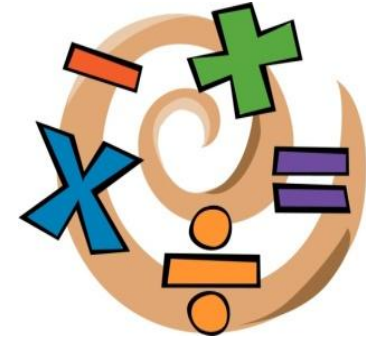


# Exercise Handbook

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# Exercise I

Fill in the cross rates in the table below:

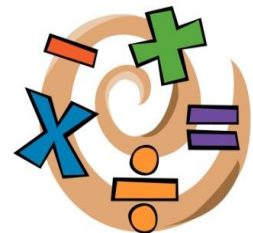
	A	B	C	D	E
A	---	5.2			
B		---			
C			---		9.5
D			6	---	
E	4.5				---



# Exercise II

Fill in the cross rates in the table below:

	A	B	C	D	E
A	---	4.5			
B		---		2	
C	3.05		---		
D				---	5
E					---



# Exercise III

Given the following bid-ask quote:

	BID	ASK
A/B	220	240

At what exchange rate will:

- (a) Mr. Smith purchase A?
- (b) Mr. Brown sell A?
- (c) Mrs. Green purchase B?
- (d) Mrs. Jones sell B?



# Exercise IV

Consider the following bid-ask quotes:

	BID	ASK
A/B	1.35	1.37
A/C	0.71	0.76

Please find the B/C bid-ask quote (**intermediate computations**).  
Now suppose that another market maker publishes the following quotes for the B/C rate:

	BID	ASK
B/C	0.575	0.579

Would there be arbitrage opportunities? If so, how would you exploit them (assuming you have 100B at your disposal)?

# Exercise V

True or false? **Please, explain.**

- If a country has a BOP deficit, the total of each BOP subaccount is negative.
- The current account is a record of all trade in goods and services, while the capital account is a record of portfolio investment and unilateral transfers.
- Under a fixed exchange rate regime, if a country's private sector sells abroad more than it purchases, the central bank must sell foreign exchange.
- All errors and omissions in the BOP are a result of black market transactions

# Exercise VI

Multiple choice. **Please, explain.**

Assume **H** = home country, **DC** = domestic currency, **F** = foreign country and **FC** = foreign currency

All else being equal, an increase in income in F leads to:



- (a) an increase in consumption in H, and therefore an increase in imports, resulting in an appreciation of the DC.
- (b) a decrease in consumption in H, and therefore an increase in exports, resulting in a depreciation of the DC.
- (c) an increase in consumption in F, and therefore an increase in imports, resulting in an appreciation of the DC.
- (d) an increase in consumption in F, and therefore an increase in imports, resulting in a depreciation of the DC.

# Exercise VII

Multiple choice. **Please, explain.**

Assume **H** = home country, **DC** = domestic currency, **F** = foreign country and **FC** = foreign currency

All else being equal, a decrease in prices in F leads to:

- (a) an increase in exports to H, and therefore an appreciation of the DC.
- (b) an increase in exports to H, and therefore a depreciation of the DC.
- (c) an increase in consumption in F, and therefore an increase in imports, resulting in an appreciation of the DC.
- (d) a decrease in consumption in F, and therefore a decrease in imports, resulting in a depreciation of the DC.



# Exercise VIII

The BOP of Country A showed the following entries for 2013: a capital account surplus of 50, a deficit in the services account of 15, and a trade deficit of 45. The change in the official reserves was zero. Assuming  $SD=0$ , what was the balance of unilateral transfers for A?



# Exercise IX

On 15th June 201X, you bought 5 futures contracts for 50,000 EUR each @ USD/EUR 1.29. Assume that the daily settlement prices are shown in the table below:

DAY	16	17	18	19	22	23	24	25
Price	1.28	1.3	1.29	1.31	1.26	1.25	1.26	1.27

- What are the daily cash flows from marking to market?
- If you deposit USD 60,000 into your margin account, and your broker requires USD 55,000 as maintenance margin, when will you receive a margin call and how much will you have to deposit?



