

Student ID.....

EE431 Economics of Financial Markets and Institutions
Problem Set 5: APT

Please submit at the BE office, 5th floor department of Economics building.

Deadline of submission : Thursday 10 November, 2016, before 15.00 hrs.

1. $ER_A = 0.05 + 0.5F_1$; asset A has $\beta_{A1} = 0.5$.

$ER_B = 0.02 - 0.25F_1$; asset B has $\beta_{B1} = -0.25$.

Notation: β_{j1} and β_{j1} for $j = A; B$ denote the responses of the rates of return on assets A and B to the factor 1 (F_1).

- (a) Determine the portfolio weights you need to place on A and B in order to construct a portfolio which has zero exposure to the factor 1 (F_1) (a risk-free portfolio). What is the expected return of the risk-free portfolio?

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- (b) From (a), is there any abritrage opportunity exist if the market risk-free interest rate is 1%? If yes, explain how an investor can make an arbitrage profit.

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- (c) Determine the portfolio weights you need to place on A and B in order to construct a portfolio which has a unit exposure to the factor 1 (F_1). What is the expected return of the portfolio which has a unit exposure to the factor 1?

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- (d) Derive an equation for the equilibrium expected rate of return of an asset K which has $\beta_{K1} = b_K$.

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