

ACF305

International Financial and Risk  
Management

Week 3 tutorial

## Question 1

A bank quotes the following rates. Compute the EUR/JPY bid cross-rate (that is, the bank's rate for buying JPY).

	Bid	Ask
EUR/CAD	0.64	0.645
CAD/JPY	0.01	0.012

## Solution

The EUR/JPY bid rate is the rate at which we – not the bank – sell JPY for EUR. As a result, we start off with one JPY and we want to exchange this for EUR using the shown cross rates with the CAD. When we sell our one JPY, we would like to obtain as many CADs for it as possible. However, as the bank needs to make a profit, they only offer us the lower number of CADs, i.e., the bid rate, which is **0.01** (and not 0.012).

After the transaction, we are in possession of CAD 0.01. We then want to sell this for EUR. We would like to have the larger number of EURs, but the bank will only sell us the lower number, which is **0.64**. The EUR/JPY bid cross rate is therefore  **$0.01 * 0.64 = \text{EUR/JPY } 0.0064$** .

## Question 2

You have just graduated from the University of Florida and are leaving on a whirlwind tour to see some friends. You wish to spend USD 1,000 each in Germany, New Zealand, and Great Britain (USD 3,000 in total). Your bank offers you the following bid-ask quotes:

USD/EUR	bid: 1.304	ask: 1.305,
USD/NZD	bid: 0.67	ask: 0.69,
USD/GBP	bid: 1.90	ask: 1.95.

- a) If you accept these quotes, how many EUR, NZD, and GBP do you have at departure?

## Solution

(a) For this question, you need to think about how many EUR, NZD and GBP you can obtain by exchanging USD 1,000 for each of these currencies. As a result, you want to sell USD and buy the foreign currencies. To this end, it is probably easiest to invert the given currency quotes to obtain quotes in **FC/USD**, recalling that – in the presence of spreads – the bid rate becomes the ask rate and the ask rate becomes the bid rate.

## Solution

After some computations, we get:

EUR/USD      bid: 0.766284,   ask: 0.766871

NZD/USD      bid: 1.449275,   ask: 1.492537

GBP/USD      bid: 0.512821,   ask: 0.526316

Multiplying USD 1,000 with the lower number (the bid),  
you obtain the answer to this question:

EUR 766.28, NZD 1,449.28 and GBP 512.82.

## Question 2

- b) If you return with EUR 300, NZD 1,000, and GBP 75, and the exchange rates are unchanged, how many USD do you have?

## Solution

You can now use the given quotes. Obviously, you would like to obtain as many USDs for your FC as possible. However, the bank will again only give you the lower rate, i.e., the bid rate. You therefore obtain  $\text{EUR } 300 * \text{USD/EUR } 1.304 + \text{NZD } 1,000 * 0.67 \text{ USD/NZD} + \text{GBP } 75 * \text{USD/GBP } 1.90 = \text{USD } 1,203.7$ .



## Question 2

- c) Suppose that instead of selling your remaining EUR 300 once you return home, you want to sell them in Great Britain. At the train station, you are offered GBP/EUR 0.66-0.68, while a bank three blocks from the station offers GBP/EUR 0.665-0.675. At what rate are you willing to sell your EUR 300? How many GBP will you receive?

## Solution

Recall that you always sell at the lower of the two rates. Of the two lower rates, which are GBP/EUR 0.66 and GBP/EUR 0.665, you choose the higher rate, in order to obtain as many GBP as possible. Therefore, you will sell at GBP/EUR 0.665 and receive  $\text{EUR } 300 * \text{GBP/EUR } 0.665 = \text{GBP } 199.5$ .