Universidade de Lisboa
ISEG – Lisbon School of Economics and Management
Undergraduate Degree in Finance
Subject: Financial Markets
Date: 08/06/2021
Time to complete the exam: 1:45 hours (+ 0:15)

I (30 points / 100 points)

Chose the answer that in your understanding is correct and more complete.

1. The main difference between shares and floating rate bonds is:
    a. Shares tend to pay a constant dividend while floating rate bonds tend to pay a variable interest
    b. Shares tend to pay a variable dividend while floating rate bonds tend to pay a variable interest
    c. Shares tend to pay a variable dividend while floating rate bonds tend to pay a fix interest
    d. Shares tend to pay a constant dividend while floating rate bonds tend to pay a fix interest

2. A Treasury Bill is considered:
    a. A Money Market instrument;
    b. A Capital Market instrument;
    c. A Derivatives Market instrument;
    d. An Indirect Investment Instrument.

3. An open-end fund is:
    a. A direct investment instrument whose shares are traded as equity shares on an exchange and whose net asset value is not determined daily;
    b. A direct investment instrument whose shares are purchased (and sold) directly to (and from) the mutual fund and whose net asset value is not determined daily;
    c. An indirect investment instrument whose shares are purchased (and sold) directly to (and from) the mutual fund and whose net asset value is not determined daily;
    d. An indirect investment instrument whose shares are purchased (and sold) directly to (and from) the mutual fund and whose net asset value is determined daily.

4. In the past decades the historical returns (R[]) observed in the market for different instrument categories have shown the following relationships:
    a. R[Treasury Bills] < [R Large Company Stocks] < R[Long-term Corporate Bonds] < R[Small Company Stocks]
    b. R[Treasury Bills] < R[Long-term Corporate Bonds] < R[Large Company Stocks] < R[Small Company Stocks]
    c. R[Treasury Bills] < R[Long-term Corporate Bonds] < R[Small Company Stocks] < R[large Company Stocks]
    d. R[Long-term Corporate Bonds] < R[Treasury Bills] < R[Large Company Stocks] < R[Small Company Stocks]

5. In a semi-strong form efficient market, when an unexpected dividend is announced this should:
    a. Have a delayed negative impact in the price;
    b. Have a delayed positive impact in the price;
    c. Have an immediate positive impact in the price;
    d. Have an immediate negative impact in the price.

6. When speaking about the equity market, the Bid-Ask Spread is:
    a. The difference between the best Bid minus the best Ask price available to trade;
    b. The difference between the best Ask minus the best Bid price available to trade;
    c. The difference between the last negotiated Bid minus the last negotiated Ask price available to trade;
    d. The difference between the last negotiated Ask minus the last negotiated Bid price available to trade.

II (70 points / 100 points)

A small financial institution called *Top Finance* is trying to create portfolios composed by shares of 2 different European companies: 1) the French cosmetics giant L'Oreal and the German carmaker group Volkswagen. The parameters that they expect to observe are presented in Table 1:

TABLE 1

			Covariance	
	$E[R_i]$	σ_i	Volkswagen	L'Oreal
Volkswagen	0.20	0.25		-0.0120
L'Oreal	0.10	0.08		
Market	0.14	0.12	+0.0072	+0.0216
Risk Free	0.06			

1) The *Top Finance* is offering you two different alternatives of allocation of your wealth (an investment capital of €500,000):
    a. 50% allocated to each of the shares (L'Oreal and Volkswagen);
    b. 75% allocated to Volkswagen and 25% allocated to L'Oreal.

    Assuming that you want to minimize the risk, which one of the alternatives (a. or b.) should you select? **(5 points)**

2) If you want to maximize the expected return, which alternative should you select (a. or b. from question 1.)? **(5 points)**

3) What is the most efficient portfolio exclusively composed by L'Oreal and Volkswagen, assuming that short sales are allowed and you can access to the risk-free rate for borrowing and lending? **(7.5 points)**

4) How much (in euros) should you allocate to the risk free rate instrument, L'Oreal and Volkswagwn shares, if you require an 8% expected rate of return in your invested capital, preserving the most efficient way to do it? **(7.5 points)**

5) What is the beta of:
    a. Volkswagen
    b. L'Oreal
    c. The portfolio composed by 50% allocated to Volkswagen and 50% allocated to L'Oreal;
    d. The portfolio composed by 75% allocated to Volkswagen and 25% allocated to L'Oreal. **(10 points)**

6) Assuming that L'Oreal shares are in equilibrium according to the CAPM, what is the equation of the Security Market Line? **(5 points)**

7) Assuming that L'Oreal shares are in equilibrium according to the CAPM, what are the expected returns for:
    a. The L'Oreal shares?
    b. The Volkswagen shares? **(5 points)**

8) Regarding the results obtained in the previous question and the analysts' expectations given in Table 1, are Volkswagen shares in equilibrium? If not, how to profit from the unbalance? **(5 points)**

9) Assume the following information regarding L'Oreal and Volkswagen shares:

TABLE 2

	L'Oreal	Volkswagen
Announced Dividend	€ 4.00	€ 4.86
Expected Dividend yield	1.29%	2.63%
Dividend growth rate	0.20%	0.40%

According to the Gordon Model, what are the estimated prices for L'Oreal and Volkswagen? **(5 points)**

10) L'Oreal has issued a bond with a Principal of €100.00 and a fixed coupon rate of 4%, annual coupons and maturity in 2025. Currently the life of the bond is 4 years. L'Oreal has a rating of AA- and the required yield to maturity for this kind of rating is 3.0%.
    a. What should be the price of this bond? **(5 points)**
    b. What is the modified duration of the bond? **(5 points)**

11) Regarding the investment strategies (a. and b.) presented in question 1 and according to the Sharpe ratio, which is the most efficient and why? **(5 points)**

Enjoy your work!