

Sample and Review Questions

- 1) Define the concept of the real exchange rate and explain how it differs from the nominal exchange rate.

Answer: In general, the real exchange rate between two countries' currencies is the price of the second country's commodity basket (in terms of the first country's currency) relative to the price of the first country's commodity basket. For example, in the case of U.S. and Europe, the real dollar/euro exchange rate is the dollar value of Europe's price level divided by the U.S. price level. We can thus denote the real dollar/euro exchange rate ($q_{\$/\epsilon}^e$) as:

$$q_{\$/\epsilon}^e = (E_{\$/\epsilon} \times P_E) / P_{US}$$

where $E_{\$/\epsilon}$ is the *nominal* dollar/euro exchange rate, P_E is Europe's price level, and P_{US} is the U.S. price level. Unlike the real exchange rate, which is the relative price of two *output baskets*, the nominal exchange rate is the relative price of two *currencies*. However, as we can see from the equation above, real exchange rates are defined in terms of nominal exchange rates.

- 2) What is the real interest rate parity condition?

Answer: The nominal interest rates are rates of return measured in monetary terms. The real interest rates are rates of return measured in real terms.

$$\text{Real Interest Parity Condition: } (r_{US}^e - r_E^e) = (q_{\$/\epsilon}^e - q_{\$/\epsilon}) / q_{\$/\epsilon}$$

- 3) Assume the U.S. interest rate is 10 percent, and the interest rate on euro deposits is 5 percent. For the following exchange rates, find the forward exchange rates.

Answer: Using the covered interest rate parity will yield the second column in the table:

$$F_{\$/\epsilon} = (R_S - R_E) E_{\$/\epsilon} + E_{\$/\epsilon}$$

Today's Dollar/Euro Exchange Rate $E_{\$/\epsilon}$	Forward Exchange Rate $F_{\$/\epsilon}$
1	1.05
1.05	1.1025
1.1	1.155
1.2	1.26
1.3	1.365

4) Explain Purchasing Power Parity. Does it hold? Why or why not?

Answer: PPP states that the exchange rate between two countries' currencies equals the ratio of the countries' price levels.

A fall in a currency's domestic purchasing power (i.e. an increase in the domestic price level) will be associated with a proportional currency depreciation in the foreign exchange market and vice versa.

$E_{\$/\text{€}} = P_{\text{US}}/P_{\text{E}}$ where P is the price of a reference commodity basket.

Rearrange: $P_{\text{US}} = (E_{\$/\text{€}}) \times (P_{\text{E}})$

Thus, PPP asserts that all countries' price levels are equal when measured in terms of the same currency.

PPP generally does not hold, for a range of reasons. These include trade barriers and transport costs, non-traded goods, the Balassa-Samuelson effect, restrictions on capital flows, and differences in risk across markets.

5) Fill in the table below, then answer the questions that follow.

Country	currency	Big Mac price	official e-rate 1 EUR =	PPP e-rate 1 EUR =	over, under, or correctly valued relative to euro
Euro area	euro	2.94	1.00	1.00	N/A
Argentina	peso	8.25	4.16	2.81	under
Australia	Aus\$	3.45	1.64	1.17	under
Brazil	Real	6.40	2.64	2.18	under
Britain	pound	1.99	0.68	0.68	correct
Canada	CAN\$	3.63	1.47	1.23	under
Mexico	peso	29.00	14.57	9.86	under
New Zealand	NZ\$	4.60	1.85	1.56	under
United States	dollar	3.50	1.35	1.19	under

- Based on the table above, would you say the euro is over valued or under valued relative to other currencies? **OVERVALUED**
- Based on the table above, would you say the British pound is over or under valued relative to other currencies? **OVERVALUED, exc euro**

NOTE: HERE YOU ARE CALCULATING

PPP rate = Local Price / Price in Euros.

