2019 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** 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 true statement about money:

a. Money is not a useful mechanism to exchange goods.
b. Any monetary instrument should be difficult to transport so that inflation is controlled.
c. Animals are better monetary instruments than metal coins.
d. Bitcoin is not a good monetary instrument due to its extreme volatility.
e. None of the above.

2. Identify the true statement about the balance of payments:

a. The balance of payments records transaction between counties of the same country.
b. The balance of payments only records financial transactions between resident of a country and the rest of the world.
c. The Spanish balance of payments should not include transactions between residents of Spain and resident of Portugal.
d. The balance of payments does not include the transactions among the residents of a country.
e. None of the above

3. Identify the true statement about the purchasing power parity (PPP) theory:

a. The PPP theory establishes that there are arbitrage opportunities across borders.
b. If the value of the consumption baskets in your home country and a foreign country is 1 for both countries, and the spot rate is 2, then the foreign country is more expensive for the residents of the home country.
c. The real exchange rate is the difference between the value of the consumption baskets in the home country and the foreign country.
d. The actual spot rate HC/FC observed in currency markets is always equal to the ratio between the value of the consumption basket in the foreign country and the value of the consumption basket in the home country.
e. None of the above.

4. Identify the true statement about spot exchange rates.

a. The ask spot rate is always smaller than the bid spot rate.
b. Banks normally pay more for foreign currency than what they receive from selling foreign currency. Otherwise, bank would ran out of business.
c. From the perspective of a bank's customer, the bid rate is the selling price and the ask rate is the buying price of foreign currency.
d. The bid-ask spread increases with maturity.
e. None of the above.

5. Identify the true statement about currency forward contracts.

a. A currency forward contract establishes the price of gold.
b. A currency forward rate should increase when the effective interest rate of the foreign country decreases based on the covered interest parity theory.
c. A currency forward rate should increase when the effective interest rate of the home country decreases based on the covered interest parity.
d. The swap rate of a forward contract is always positive.
e. None of the above.

6. Identify the true statement about currency futures contracts

a. The design of futures contracts is more flexible than that of forward contracts.
b. There exists futures contracts for every foreign currency.
c. Futures contracts are not traded in organized markets.
d. Hedging currency risk with futures contracts requires the use of regression analysis to compute the optimal hedge ratio.
e. None of the above.

7. Identify the true statement about currency options.

a. Currency options are not traded in organized markets.
b. The value of a currency option can be lower than the market value of a forward contract whose forward rate is equal to the option's strike price.
c. The minimum price of a currency call option should increase with the spot rate.
d. The payoff of a currency call option is only positive when the spot rate at maturity is higher than the strike price.
e. None of the above.

8. Identify the true statement about hedging currency risk:

a. Companies that do not operate in foreign countries are never exposed to exchange rate risk, and therefore hedging would be useless.
b. Using forward contracts to hedge the operating exposure of the future cashflows of a company cannot completely eliminate the uncertainty about future cashflows, but it helps to reduce the uncertainty.
c. Contractual exposure cannot be hedged with forward contracts.
d. Hedging with forward contracts is not valuable for companies because their net present value at inception is zero.
e. None of the above.

9. Identify the true statement about the international CAPM (InCAPM):

a. The InCAPM model simply replaces the local market index by the S&P 500 index.
b. The InCAPM model simply adds the currency risk factors to the standard (local) CAPM that uses the home country market index as a benchmark.
c. The InCAPM should be used to evaluate international projects in integrated market.
d. The InCAPM includes in the model a factor that accounts for political risk.
e. None of the above.

10. Identify the true statement about currency arbitrage.

a. Currency arbitrage does not require currency markets.
b. There is a currency arbitrage opportunity when forward rates can be replicated with a strategy that combines currency spot market and the money markets of both the home country and the foreign country.
c. Triangular currency arbitrage requires exploiting three different currencies in a way that we can sell a foreign currency at a higher price than the price we accept to buy the same foreign currency.
d. Currency arbitrage only requires one transaction. Either selling or buying.
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 are considering to sell certain foreign currency (FC) using a futures contract. Today, t = 0, you sign a futures contract with maturity in 10 days. Under this futures contract, the value of the foreign currency in 10 days will be 0.80 units of your home currency.

REQUIRED:

i. The table below gives the rates of the futures contract for every day from t = 1 up to t = 10. Compute and report the daily cashflow from your futures contract on one unit of FC.

[5 marks]

Days	t = 1	t = 2	t = 3	t = 4	t = 5	t = 6	t = 7	t = 8	t = 9	t = 10
Rates	0.68	0.87	0.96	0.85	0.90	0.87	0.77	0.83	0.72	0.89

ii. Compute and report the cumulative cashflows at every point in time.

[5 marks]

iii. Imagine that the minimum contract size of the futures contract you are interested in is FC 10,000. Compute and report the value of the daily cashflows from **one** futures contract.

[8 marks]

iv. Your futures contract in the previous part requires an initial deposit of 1,000 units of home currency (HC). If the maintenance margin is 1,000 units, explain when you will receive the first margin call.

