2023 EXAMINATIONS

PART II (SECOND AND FINAL YEAR)

ACCOUNTING AND FINANCE

AcF 305 INTERNATIONAL FINANCIAL and RISK MANAGEMENT

(Duration: 2 hours plus 15 minutes reading time)

Answer **ALL** questions from **Section A** on the multiple-choice answer sheet provided.

Answer **ONE** question from **Section B**
Show your workings when a question requires some numerical analysis. Failure to show your workings may result in a loss of marks.

SECTION A

Section A consists of Questions 1 to 10. Answer ALL questions. There is only ONE right answer for each MCQ. Each question is worth 3 marks.

1. Identify the one true statement about the current banking system:
   (a) The assets of a commercial bank cannot contain loans to the private sector.
   (b) Some UK commercial banks are not required to hold a deposit with the central bank.
   (c) The money supply M1 is defined as the money multiplier times the money supply M0 (i.e., $M1 = m * M0$).
   (d) The money supply M0 is defined as loans to the private sector plus loans to the government sector (i.e., $M0 = D + G$).
   (e) None of the above.

2. Identify the one false choice about the mechanisms used by banks that partially solve the problem of default risk under a forward contract:
   (a) Margin requirements.
   (b) Restricted use.
   (c) Credit agreements.
   (d) Right to offset.
   (e) Short lives.

3. Identify the one false statement about purchasing power parity (PPP):
   (a) Absolute PPP may not hold when the consumption bundles of different countries are not the same.
   (b) Absolute PPP holds if relative PPP holds.
   (c) Absolute PPP may not hold when the prices for individual goods are sticky.
   (d) Absolute PPP holds when commodity price parity holds for every individual good.
   (e) Absolute PPP holds if the real exchange rate equals 1.

4. Identify the one true statement about bid/ask spreads:
   (a) The terms “bid” and “ask” are from the perspective of the bank, i.e., the bank bids an amount of home currency for one unit of foreign currency and the bank asks an amount of home currency for one unit of foreign currency.
   (b) The bid-ask spread decreases in the time-to-maturity of a forward contract, i.e., the longer the time-to-delivery the lower the bid-ask spread.
   (c) As the customer of a bank, you always transact at the less favourable rate, i.e., you buy at the bid rate and you sell at the ask rate.
   (d) The bid-ask spread increases in the liquidity of the currency that you transact in, i.e., the more liquid a foreign currency the higher the bid-ask spread.
   (e) None of the above

5. Identify the one false statement about the expected exposure of the USD value of assets to a change in the USD/CAD exchange rate:
   (a) US government bonds have zero exposure.
   (b) Canadian government bonds have positive exposure.
   (c) Shares in an American exporter have negative exposure.
   (d) Shares in a Canadian importer have positive exposure.
   (e) Shares in an American exporter have positive exposure.

6. Identify the one <u>true</u> statement about hedging with futures:
   (a) The expiration dates of the futures contract always match those for the currency inflows/outflows that the contract is meant to hedge.
   (b) You can always find the futures contract on a currency which you wish to hedge.
   (c) Hedging with futures involves higher transaction costs than hedging with forwards.
   (d) A currency-mismatch can be hedged via a cross-hedge.
   (e) None of the above.

7. Identify the one <u>true</u> statement about 'swap contracts':
   (a) The first well-known swap contract was between two well-known commercial banks.
   (b) To value an outstanding swap contract, one simply computes the present value of all future cash inflows and the present value of all future cash outflows. You do not need to convert the present values into the same currency.
   (c) A fixed-for-fixed currency swap may allow one to borrow in a foreign currency at a lower interest rate compared to directly borrowing in the foreign currency.
   (d) Swap rates are very different from risk-free rates.
   (e) None of the above

8. Identify the one <u>false</u> statement about a currency option with a strike price of EUR/USD 1.00:
   (a) A long call on the EUR/USD exchange rate can be used to hedge a future cash inflow in USD.
   (b) You will lose money at expiration if the option is a call, you are short the call and the EUR/USD spot rate is 1.10.
   (c) The option is said to be in the money if it is a call and the EUR/USD spot rate is 1.10.
   (d) Combining a short put and a long call replicates the payoff of a forward purchase.
   (e) The underlying is the exchange rate between the Euro and the US dollar.

