Universidade de Lisboa
ISEG – Lisbon School of Economics and Management
Undergraduate Degree in Finance
Subject: Financial Markets
Date: 11/06/2024
Time to complete the exam: 2:15 hours

I (6,0/20)

Consider an investor who bought 10 shares of company A at a price of $200 a share, paying in cash and by borrowing.

1. Assuming an initial margin requirement of 80%, what would be the maximum amount the investor could borrow. **(1,5/20)**
2. Assuming that the investor had borrowed the maximum amount allowed according to the initial marginal requirement and that the maintenance margin is equal to the former, what would be the consequences for the investor if company A stock price:
   a. Increased by 20%
   b. Decreased by 20%
   (1,5/20)
3. How would the investor return be impacted by not allowing borrowing? Please present your calculations behind your conclusions. **(1,5/20)**
4. Assuming that the dividend yield of company A stocks is 2% and the expected stock price growth is 8%/year, with an annual discount rate of 10%, what would you conclude about the adequacy of the stock price mentioned initially? **(1,5/20)**

II (7,0/20)

A portfolio manager needs to build an efficient portfolio based on 2 different equity funds: a Low Risk Fund (from now on Fund **L**) and a High Risk Fund (from now on Fund **H**), characterized by the following parameters:

	$E[R_i]$	σ_i	Covariance Fund L	Fund H
Fund L	0.15	0.10		
Fund H	0.25	0.20	+0.002	
Market		0.15	+0.005	+0.03
Risk Free	0.04			

1. What is the expected return and the standard deviation of a portfolio composed by 30% of Fund L and 70% of Fund H? **(2.0/20)**
2. What is the most efficient portfolio exclusively composed by Fund L and Fund H, assuming that short sales and borrowing and lending at the risk free rate are allowed? **(3,0/20)**
3. Compare the risk-adjusted returns of both funds, using the Sharpe and the Treynor measures and characterizing the main differences between both measures. **(2,0/20)**

III (7,0/20)

Consider a Treasury Bond issued with a Principal of 100€, annual coupon rate of 3% (paid also annually), residual maturity of 2 years and price of 98€. Detailing your calculations, please answer to the following questions:

1. Explain how does the yield-to-maturity compare to the coupon rate, using only the information provided and compute the yield-to-maturity of the bond? **(2,0/20)**
2. What would happen to the bond price if the yield increases by 1 percentage point, assuming continuously compounded interest rates? **(2,0/20)**
3. Compare the sensitivity of this bond price to the one of a zero-coupon bond with a residual maturity of 2 years. **(1,0/20)**
4. Compute the forward rate for a time to settlement and a maturity equal to 1 year (both), assuming that the yield curve is flat until the 2-year maturity and using the yield computed in the 1st question of this group? **(2,0/20)**

   (Note: in case you haven't solved the 1st question of the Group, assume that the 2-year yield is 3,3%)