6) The first table below lists short-term interest rates for borrowing in different currencies. On the basis of this table, cross-rate arbitrage conditions, and the covered interest parity conditions, fill in the second table below:

Mar 16 TABLE 2	Short term	7 days notice	One month	Three months	Six months	One year
Euro	3.83 - 3.81	3.87 - 3.79	3.89 - 3.81	3.92 - 3.84	4.03 - 3.95	4.14 - 4.06
Danish Krone	3.92 - 3.72	4.10 - 3.90	4.10 - 3.80	4.13 - 3.83	4.22 - 3.92	4.32 - 4.02
Sterling	5.30 - 5.27	5.39 - 5.30	5.41 - 5.33	5.53 - 5.45	5.61 - 5.53	5.70 - 5.62
Swiss Franc	1.83 - 1.63	2.24 - 2.10	2.26 - 2.14	2.31 - 2.23	2.40 - 2.32	2.53 - 2.45
Canadian Dollar	4.24 - 4.18	4.28 - 4.18	4.30 - 4.20	4.30 - 4.20	4.30 - 4.20	4.25 - 4.15
US Dollar	5.31 - 5.22	5.33 - 5.25	5.33 - 5.25	5.35 - 5.27	5.34 - 5.26	5.24 - 5.16
Japanese Yen	0.70 - 0.59	0.68 - 0.62	0.77 - 0.68	0.75 - 0.67	0.77 - 0.67	0.78 - 0.73
Singapore \$	2.88 - 2.63	3.30 - 2.82	3.30 - 2.99	3.05 - 2.96	3.07 - 2.96	3.30 - 3.03

Source: Reuters. Short term rates are call for the US Dollar and Yen, others: two day's notice.

Forward exchange rates

	16 March 2008	16 March 2009
US\$/euro	1.650	1.668
Pound/euro	0.680	0.683
Pound/US\$	0.412	0.414

NOTE: Here you are using covered parity conditions. This means

For example that the euro is worth \$1.65, but 12 month interest rates are roughly 4.1% in the EU and 5.2% in the U.S. So the euro must gain 1.1% because

% change currency = % difference in interest rates.

- 7) Interest parity means that:
- b. purchasing power parity depends on interest rate differences.
 - c. a rise in interest rates in Europe will cause the U.S. dollar to go up in value.
 - d. forward exchange rates depend on expectations.
 - e. deposits in all currencies are deemed equally desirable assets.
- 8) depreciated currency:
- a. is less valuable (less expensive) and therefore can be exchanged for (can buy) a smaller amount of foreign currency.
 - b. is more valuable (more expensive) and therefore can be exchanged for (can buy) a larger amount of foreign currency.
 - c. Causes exports to fall because exports become more expensive.
 - d. reflects deviations from purchasing power parity.
- 9) Options contracts:
- a. are contracts designed by third parties for a standard amount of foreign currency delivered/received on or before a standard date.
 - b. are bilateral swaps of currency obligations between multinational enterprises.
 - c. require that the owners of the options buy or sell currencies within a fixed amount of time at a fixed price.
 - d. are contracts designed by third parties for a standard amount of foreign currency delivered/received on a standard date.
- 10) The real exchange rate approach to exchange rates
- a. is a special case of the monetary approach to exchange rates
 - b. defines the real exchange rate as the difference between nominal exchange rates.
 - c. assumes strict purchasing power parity (PPP).
 - d. does not assume strict PPP.
- 11) Futures contracts differ from forward contracts in that
- a. future contracts ensures you will receive a certain amount of foreign currency at a specified future date.
 - b. future contracts bind you into your end of the deal.
 - c. future contracts allow you to sell your contract to an organized futures exchange.
 - d. future contracts are a disadvantage if your views about the future spot exchange rate are to change.

