

BEFM015

UNIVERSITY OF EXETER

BUSINESS SCHOOL

May 2009

PORTFOLIO MANAGEMENT AND ASSET ALLOCATION

Module Convenor: Dr Zhenxu Tong

Duration: Two hours

Answer three questions:

TWO questions in Part A

Question 4 Part B is compulsory

This is a closed-book exam.

All questions carry 25 marks.

Only silent, non-programmable calculators are permitted.

Part A

Question 1 (25 Marks)

1.1.

a) Explain the Top-Down strategy and the bottom-up strategy.

(6 Marks)

b) Describe three techniques to construct a passive portfolio.

(3 marks)

1.2.

Given a three-factor arbitrage pricing theory APT model, what is the expected return on the following fund?

- The factor risk premiums to factors 1, 2, and 3 are 10%, 7% and 6%, respectively.
- The fund has sensitivities to the factors 1, 2, and 3 of 1.0, 2.0 and 0.0, respectively.
- The risk-free rate is 6.0%.

(2 Marks)

1.3.

An analyst has collected the following data for three possible investments.

Stock	Price Today	Forecasted Price one year from today	Dividend	Beta
A	25	31	2	1.6
B	105	110	1	1.2
C	10	10.80	0	0.5

The expected return on the market is 12% and the risk-free rate is 4% over the upcoming year. The market portfolio's standard deviation is 40%.

a) What is the forecasted 12-month return for Stock A?

(2 Marks)

b) Are Stock A, Stock B, and Stock C overvalued or undervalued? Explain.

(6 Marks)

c) What is the covariance of Stock B with the market portfolio?

(2 Marks)

1.4.

\$100 is invested in an asset which is expected to generate a return of 7 percent p.a. for ten years in an environment in which returns are taxed each year at a rate of 25 percent. What is the expected after-tax accumulation?

(4 Marks)

Question 2 (25 Marks)

2.1.

a) If the spot exchange rate between the British pound and the U.S. dollar is 0.7775 £/\$, and the spot exchange rate between the Canadian dollar and the British pound is 1.8325 CAD/£, what is the U.S. dollar/Canadian dollar spot cross exchange rate?

(3 Marks)

b) The nominal interest rate in Country A is 10.2 percent and inflation is currently at 7 percent. What is the real interest rate?

(3 Marks)

2.2.

Suppose S is the spot exchange rate (DC/FC) at time 0. DC is the domestic currency. FC is the foreign currency. R_D is the domestic interest rate for both borrowing and lending the DC. R_F is the foreign interest rate for both borrowing and lending the FC.

By using the above notations:

a) Construct a synthetic forward purchase by listing the relevant transactions at time 0 and time 1.

(5 Marks)

b) Derive the implied or synthetic forward rate. Explain under what condition an investor can make a speculative profit through the synthetic forward purchase.

(3 Marks)

c) How can this investor remove the risk by using a forward contract? List the relevant transactions at time 0 and time 1.

(3 Marks)

Turn over/...

2.3.

List the factors that can be regarded as barriers to international capital flows.

(4 Marks)

2.4.

\$200 is invested in an asset which is expected to generate a return of 5 percent p.a. for ten years in an environment in which capital gains are taxed at the end of that time at a rate of 30 percent. What is the expected after-tax accumulation?

(4 Marks)

Question 3 (25 Marks)**3.1.**

a) If the indirect quote for U.S. dollars in Sydney is 0.7927, what is the equivalent indirect quote in New York City for Australian dollars?

(3 Marks)

b) Suppose the GBP trades for CHF 2.20279 in Zurich and USD 1.62699 in London. The USD trades for CHF 1.2755 in Zurich. What will be the profits from triangular arbitrage, starting with 1.62699 USD?

(4 Marks)

3.2.

