National University of Science and Technology
Think in Other Terms

FACULTY OF COMMERCE

DEPARTMENT OF FINANCE

MSc FINANCE AND INVESTMENT

FINAL EXAMINATIONS OCTOBER 2015

MULTINATIONAL BUSINESS FINANCE AND TRADE [CFI 5214]

TIME: 3 HOURS

Instructions to Candidates

1. Answer any **FOUR (4)** questions.
2. Show **ALL** calculations.

Information for Candidates

1. The paper consists of seven printed pages (including the cover page).
2. Questions may be attempted in any order.
3. All questions carry equal marks **(25 marks each)**.

QUESTION ONE

(a) In July, the one-year interest rate is 2% on Swiss francs (SFr) and 7% on U.S. dollars.

i. If the current exchange rate is SFr 1 = $0.91, use the Fischer Open to calculate the expected future exchange rate in one year. **(3 marks)**

ii. If a change in expectations regarding future U.S. inflation causes the expected future spot rate to rise to $1.00, calculate the U.S. interest rate. **(3 marks)**

(b) The six-month interest rate for the Canadian dollar (C$) is 9% while the six month interest rate for the United States dollar (US$) is $6.75%. A t the same time the spot C$ quotation in New York is US$0.9100/1C$ and the six-month forward rate is US$0.9025/1C$.

Required

i. Show that interest rate parity does not hold. **(4 marks)**

ii. Show how you can take advantage of this situation to earn riskless profits. **(4 marks)**

iii. If a large number of operators engage in this arbitrage, explain what will happen to spot and forward quotations as well as interest rates for the two countries. **(6 marks)**

(c) The price in dollars and euros of a BMW car produced in Germany and sold in the US is:

$$P_{BMW}^{\$} = P_{BMW}^{€} X (\$/€) = €35\ 000 \text{ X } \$1.00/€ = \$35\ 000$$

Suppose that the euro appreciates by 20% against the US$ from $1.00/€ to $1.20/€. The price of the BMW in the US only rises to $40 000 as a result of the euro's appreciation. Calculate the exchange rate pass through of this BMW car and interpret it. **(3; 2 marks)**

Total = 25 marks

QUESTION TWO

(a) The experiences of fixed exchange rate systems and target-zone arrangements over the years have not been entirely satisfactory. Briefly discuss the lessons that can be drawn from the breakdown of the Bretton Woods system of exchange rates. **(6 marks)**

(b) The decade of the 1990s was punctuated by a series of currency crises in emerging markets. First was the Mexican crisis in 1994 to 1995. That was followed by the Asian crisis two years later in 1997, then the Russian crisis of

1998, and the Brazilian crisis of 1998 to 1999, Shapiro (2014). Examine any two likely causes of such turbulence and contagion in the currency markets of these countries. **(8 marks)**

(c) Evaluate any three sources of external financing which multinational corporations can use to finance their foreign subsidiaries. **(6 marks)**

(d) Explain how exporting companies can make use of forfaiting to finance their export credit sales. **(5 marks)**

Total = 25 marks

QUESTION THREE

(a) Maria Gonzalez is the CFO of Dayton Manufacturing, a US-based manufacturer of gas turbine equipment. She has just concluded negotiations for the sale of a turbine generator to Crown, a British firm, for £1m. Dayton has no other current foreign customers, so the currency risk of this sale is of particular concern. The sale is made in March with payment due 3 months later in June. Ms Gonzalez has collected the following financial and market information to help her analyse this exposure:

- Spot exchange rate = $1.7640/£
- Three-month forward rate: $1.7540/£
- Dayton's cost of capital is 12%
- UK borrowing rate = 10% per annum
- UK investment rate = 8% per annum
- US borrowing rate = 8% per annum
- US investment rate = 6% per annum
- June put option in the OTC market for £1m; strike price $1.75; 1.5% premium.
- Dayton's foreign exchange advisory service forecasts that the spot rate in 3 months will be $1.76/£.

Required

Present and evaluate four ways available to Dayton for managing this exposure and recommend the best alternative. **(12 marks).**

(b) Manlink is a Mexican subsidiary of a US multinational company. Its local currency balance sheet is shown on the next page:

Figures in million pesos

Shareholders' funds	42	Fixed assets	36
Long term debt	9	Debtors	12
Current liabilities	3	Cash	6
.	54		54

The spot exchange rate is 20 pesos to the US dollar.

