University of Lisbon

ISEG

GESTÃO FINANCEIRA II

Problem Set 1

Topics of Resolution

Licenciatura – Undergraduate Course

1ˢᵗ Semester, 2017-2018

GESTÃO FINANCEIRA II

PROBLEM SET I

<u>**SUBMISSION DEADLINE:**</u> from 12.00 H to 15:00 H at the reception desk (Miguel Lupi's Building), 18<u>TH October, 2017</u>

<u>Your report must be written using a word processor as handwritten answers may not be considered. On Aquila you can find a template with the frontpage to answer the problem set. Its usage is mandatory.</u>

1) (50 points) Review and comment the following statements on market efficiency (up to 6 lines)

   a) (12.5 points) What are puzzles and anomalies?

   Puzzles and anomalies are abnormal behavior of stocks that apparently contradicts the efficient market hypothesis. There are quite a few of them. For example, stocks of small firms have provided abnormally high returns compared to stocks of large firms

   b) (12.5 points) Briefly discuss some of the important findings of behavioral finance studies.

   Behavioral finance studies have focused on two important areas: (1) attitudes toward risk, and (2) beliefs about probabilities.
   Behavioral finance focuses on results that can lead to security mispricing. This can be caused by investors' attitude towards risk and the way investors assess probabilities. Prospect theory contributed to the understanding of how investors behave in the face of capital gains and losses. Most investors are either too conservative or overconfident. In other words, investors are not 100% rational 100% of the time. Behavioral finance provided some new interpretations of some long-standing puzzles and anomalies.

   c) (12.5 points) Give and explain an example of an anomaly or puzzle explained by Behavioral Finance.

   See examples in file Prast2014.pdf

   d) (12.5 points) Explain what is technical analysis and why does it contradict the Efficient Market Hypothesis.

   Technical analysis consists in look at past trends to identify the best moment to buy and to sell using more or less fancy tecnhiques. However, it contradicts the weak form, since it implies that returns do not follow a random walk. It implies that we can forecast the future using past trends.

2) (40 points) Indicate whether which of the following statements situations are true or false and briefly explain why.

   a) (10 points) If stock returns follow a random walk pattern, then knowing the history of stock returns is not useful for predicting future stock returns.

True. It is the very definition of random walk and implies that it is impossible to obtain consistent abnormal returns with historical information. It is the weak form of market efficiency.

b) (10 points) When a firm announces a dividend change, or publishes its latest earnings, the major part of any price adjustment usually takes place within a few weeks of the announcement

False. The adjustment to new public information is supposed to occur very quickly, accordingly to the semi-strong form of efficient markets.

c) (10 points) Consider the case of Shell Transport/Royal Ducth "Twin shares". This is an example of a market anomaly.

True. The Royal Dutch/Shell Transport, which arbitrage opportunity persist for more than 20 years is the emblematic example of "Twin shares" that, despite the know relationship between the cash flows each one is entitled for, their prices do not respect such a relationship. Therefore, we have persistent known arbitrage opportunities.

d) (10 points) Prospect Theory states that individuals have the same risk attitude in the gains and in the losses domains.

False. Prospect Theory states that individuals are risk averse in gains and risk seeking in losses, due to a significant loss aversion.

3) (40 points) Suppose you were asked to analyze Netflix, Inc. In the attached Excel file you can find Netflix's prices as well as the Nasdaq Index from September 2012 to September 2017.

a) (5 points) Estimate Netflix and Nasdaq monthly returns.

See Excel file PS1dataSolution.xlsx for the solution

b) (10 points) Use the Market Model to estimate Netflix's Alpha and Beta. Consider the period from September 2012 to August 2017.

See Excel file PS1dataSolution.xlsx for the solution

c) (5 points) How well did Netflix perform in the period?

See Excel file PS1dataSolution.xlsx for the solution

d) (10 points) What is Netflix´s abnormal return for September 2017? Comment.

See Excel file PS1dataSolution.xlsx for the solution

e) (10 points) Assuming the CAPM is totally accurate and you decide to use it instead. The risk-free interest rate is 0.2%. Recalculate Netflix's abnormal return. Discuss eventual differences and its impact in terms of the Efficient Market Hypothesis.

See Excel file PS1dataSolution.xlsx for the solution

4) (50 points) Review and comment the following statements on payout policy (up to 6 lines)

a) (12.5 points) A retiree believes that investing in a non-dividend paying growth firm, which requires the periodic sale of stock for income, will eventually lead to a loss of all shares. Explain the flaw in this logic.

A growth firm, by definition, will have an increasing share price. Over time the firm will either have stock splits to maintain a stock price within a certain trading range or the price will go up substantially over time. In the case of stock splits, the retiree will get an ever-increasing number of shares. In the case of an increasing share price, the retiree will need to liquidate a decreasing quantity of shares. In either case, the investor's investment will not disappear any faster than it would through dividend payments.

b) (12.5 points) Rightists argue that increasing a firm's dividend will increase its value. Review some of the key points in their assertion

Investors prefer cash to capital gains as cash dividends are certain and capital gains are uncertain; many investors prefer cash, as they need it for living expenses; investors see the information contained within dividend payments as objective evidence of a firm's good performance.

c) (12.5 points) (10 points) Briefly describe the leftists' point of view on dividends and taxes

If dividends are taxed at a higher rate than capital gains, firms should pay the lowest cash dividends. By shifting their distribution policy, corporations can transform dividends into capital gains. Leftists favor low dividend payouts

d) (12.5 points) Describe Miller and Modigliani's proposition on dividend irrelevance

Miller and Modigliani state that in a world without taxes, transaction costs, or other market imperfections, the firm's choice of dividend policy is irrelevant to the value of the firm.

5) (20 points) Solve the following questions concerning company X. Justify your calculations.

a) (10 points) Company X is a non-dividend paying company. Currently its stock price is €200. In one year it is expected to grow to €240. One of its competitors, Company Y, is very similar and has the same risk and the same current stock price. However, it pays dividends and the expected price in one year, immediately after paying the dividend, is €226. Assume that any of these companies pay taxes. Investors do not pay taxes on capital gains, but pay a 20% tax rate on dividends. How much is the expected dividend paid one year from today by Company Y?

The after-tax returns must be the same. The return on stock A is 20%, or €40. The after-tax return on stock B must also be 20%, or €40. Stock B will deliver €26 of capital gains and must therefore deliver an after-tax dividend of €14. Dividend = (240 - 226)/0.8 = €17.5.

b) (10 points) Company Y has decided to launch a share repurchase program to replace the old dividend program. The total payout will still be €2000 per year, corresponding to a 100% payout rate. The firm has 200 shares outstanding. It earns €2,000 per year and announces that it will use all €2,000 to repurchase its shares in the open market instead of paying dividends. Calculate the number of shares outstanding at the end of year 1, after the first share repurchase, if the required rate of return is 10%.

Share price at beginning of year = [€2000/0.1]/200 = €100 per share. Share price at end of year, before repurchase, equals €100 × 1.10 = €110. Number of shares purchased = €2,000/110 = 18.18. 100 − 18.18 = 81.82 shares remain.