

**GESTÃO FINANCEIRA I** GESTÃO FINANCEIRA  
CORPORATE FINANCE I **CORPORATE FINANCE**

**CADERNO DE EXERCÍCIOS 5**

Capítulos 11, 12 e 13

Risk and Return, Systematic Risk and the Equity Risk  
Premium, The Cost of Capital

(de BERK, DEMARZO e HARFORD'S "FUNDAMENTALS OF  
CORPORATE FINANCE")

**LICENCIATURA**

**2017-2018**

## Chapter 11

### Risk and Return

#### Section “Critical Thinking”

11.1. What does the historical relation between volatility and return tell us about investors’ attitude toward risk?

11.5. How does the relationship between the average return and the historical volatility of individual stocks differ from the relationship between the average return and the historical volatility of large, well-diversified, portfolios?

11.8. Which of the following risks of a stock are likely to be unsystematic, diversifiable risks, and which are likely to be systematic risks? Which risks will affect the risk premium that investors will demand?

- The risk that the founder and CEO retires
- The risk that oil prices rise, increasing production costs
- The risk that a product design is faulty and the product must be recalled
- The risk that the economy slows, reducing demand and the firms’ products
- The risk that your best employees will be hired away
- The risk that the new product you expect your R&D division to produce will not materialize

11.12. Why doesn’t the risk premium of a stock depend on its diversifiable risk?

#### Section “Problems”

11.4. Your portfolio consists of 100 shares of CSH and 50 shares of EJJ, which you just bought at \$20 and \$30 per share, respectively.

- What fraction of your portfolio is invested in EJJ? In CSH?
- If CSH increases to \$23 and EJJ decreases to \$29, what is the return on your portfolio?
- What are the weights of investment in the two stocks after the change in price?

11.7. Using the data in the following table, calculate the return from investing in Boeing stock (BA) from January 2, 2008, to January 2, 2009, and also from January 3, 2011, to January 3, 2012, assuming all dividends are reinvested in the stock immediately.

Historical Stock and Dividend data for Boeing

Date	Price	Dividend	Date	Price	Dividend
01/02/08	86.62		01/03/11	66.40	
02/06/08	79.91	0.40	02/09/11	72.63	0.42
05/07/08	84.55	0.40	05/11/11	79.08	0.42
08/06/08	65.40	0.40	08/10/11	57.41	0.42
11/05/08	49.55	0.40	11/08/11	66.65	0.42
01/02/09	45.25		01/03/12	74.22	

**11.8 The last four years of returns for a stock are as follows:**

	1	2	3	4
	-7%	23%	18%	6%

- What is the average annual return?
- What is the variance of the stock's returns?
- What is the standard deviation of the stock's returns?
- What is the geometric average return over the 4-year period?

## Chapter 12

### Systematic Risk and the Equity Risk Premium

#### Section "Critical Thinking"

- Why isn't the total risk of a portfolio simply equal to the weighted average of the risks of the securities in the portfolio?
- What does beta measure? How do we use beta?

#### Section "Problems"

- You buy 200 shares of Tidepool Co. for \$55 each and 400 shares of Madfish, Inc., for \$25 each. What are the weights in your portfolio?
- Your mother is considering how to invest part of her retirement savings. She has decided to put \$200,000 into three stocks: 50% of the money in Goldfinger (currently \$25/share), 25% of the money in Moosehead (currently \$80/share), and the remainder in Venture Associates (currently \$2/share). If Goldfinger stock goes up to \$30/share, Moosehead stock drops to \$60/share, and Venture Associates stock rises to \$3 dollars per share,
  - what is the new value of the portfolio?
  - what return did the portfolio earn?
  - If you don't buy or sell shares after the price change, what are your new portfolio weights?
- Using the data in the following table, estimate the average return and volatility for each stock.

Year	Realized Returns	
	Stock A	Stock B
2008	-10%	21%
2009	20%	30%
2010	5%	7%
2011	-5%	-3%
2012	2%	-8%
2013	9%	25%

12.9. Using your estimates from Problem 8 and the fact that the correlation of A and B is 0.48, calculate the volatility (standard deviation) of a portfolio that is 70% invested in stock A and 30% invested in stock B.

12.14. Suppose Johnson & Johnson and the Walgreen Company have the expected returns and volatilities shown below, with a correlation of 22%.

	E(R)	SD(R)
Johnson & Johnson	7%	16%
Walgreen Company	10%	20%

For a portfolio that is equally invested in Johnson & Johnson's and Walgreen's stock, calculate

- the expected return.
- the volatility (standard deviation).

12.25. Suppose the risk-free return is 5% and the market portfolio has an expected return of 15% and a standard deviation of 22%. Johnson & Johnson Corporation stock has a beta of 0.98. What is its expected return?

12.29. Suppose Intel stock has a beta of 1.8, whereas Boeing stock has a beta of 1.2. If the risk-free interest rate is 5% and the expected return of the market portfolio is 15%, according to the CAPM,

- what is the expected return of Intel stock?
- what is the expected return of Boeing stock?
- what is the beta of a portfolio that consist of 70% Intel stock and 30% Boeing stock?
- what is the expected return of a portfolio that consists of 70% Intel stock and 30% Boeing stock (show both ways to solve this)?

## Chapter 13

### The Cost of Capital

13.1. MV Corporation has debt with a market value of \$100 million, common equity with a book value of \$100 million, and preferred stock worth \$20 million outstanding. Its common equity trades at \$50 per share, and the firm has 6 million shares outstanding. What weights should MV Corporation use in its WACC?

13.13. CoffeeCarts has a cost of equity of 18%, has an effective cost of debt after tax of 7%, and is financed 60% with equity and 40% with debt. What is this firm's WACC?

13.14. AllCity Inc., is financed 40% with debt, 10% with preferred stock, and 50% with common stock. Its pretax cost of debt is 6%, its preferred stock pays an annual dividend of \$2.50 and is priced at \$30. It has an equity beta of 1.1. Assume the risk-free rate is 2%, the market risk premium is 7%, and AllCity's tax rate is 35%. What is its after-tax WACC?