- 12) If people expect relative PPP to hold:
- a. the difference between the interest rates offered by dollar and euro deposits will equal the difference between the inflation rates expected, in the United States and Europe, over the relevant time horizon.
 - b. the difference between the interest rates offered by dollar and euro deposits will equal the difference between the inflation rates expected
 - c. in Europe and the United States.
the difference between the interest rates offered by dollar and euro deposits will equal the difference between the inflation rates expected, over the relevant horizon, in the United States and Europe, in the short run.
 - d. the difference between the interest rates offered by dollar and euro deposits will be above the difference between the inflation rates expected, over the relevant horizon, in the U.S. and Europe.
- 13) When the covered interest parity and the (uncovered) interest parity condition both hold, we find that:
- a. forward and spot rates are affected in different ways by unexpected events.
 - b. forward rates reflect wages.
 - c. forward and spot rates tend to move together
 - d. none of the above
- 14) Under strict purchasing power parity,
- a. Exchange rates immediately move to offset exactly national differences in inflation.
 - b. Exchange rates eventually move to offset exactly national differences in inflation.
 - c. Exchange rates eventually move to offset to some extent national differences in inflation.
 - d. Exchange rates eventually move to offset exactly national differences in unemployment.
 - e. None of the above.

EURO SPOT FORWARD AGAINST THE EURO

TABLE 5

Mar 16		Closing mid-point	Change on day	Bid/offer spread	Day's mid		One month		Three months		One year	
					high	low	Rate	%PA	Rate	%PA	Rate	%PA
Europe												
Czech Rep.	(Koruna)	27.8520	-0.2070	370 - 670	28.0820	27.8160	27.8198	1.4	27.7559	1.4	27.4915	1.3
Denmark	(DKr)	7.4488	-0.0011	486 - 490	7.4584	7.4445	7.4497	-0.1	7.4514	-0.1	7.4573	-0.1
Hungary	(Forint)	249.050	-0.2000	950 - 150	250.460	248.380	249.919	-4.2	251.608	-4.1	258.094	-3.6
Norway	(Nkr)	8.1350	0.0156	330 - 370	8.1615	8.1229	8.1373	-0.3	8.1440	-0.4	8.1912	-0.7
Poland	(Zloty)	3.8924	-0.0015	912 - 935	3.9072	3.8845	3.8929	-0.2	3.8945	-0.2	3.9057	-0.3
Russia	(Rouble)	34.6468	0.0589	382 - 554	34.7522	34.5672	34.6862	-1.4	34.7601	-1.3	35.0478	-1.2
Slovakia	(Koruna)	33.9300	-0.0135	100 - 500	34.1411	33.9100	33.9446	-0.5	33.9727	-0.5	33.9096	0.1
Sweden	(SKr)	9.2773	0.0163	757 - 788	9.2788	9.2513	9.2729	0.6	9.2640	0.6	9.2341	0.5
Switzerland	(SFr)	1.6075	-0.0013	072 - 077	1.6133	1.6041	1.6052	1.7	1.6008	1.7	1.5823	1.6
Turkey	(Lira)	1.8789	0.0150	767 - 811	1.8811	1.8600	1.9024	-15.0	1.9486	-14.8	2.1648	-15.2
UK	(£)	0.6851	0.0010	849 - 852	0.6865	0.6834	0.6859	-1.5	0.6877	-1.6	0.6951	-1.5
Americas												
Argentina	(Peso)	4.1201	0.0183	179 - 222	4.1298	4.0993	4.1245	-1.3	4.1439	-2.3	4.2662	-3.5
