

**Solution key to homework #1**  
Econ 160B: International Macroeconomics

- 1a. June 2004:  $E_{\$/\text{HK}\$} = 1/(7.80) = \$0.128205$   
June 2005:  $E_{\$/\text{HK}\$} = 1/(7.76) = \$0.128866$  (6 decimal places)
- b. June 2004:  $E_{\$/\pounds} = 1/(0.56) = \$1.785714$   
June 2005:  $E_{\$/\pounds} = \$1.84$  (given in table)
- c. The U.S. dollar has been essentially fixed against the HK\$ and has lost value against the pound. To compute appreciation/depreciation using the exchange rates computed in part (a) we calculate the approximate depreciation of the US dollar by the % change in E in each case.  
% Change in  $E_{\$/\text{HK}\$} = (0.128866 - 0.128205) / 0.128205 = +0.51\%$   
% Change in  $E_{\$/\pounds} = (1.84 - 1.785714) / 1.785714 = +3.04\%$   
The US dollar has depreciated by 0.51% relative to the HK dollar.  
The US dollar has depreciated by 3.04% relative to the pound.

The Hong Kong dollar is currently pegged to the U.S. dollar – this isn't obvious from the table above. If you look at time series graph of the exchange rate between the U.S. and Hong Kong dollars over time, then this would be obvious. You can view time series graph of exchange rates at the Federal Reserve Economic Database (FRED) or at oanda.com.

- d. Use the cross rate formula.  $E_{\text{¥}/\text{C}\$} = E_{\text{¥}/\text{U}\$} / E_{\text{C}\$/\text{U}\$} = 109.13/1.19 = 91.71$  (yen per Canadian dollar)
- 2a. Keeping your money in the US for the two years yields a gross return of  $\$5,000 \times (1.04)^2 = \$5,408$ . Putting your money in the Peruvian bond yields a gross return of  $\$5,000 \times (1.15)^2 \times 3.34 \times (1/4.8) = \$4,601.20$ . Thus you should keep your money in the US because the expected depreciation of the New Sol more than cancels out the higher interest rate in Peru.
- b. Again you should keep your money in the US. Using a similar method to that in part a, we see that in the US, the gross bank account return is approximately  $\$5,000 \times (1.035)^3 = \$5,058$ , while the return on the Euro account is only about  $\$5,019$ .

- 3a. Rearranging the uncovered interest rate parity condition to solve for the current spot rate reveals that

$$E_{R/\$} = \frac{E_{R/\$}^e}{R_{SA} - R_{US} + 1}$$

exchange rate is 6.17 rand per dollar.

- b. Replacing the expected spot rate with 6.25 rand per dollar and plugging into the same formula gives the current equilibrium exchange rate as 6.37 rand per dollar.
- c. No, the answer to part b is not the answer to this part. The same formula is used, however, with the South African interest rate now 6.7%. This yields an equilibrium exchange rate of 6.2 rand per dollar.
- d. Any time there is no risk premium, we expect the forward exchange rate to equal the expected future spot rate. Thus with a current exchange rate of 6.2 rand per dollar, the forward exchange rate should be 6.25 rand per dollar. This answer could also be obtained by solving the covered interest rate parity condition for the forward exchange rate.