Monetary and Financial Economics
Instituto Superior de Economia e Gestão

Exam – 17 June 2019 - **Duration: 2h**

---

1. **The exam has three groups. The points for each question are mentioned alongside.**
2. **The answers to the questions of each group have to be made in different sheets.**
3. **Only non-graphical calculators are allowed. It is not allowed the use of mobile phones or computers. Improper use will lead to cancellation of the exam.**
4. **It is not possible to use any reading material. During the exam no clarifications can be made.**

I

1.

a) Explain the relevant problems related with the existence of asymmetric information in financial contracts. [1.50]

b) Clarify the concepts of idiosyncratic risk and of systemic risk, and how these two types of risk can be minimised in portfolio of financial assets. [1.50]

2. Consider the following information regarding two financial assets:

Asset 1		Asset 2	
Probability	Return (%)	Probability	Return (%)
0.200	4	0.200	10
0.400	3	0.400	8
0.400	2	0.400	6

a) Compute the correlation coefficient between the expected rates of return of the two assets. [1.50]

b) Determine the analytical and the graphical opportunity investment set, and the efficient frontier based on the two assets. [1.50]

c) Obtain the minimum variance portfolio (return, risk, share of the assets). [1.50]

II

3.

a) Compute the face value of a bond with annual coupon payment of 5 EUR, given that the bond was bought today for 490 EUR, which it will mature in two years, and assuming a yield to maturity of 2%. [1.00]

b) Explain and illustrate graphically in what measure tax benefits might affect the term structure of interest rates. [1.00]

c) Comment the following statement, in the context of the Gordon model: “An increase in the market interest rates will contribute to an increase in the stock prices”. Justify clearly your answer. [1.00]

4.

a) In the beginning of the year, the US government decided to increase the customs duties on the goods imported from China. Chinese firm X, listed in the stock market, has an important market share in the sales of mobile phones in the US. How can firm X manage its exposition to the risk of this trade policy, via the futures markets? [1.00]

b) "Forwards contracts are associated with a higher risk than the futures contracts". Justify if you agree with the statement. [1.00]

III

5.

a) What is the effect on the premium of a call option of the increase of the exercise price of the call? [1.00]

b) If the nominal interest rates increase in the US, but the real interest rates decrease, what should be expected to happen to the USD Exchange rate? Justify and use the adequate graphical illustrations. [1.50]

6. Consider that ECB wishes to provide liquidity to the market in the amount of 120 billion EUR, with a reversible operation carried out via a variable interest rate auction. The ECB receives the following proposals form the counterparts (billion EUR):

Interest rate %	Bank A
0.04%	20
0.03%	15
0.02%	25
0.01%	30

Interest rate %	Bank B
0.05%	5
0.04%	10
0.03%	20
0.02%	30
0.01%	20

Interest rate %	Bank C
0.06%	5
0.05%	5
0.04%	10
0.03%	15
0.02%	20
0.01%	10

a) What is the marginal rate of the auction? [1.00]

b) What is the marginal allotment rate? [1.00]

c) What is total amount of liquidity provided at the interest of 0.05%? [1.00]

d) Determine the total amount of liquidity provided to Bank B. [1.00]

7. Explain what is the *lender of last resort* function of the central banks, and type of Monetary Policy instruments ensure that function. [1.00]