Currency hedging

Basic terms

- Effective exchange rates
- Currency forward, Currency futures, Currency options
- Money market hedge

Exercise 1

Let´s assume that the French based company has a receivable (it has sold the goods for 1,000,000 USD and is due in two months). Current spot rate is 1.3475 EUR/USD, forward rate is 1.3505 EUR/USD. How can the French firm use a forward contract to hedge its open position? Which financial flow is assured and what is the effective exchange rate?

Exercise 2

Suppose that a US-based company has a payable in the value of 1 million EUR, because it imported some goods from Germany. The invoice is due in 1 month. Current SR is 1.17 USD = 1 EUR and the price of FED contracts with suitable due date is 118.00 USD per 100 EUR.

- How can the US company hedge its position using FED contracts (size of each equals 20,000 EUR)?
- Calculate the cash flow of the company after hedging and at the due date the prices are following:
    - EUR/USD 1.20 and P_{FED} = 121.00
    - EUR/USD 1.10 and P_{FED} = 110.50
- What are the main advantages and disadvantages of hedging with futures contract?

Exercise 3

Let's assume that your company has a payable in the value of 1 million EUR (you imported some goods from Germany). The invoice is due in 1 month and current spot exchange rate is 1.3855 EUR/USD.

- Which out of the basic option positions would you use to assure against currency risk?
- Suppose that you buy a call option from your bank with the strike price 1.3905 EUR/USD and 1 month maturity. The premium amounts to 0.05 USD per 1 EUR. Draw the contingency graph displaying your gain/loss depending on the current value of the spot exchange rate.
- Draw the effective exchange rate diagram.
- Discuss the risk-reversal strategy.

Exercise 4

Let's assume that your company has a receivable in the value of 1 million EUR (you exported some goods to Germany). The invoice is due in 1 month and actual spot exchange rate is 28.300 EUR/CZK.

- Which out of the basic option positions would you use to assure against currency risk?
- Suppose that you buy a put option from your bank with the strike price 28.390 EUR/CZK and 1 month maturity. The premium amounts to 0.5 CZK per 1 EUR. Draw the contingency graph displaying your gain/loss depending on the current value of the spot exchange rate.
- Draw the effective exchange rate diagram.
- Discuss the risk-reversal strategy.

Exercise 5

Let's assume that your company has a payable in the value of 1 million USD (you imported some goods from the USA). The invoice is due in 2 months and current spot exchange rate is 1.2500 EUR/USD and i_{EUR} = 4 % p.a., i_{USD} = 3 % p.a.

- How would you hedge with the use of the money market?
- How would you hedge a receivable?

Exercise 6

Let's assume that your company has a receivable in the value of 1 million EUR. The invoice is due in 2 months and current spot exchange rate is 1.3450 EUR/USD. You are responsible for dealing with the risk and there are four options available:

- You decide not to hedge?
- You hedge with a forward contract at 1.3390 EUR/USD.
- You buy a put option with the strike price 1.3405 EUR/USD and 2 months maturity. The premium amounts to 0.05 USD per 1 EUR.
- You use a zero-cost combination that consists of buying a put with the strike price 1.3380 EUR/USD and selling a call with the strike price 1.3480 EUR/USD.

  - Draw the effective exchange rate diagram for each option.
  - Rank all options according to the size of EER in case that the value of spot exchange rate at time of maturity of the receivable will be the following:
    - 1.3320 EUR/USD
    - 1.3405 EUR/USD
    - 1.3420 EUR/USD
    - 1.3490 EUR/USD