2016 EXAMINATIONS

Lancaster University

PART II (SECOND AND FINAL YEAR)

ACCOUNTING AND FINANCE

AcF 305 INTERNATIONAL FINANCIAL AND RISK MANAGEMENT

(2 hours + 15 minutes reading time)

Answer ALL SECTIONS.
This exam has two sections: Section A that consists of an MCQ Test and carries 30 marks; and Section B, which consists of two optional questions and carries 70 marks.
Answer the Section A (MCQ) using the MCQ sheet and Section B in an answer booklet.
*Section B consists of two questions, Q1 and Q2. The student has to choose **only** one of them and solve all exercises from the chosen option.*

Section A: MCQ Test

1. Identify the one **false** statement about purchasing power parity:

(A) Purchasing power parity would hold if commodity price parity held for every individual good of an homogeneous consumption basket.
(B) The real exchange rate measures how far the nominal rate differs from the purchasing power parity rate.
(C) When analysing prices of a Big Mac across the world, one can observe that developed countries tend to have higher real exchange rates.
(D) Absolute purchasing power parity is said to hold if the real exchange rate is not larger than one.
(E) Relative purchasing power parity is said to hold if the real exchange rate is constant.

[3 marks]

2. Identify the one **false** statement about the value of a forward:

(A) Covered interest parity holds in perfect markets.
(B) The value of a forward at maturity is zero.
(C) The potential gain of a forward purchase is unlimited.
(D) The potential gain of a forward sale is limited.
(E) A forward bought at 1.20 USD/EUR cannot be worth more than a call option with a strike price of 1.20 USD/EUR.

[3 marks]

3. Identify the one **false** statement about exchange rate exposure:

(A) Contractual exposure includes loans denominated in foreign currency (FC) and forward currency contracts.
(B) Operating exposure may exist if a company exports its products.
(C) If all contractual exposure is continuously hedged, a company is not only exposed to operating exposure.
(D) Operating exposure does not exist if a company does not export its products.
(E) Accounting exposure does not directly affect cash flows.

[3 marks]

4. Identify the one **false** statement about futures markets compared with forward markets. Futures markets are...

(A) ... more liquid.
(B) ... more open.
(C) ... more inaccessible.
(D) ... more regulated.
(E) .... more secure

[3 marks]

5. Identify the one **true** statement about the international CAPM:

(A) InCAPM is not used to derive an expected cost of capital.
(B) InCAPM should be used for valuing domestic investments if the home country is part of an isolated financial market.
(C) If the terms which measure the exposure to foreign currencies are omitted from the InCAPM, it doesn't become the standard CAPM.
(D) InCAPM should not be used for valuing domestic investments if the home country is integrated.
(E) The CAPM does not take the market into account.

[3 marks]

6. Identify the one **true** statement about exchange mechanisms

(A) Metal/Precious coins are a good exchange mechanism because they are easy to store and have a stable purchasing power.
(B) The value of paper money is mainly based on trust.
(C) Trading with animals was an excellent mechanism to exchange goods due to the absence of inflation.
(D) Money can only be created by Central Banks
(E) None of the above.

[3 marks]

7. Identify the one **true** statement about currency options at expiration when the strike price is EUR/INR 0.50 and the spot rate is EUR/INR 0.55:

(A) An American option has lower value in comparison with a European option.
(B) You have a positive payoff by shorting a call option with the above information.
(C) You have a negative payoff by shorting a call option with the above information.
(D) You have a positive payoff by buying a put option with the above information.
(E) You have a negative payoff by buying a put option with the above information.

[3 marks]

8. Identify the one **false** statement about bid/ask quotes:

(A) The bid-ask spread does not increase with liquidity.
(B) The "bid" is smaller than the "ask" quote.
(C) The bid-ask quotes also affect forward contracts.
(D) When the currency that you transact is in the denominator, the bid rate is lower than the ask rate.
(E) As the customer of a bank, you always transact at the best favourable rate, i.e., you buy at the ask rate and you sell at the bid rate.

[3 marks]

9. Identify the one **true** statement about an optimal (efficient) portfolio:

(A) The ratio of a stock's expected excess return and its variance is equal across all stocks in the portfolio.
(B) The ratio of a stock's expected excess return and its covariance with any other risky asset is the same across all stocks.
(C) The ratio of a stock's expected excess return and its covariance with the portfolio must not be equal across all stocks.
(D) The ratio between the investor´s risk aversion and the stock´s expected excess return is the same across all stocks.
(E) None of the above.

[3 marks]

10. Identify the one **false** statement about a currency options:

(A) Currency options represent an arbitrage opportunity if the premium is zero.
(B) In efficient market, the premium of an option must be positive.
(C) The option premium can never be negative.
(D) Option payoffs are not symmetric
(E) Combining a short put and a long call replicates the payoff of a forward sale.