# Exercise X

An investor sells 1 share MPS short at 70\$ and simultaneously writes one MPS 70 put at 3\$.

What is the maximum gain in this strategy?

- (a) \$73
- (b) \$70
- (c) \$67
- (d) \$3

What is the maximum loss?

- (a) Unlimited
- (b) \$3
- (c) \$70
- (d) \$63



**Don't forget to justify your claims.**

# Exercise XI

An investor has sold 1 share of FBN stock short at 62\$ and buys one FBN Jan 65 call at 2\$. If FBN stock rises to 70\$ and the investor exercises the call, what is the gain or loss in this position?

- (a) \$2/share
- (b) \$5/share
- (c) \$8/share
- (d) Unlimited

**Don't forget to justify your claims.**



# Exercise XII

Suppose that an investor has sold 100 shares of MNO stock short at \$75/share and feels confident that the stock's price will fall in the market in the near future. To protect against a sudden rise in price, which of the following strategies would you recommend?

- (a) Sell a MNO put.
- (b) Buy a MNO put.
- (c) Sell a MNO call.
- (d) Buy a MNO call

**Don't forget to justify your claims.**



# Exercise XIII

Consider the following:

**Spot Rate:** Currency<sub>1</sub> 1.25/Currency<sub>2</sub>

$$r_{1y\_Currency1} = 3\%$$

$$r_{1y\_Currency2} = 4\%$$



1. Calculate the theoretical price of a one year forward contract.
2. What would you do if the forward price was quoted at Currency<sub>1</sub> 1.26/Currency<sub>2</sub> in the market place? Where would you borrow? Lend? Calculate the gain on a Currency<sub>1</sub> 100 million arbitrage transaction.
3. What would you do if the future price was quoted at Currency<sub>1</sub> 1.20/Currency<sub>2</sub> in the market place? Where would you borrow? Lend? Calculate the gain on a Currency<sub>2</sub> 100 million arbitrage transaction.

# Exercise XIV

The following exchange rates and one-year interest rates exist.

	BID	ASK
$S^{A/B}$	1.12	1.13
$F^{1A/B}$	1.12	1.13

	Deposit	Loan
$r^A$	6%	9%
$r^B$	7%	10%

You have 100,000 A to invest for one year. Would you benefit from engaging in covered interest arbitrage?



# Exercise XV

The following data are taken from the balance of payments of country A (currency AA):

Capital Account	1995	1996	1997	1998
Portfolio Investment (bn\$)	2.9	-6.9	-5.4	-8.7

Is the following statement consistent with the data shown above? *“After 1995, foreigners have issued AA-denominated bonds in A’s capital market in order to take advantage of the favourable interest rate differential with respect to the US capital market.”*





# Exercise XVI

For each pair of conditions, which one refers to futures?  
Which one to forwards?

**Support your claims with concise explanations.**

- a. Standardized/ Tailor made
- b. Mark-to-market risk/ Settlement risk
- c. Fixed maturities/ Several available maturities
- d. Illiquid secondary market/ Liquid secondary market
- e. OTC traded/ Traded on regulated markets
- f. For hedgers/ For speculators



# Exercise XVII

- Multiple choice. **Justify your claims.**
  1. When the U.S. ships food aid to a developing nation, the U.S. debits:
    - a. unilateral transfers
    - b. services
    - c. capital
    - d. official reserves
  2. The payment of a dividend by an American company to a foreign stockholder represents:
    - a. a debit in the U.S. capital account
    - b. a credit in the U.S. capital account
    - c. a credit in the U.S. official reserve account
    - d. a debit in the U.S. current account



# Exercise XVII – cont'd

3. When a U.S. firm imports a good from England and pays for it by drawing on its pound sterling account in a London Bank, the U.S. debits its current account and credits its:
  - a. official reserve account
  - b. unilateral transfers account
  - c. services in its current account
  - d. capital account
  
4. The capital account of the U.S. includes:
  - a. the change in U.S. assets abroad and foreign assets in the U.S.
  - b. the change in U.S. assets abroad and foreign assets in the U.S., other than official reserve assets
  - c. all financial assets
  - d. all but current account transactions

# Exercise XVIII

Mr. Brown sold a put option on Canadian dollars for \$.03, with strike price equal to \$.75. At the same time, he sold short 50,000 CAD @ \$.75 (option notional amount = 50,000 CAD).

