International
Financial and
Foreign Exchange
Markets

Derivatives and
Hedging
Techniques

Exercise Handbook

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LIUC
Università Cattaneo

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Exercise XXI

Mr. Brown sold a put option on Canadian dollars for 0.03 USD, with strike price equal to 0.75 USD. At the same time, he sold short 50,000 CAD at 0.75 USD (option notional amount = 50,000 CAD).

- ▶ If the spot rate at the time the option was exercised were 0.72 USD, what would be Mr. Brown's net profit/loss?
- ▶ What is the strategy maximum gain?
- ▶ What is the strategy maximum loss?

Exercise XXII

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The following information is currently available for Canadian dollar options:

Put option strike price	0.75 USD
Put premium	0.014 USD
Call strike price	0.76 USD
Call premium	0.01 USD
Notional amount	50,000 CAD

▶ What is the maximum possible gain the writer of a strangle can achieve using these options?

▶ What is the maximum possible loss the writer of a strangle can incur?

▶ Locate the break-even point(s) of the strangle.

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Exercise XXIII

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

Call Premium	0.045 USD
Put premium	0.025 USD
Call strike price	1.397 $\frac{USD}{EUR}$
Put strike price	1.381 $\frac{USD}{EUR}$
Notional amount	50,000 EUR

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

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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 $\frac{Alpha}{Beta}$ spot rate are mixed: Currency Beta could strengthen or stay flat over the next 12 months. The current exchange rate is $S_{\frac{Alpha}{Beta}}$ 3.5. The 12-month futures rate is at $F_{\frac{Alpha}{Beta}}$ 3.8. The 12-month interest rate level for a Currency Beta-denominated investment is 0.012. The 12-month interest rate level for a Currency Alpha-denominated investment is 0.016. Calls on Currency Beta with maturity of 12 months and strike price of $K_{\frac{Alpha}{Beta}}$ 3.6 are traded on the CME at 0.015.

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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**):

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

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Exercise XXV

Consider the deals here below:

1. Georgetown Co. plans to purchase Japanese goods denominated in yen

2. Harvard, Inc. will sell goods to Japan, denominated in yen

3. Yale Corp. has a subsidiary in Australia that will be remitting funds to the U.S. parent

4. Brown, Inc., needs to pay off existing loans that are denominated in Canadian dollars

5. 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

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Deal	Buy Fwd	Sell Fwd	Buy Fut	Sell Fut	Buy Call	Buy Put
1						
2						
3						
4						
5						

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Exercise XXVI

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

Call Premium	0.036 USD
Put premium	0.019 USD
Call strike price	1.156 $\frac{USD}{EUR}$
Put strike price	1.132 $\frac{USD}{EUR}$
Notional amount	50,000 EUR

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

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Exercise XXVII

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 USD. 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 USD 1.17 and a premium of USD 0.04. A Euro put option with an exercise price of USD 1.17 and a premium of USD 0.03 is also available.

Exercise XXVII-cont'd

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- ▶ Describe how Maggie could use straddles to speculate on the value of the Euro.
- ▶ At option expiration, the value of the Euro is USD 1.30. What is Maggie's total profit or loss from a long straddle position?
- ▶ What is Maggie's total profit or loss from a long straddle position if the value of the Euro is USD 1.05 at option expiration?
- ▶ What is Maggie's total profit or loss from a long straddle position if the value of the Euro at option expiration is still USD 1.15?
- ▶ 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?