[3 marks]

[Total 30 marks]

Section B: Exercises

Choose one question (Q1 or Q2) and solve all the exercises of the chosen question. You should show and explain all your workings. Approximate your numerical results to 4 decimals.

Q1: answer all parts for this question:

a) Respond to the following questions about forward contracts. Show and explain all your workings:

   i. Suppose you sell at t = 0, a 2-month GBP forward contract for CAD/GBP 2. What is the value of your position at t = 1 month, if the value of the forward contract at t = 1 for 1 month forward is CAD/GBP 1.90. The interest rates are the following: $r_{0,1}$ = 9%; $r_{0,2}$ = 10%; $r_{1,2}$ = 11%; $r^*_{0,1}$ = 6%; $r^*_{0,2}$ = 7%; $r^*_{1,2}$ = 8%. Remark: asterisks represent the foreign country.

   [6 marks]

   ii. You are a foreign exchange speculator, and you forecast that the forward rate in one month's time, for two month maturity, will be, USD/GBP 1.90. Your morning paper has the following data: $F_{0,1}$ = USD/GBP 1.85; $F_{0,3}$ = USD/GBP 1.80.

   REQUIRED:
   What speculative strategy would you undertake?

   [7 marks]

   iii. What theory relates forward rates with spot rates? Explain what this theory says and its assumptions.

   [7 marks]

b) CanCan industries, a Canadian firm, expects to receive/pay a stream of cash flows. These annual amounts are as follows.

   - At time t = 1 the cashflow is +CHF500;

   - At time t = 2 the cashflow is −CHF1,000;

   and the cash flow at time t = 3, will depend on the the prevailing exchange rate. If the exchange rate at t = 3 is CHF/CAD 8.5 the cashflow will be larger and equal to CHF 3,000, but if the exchange rate is CHF/CAD 7.5, the cashflow would only be CHF 1,500. The current (t = 0) CHF interest rate is 13.25% p.a. and the CAD rate is 10% p.a. for all maturities. The current spot rate is CHF/CAD 8. Calculate the exposure to exchange rates and interest rates.

   [20 marks]

c) The UK firm, Egress Import-Export, Ltd, sells its goods at home for P**b** when the value of the EUR is low. As the value of the EUR increases, it starts exporting its goods at the foreign price (net of costs) P**a**, netting it P**a** $\times S_T$.

i. Explain with a diagram the value of Egress's goods as a function of the future spot price.

[10 marks]

ii. How can Egress eliminate its exposure to the EUR (that is, sell its potential EUR profits)?

[10 marks]

d) On November 15, you sold ten futures contracts, each for CAD 100,000, at a rate of USD/CAD 0.75. The subsequent settlement prices are shown in the table below.

November	16	17	18	19	20	23	24	25
Futures rate	0.74	0.73	0.74	0.76	0.77	0.78	0.79	0.81

If you deposit USD 75,000 into your margin account, and your broker requires USD 50,000 as a maintenance margin, when will you receive margin calls and how much will you have to deposit?

[10 marks]

Q 2: answer all parts for this question

a) The Dollar to Euro spot exchange rate is \$1.4909/€1.00, the Dollar to Yen spot exchange rate is \$/¥ 0.009346, and the Euro to Yen spot exchange rate is €/¥ 0.006501. Determine the triangular arbitrage profit that is possible if you have \$8,000,000.

[15 marks]

b) Michael Buffet goes to the sports centre every day to exercise after a hard day of work. Michael has a friend called Lucke, who claims that he is making money by buying under-priced currencies in one market and then sell them more expensive in other markets. Lucke goes further by claiming that Michael is an idiot for not following his advice.

REQUIRED:
What is the finance name for the strategy followed by Lucke? Given that Lucke does not work in the finance industry and is not a student of AcF305, how could Michael argue that Lucke's strategy is not possible and he is just lucky?

[15 marks]

c) A cylinder option on the sale of foreign currency is a contract defined as follows:

- If ST > X**1**, you sell foreign exchange at X**1**, the floor
- If ST > X**2**, where X**2** > X**1**, you sell at X**2**, the cap
- If X**1** ≤ ST ≤ X**2**, you sell at ST.

This contract restricts the uncertainty about the futures sales price to the range X**1** ≤ ST ≤ X**2**. For instance, Barrel Imports has a sales contract to sell CAD against USD:

- At X**1** = USD/CAD 0.80 if the CAD trades below 0.80.
- At X**2** = USD/CAD 0.90 if the CAD trades above 0.90.
- The spot rate if that rate is between 0.80 and 0.90.

ii. Show the payoff of the contract graphically.

[5 marks]

iii. Show that the payoff can be viewed as a combination of European-style options.

[5 marks]

iv. Explain with a diagram the value of a foreign currency claim hedged with such a contract.

[15 marks]

d)

i. What is the covered interest parity? What does it imply?

ii. What is the law that guarantees the absence of arbitrage opportunities?

iii. Give an example where the covered interest parity does not hold so that one can obtain a sure profit.

[15 marks]

END OF PAPER