- If the spot rate at the time the option was exercised were \$.72, what would be Mr. Brown's net profit/loss?
- What is the strategy maximum gain?
- What is the strategy maximum loss?



# Exercise XIX

The following information is currently available for Canadian dollar (C\$) options

- Put option strike price \$.75.
- Put option premium \$.014.
- Call option strike price \$.76.
- Call option premium \$.01.
- One option contract represents C\$50,000.



- a. What is the maximum possible gain the writer of a strangle can achieve using these options?
- b. What is the maximum possible loss the writer of a strangle can incur?
- c. Locate the break-even point(s) of the strangle.

# Exercise XX

True or false? **Please, explain.**

- An analyst has stated that the British pound is likely to decrease in value over the 2 weeks following announcements by the Bank of England that it will cut interest rates. This claim would support the view that the market is semi-strongly efficient.
- If foreign exchange markets are found to be weak-form efficient, significant trading profits are very likely to be achieved through technical analysis.
- Efficiency is always incompatible with the existence of predictable price patterns.

# Exercise XXI

True or false? **Please, explain.**

- *Ceteris paribus*, the value of a put option increases if the price of the underlying instrument increases.
- *Ceteris paribus*, based on CIRP, given any two currencies A and B, if  $r_A > r_B$ , then currency A is likely to trade at a forward discount. (Remark:  $r_A$  = interest rate on a currency A-denominated investment  $r_B$  = interest rate on a currency B-denominated investment).
- If the US inflation level increases at a much higher rate than does the Canadian inflation level, the CAD is likely to appreciate *ceteris paribus*.

# Exercise XXII

Consider the following option strategy, involving the simultaneous purchase of two different options (call and put, same maturity, but different strikes):

<b>Call Premium</b>	0.045 \$
<b>Put Premium</b>	0.025 \$
<b>Call Strike</b>	\$/€ 1.397
<b>Put Strike</b>	\$/€ 1.381
<b>Notional (€)</b>	50,000

- (a) Draw the payoff profile (**do not forget to show all the intermediate steps**).
- (b) What type of strategy is this? Can it be used for hedging purposes? If so, under which circumstances?





# Exercise XXIII

On 15th September 201X, you sold 7 futures contracts for 62,500 GBP each @ USD/GBP 1.51. Assume that the daily settlement prices are shown in the table below:

DAY	16	17	18	19	22	23	24	25
Price	1.53	1.55	1.56	1.54	1.57	1.53	1.51	1.49

- What are the daily cash flows from marking to market?
- If you deposit USD 70,000 into your margin account, and your broker requires USD 65,000 as maintenance margin, when will you receive a margin call and how much will you have to deposit?



# Exercise XXIV

Pinco Pallino Ltd, a company based in Country Alpha, owes 10 mio Currency Beta to a supplier located in Country Beta in 12 months. The company's expectations of the future Currency Alpha/Currency Beta spot rate are mixed: Currency Beta could strengthen or stay flat over the next 12 months.

The current exchange rate is Currency Alpha 3.5/Currency Beta.

The 12-month futures rate is at Currency Alpha 3.8/Currency Beta.

The 12-month interest rate level for a Currency Beta-denominated investment is 1.2%.

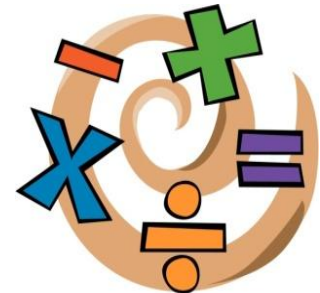
The 12-month interest rate level for a Currency Alpha-denominated investment is 1.6%.