A U.S. investor is interested in investing in securities in Grenada. The currency of Grenada is the Eastern Caribbean Dollar (ECD). The current exchange rate is 2.50 USD/ECD. The ratio of the price levels of American goods to Grenadian goods is also 2.50. Inflation in the U.S. is expected to be 2 percent and 3 percent in Grenada. The end-of-year expected spot exchange rate is 2.75 USD/ECD. The one-year U.S. (risk free) interest rate is 4 percent, and in Grenada it is 8 percent.

a) What is the beginning of period real exchange rate and the end of period real rate, respectively?

(4 Marks)

b) What is the foreign currency risk premium?

(3 Marks)

c) Assume that PPP holds. If the U.S. investor wants to buy a bond in Grenada, what would be the approximate expected return of this bond?

(3 Marks)

3.3.

What factors are linked by the International Fisher Relation?

(4 Marks)

3.4.

\$300 is invested in an asset which is expected to generate a return of 7 percent p.a. for ten years in an environment in which wealth is taxed annually at 1 percent. What is the expected after-tax accumulation?

(4 Marks)

Turn over/...

Part B – THIS QUESTION IS COMPULSORY

Question 4 (25 Marks)

Answer all parts:

Consider the following 3 investment management firms.

Right Start Investment Management:

For its UK large cap equities portfolios investment management firm Right Start has selected 3 brokers that it considers provide the best research. It always places UK large cap equity trades with these 3 brokers. On average it pays 15 basis points per trade.

Penny Wise Investment Management:

For its UK large cap equities portfolios investment management firm Penny Wise always uses the broker that offers the lowest price execution, regardless of who the broker is. On average trade execution works out to be 7 basis points. At the same time it pays over to the same broker an additional 7 basis points per trade for research.

Owl Invest Investment Management:

For its UK large cap equities portfolios investment management firm Owl Invest pays on average 7 basis points for execution. It holds back a further 7 basis points and internally accounts for this by paying the amount into a general commission account. Commissions accrue in this account and at the end of each quarter Owl Invest allocates the accumulated value of the commission to those brokers and research providers it feels have provided it with the best research during the quarter.

With reference to the three paragraphs above:

- a. From a regulatory perspective which investment manager is following best practice with regard to paying for investment research, and why?
(4 marks)
- b. From a client perspective, is one investment manager following the least desirable practice, and why?
(4 marks)
- c. A portfolio manager is reviewing the stock holdings of a client account. The manager decides to buy shares in computer chip maker TSMC for this account. The portfolio manager fills out a deal ticket to buy 1,000,000 shares. He hands the deal ticket to the trading desk. The trader telephones brokerage firm XYZ and places the order. The trade is executed. The trader fills out the

completed trade details on the remainder of the deal ticket and hands one copy to the portfolio manager and one copy to the trade processing department. The portfolio manager asks the trader why the deal ticket records that 7,000,000 TSMC has been bought rather than 1,000,000. The trader realises he has misread the order, believing the 1,000,000 was in fact 7,000,000. Having overbought 6,000,000 TSMC shares the trader has to subsequently sell 6,000,000 shares. He phones XYZ and sells 6,000,000 shares. The shares are off 2 cents and a loss of \$120,000 is realised. The brokerage firm XYZ is aware of the trading error and offers to cover the entire \$120,000 trade-related loss on the condition that additional trades are placed sufficient to offset this extra cost. The trader accepts and over the next month the trader directs sufficient trades to XYZ to compensate for the loss.

With reference to the paragraph above:

- d. Critically appraise the appropriateness of this situation from the viewpoint of a CFA Charterholder.

(7 marks)

- e. Who should pay for the \$120,000 loss?

(3 marks)

- f. How should one ensure the probability of such occurrences is reduced in the future?

(3 marks)

- g. Why do regulators distinguish between an investment manager accepting a brokerage firm's offer to:

- i. pay for a portfolio manager's trading errors.
- ii. pay for a portfolio manager's investment research.

(4 marks)

***** End of Exam *****