

Gestão Financeira Corporate Finance Gestão Financeira I

Licenciaturas Undergraduate Programs

Teste Intermédio MidTerm Test

10 Nov 2017

1H30M

Name: _____ No. _____

PLEASE READ THE FOLLOWING INFORMATION BEFORE SOLVING THE EXAM:

- 1) The test has a version in English (odd pages) and a version in Portuguese (even pages).
- 2) In case you cannot solve one question, **do not stop! Just assume some value and continue to the next one.**
- 3) You are allowed to keep your pens, pencils, erasers and a calculator with you.
- 4) The structure of the test is the following:
 - Questions 1 to 3 require explaining all the steps in your answers.
- 5) Grading:
 - Question 1 is worth 9 points;
 - Questions 2 and 3 are worth 5.5 points each.
- 5) **You are not allowed to un-staple the test.**
- 6) **Scrap paper, formulary and an appendix (for question 1) are separately given to you.**

Good Luck!

VIP AREA (PROFESSORS ONLY):

Question Pergunta	Grade Nota	Comment Comentário
1		
2		
3		
Total		

Gestão Financeira Corporate Finance Gestão Financeira I

Licenciaturas Undergraduate Programs

Teste Intermédio MidTerm Test

10 Nov 2017

1H30M

Nome: _____ No. _____

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

- 1) O teste tem uma versão em Inglês (páginas ímpares) e uma versão em Português (páginas pares).
- 2) Caso não consiga responder a uma alínea, não pare! **Assuma um valor e continue para as alíneas seguintes.**
- 3) É permitido conservar consigo canetas, lápis, borrachas e uma calculadora.
- 4) A estrutura do teste é a seguinte:
 - As Perguntas 1 a 3 requerem exposição dos vários passos da resolução;
- 5) Classificação:
 - A pergunta 1 vale 9 valores;
 - As perguntas 2 e 3 valem 5,5 valores cada.
- 5) **Não é permitido desagrar o teste.**
- 6) **Papel de rascunho, formulário e anexo (para a pergunta 1) são distribuídos separadamente.**

Boa sorte!

- 1) (9 points) Consider the financial information of *The C-RAPOSO Corporation* for 2015 and 2016 that you can find in the appendix (separately distributed).
- (2 points) Do you think there is reason to be concerned with the evolution of the firm's profitability? Explain your answer based on your computations.
 - (2 points) The Financial Times recently had an article claiming that THE C-RAPOSO Corp.'s reduction in net profit margin would compromise its objective of improving return on equity, despite the effort to improve efficiency in asset turnover. Do you agree with this opinion? Explain, based on your computations.
 - (2 points) Do you think it is reasonable to assume that THE C-RAPOSO Corp.'s recent evolution in terms of Liquidity ratios reflects a concern to be able to meet its interest payments? Explain and show your computations.
 - (1.5 points) How do you assess the evolution of the efficiency in managing inventories during this period? Explain and show your computations.
 - (1.5 points) Mr. João Matos, the CFO of THE C-RAPOSO Corporation, opened a bottle of champagne after analyzing the evolution of the Market-to-Book ratio. Why do you think Mr. Matos opened that bottle, because he had reason to celebrate or because he wanted to forget those numbers? Explain your answer based on your computations.

a) Profitability

Gross profit Mg	0,600	0,580
EBITDA Mg	0,195	0,244
Operat Mg	0,086	0,086
EBIT Mg	0,086787879	0,089090909
Net profit Mg	0,055454545	0,050853755

COMMENT (slight decrease. Is it of concern? Subjective, subject to interpretation, etc...).

b)	DuPont	Identity	
A/E	1,770361146	1,803217563	increase
Sales/A	1,160664041	1,222308827	increase
NI/Sales	0,055454545	0,050853755	Decreased slightly
ROE	0,113947696	0,112086189	overall small decrease

COMMENT...

c) Liquidity & DebtService

Cash Ratio	0,247159878	0,254414325	increased slightly
quick ratio	0,895816016	0,964934096	increased slightly
current ratio	1,532086451	1,592638647	increased slightly
Interest Coverage Ratio			
EBIT	6,754716981	5,418269231	Decreased

COMMENT

There appears to be more comfort in paying interest expenses. Pressure to increase liquidity does not seem to come from here...

d)

Inventory Turnover	3,248031496	3,475577846
Inventory Days	112,3757576	105,0185081
DEFINE and Comment...		

e)	euros	
Market value Equity	7860026900	8851634000
Book Value Equity	8030000000	8609000000
M/B	0,97883274	1,028183761

COMMENT: M/B ratio increased, became larger than 1. Perhaps this was a personal objective for Mr. João Matos? Analyzse, comment...

