

# Exercise Sheet 2: The Foreign Exchange Market

## Exercise 1

Suppose Euro is traded at an exchange rate of 1.25 USD per Euro, and the Swiss Franc is traded at 0.94 USD per CHF.

- a) What is the implied cross rate of the exchange rate between Swiss Franc and Euro, expressed in CHF per Euro?
- b) Now Suppose the exchange rate between Euro and Swiss Franc is given by 1.28 CHF per Euro. How could a currency trader engaging in arbitrage make a profit?

## Exercise 2

The following graph shows an excerpt from a table with exchange rates for October 1st 2012. All exchange rates are given in terms of USD per foreign currency. Is the Swiss Franc selling at a forward discount or a forward premium? The British Pound? What does that mean?

<b>Romania leu</b>	0.2833	0.2834
<b>Russia ruble</b>	0.03204	0.03226
<b>Sweden krona</b>	0.1523	0.1532
<b>Switzerland franc</b>	1.0640	1.0668
1-mos forward	1.0646	1.0673
3-mos forward	1.0658	1.0685
6-mos forward	1.0676	1.0703
<b>Turkey lira</b>	0.5567	0.5591
<b>UK pound</b>	1.6163	1.6236
1-mos forward	1.6162	1.6234
3-mos forward	1.6159	1.6231
6-mos forward	1.6155	1.6226

### Exercise 3

Suppose futures contracts over 125'000 CHF, maturing at December 19th 2016, are traded at the Chicago Mercantile Exchange for 128'000 USD. If you *buy* such a futures contract, you commit yourself to buying 125'000 CHF for 128'000 USD at December 19th. If you *sell* such a futures contract, you commit yourself to selling 125'000 CHF for 128'000 USD at December 19th.

- a) A currency speculator guesses that the exchange rate between Swiss Francs and US\$ at December 19th will be at 1.05 CHF per USD. What do you think that speculator would do?
- b) Suppose the speculator guessed the exchange rate exactly right. What is his profit for each futures contract he traded?

### Exercise 4

Suppose an American company purchases Swiss watches for 1m CHF. Payment is due in 6 months. The exchange rate today is 1 USD per CHF.

- a) Should the exchange rate in 6 months be at 1.1 USD per CHF, would the Swiss Franc have appreciated or depreciated vis-à-vis the US Dollar?
- b) The company buys a call option on 1m CHF at a strike price of 1.05 USD per CHF. They pay 10'000 USD for the Option. Explain shortly what the option is and why the American company bought it.
- c) Under what realization of the exchange rate will the option be exercised?
- d) The spot exchange rate in 6-months turned out to be at 1.07 USD per CHF. In retrospect, did the company save money with the option?

### Exercise 5

The following graph shows the exchange rate between Swiss Franc and USD, given as USD per CHF.



- If the line goes up, does this mean an appreciation or a depreciation of the SFR vis-à-vis the US Dollar?
- An American manufacturer made a contract at May 1st 2012 to sell tractors to a Swiss importer for 10m SFR. The payment was due at September 1st 2012. The manufacturer bought a put option over 10m SFR, with a strike price of 1.05 USD per CHF, and maturity at September 1st. What is the reason the manufacturer bought this option? What is the least possible revenue (in USD) the manufacturer knew he was getting from selling the tractors?
- Did the manufacturer exert the option at September 1st or did he leave it to expire? The exact exchange rate at September 1st was 1.0448 US\$ per SFR.
- Suppose the option cost the manufacturer 0.008 USD per CHF. Had the manufacturer known the exchange rate in advance, would he have bought the option?

Exercise 6

The graph below shows the exchange rate between Belarussian Rouble (BYR) and USD, given in USD per BYR, between April 2010 and October 2011. In March 2011, the following statement was released by Bloomberg:

The central bank of Belarus has lost about 60 percent of its convertible foreign-currency reserves since October, at about a pace of \$500 million per month.

Using this information and the graph, can you tell the story behind it? What is the connection between the exchange rate graph and the reserve loss of the central bank?