Calls on Currency Beta with maturity of 12 months and strike price of Currency Alpha 3.6/Currency Beta are traded on the CME at 0.015.

# Exercise XXIV – cont'd

Pinco Pallino decides to hedge against excessive exchange rate fluctuations. Compare and assess the following choices offered to the company (do not forget to justify your claims):

1. Buy a futures on Currency Beta for delivery in 12 months for a total amount of 10 mio Currency Beta.
2. Buy 100 call options on the CME (Assume that 1 option calls for the delivery of 100k Currency Beta).
3. Set up a forward contract with a local bank.



# Exercise XXV

Consider the deals here below:

- a. Georgetown Co. plans to purchase Japanese goods denominated in yen.
- b. Harvard, Inc. will sell goods to Japan, denominated in yen.
- c. Yale Corp. has a subsidiary in Australia that will be remitting funds to the U.S. parent.
- d. Brown, Inc., needs to pay off existing loans that are denominated in Canadian dollars.
- e. Princeton Co. may purchase a company in Japan in the near future (but the deal may not go through).

How would you hedge against unfavourable exchange rate fluctuations? Fill in the following table.

# Exercise XXV – cont'd

Deal	Forwards		Futures		Options	
	Buy	Sell	Buy	Sell	Buy Call	Buy Put
a						
b						
c						
d						
e						

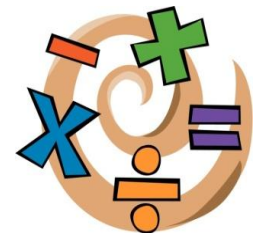


# Exercise XXVI

Maggie is a currency speculator. She has noticed that recently the Euro has appreciated substantially against the U.S. dollar. The current exchange rate of the Euro is \$1.15.

After reading a variety of articles on the subject, she believes that the Euro will continue to fluctuate substantially in the months to come. Although most forecasters believe that the Euro will depreciate against the dollar in the near future, Maggie thinks that there is also a good possibility of further appreciation.

Currently, a call option on Euro is available with an exercise price of \$1.17 and a premium of \$.04. A Euro put option with an exercise price of \$1.17 and a premium of \$.03 is also available.



# Exercise XXVI – cont'd

- 
- a. Describe how Maggie could use straddles to speculate on the Euro's value.
  - b. At option expiration, the value of the Euro is \$1.30. What is Maggie's total profit or loss from a long straddle position?
  - c. What is Maggie's total profit or loss from a long straddle position if the value of the Euro is \$1.05 at option expiration?
  - d. What is Maggie's total profit or loss from a long straddle position if the value of the Euro at option expiration is still \$1.15?
  - e. Given your answers to the questions above, when is it advantageous for a speculator to engage in a long straddle? When is it advantageous to engage in a short straddle?

# Exercise XXVII

Consider the following option strategy, involving the simultaneous sale of two different options (call and put, same maturity, but different strikes):

<b>Call Premium</b>	0.036 \$
<b>Put Premium</b>	0.019 \$
<b>Call Strike</b>	\$/€ 1.156
<b>Put Strike</b>	\$/€ 1.132
<b>Notional (€)</b>	50,000

- (a) Draw the payoff profile (**do not forget to show all the intermediate steps**).
- (b) What type of strategy is this? Can it be used for hedging purposes? If so, under which circumstances?





# Exercise XXVIII

Fill in the table below (please, show all the relevant computations):

	<b>BID</b>	<b>ASK</b>
<b>CZJ/GBP</b>	33.201	33.2115
<b>DKK/GBP</b>	9.004	9.009
<b>EUR/GBP</b>	1.2066	1.2069
<b>NOK/GBP</b>	10.1526	10.153
<b>DKK/EUR</b>		
<b>EUR/NOK</b>		
<b>GBP/CZJ</b>		

1. Find the bid-ask spread for the EUR/GBP quote.
2. Find all the missing bid-ask rates.
3. How much would you lose if you converted 1500 DKK into GBP, then into EUR and finally back into DKK?