project Beta since $NPV_{\text{Beta}} > 0$.
 - B) You should invest in project Alpha since $IRR_{\text{Alpha}} > IRR_{\text{Beta}}$.
 - C) You should invest in project Alpha since $NPV_{\text{Alpha}} < 0$.
 - D) You should invest in project Beta since $IRR_{\text{Beta}} > 0$.
- 2) (1.5, 0, or -0.25 points) Shepard Industries is evaluating a proposal to expand its current distribution facilities. Management has projected the project will produce the following values for the first two years:

Year	1	2
Revenues	1200	1400
Operating Expense	450	525
Depreciation	240	280
Increase in working capital	60	70
Capital expenditures	300	350
Marginal corporate tax rate	30%	30%

The free cash flow from Shepard Industries project in year two is closest to:

- A) 345
 - B) 455
 - C) 275
 - D) -5
- $FCF_2 = (1400 - 525 - 280)(1 - 0.3) + 280 - 350 - 70 = 276.5$
- 3) (1.5, 0, or -0.25 points) The following table presents information about several companies in the pharmaceuticals industry:

Company	Ticker	Price per Share	Earnings per Share	Book Value per Share
Abbott Labs	ABT	54.35	3.69	13.79
GlaxoSmithKline	GSK	41.3	3.15	6.03
Johnson & Johnson	JNJ	62.6	4.58	18.27
Merck	MRK	36.25	3.81	10.86
Pfizer	PFE	\$18.30	\$1.20	8.19

Assuming that Novartis AG (NVS) has an EPS of \$3.35, based upon the price-to-earnings ratios for its competitors, the highest expected stock price for Novartis is closest to:

- A) \$31.86
- B) \$44.35
- C) \$51.09
- D) \$62.60



Company	Ticker	Price per Share	Earnings per Share	Book Value per Share	P/E
Abbott Labs	ABT	54,35	3,69	13,79	14,72899729
GlaxoSmithKline	GSK	41,3	3,15	6,03	13,11111111
Johnson & Johnson	JNJ	62,6	4,58	18,27	13,66812227
Merck	MRK	36,25	3,81	10,86	9,514435696
Pfizer	PFE	18,3	1,2	8,19	15,25
EPS Novartis	3,35				
Highest P	51,0875	=15.25*3.35			

4) (1.5, 0, or -0.25 points) Suppose a ten-year bond with semiannual coupons and face value of \$1000 has a price of \$1,071.06 and a yield to maturity of 7%. This bond's coupon rate is closest to:

- A) 3.5%
- B) 6.0%
- C) 7.0%
- D) 8.0%**

Coupon rate is higher than yield to maturity for bonds traded above par.

5) (1.5, 0, or -0.25points) Consider the following risk-free term structure of zero coupon bonds:

Maturity (years)	1	2	3	4	5
Zero-Coupon YTM	3.25%	3.50%	3.90%	4.25%	4.40%

Consider a five-year, default-free bond with an annual coupon rate of 5% and a face value of \$1000. The YTM on this bond is closest to:

- A) 3.85%
- B) 4.20%
- C) 4.35%**
- D) 4.40%

t	1	2	3	4	5	
CF _t	50	50	50	50	1050	
Discounte						
d	48,42615012	46,6755	44,5782	42,3317	846,616	using the zeros' YTM
Price	1028,628325					
t	0	1	2	3	4	5
CF	-1028,628325	50	50	50	50	1050
YTM	4,35%					

6) (1.5, 0, or -0.15 points) Which of the following statements is FALSE?

A) Whether paid by the firm or its creditors, the indirect costs of bankruptcy increase the value of the assets that the firm's investors will ultimately receive.

B) In addition to the money spent by the firm, the creditors may incur costs during the bankruptcy process.

C) The bankruptcy code is designed to provide an orderly process for settling a firm's debts.

D) To ensure that their rights and interests are respected, and to assist in valuing their claims in a proposed reorganization, creditors may seek separate legal representation and professional advice.

Whether paid by the firm or its creditors, the indirect costs of bankruptcy decrease the value of the assets that the firm's investors will ultimately receive.

