2021 EXAMINATIONS

Lancaster University

PART II (SECOND AND FINAL YEAR)

ACCOUNTING AND FINANCE

AcF 305 INTERNATIONAL FINANCIAL AND RISK MANAGEMENT

(2.5 hours + 30 minutes upload time)

Answer **ALL** questions from **Section A** .

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.

This is an open-book exam.

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 hedging with financial markets:

(a) The daily trading volume of the FX market is about two times larger than the daily trading volume of the equities market

(b) Forward contracts are generally more liquid and available for trading than similar futures contracts

(c) A zero-initial-value financial instrument for hedging purposes cannot increase the firm's value today

(d) It is possible to hedge non-linear exposure with financial instruments such as options

(e) None of the above

2. Identify the one **true statement** about the money and banking system:

(a) Conditions for money to be a good least-cost medium of exchange include that it must be storable, but the stable purchasing power is not required

(b) When the Fed lowers the discount rate that banks pay on short-term loans there is an increase to the liquidity of money

(c) Reserve requirement is the maximum amount of funds banks can hold against deposits in bank accounts

(d) Historically banks could not create more bank receipts than they had coins to cover them

(e) None of the above

3. Identify the one **true statement** about political risk:

(a) Political risk is defined as the risk of corporate defaults due to the volatility of the local currencies

(b) Most countries have an official gold parity (i.e. money can be freely converted into gold at a fixed exchange rate) to reduce political risk

(c) Political risks are highly non-linear and so can be well-hedged using options

(d) In the CAPM model there is a political risk factor which explains asset returns

(e) None of the above

4. Identify the one **true statement** about current account:

(a) To improve the current account balance one possibility is to reduce taxes

(b) Austerity measures do not improve the current account balance

(c) One way to improve the current account balance would be to increase private savings

(d) The current account does not include interest or dividends earned internationally

(e) None of the above

5. Identify the one **true statement** about default risk:

(a) Right of offset makes default risk of forward contracts higher and more important to hedge

(b) As the futures market is an over-the-counter market, there can be significant default risk, but markets have developed various ways and means to reduce the potential impact of default risks

(c) Hedging can reduce the costs of bankruptcy and financial distress

(d) Hedging of pooled cash flows can introduce default risk

(e) None of the above

6. Identify the one **true statement** about the expected exposure of assets to a change in the GBP/EUR exchange rate:

(a) Shares in a French importer from Britain have positive exposure to a change in the GBP/EUR

(b) French importer can always successfully hedge exposure to the GBP/EUR by matching future cash inflows and cash outflows

(c) Contractual exposure of a British importer arises from a signed contract with a French exporter which ensures a known cash inflow or outflow in GBP at some specified future time

(d) British importer from France typically have much larger EUR inflows than outflows

(e) None of the above

7. Identify the one **true statement** about spot exchange rates:

(a) As a bank customer, the bid quote is normally larger than the ask quote

(b) We define exchange rates as foreign currency (FC), against home currency (HC), that is FC/HC

(c) The liquidity of currencies in the spot market depends on maturity

(d) Market maker banks must provide a two-way (bid/ask) quote, even without knowing counterparty's intention

(e) None of the above

8. Identify the one **true statement** about the forward contract:

(a) A forward contract to purchase foreign currency can be replicated by: borrowing domestic currency, converting it to foreign currency, and investing the foreign currency at the foreign swap rate

(b) In currency markets, companies with long positions want to sell forward, and players with short positions want to buy

(c) The value of a forward contract at initiation is positive reflecting its hedging benefits to the parties

(d) The potential losses of a forward currency purchase are unlimited

(e) None of the above

9. Identify the one **true statement** about the bid-ask quotes:

(a) The bid-ask spread increases with market liquidity

(b) When dealing with a bank you buy at the bid and sell at the ask

(c) The positive bid-ask spread makes arbitrage across markets easier

(d) You lend money to the bank at the ask interest rate

(e) None of the above

10. Identify the one **true statement** about capital asset pricing:

(a) International CAPM model is used to derive the riskiness of the actual cost of capital

(b) In the international CAPM, there is a political risk factor which explains asset returns

(c) International financial markets in the model are assumed to be isolated

(d) Forward exchange rates are used to calculate the foreign currency risk premium

(e) None of the above

[**Total:** 30 marks]

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) You launch a start-up in California, USA, offering remote consulting services worldwide. The first month you get contacted by three clients, one in Germany, one in New Zealand, and one in Great Britain. You would like to charge USD 1,000 to each of the three clients for an online consultation, but invoiced in their home currencies. Your bank offers you the following bid-ask quotes: USD/EUR 1.2-1.3, USD/NZD 0.67-0.69, and USD/GBP 1.9-2.

REQUIRED

(i) If you accept these quotes what would be the amounts of the three invoices?

[5 marks]

(ii) Your three clients would like to negotiate discounts of EUR 300, NZD 1,000 and GBP 75, respectively. What is the value of these discounts from your perspective in USD?

[5 marks]

(iii) Your treasurer believes the client in Germany has greater potential for the future business than the client in Great Britain. You now would like to keep the total value of the discounts in USD the same, but renegotiate the discounts so that the client in Great Britain gets no discount for the online consultation, the client in Germany gets a larger discount, while the discount of the client in New Zealand remains unchanged. GBP/EUR is 0.5-0.7. Calculate the new discount for the client in Germany.

[10 marks]

(iv) Using the information on the currency rates above, calculate the bid and ask cross-rate USD/EUR. Comment on how it compares to the direct quote and explain why they differ.

[5 marks]

(v) Explain the difference between the concept of arbitrage and the concept of shopping around. Then argue whether your answer to the previous question suggests any opportunity for either arbitrage or shopping around (or both).