Required

(i) Translate the peso balance sheet into dollars at the spot exchange rate. **(4 marks)**

(ii) Assuming the peso moved to 25 pesos per dollar, calculate the translation gains or losses using the monetary/non-monetary method, current/non-current method and the current rate method. **(9 marks)**

Total = 25 marks

QUESTION FOUR

(a) Provided below is a summary of transactions that took place between a UK based multinational company and its subsidiaries:

Paying Company **Receiving Company (£000)**

Paying Company		UK Parent	Sub 1	Sub 2	Sub 3	Sub4
UK parent		-	200	350	110	170
Subsidiary:	1	600	-	320	80	80
	2	40	240	-	310	600
	3	-	40	130	-	250
	4	460	300	10	330	-

Required

Prepare a netting matrix to illustrate how multilateral netting will be done and explain the criteria used to determine the direction of funds flows. **(6 marks)**

(b) Discuss how a company that imports the bulk of its raw materials will deal with the risks posed by an imminent devaluation of its local currency unit. **(4 marks)**

(c) Accelerating collections within a foreign country and across borders is a key element of international cash management. Explain any three methods that multi-national corporations can use to expedite the collection of their receivables. **(6 marks)**

(d) MMG is a multinational company headquartered in New York. It has subsidiaries in all continents of the world. In Africa, it has operations in Botswana, South Africa, Zimbabwe, Egypt and Nigeria. It is concerned about the very high corporate tax rate in Zimbabwe and has decided to reposition funds into other African countries, especially Botswana because of its very low corporate tax rate. Examine three methods that MMG can utilise to achieve its funds repositioning goal. **(9 marks)**

Total = 25 marks

QUESTION FIVE

Gootlink is a leading UK construction company which is negotiating with two foreign governments regarding large capital investment projects. The Gwumban government wishes to construct a 300 megawatt hydroelectric scheme on the Gwumba river. The Sunnovian government is proposing to build a new 50 000 seat stadium. Both projects have been offered to Gootlink, but the company only has capacity to undertake one project. The expected cash flows relating to each project are given below. Both projects are expected to take four years.

		Year			
	0	1	2	3	4
Gwumba					
Outlay (in million Gwumban francs)	50	150	150	100	50
Sunnovia					
Outlay (in million Sunnovian sols)	100	200	300	75	75

The contracts will be paid for in US dollars. The terms of the proposed Gwumban contract are such that payments, each of 20 percent of the purchase price of US$225 million, will be made at the start of year 1 and year 3, with the balance payable at the end of year 4. The Sunnovian government will agree to an advance payment of 25 percent of the purchase price of US$180 million, with the balance payable on completion.

Gootlink has produced estimates of possible exchange rate changes each year for four years for the Gwumban franc and Sunnovian sol relative to the pound:

Current spot exchange rates

Gwumba (francs)	5/£
Sunnovia (sols)	10/£
US dollars	2.3/£

Expected exchange rates

	Year			
	1	2	3	4
Gwumba (francs)				
Expected devaluation (%)	20	20	23	23
New rate	6/£	7.2/£	8.9/£	10.9/£
Sunnovia (sols)				
Expected devaluation (%)	35	35	31	31
New rate	13.5/£	18.23/£	23.86/£	31.3/£

The pound is expected to appreciate by 5 percent per annum relative to the US dollar.

New rate $/£	2.42/£	2.54/£	2.66/£	2.80/£

UK corporation tax of 35 percent is payable on net cash inflows the year after they arise. Net cash outflows in one year are allowed against future tax charges. Gootlink estimates the Gwumban project's beta coefficient to be 2.0 and the Sunnovian project's beta to be 2.5. Market return is 12 percent and the average yield on treasury bills is 8 percent. Use the CAPM to calculate the respective discount rates in the two countries.

Based on the NPV of the two projects, which project should Gootlink accept?

(25 marks)

QUESTION SIX

Salmyn Limited, a multinational corporation, is examining the political and commercial risk associated with its proposed investments in Peru, Indonesia and Afghanistan. Salmyn is particularly concerned with three factors:

1. Political stability (including the probability of expropriation)
2. Currency convertibility
3. The level of inflation and the exchange rate

Political stability is considered to be twice as important as either currency convertibility or the level of inflation.

An independent panel of experts has assessed each country on a scale of -5 (very poor) to +5 (excellent) for each factor. The results are presented in the form of a probability distribution on the next page.

Political stability:

Peru		Indonesia		Afghanistan	
Probability	Score	Probability	Score	Probability	Score
0.1	-2	0.2	3	0.1	2
0.2	-3	0.3	2	0.1	1
0.6	-4	0.1	1	0.2	0
0.1	-5	0.2	0	0.4	-1
		0.1	-1	0.2	-2
		0.1	-2		

Currency convertibility:

Peru		Indonesia		Afghanistan	
Probability	Score	Probability	Score	Probability	Score
0.1	5	0.2	2	0.2	1
0.4	4	0.6	1	0.4	0
0.3	3	0.1	0	0.2	-1
0.1	2	0.1	-1	0.1	-2
0.1	1			0.1	-3

Level of inflation:

Peru		Indonesia		Afghanistan	
Probability	Score	Probability	Score	Probability	Score
0.2	2	0.2	0	0.3	4
0.3	1	0.3	-1	0.5	3
0.2	0	0.4	-2	0.1	2
0.1	-1	0.1	-3	0.1	1
0.1	-2				
0.1	-3				

Required

Do an evaluation of the relative political and commercial risk associated with investments in Peru, Indonesia and Afghanistan based on their standard deviation.

Note

The formula $\sigma_p = \sqrt{x^2\sigma_a^2 + y^2\sigma_b^2 + z^2\sigma_c^2}$ may be used in the analysis. Assume that the covariance between political stability, currency convertibility and the level of inflation is zero. **(25 marks)**

END OF EXAMINATION PAPER