International Macroeconomics
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Problem Set 7 – Foreign Exchange Market

Questions

7.1 Suppose the price of currency X in terms of Euros on the spot is $E_{E/x} = 0.5$. The one-year interest rate on euro deposits and in (comparable) x-denominated deposits are, respectively, i=20% and 1*=25%.

(a) Assuming that the spot exchange rate is expected to prevail at 0,5:
   (a1) Find out the equilibrium one-year forward exchange rate.
   (a2) In this case, is the foreign currency is at premium or at discount?
   (a3) If the bank offered a different rate (say, $F_{E/x} = 0.36$) what would happen?

(b) Assume now that market participants believed the $E_{E/x}$ spot rate to reach $E^{E}_{E/x} = 0.36$ in one year time.
   (b1) Explain how speculators could use the spot market to get an expected gain.
   (b2) If many agents did the same, what should happen to the spot rate?
   (b3) Could banks maintain the forward rate at 0.48?

7.2 Suppose that the spot exchange rate is 1.8. It is also known that the domestic interest rate and the foreign interest rate for equivalent assets are i=20% and i*=4%, respectively.

(a) How much should be the forward (one year) rate?

(b) Suppose a market participant believed the spot exchange rate will reach 2.2 in one year time. If he speculated in the forward market, should he commit to buy or to sell the foreign currency?

(c) Suppose the market participant preferred to speculate in the spot market instead. Sticking with the expected exchange rate at 2.2, he would prefer to borrow today in domestic currency or to borrow in foreign currency?

7.3 Credit Merci, a bank operating in Morocco, needs to deliver MAD410 millions to a customer in Marrakesh, in 6 months time. The money is available now, and you - the financial manager - need to decide where to park it meanwhile. The annual interest rate in 6-month Dirham (DAM) deposits is 3.01%. *[This means that if you want to hold 6-month DAM deposits for one year you receive 3,01% in interests]*. The corresponding interest rate in US dollar deposits is 1%. The MAD spot exchange rate is 8.20 per USD.

(a) If you expected the spot exchange rate to reach 8.24 MAD per USD in 6-month time, which denomination would you choose for your deposit?

(b) Given the interest rates and the today' spot rate, how much should be the bank' forward rate that made arbitrageurs indifferent in respect to the denomination of their deposit holdings?

(c) Abstracting from risk considerations, what is the expected depreciation of the dirham implied in the current interest rate differential?

7.4 Suppose the euro-pound exchange rate is $E_{£/E} = 0.80 - 0.82$ (pounds per euro). How much should be the direct quotes (euros per pound?)

7.5 Suppose that you had some ZAB you needed exchange for XYZ. Because these two currencies are highly illiquid, however, there are no direct quotes for this trade. The question is to find out the quotes for ZAB in terms of XYZ, using cross rates with the USD. The exchange rates (bid-ask) vis-a-vis the USD are the following: XYZ per USD: 125.0-126.0; ZAB per USD: 4.80-5.00

7.6 Banco Bago is a bank located in S. Paulo. The bank is requested to engage in foreign exchange transactions involving the Singapore dollar (SGD). Given the following quotes:

- Spot BRL per SGD: 1.9085-95
- i-BRL (annual rate): 4%-4.12%
- i-SGD: (annual rate): 8%-8.12%

How much should the Banco Bago set the 90 days BRL per SGD forward rates?

7.7 Suppose you are the financial manager of Maozinha Leve Corp., homed in Gibraltar. Every month you need to transfer part of your revenues raised by the sales office in Armenia (drams, AMD) to the operation in Georgia (Lari, GEL). The relevant quotes are as followed:

AMD per USD spot: 402.5
GEL per USD spot: 1.75
Nominal interest rates in Armenia: 5%-8%
Nominal interest rates in Georgia: 8%-15%

(a) Suppose that you will need to transfer AMD41400, but the operation in Georgia will only need the money in 6-months time.
(a1) How much should be the bilateral AMD per GEL exchange rate today?
(a2) Suppose you expect the spot rates in 6-months time to be AMD=405 per USD and GEL=1.8 per USD.
(a3) Would you prefer to transfer the money now or invest it in Armenia and transfer the total in 6-months time?
(a4) For you to be indifferent between transferring the money now or in 6-months time, how much should be the bilateral exchange rate in 6-months time?

(b) Suppose instead that the operation in Georgia needed the money now. It will be better to make the transfer immediately or to keep the money in Armenia and borrow at 6 months in lari?