

## Practice Problems: Law of One Price, Interest Parity, and FOREX Analysis

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### Law of One Price

1. What is the law of one price?
2. Show two markets, A and B, where the price is higher in market B (suppose transaction costs are zero). Using your graphs and a brief description, explain the process by which the law of one price obtains.
3. Show two markets, A and B, where the price is higher in market B (suppose transaction costs are positive). Using your graphs and a brief description, explain the process by which the law of one price obtains.
4. What is arbitrage? Explain. How much arbitrage profit is available when the law of one price holds?
5. Suppose a small economy suddenly opens up to trade with its neighbor. Each country has a fixed supply of rare gems that are identical. In autarky, the domestic price of the gems was higher than the foreign price (assume all prices are in dollars). Using supply and demand diagrams, show what happens after the countries open to trade (assuming zero transportation or other trading costs).

### Interest Parity

1. What are the characteristics of currency markets that make it likely for the law of one price to hold well?
2. In what sense is interest parity just an example of the law of one price?
3. There are two markets in which you can invest your money, A and B. In market A the return on investment is 5% (i.e.,  $i_A = 5\%$ ). The return in market B is 8% (i.e.,  $i_B = 8\%$ ).
  - a. Suppose market A is Connecticut and market B is Massachusetts.
    - i. In which market would you invest your money and why?
    - ii. Over time, what would you expect to happen to the returns in Conn. and Mass.? Explain.
  - b. Suppose market A is the USA and market B is Mexico.
    - i. The nominal exchange rate is 0.08.
    - ii. If you are in the US, is that exchange rate \$/Peso or Peso/\$ ?
    - iii. If you have \$100 to invest and you expect the exchange rate to remain constant over the next year, in which market would you invest? Explain.
    - iv. If you have \$100 to invest and you believe the nominal exchange rate will be 0.09 next year, in which market would you invest? Explain and include how much money you made or lost.

- v. If you have \$100 to invest and you believe the nominal exchange rate will be 0.07 next year, in which market would you invest? Explain and include how much money you made or lost.
- vi. What would the expected change in the nominal exchange rate have to be to convince you not to invest in Mexico?

### **FOREX Analysis**

1. Using the FOREX market diagram, show what happens to the nominal exchange rate when the domestic central bank raises the domestic interest rate. Explain.
2. Using the FOREX market diagram, show what happens to the nominal exchange rate when the domestic central bank lowers the domestic interest rate. Explain.
3. Using the FOREX market diagram, show what happens to the nominal exchange rate when the foreign central bank raises the foreign interest rate. Explain.
4. Using the FOREX market diagram, show what happens to the nominal exchange rate when the foreign central bank lowers the foreign interest rate. Explain.
5. Which of the above cases have the same result for the exchange rate? Explain why that makes sense.
6. Using the FOREX market diagram, show what happens to the nominal exchange rate when the domestic central bank raises the interest rate and the foreign central bank lowers the foreign interest rate. Explain. Explain how your prediction here is different than your prediction in #1 and/or #4 above.
7. Using the FOREX market diagram, show what happens to the nominal exchange rate when the domestic central bank lowers the interest rate and the foreign central bank lowers the foreign interest rate too. Explain. Explain how your prediction here is different than your prediction in #2 and/or #4 above.