

MCF 16

## Advanced Courses

## Portfolio Management

## A Few Sample Questions

Time Advised: 35-36 minutes (reminder: actual exam will be one hour)

Family Name (Surname)	First Name	Student Number (Matr.)

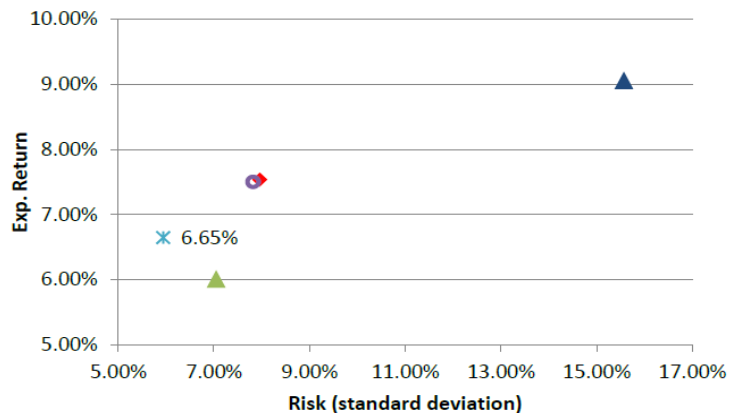
Please answer all questions by choosing the most appropriate alternative and/or by writing your answers in the spaces provided. There is only one correct answer(s) for each of the multiple choice questions: each selected alternative that is correct will be awarded one point. Only answers explicitly reported in the appropriate box will be considered. No other answers or indications pointing to potential answers will be taken into consideration.

**Question 1.** With reference to a portfolio choice problem based on the maximization of the expectation of some utility function  $U(W_{t+1})$ , then:

- (A) The portfolio weights that maximize the expectation of  $U(W_{t+1})$  are the same as those that maximize the inverse of  $U(W_{t+1})$
- (B) The portfolio weights that maximize the expectation of  $U(W_{t+1})$  are the same as those that maximize twice the value of  $U(W_{t+1})$
- (C) The portfolio weights that maximize the expectation of  $U(W_{t+1})$  are the same as those that maximize the natural logarithm of  $U(W_{t+1})$
- (D) The portfolio weights that minimize the expectation of  $U(W_{t+1})$  are the same as those that maximize the natural logarithm of  $U(W_{t+1})$

**Question 2.** In general:

- (A) The arithmetic average rate of return will exceed the geometric rate of return and such a difference is monotone decreasing in the volatility of returns
- (B) There need not exist a precise ranking or mathematical relationship between the arithmetic and the geometric average rate of return
- (C) The arithmetic average rate of return will exceed the geometric rate of return and such a difference is monotone increasing in the volatility of returns
- (D) The geometric average rate of return will exceed the arithmetic rate of return and such a difference is monotone increasing in the volatility of returns



**Question 3.** With reference to the plot above:

- (A) The triangular-marked portfolio on the top right portion of the plot is the global minimum variance portfolio
- (B) The starred portfolio labelled “6.65%” is the tangency portfolio
- (C) The starred portfolio labelled “6.65%” cannot be an efficient portfolio
- (D) The starred portfolio labelled “6.65%” is the global minimum variance portfolio

**Question 4.** Under a single index model:

- (A) If the average systematic risk of securities vanishes as the number  $N$  of securities in the portfolio grows, the beta of a portfolio can be written as weighted average (portfolio) of betas
- (B) The average systematic risk of securities vanishes as the number  $N$  of securities in the portfolio grows
- (C) If the average idiosyncratic risk of securities vanishes as the number  $N$  of securities in the portfolio grows, the beta of a portfolio can be written as weighted average (portfolio) of betas
- (D) The beta of a portfolio can always be written as weighted average (portfolio) of betas

**Question 5.** If portfolio P is on the efficient set, then:

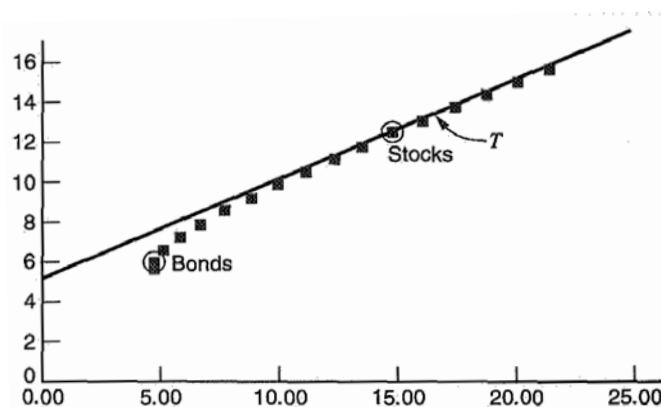
- (A) No other portfolio with the same expected return as P will have a lower variance and no portfolio with the same variance as P will have a higher expected return
- (B) It will be the tangency portfolio for at least one choice of the riskless rate above the expected return of portfolio P
- (C) Not many portfolios with the same expected return as P will have a lower variance and not many portfolios with the same variance as P will have a higher expected return
- (D) No other portfolio with the same variance as P will have a lower expected return and no portfolio with the same expected return as P will have a higher variance

**Question 6.** Active portfolio managers:

- (A) Require to achieve a higher risk-adjusted performance (Sharpe ratio) because they believe that shall be persistently able to place themselves below the capital market line
- (B) Ask a higher compensation (management fee) than passive managers do because they believe that they shall be persistently able to beat the market
- (C) They cannot be found in practice as it impossible to beat the market
- (D) Ask a lower compensation (management fee) because they fail to believe that they shall be persistently able to beat the market

**Question 7.** If a Fiat worker who selects stocks in a rich asset menu that includes hundreds of stocks is fired, then, as far as the weight invested in Fiat goes, we should expect:

- (A) The weight in Fiat stocks will surely increase
- (B) The weight in Fiat stocks will surely decrease
- (C) The weight in Fiat stocks will not be affected as portfolio choice and labor income risks are not related in any way
- (D) Even though it may be sensible to say that the weight in Fiat stocks will increase, nothing can be said unless special assumptions are imposed on the structure of the correlation matrix among the returns on different stocks.



**Question 8.** In this plot referred to a US stock-bond diversification problem:

- (A) The tangency portfolio T implies a short position in stocks and a levered position in bonds
- (B) The tangency portfolio T implies a long position in both stocks and bonds
- (C) The tangency portfolio T implies a short position in bonds and a levered position in stocks
- (D) The tangency portfolio T implies a levered position in bonds and a short position in stocks