- 7) (4 points) Suppose there are only two risky securities in the market: Stock CR7 and Stock LM10. Stock CR7 has an expected return of 20% and a standard deviation of returns of 25%. Stock LM10 has an expected return of 10% and a variance of returns of 0.04. The correlation coefficient between the returns of CR7 and LM10 is negative, equal to -0.2. There is also a risk-free asset with an annual return of 5%.
- a) (2 points) What is the volatility and what is the expected return of a portfolio with 30% invested in stock CR7 and 70% in stock LM10? Explain.
- b) (2 points) Using a graph, and taking into account the Sharpe ratios, is the portfolio of part a) possibly efficient? Explain.

Data:

	CR7	LM10	Rf
E(R)	20%	10%	5%
Sigma	25%	-	-
Variance	-	0.04	-
Correl(CR7,LM10)	-0,2		

a)

$$W_{cr7} = 0,3$$

$$W_{lm10} = 0,7$$

$$E(R_p) = 0,13$$

$$\text{Var}(R_p) = 0,021025$$

$$\text{Sigma}(R_p) = 0,145$$

b)

In this context, with two risky stocks and one risk-free asset, the efficient portfolios are the ones that lie in the CAL, i.e., are a combination between the risk-free asset and the tangency portfolio in the “SD-E(R)-framework” (in the graph, etc).

So, the portfolio of part a) could only be efficient if it were the tangency portfolio. The tangency portfolio is characterized by being the one with the highest Sharpe ratio.

If we compute the Sharpe ratio for the portfolio of question a) we find:

$$\text{Sharpe}(R_p) = 0.551724138$$

If we compare it to a simple portfolio with 100% investment in stock CR7, we conclude that its Sharpe ratio is certainly not the highest.

$$\text{Sharpe Ratio}(CR7) = 0.6 > 0.5517$$

For this reason we can conclude that the portfolio of part a) is not efficient.

- 8) (5 points) Dolores Industries are starting a new expansion project. Regarding this project, Dolores Industries' management team have produced the following financial projections (corporate tax rate is 35%):

Year	0	1	2
Free Cash Flows	(\$820)	\$550	\$490

We also have the following information about Dolores Industries' market value and financing:

Dolores Ind. Market Value Balance Sheet (\$ Millions) and Cost of Capital

Assets		Liabilities			
Cash	50	Debt	450	Cost of Debt	6.5%
Other Assets	900	Equity	500	Beta Equity	1.0

Assume that the new project is of average risk for Dolores Industries and that the firm wants to hold constant its debt to equity ratio.

The risk free interest rate is 5% and the market risk premium is 4.5%.

- (2 points) What is the project's discounted payback period? Should Dolores invest in the expansion? Explain.
- (1.5 points) What is the debt capacity associated with this project? Explain.
- (1.5 points) What are the free cash flows to equity (FCFE) associated with this project? Explain.

a)

Rf	5%	
Rm-Rf	4,50%	
Re	9,50%	using CAPM
Tc	35%	
D	400	Net Debt
E	500	
Rwacc	0,071555556	

Use Rwacc to discount the FCFs:

t	0	1	2
FCF	-820	550	490
disc CF	-820	513,2725	426,7432
cumulative	-820	-306,7274	120,0157

The discounted PP takes place in the second year (if you want: DPP=1.7187 years).

Note: NPV=**120,0157**>0. So, should invest in this project.

b)

We know that every year

$$D/(D+E) = 0,444444444$$

And the value of the project at t=0 is 820+NPV. So:

t	0	1	2
FCF	-820	550	490
PV(FCF)	940,02 €	457,28 €	0,00 €
Debt Capacity	417,78 €	203,24 €	0,00 €

$$=0.44PV(FCF)$$



c)

t	0	1	2
FCFt	-820	550	490
Dt	417,78 €	203,24 €	0,00 €
Net Borrowing t	417,78 €	-214,55 €	-203,24 €
Interest Expense	0	27,16 €	13,21 €
Annual ITS	0	9,50 €	4,62 €
FCFet	-402,22 €	317,80 €	278,18 €

- 9) (2 points) Which steps would you follow in case you wanted to perform a valuation of a large company such as Ali Baba? Describe briefly the valuation method you would choose, the main elements to estimate, and which sources you would use.

Describe the process followed in the group work assignment: which method is chosen (for example, Discounted Cash Flows with WACC) and why, which elements are necessary to determine (for example, the components of the future annual FCFs, costs of capital, and capital structure), how you collect historical data (from which sources do you get what) and how you build forecasts.