[5 marks]

(b) Your treasurer told you how at a previous employer she designed a forward contract on EUR, against USD. She purchased EUR 1m and as of today 60 days remain until expiry. The historic rate was 1.350 while the current rate for same expiry date is 1.500. Assuming the risk-free rates are 3% (simple p.a) in USD and 4% (simple p.a) in EUR, you want to evaluate the treasurer's decision to do so.

REQUIRED:

(i) Compute the fair value of the contract.

[5 marks]

(ii) Explain intuitively without any calculation why the fair value is positive or negative and how it compares to the fair value at the inception of the contract.

[5 marks]

(iii) Provide at least two real-life examples how this forward contract could have been used as a hedging instrument. In each example comment on whether the hedger is better off or worse off, and whether hedging was a correct decision in the first place, and what are the alternative ways to hedge when perfect cash-flow matching is not possible.

[10 marks]

(c) On your team, you also have a talented former trader Michael who is very experienced with the foreign exchange markets. To show her skill she shows you the Bloomberg screen with the following information:

Exchange rate: Spot	**180-day Forward**	**Interest rates**
NZD/USD 1.5–1.6	NZD/USD 1.6–1.7	USD 5%–6%
NZD/GBP 2.2–2.3	NZD/GBP 2.3–2.4	NZD 8%–9%
JPY/USD 100–101	JPY/USD 97–98	JPY 3%–4%
JPY/GBP 150–152	JPY/GBP 147–149	GBP 7%–8%
		(simple, p.a.) 180 days

REQUIRED:

(i) Calculate the bid-ask spreads for JPY/USD and JPY/GBP spot markets and state the units clearly. Why are they positive? How does the liquidity of JPY/USD spot market compare to the liquidity of the JPY/GBP spot market?

[5 marks]

(ii) Calculate the synthetic 180-day forward quotes for NZD/USD, NZD/GBP, JPY/USD, and JPY/GBP.

[10 marks]

(iii) Given the above quotes, can Michael find any arbitrage opportunities or/and shopping around opportunities?

[5 marks]

[Total: 70 marks]

QUESTION 12

ANSWER ALL PARTS OF THIS QUESTION

(a) Academia Incorporated operates in the US and offers educational and law services mostly to American customers. Academia Incorporated hired a consultant in Great Britain, who signed a two-year consulting services contract one year ago. The payment for the services of 0.75m was due to be paid at the termination of the services and denominated in the foreign currency (GBP) with a few intermediate payments within each year. At the same time one year ago, Academia Incorporated swapped USD 1m with a swap rate of 4% for GBP 0.75m with a swap rate of 5%. Both assets had 2 years to maturity at that time. Currently, the USD swap rate is 6%, the GBP swap rate is 7% and the spot rate is USD/GBP 1.5.

REQUIRED:

(i) Discuss how the swap contract hedges the foreign currency exposure of Academia Incorporated and why the company preferred a swap rather than a forward to hedge.

[2.5 marks]

(ii) How does the spot rate USD/GBP today compare to the spot rate one year ago given the information in the question?

[2.5 marks]

(iii) Calculate the current value of the USD leg of the swap (in USD) and the current value of the GBP leg of the swap (in GBP).

[5 marks]

(iv) Calculate the value of the swap in USD. Has the US firm benefitted from the swap? Why?

[5 marks]

(v) Discuss whether Academia Inc. have operating exposure or accounting exposure. How is it different to contractual exposure?

[5 marks]

(b) The French manufacturer has the following JPY commitments:

- Accounts receivable of JPY 1,000,000 for thirty days.
- Accounts receivable of JPY 500,000 for ninety days.
- Sales contract twelve months from now of JPY 30,000,000.
- A forward sale of JPY 500,000 ninety days from now.
- A deposit that at maturity, in three months, pays JPY 500,000.

• A loan for which the firm owes JPY 8,000,000 in six months.
• Accounts payable of JPY 1,000,000 for thirty days.
• A forward sale of JPY 10,000,000 twelve months from now.
• Accounts payable of JPY 3,000,000 for six months.

Assume that the interest rate is 5 percent (simple, per annum) for all maturities and that this rate will remain 5 percent with certainty for the next twelve months. Also, ignore bid-ask spreads in the money market.

REQUIRED:

(i) Calculate the net exposure for each maturity.

[5 marks]

(ii) How would the company hedge its exposure on the spot market and the JPY money market? Describe all money-market transactions.

[10 marks]

(iii) How would the company hedge its exposure on the forward market if only one forward contract with six-months maturity is used.

[10 marks]

(iv) Assume that the firm prefers to use traded options rather than forward contracts. The option contracts are not divisible, have a life of either 90, 180, 270, or 360 days, and for each maturity the face value of a contract is JPY 1,000,000. How could the firm hedge its exposure?

[5 marks]

(c) On May 15, you sold twenty futures contracts for 100,000 CAD each at a rate of USD/CAD 0.65 expiring three months from now in order to hedge the USD/CAD exposure. The subsequent settlement prices are shown in the following table:

Date in May:	16	17	18	19	20	21	22	23
Futures rate:	0.64	0.63	0.64	0.66	0.67	0.68	0.69	0.70

REQUIRED:

(i) What are the daily cash flows from marking to market?

[5 marks]

(ii) What is the total cash flow from marking to market (ignoring discounting) and how is it conceptually different from daily re-contracting of forward contracts?

[5 marks]

(iii) If you deposit USD 75,000 into your margin account as the required initial margin, and your broker requires USD 50,000 as maintenance margin, when will you receive a margin call and how much will you have to deposit?

[5 marks]

(iv) List three potential problems of hedging with futures. Discuss how they may apply to the example above.

[5 marks]

[Total: 70 marks]

END OF PAPER