[5 marks]

v. Consider a futures contract to buy the same FC as in the previous parts. Assume that the size for this type of futures contract is FC 7,000. Then, compute and report the HC value from buying FC at time t=10.

[5 marks]

b. Your company is exposed to the changes of the home currency (HC) value of foreign currency (FC). In particular, you are going to consider two different cases. In the first one, your company will receive in T = 10 months one FC unit. In the second case, your company will pay in T = 10 months one FC unit. For both cases, the company buys a currency option under a strike price of X = 150.5. Moreover, the company runs a simulation study and considers the following scenarios for the spot rate in T = 10 months:

Scenarios	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	**S10**
Spot rates	150	150.1	150.2	150.3	150.4	150.5	150.6	150.7	150.8	150.9

REQUIRED:

i. For the first case, discuss what type of option your company should use to hedge the exposure to FC. In addition, compute and report the option payoffs for each scenario.

[5 marks]

ii. For the second case, discuss what type of option your company should use to hedge the exposure to FC. In addition, compute and report the option payoff for each scenario.

[5 marks]

iii. For the first case, compute and report the combined cashflows of the unhedged exposure and the option payoff.

[5 marks]

iv. For the second case, compute and report the combined cashflows of the unhedged exposure and the option payoff.

[5 marks]

v. Discuss why using currency options can be preferred over other alternative financial instruments to hedge currency risk.

[5 marks]

c. Imagine a world where there are only two countries: your home country and a foreign country. Your company operates only in your home country. However, you are afraid that changes in the exchange rate HC/FC will affect the future value of your company. Moreover, the state of the economy is likely to also affect the future value of your company.

REQUIRED:

i. Report and discuss a mathematical representation for the future value of the company that can account for changes in the exchange rate and also the state of the economy.

[7 marks]

ii. Explain how one could easily hedge the future value of the company using forward contracts.

[5 marks]

iii. Discuss whether your company can completely eliminate the uncertainty about future value using forward contracts.

[5 marks]

(Total: 70 Marks)

QUESTION 12

ANSWER ALL PARTS OF THIS QUESTION

a. Your company signed a forward contract in the past to invest in certain foreign currency (FC). Today, t = 0, you are interested in knowing the market value of your outstanding forward contract. Your outstanding forward contract expires in 3 month and, under your forward contract, the value of the foreign currency in 3 months will be 1.70 units of your home currency (HC). Finally, assume that the per annum (p.a.) interest rate for 3-month deposits in your home country and the foreign country are 8% and 11%, respectively.

REQUIRED:

i. Assume that your forward contract is to buy the FC at maturity. Discuss how you can compute the market value of an outstanding forward contract that buys one unit of FC. Then, compute and report the market value of the forward contract under each of the following scenarios for the forward rate today. Approximate your solution to 3 decimal places.

[10 marks]

Scenarios	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	**S10**
Forward rates today	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1

ii. Assume that your forward contract is to sell the FC at maturity. Then, compute and report the market value of the forward contract under the scenarios considered in the previous part for the forward rate today. Approximate your solution to 3 decimal places.

[5 marks]

iii. Describe how you can hedge currency risk using the extreme bin method for forward contracts. In addition, discuss the type of risks one can face when hedging with forward contracts certain amount of FC using the extreme bin method.

[5 marks]

iv. Describe the strategy one can adopt to speculate on the future value of a forward contract.

[5 marks]

b. Consider a world where there are only two countries: your home country and a foreign country. In addition, consider any of the following 10 scenarios for the exchange rate HC/FC and consumption baskets in the home country and the foreign country, both denominated in their corresponding local currency. Then:

Scenarios	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	**S10**
Spot rate in 6 months	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6
Home country basket	100	105	110	115	120	125	130	135	140	145
Foreign country basket	50	45	40	35	30	25	20	15	10	5

REQUIRED:

i. Define what the real exchange rate (RER) is. Then, compute and report the RERs for the 10 different scenarios. Approximate your solution to 3 decimal places.

[10 marks]

ii. Based on the RERs that you obtained in the previous part, discuss which country is more expensive from the perspective of a citizen of your home country.

[5 marks]

iii. Briefly explain why the value of the foreign country's consumption basket decreases with the spot rate?

[5 marks]

iv. Discuss what a RER greater than one implies and how the law of one price should affect markets so that the RER converges to one.

[5 marks]

c. Answer to the following questions about futures contracts:

i. When hedging currency risk with future contracts, you will find that futures markets have three limitations that you do not find in forward markets. Describe what these three limitations are in the context of currency markets.

[6 marks]

ii. Consider a situation where your company is exposed to one unit of a foreign currency (FC). In particular, your company receives FC 1 in six months. Briefly discuss how you can use a futures contract to hedge this exposure under the constraints described in the previous part. Use the appropriate mathematical formulas.

[8 marks]

iii. Briefly describe the method used to determine the optimal number of futures contracts.

[6 marks]

(Total: 70 Marks)

END OF PAPER