

Financial Economics
 Financial Markets Analysis Part 2
 Homework 2

- I. Use a newspaper or the internet to find the data to fill in the following table. The cells should contain the number of units of the column currency per unit of the row currency.

I used the following exchange rates:

Dollars / pound = 1.45208

Dollars / euro = 1.31041

Swiss francs / dollar = 1.12630

Exchange Rates

	UK pound	euro	US dollar	Swiss franc
UK pound	1.0000	1.108111	1.45208	1.63548
euro	0.902437	1.0000	1.31041	1.47591
US dollar	0.688667	0.763120	1.0000	1.12630
Swiss franc	0.611441	0.677548	0.887863	1.0000

- II. You are given the following data

	closing mid-point exchange rate	bid - ask spread
Zambian kwacha	824.00	300 - 500
UK pound	1.6670	370 - 970
Paraguayan guarani	6140.0	200 - 600
Kuwaiti dinar	0.2884	784 - 984

These exchange rates are units of foreign currency per dollar except the pound, which is dollars per pound

Fill in the following table.

Dollar Exchange Rates (units of currency per dollar)

	Bid rate	Offer rate
Zambian kwacha	823.00	825.00
UK pound*	1.6970	1.6370
Paraguayan guarani	6120.0	6160.0
Kuwaiti dinar	0.2784	0.2984

*Express as dollars/pound

III. Fill in the following cross rates (both the smaller and the larger) using the table from the last question. The cells should contain the number of units of the column currency per unit of the row currency.

Spot Cross Rates

Zambian kwacha	UK pound	Paraguayan guarani	Kuwaiti dinar
UK pound	-----	10,018.44-10,453.52	.4557-.5064
Paraguayan guarani	.00009566 - .00009982	-----	.00004519- .00004876
Kuwaiti dinar	1.9747-2.1944	20508.6-22128.79	-----

UK pounds / Paraguayan guarani:

If you sell one pound to a bank you get 1.6370 dollars (the bank sells dollars at the offer rate of 1.6370 dollars per pound). If you sell 1.6370 dollars to a bank you get $1.6370 \times 6120.0 = 10,018.44$ guarani (the bank buys dollars at the bid rate of 6120.0 guarani per dollar).

If you buy one pound from a bank it costs 1.6970 dollars (the bank buys dollars at the bid rate of 1.6970 dollars per pound). If you buy 1.6970 dollars from the bank it costs you $1.6970 \times 6160.0 = 10,453.52$ guarani (the bank sells dollars at the offer rate of 6160.0 guarani per dollar).

If you sell one pound to a bank you get 1.6370 dollars (the bank sells dollars at the offer rate of 1.6370 dollars per pound). If you sell 1.6370 dollars to a bank you get $1.6370 \times 0.2784 = .4557$ (the bank buys dollars at the bid rate of .2784 dinars per dollar).

If you buy one pound from a bank it costs 1.6970 dollars (the bank buys dollars at the bid rate of 1.6970 dollars per pound). If you buy 1.6970 dollars from the bank it costs you $1.6970 \times .2984 = .5064$ guarani (the bank sells dollars at the offer rate of 6160.0 guarani per dollar).

If you sell one guarani to a bank you get .00016234 dollars. If you sell .00016234 dollars to the bank you get $.00016234 \times 0.2784 = .00004519$ dinars.

If you buy one guarani from a bank it costs .00016340 dollars. If you buy .00016340 dollars from the bank it costs you $.00016340 \times .2984 = .00004876$ dinars.

To find the other numbers take the reciprocals and switch the rates so that the smallest is first. So that, for example, for pounds/guarani we have $1/10,453.52 - 1/10,018.44 = .00009566 -$

.00009982

IV.

A. Suppose that the Ukrainian hryvna is trading in the spot market for 5.3363 hryvnas/\$. Suppose that the one-year dollar interest rate is 4 percent and the one-year hryvna interest rate is 15 percent. Find the one-year hryvna/dollar forward rate.

Take one dollar, invest it at four percent and at the end of the year you have 1.04 dollars. Or, take one dollar and purchase 5.3363 hryvnas in the spot market. Invest them at 15 percent and at the end of the year you have $5.3363 \times 1.15 = 6.1367$ hryvnas. At the same time you make your spot market purchase, sell 6.1367 hryvnas in the (one-year) forward market for $6.1367/f$ dollars. To be indifferent between these options it must be that $1.04 = 6.1367/f$ or $f = 6.1367/1.04 = 5.9007$.

B. Suppose that the UK pound is trading at 1.6000 \$/£ in the spot market. Suppose that the one-year pound interest rate is 4 percent and the one-year dollar interest rate is 3 percent. Find the one-year \$/£ forward rate.

Take one dollar, invest it at three percent and at the end of the year you have 1.03 dollars. Or, take one dollar and purchase $1/1.6000 = .6250$ pounds in the spot market. Invest them at four percent and at the end of the year you have $.6250 \times 1.04 = .6500$ pounds. At the same time you make your spot market purchase, sell .6500 pounds in the (one-year) forward market for $.6500f$ dollars. To be indifferent between these options it must be that $1.03 = .6500f$ or $f = 1.03/.6500 = 1.5846$.

C. Suppose that the Ruritanian krone is trading at 4.5679 Swiss francs/krone in the spot market and the Pongoland pongo is trading at 7.8695 pongos/Swiss franc in the spot market. The one-year krone interest rate is 10 percent and the one-year pongo interest rate is 7 percent. What is the one-year krone/pongo forward rate?

We first need to find the krone/pongo spot rate:

$$\text{krones/pongo} = (\text{krones/Sfr}) \times (\text{Sfr/pongo}) = (1/4.5679) \times 1/7.8695 = .0278 \text{ krones/pongo.}$$

Take one pongo, invest it at seven percent and at the end of the year you have 1.07 pongos. Or, take one pongo and purchase .0278 krones in the spot market. Invest them at ten percent and at the end of the year you have $.0278 \times 1.10 = .0306$ krones. At the same time you make your spot market purchase, sell the .0306 krones forward for $.0306/f$ pongos. To be indifferent between these two options it must be that $1.07 = .0306/f$ or $f = .0306/1.07 = .0286$.