Brazil	(R\$)	2.7817	0.0105	794 - 839	2.7917	2.7709	2.7978	-6.9	2.8258	-6.3	2.9621	-6.5
Canada	(C\$)	1.5623	0.0046	617 - 628	1.5664	1.5574	1.5628	-0.4	1.5637	-0.4	1.5638	-0.1
Mexico	(New Peso)	14.8483	0.0846	445 - 520	14.8923	14.7601	14.8928	-3.6	14.9802	-3.6	15.3791	-3.6
Peru	(New Sol)	4.2388	0.0201	376 - 399	4.2472	4.2174	4.2420	-0.9	4.2490	-1.0	4.2801	-1.0
USA	(\$)	1.3307	0.0059	305 - 308	1.3339	1.3314	1.3323	-1.5	1.3355	-1.4	1.3449	-1.1
Pacific/Middle East/Africa												
Australia	(A\$)	1.6741	-0.0065	734 - 748	1.6850	1.6708	1.6775	-2.5	1.6844	-2.5	1.7151	-2.5
Hong Kong	(HK\$)	10.3939	0.0451	923 - 954	10.4198	10.3381	10.3960	-0.2	10.4009	-0.3	10.4178	-0.2
India	(Rs)	58.7017	0.1497	884 - 149	58.8470	58.3840	59.1176	-8.5	59.5554	-5.8	61.2418	-4.3
Indonesia	(Rupiah)	12275.2	53.7655	672 - 833	12303.9	12214.1	12290.5	-1.5	12319.7	-1.4	12406.8	-1.1
Iran	(Rial)	12297.9	54.5278	832 - 126	12315.0	12243.0						
Israel	(Shk)	5.5981	0.0182	894 - 067	5.6110	5.5764	5.6004	-0.5	5.6049	-0.5	5.6205	-0.4
Japan	(Y)	155.373	0.0464	336 - 411	155.890	155.250	154.959	3.2	154.125	3.2	150.314	3.3
Kuwait	(Dinar)	0.3845	0.0017	844 - 846	0.3853	0.3824	0.3849	-1.3	0.3860	-1.5	0.3893	-1.2
Malaysia	(M\$)	4.6686	0.0154	667 - 704	4.6787	4.6494	4.6672	0.3	4.6648	0.3	4.6453	0.5
New Zealand	(NZ\$)	1.9072	0.0009	064 - 080	1.9192	1.9026	1.9135	-4.0	1.9262	-4.0	1.9812	-3.9
Philippines	(Peso)	65.0023	0.4869	284 - 761	65.0940	64.5370	65.0617	-1.1	65.1877	-1.1	65.6733	-1.0
Saudi Arabia	(SR)	4.9899	0.0233	890 - 908	5.0017	4.9620	4.9948	-1.2	5.0046	-1.2	5.0377	-1.0
Singapore	(S\$)	2.0299	-0.0006	293 - 305	2.0365	2.0292	2.0285	0.9	2.0251	0.9	2.0095	1.0
South Africa	(R)	9.9467	0.1256	388 - 545	9.9655	9.8234	9.9918	-5.4	10.0820	-5.4	10.4722	-5.3
South Korea	(Won)	1257.07	5.8387	652 - 761	1260.00	1250.25	1257.86	-0.8	1259.25	-0.7	1262.47	-0.4
Taiwan	(T\$)	44.0485	0.2933	369 - 601	44.1490	43.7070	44.0299	0.5	43.9544	0.9	43.3639	1.6
Thailand	(Bt)	43.7119	-0.0049	739 - 499	46.5531	43.5739	44.0327	-8.8	44.4980	-7.2	45.2899	-3.6
U A E	(Dirham)	4.8862	0.0219	849 - 874	4.8977	4.8594	4.8923	-1.5	4.9039	-1.4	4.9382	-1.1

Euro Locking Rates: Austrian Schilling 13.7603, Belgium/Luxembourg Franc 40.3399, Finnish Markka 5.94573, French Franc 6.55957, German Mark 1.95583, Greek Drachma 340.75, Irish Punt 0.787564, Italian Lira 1936.27, Netherlands Guilder 2.20371, Portuguese Escudo 200.482, Spanish Peseta 166.386. Bid/offer spreads in the Euro Spot table show only the last three decimal places Bid, offer, mid spot rates and forward rates are derived from THE WM/REUTERS CLOSING SPOT and FORWARD RATE services. Some values are rounded by the F.T.

15) Based on the exchange rates above, what was the 16 March exchange rate between Russian ruble and Kuwait dinar?

ANSWER: €1=34.6468 roble and €1=0.3845 dinar. This means we have
 1 ruble = €(1/34.6468)=.3845/34.6468=0.01109771 dinar.
 1 ruble is worth roughly 0.01 dinar.