- 1) (9 valores) Considere a Informação financeira da C-RAPOSO SGPS para 2015 e 2016 que está em apêndice (distribuído separadamente).
- (2 valores) Considera que existem motivos para preocupação relativamente à evolução da rentabilidade (*profitability*) da empresa? Justifique a resposta com base nos seus cálculos.
 - (2 valores) O *Financial Times* publicou recentemente um artigo que refere que a descida na rentabilidade líquida das vendas da C-RAPOSO SGPS irá comprometer o seu objetivo de aumento de rentabilidade do capital próprio, apesar do esforço de melhoria na rotação do ativo. Concorda com esta opinião? Justifique, com base nos seus cálculos.
 - (2 valores) Parece-lhe razoável admitir que a recente evolução nos rácios de liquidez da C-RAPOSO SGPS se deve a uma preocupação com o cumprimento dos encargos com a dívida? Explique e mostre os cálculos.
 - (1.5 valores) Como avalia a evolução da eficiência na gestão dos inventários durante o período em análise? Explique e mostre os seus cálculos.
 - (1.5 valores) O Dr. João Matos, CFO da C-RAPOSO SGPS, abriu uma garrafa de champanhe após analisar a evolução do rácio *Market-to-Book*. Por que motivo acha que o Dr. Matos abriu aquela garrafa, porque queria celebrar, ou porque queria esquecer aqueles números? Explique a resposta com base nos seus cálculos.

- 2) (5.5 points) Consider the following information about three bonds issued by the US Treasury, with face value of \$1000, and with different maturities, prices and coupon rates:

MATURITY	1 year	2 years	3 years
Price of Bond at t=0	\$990	\$1005	\$910
Annual Coupon Rate	4%	4%	0%

Assume that the payments of coupons is annual. Answer the following questions:

- a) (2 points) Compute the yields to maturity of the zero-coupon US Treasury bonds for maturities 1, 2 and 3. Explain by showing your computations.

NOTE: For the next questions, if you did not answer a) consider:

YTM₁=4%, YTM₂=3%, YTM₃=2%.

- b) (0.75 points) What is the shape of the yield curve you estimated in a)? Explain.
 c) (1.25 points) To what Annual Percentage Rate (APR) with quarterly payments corresponds the yield to maturity of the Treasury bond of maturity 1 year? Explain by showing your computations.
 d) (1.5 points) What is the equilibrium price of a US Treasury bond with maturity of 2 years, face value of \$1000 and an annual coupon payment of 8%? Explain by showing your computations.

- a) To get zero coupon bond YTM_s, remember that the price of a coupon-paying bond can be obtained by discounting the cash flows of each maturity with the YTM of the zero coupon bond of that maturity:

Bond 1	t	0	1		
	CF _t	-990	1040		
	YTM1	5,050505%			
Bond 2	t	0	1	2	
	CF _t	1005	40	1040	
		$1005 = 40 / (1 + \text{YTM}_1) + 1040 / (1 + \text{YTM}_2)^2$			
		1005			
		38,07692308			
		966,9230769	= 1040 / (1 + YTM ₂) ²		
	YTM2	3,710017%			
Bond 3	t	0	1	2	3
	CF _t	-910	0	0	1000
	YTM3	3,193625%			

- b) It is an inverted yield curve: lower EARs for longer maturities of investment.

t	1	2	3
YTM _t	5,050505%	3,710017%	3,193625%

- 2) (5,5 valores) Considere a informação seguinte sobre três obrigações do tesouro americano, com valor nominal de \$1000 e com diferentes maturidades, preços e taxas de cupão:

MATURIDADE	1 ano	2 anos	3 anos
Preço da Obrigação em t=0	\$990	\$1005	\$910
Taxa Anual de Cupão	4%	4%	0%

Considere que o pagamento do cupão é anual. Responda às seguintes questões:

- a) (2 valores) Calcule as *yields to maturity* das obrigações cupão-zero do Tesouro Americano para as maturidades 1, 2 e 3 anos. Justifique mostrando os cálculos.

NOTA: Para as questões seguintes, se não respondeu à alínea a) considere:

$$YTM_1=4\%, YTM_2=3\%, YTM_3=2\%.$$

- b) (0,75 valores) Qual o formato da *yield curve* obtida em a)? Justifique.
- c) (1,25 valores) A que Taxa Anual Nominal (TAN) com pagamentos trimestrais corresponde a *yield to maturity* da obrigação do Tesouro com maturidade 1 ano? Justifique mostrando os cálculos.
- d) (1,5 valores) Qual o preço de equilíbrio de uma obrigação do Tesouro Americana com maturidade daqui a 2 anos, valor nominal de \$1000 e com um pagamento anual de um cupão de 8%? Justifique mostrando os cálculos.

c)

$$\begin{aligned}
 &YTM1 \quad \quad \quad 5,050505\% \quad EAR \\
 &APR \quad \quad \quad ? \\
 &k \quad \quad \quad \quad \quad \quad 4 \\
 &(1+EAR)=(1+APR/k)^k \\
 &APR=((1+EAR)^{(1/k)}-1)*k \\
 &APR \quad \quad \quad 4,95758\%
 \end{aligned}$$

d)

Discount the annual cash flows of the bond with the YTM's of the zero coupon bonds of each maturity:

t	0	1	2
Cft	-Po	80	1080
Po	1080,27		

- 3) (5.5 points) Consider the following information regarding Nike's stock, which was collected from the stock Exchange where it trades, on November 9th 2017:

QUOTE

NIKE INC (NKE)

55.07 +0.08 (+0.15%)

Last Trade Time: 11/09/2017 18:43:09

LAST: 55.07 CHANGE: +0.08 % CHANGE: +0.15%

VOLUME: 7544505 TRADESIZE: 50 BID: 53.97

ASK: 55.49 BSIZESIZE: 2x4 PREVPRICE: 54.99

OPEN: 55.42 HIGH: 55.50 LOW: 54.85

52WKHI: 60.53 52WKHIDATE: 08/03/17 52WKLO: 49.01

52WKLODATE: 11/02/16 BETA: 0.616 EXCHANGE: NYSE

Answer the following questions:

- (1.75 points) Suppose you are the investor who bought the last share of NIKE that was traded according to the market quote above. We also know that Nike's cost of equity is 10.5%, and that its earnings per share were disclosed yesterday at \$0.67, of which the company paid a dividend of \$0.14. Considering the constant growth dividend discount model, what is your expected growth rate for the dividends per share of Nike? Explain by showing your computations.
- (1.25 points) Considering a stable dividend payout ratio, what is your expected rate of return on new investments for this company? Explain by showing your computations.
- (1.25 points) If another investor now decides to buy a round lot of Nike's shares, what will he or she pay? Explain by showing your computations.
- (1.25 points) What limitations of the dividend discount model would you be concerned with when evaluating Nike's shares? Explain.

a)	Price_0	55,07
	Re	10,50%
	EPS_0	0,67
	Div_0	0,14

$$\text{Price}_0 = \text{Div}_1 / (\text{Re} - g)$$

$$g = \text{Re} - \text{Div}_1 / \text{Po}$$

But

$$\text{Div}_1 = \text{Div}_0 * (1 + g)$$

$$g = (\text{Re} - \text{Div}_0 / \text{Po}) / (1 + \text{Div}_0 / \text{Po})$$

$$g = 0,102197971 \quad \text{OK!}$$



b) Dividend Payout Ratio_0 0,208955224
Retention Ratio 0,791044776

$$g = \text{RetentionRatio} * \text{RONI}$$

$$\text{RONI} = g / \text{RetentionRatio}$$

RONI 0,129193662

c) Round Lot 100
Buys at Ask price
Ask Price 55,49

Investor
pays 5549

d) Usual limitations of DDM:
* companies that do not pay dividends (this is not the case for NIKE)
* keeping a stable growth rate of dividends: investor would have to check whether this is a reasonable assumption;
* valuation highly sensitive to parameter g: how confident are we in this parameter's estimate.
* companies may payout also via stock repurchases, in which case the DDM is very limited. Investor would have to check what is NIKE's plan regarding repurchases.

3) (5,5 valores) Considere a seguinte informação relativa às ações da Nike, a qual foi recolhida da bolsa em que transacionam, no dia 9 de Novembro de 2017:

QUOTE		
NIKE INC (NKE)		
55.07 +0.08 (+0.15%)		
Last Trade Time: 11/09/2017 18:43:09		
LAST: 55.07	CHANGE: +0.08	% CHANGE: +0.15%
VOLUME: 7544505	TRADESIZE: 50	BID: 53.97
ASK: 55.49	BSIZE X ASIZE: 2x4	PREVPRICE: 54.99
OPEN: 55.42	HIGH: 55.50	LOW: 54.85
52WKHI: 60.53	52WKHIDATE: 08/03/17	52WKLO: 49.01
52WKLODATE: 11/02/16	BETA: 0.616	EXCHANGE: NYSE

Responda às seguintes questões:

a) (1,75 valores) Suponha que é o investidor que comprou a última ação da NIKE que foi transacionada de acordo com a cotação de mercado acima. Sabemos também que o custo do capital próprio da Nike é 10,5%, e que os seus resultados por ação \$0,67 foram divulgados ontem, tendo a empresa pagado um dividendo de \$0,14. Considerando o modelo dos dividendos descontados

- com crescimento constante, qual é a sua taxa de crescimento esperada para os dividendos por ação da empresa? Justifique mostrando os cálculos.
- b) (1,25 valores) Se considerar um rácio estável de distribuição de dividendos, qual a rentabilidade esperada para os novos investimentos desta empresa? Justifique mostrando os cálculos.
- c) (1,25 valores) Se um outro investidor decidir agora comprar um *round lot* de ações da Nike, quanto irá pagar? Justifique mostrando os cálculos.
- d) (1,25 valores) Que limitações do modelo dos dividendos descontados o (a) preocupariam quando avaliasse as ações da Nike? Justifique.

Question 3 - CONTINUED

Pergunta 3 – CONTINUAÇÃO

ADDITIONAL SPACE TO COMPLETE ANY QUESTION, IF REQUIRED

ESPAÇO ADICIONAL PARA COMPLETAR ALGUMA QUESTÃO, SE NECESSÁRIO



SCRAP PAPER



PAPEL DE RASCUNHO