9. Identify the one <u>true</u> statement about the International Capital Asset Pricing Model (also often denoted in our textbook by iCAPM):
   (a) You should use the international CAPM when the markets are segmented.
   (b) In real-world situations, it is sensible to include the sensitivities of the stock return with respect to all foreign currencies in the iCAPM, even if this means that the model features the sensitivities to (say) 100 foreign currencies.
   (c) The iCAPM features sensitivities of a firm's stock return to foreign exchange rates, because home country equity investors do not care about wealth denominated in their home currency.
   (d) The valuation of an international investment project can be done in either FC or HC if the home country and the host country are part of one integrated financial market.
   (e) None of the above.

10. Identify the one <u>false</u> statement about corporate hedging:
    (a) Corporate hedging can reduce the expected costs of financial distress.
    (b) Corporate hedging can reduce the agency conflicts between the managers of a firm and its shareholders (agency costs of equity).
    (c) Corporate hedging can reduce the agency conflicts between the shareholders of a firm and its debtholders (agency costs of debt).
    (d) Corporate hedging can reduce personal taxes.
    (e) Corporate hedging can reduce corporate taxes.

(Total 30 marks)

Please turn over

SECTION B

In this section, you have to pick either question 11 OR question 12 and solve ALL parts of the chosen question.

QUESTION 11

ANSWER ALL PARTS OF THIS QUESTION

(a)

Required:

i) In the current monetary system, explain how central banks influence the money supply.

(5 marks)

ii) Explain why monetary policies of central banks are important for exchange rates. Hint: Consider the covered interest parity formula.

(5 marks)

(b) Assume that the exchange rate between the British pound (GBP) and the Chinese yuan (CNY) is CNY/GBP 10. Also assume that the per annum interest rate in China is 6%, and the per annum interest rate in Great Britain is 4%. A bank offers to sell you call options on the British pound with a time-to-maturity of one year and a strike price of CNY/GBP 9 for a price of GBP 0.1.

Required:

i) Draw a diagram which shows the payoff at expiration from buying the above CNY/GBP call option. Label the axes.

(3 marks)

ii) There are arbitrage conditions imposing limits on the prices of options. Explain the arbitrage relationship between the value of a call option and the value of a long forward contract. Also explain the intuition behind it.

(5 marks)

iii) Based on the answer to part (ii), does the bank's offer violate this arbitrage condition? Should you therefore accept the offer or should you reject it?

(3 marks)

iv) If you accept the offer, is there an arbitrage opportunity? Explain how you would exercise it.

(4 marks)

(c) You work for a German firm and are asked to hedge an outflow of MXN (Mexican peso) 100m with futures contracts. However, no futures on EUR/MXN is available. After doing some research, you find that EUR/MXN and EUR/USD are correlated because Mexico and the United States share a border and therefore there is a high volume of trade between the two countries. Hence you decide to hedge the risk with EUR/USD futures contracts. Additionally, you consider a EUR/CAD future. In order to determine your hedging positions, you estimate a multiple regression model. The regression output is, with t-statistics in parentheses and R2 = 0.67, as follows.

$$\Delta S[EUR/MXN] = a + \underset{(9.32)}{0.5}\Delta f[EUR/USD] + \underset{(0.1)}{0.04}\Delta f[EUR/CAD].$$

Required:

i) If a USD contract is for USD 10m and an CAD contract for CAD 5m, explain how you will hedge if you use both contracts.

(5 marks)

ii) Should you use both contracts? Explain.

