

Problems involving Foreign Exchange

1. A bank quotes the following rates: CHF/USD 1.0898-1.0910 and JPY/USD 119–121. What is the minimum JPY/CHF bid and the maximum ask rate that the bank would quote?

2. Foreign Interest Rate (R_f) = 2.5%; Domestic Interest Rate (R_d) = 5%

Forward Rate = 118.16 JPY/USD Spot Rate = 119.14 JPY/USD

- Is dollar at a forward premium or discount?
- Does interest rate parity hold?

3. An investor wishes to buy euros spot (at \$1.1139) and sell euros forward for 180 days (at \$1.1203).

- a. What is the swap rate on euros?
- b. What is the premium on 180-day euros?

4. On checking the screen, you see the following exchange rate and interest rate quotes:

Currency	90-day interest rates annualized	Spot rates	90-day forward rates
Dollar	4.99% - 5.03%		
Swiss franc	3.14% - 3.19%	\$ 0.711 -22	\$0 .726 - 32

- a. Can you find an arbitrage opportunity?
- b. What steps must you take to capitalize on it?
- c. What is the profit per \$1,000,000 arbitrated?

5. A foreign exchange trader assesses the euro exchange rate three months hence as follows:

\$1.11 with probability 0.25
 \$1.13 with probability 0.50
 \$1.15 with probability 0.25

The 90-day forward rate is \$1.12.

- a. Will the trader buy or sell euros forward against the dollar if she is concerned solely with expected values? In what volume?
- b. In reality, what is likely to limit the trader's speculative activities?
- c. Suppose the trader revises her probability assessment as follow
 - \$1.09 with probability 0.33
 - \$1.13 with probability 0.33
 - \$1.17 with probability 0.33

Assuming the forward rate remains at \$1.12, do you think this new assessment will affect the trader's decision?

6. You currently have EUR 500,000 in currency available to your firm, sitting in a bank account in Europe, invested at short-term rates. You have a funding requirement of USD 450,000 for three months in the United States and wish to utilize your EUR funds to meet this funding requirement. You do not wish to take any foreign exchange risk on this transaction. The interest rates in EUR are 5% and 3% in USD.
 - a. Illustrate how you would set up a currency swap to satisfy your need for USD for three months.
 - b. What is your potential gain assuming the bank is willing to assist with the swap at no profit?