(5 marks)

iii) Now assume that the German firm hedges the outflow of MXN perfectly using forwards on EUR/MXN. Draw a diagram which shows the payoff of the outflow of MXN and the forward position which hedges the exposure. Label the axes.

(5 marks)

(d) Corporate hedging can create shareholder value in the presence of market imperfections, such as taxes, financial distress costs or agency costs.

Required:

i) Explain how corporate hedging can create shareholder value in the presence of taxes.

(5 marks)

ii) Explain how corporate hedging can create shareholder value in the presence of financial distress costs.

(5 marks)

iii) Explain what agency costs are and how corporate hedging can create shareholder value in the presence of agency costs.

(5 marks)

(e) The spot exchange rate is INR/GBP 58~~;~~. The annual simple interest rate on a nine-month deposit is 9% in India and 3% in the UK. Note: t is today and T is the end of the investment period.

COMPUTE

i) The INR/GBP forward rate for a nine-month forward contract.

(3 marks)

ii) The INR/GBP swap rate for a nine-month period.

(3 marks)

iii) The time-*T* INR value of a time-*t* INR 10,000 investment.

(3 marks)

iv) The time-*t* GBP value of a time-*t* INR 5,000 spot sale.

(3 marks)

v) The time-*t* INR value of the proceeds of a time-*T* GBP 500 loan.

(3 marks)

(TOTAL 70 MARKS)

Please turn over

QUESTION 12

ANSWER ALL PARTS OF THIS QUESTION

(a)
Required:

i) Explain how the official gold parity worked.

(3 marks)

ii) Explain how the official gold parity collapsed in the US.

(4 marks)

iii) State two reasons why the US dollar is the most important currency in the world today.

(3 marks)

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(b) Consider that an Italian firm has the following contract:
- It can sell USD in one year at a rate of EUR/USD 0.75 if the USD trades below 0.75.
- It has to sell USD in one year at a rate of EUR/USD 0.90 if the USD trades above 0.90.
- It has to sell USD in one year at the spot rate if the EUR/USD is between 0.75 and 0.90.

Required:

i) Show the payoff of the contract graphically.

(5 marks)

ii) Show that the contract can be viewed as a combination of European-style options.

(5 marks)

iii) Explain the benefit of this contract as a hedging instrument.

(5 marks)

(c) You borrow Canadian dollar (CAD) 10m at 5% for one year, and you swap the loan into South African rand (ZAR) at a spot rate of CAD/ZAR 0.20 and the one-year swap rates of 4% (CAD) and 8% (ZAR).

Required:

i) Explain the payments on the loan, on the swap, and on the combination of them.

(6 marks)

ii) Is there a gain from using the swap if you could have borrowed ZAR at 9%? Explain.

(5 marks)

iii) State two benefits of swaps.

(4 marks)

(d) Assume that you are the CFO of a large German company. The company is interested in evaluating a business opportunity in China. You recall that domestic business opportunities can be evaluated using a standard NPV rule.

Required:

i) Explain the additional complexity in case of evaluating a business opportunity in a foreign country such as China.

(5 marks)

ii) Explain the two approaches in which foreign business opportunities can be evaluated using NPV analysis.

(5 marks)

iii) Which of the two approaches would you decide to use for evaluating a business opportunity in China? Explain.

(5 marks)

(e) The following questions are about spot exchange quotes in the wholesale market, where different banks provide different bid and ask quotes for various exchange rates.

Required:

i) What does the law of one price state? Explain its relationship with the no-arbitrage condition.

(3 marks)

ii) Explain what arbitrage means. Give an example of an arbitrage opportunity in the spot exchange market.

(4 marks)

iii) Explain what shopping around means within the context of currency markets. Give an example of an opportunity for shopping around in the spot exchange market.

(4 marks)

iv) Explain why arbitrage and shopping around are important in the spot exchange market.

(4 marks)

(TOTAL 70 MARKS)

End of Paper