

Problem Set #1: Due end of class September 18, 2017

You may discuss this problem set with your classmates, but everything you turn in must be your own work.

1. Download the foreign exchange rate data for: US-Canada; US-Mexico; and US-China. An easy place to find these data are the FRED database at <https://fred.stlouisfed.org/>. The data should be monthly and span January 1994 to September 2018.
 - (a) Compute the percent growth rates of each exchange rate. Report the standard deviation of each exchange rate. Report the three (US-CA&US-MX; US-CA&US-CH; US-MX&US-CH) correlation coefficients.
 - (b) In a few sentences, summarize the results you found in part a. What do you think might drive the differences in volatility across the exchange rates?
 - (c) Turn in a well labeled plot of the growth rates you computed in a. for the three exchange rates. This should be one plot with three lines.

2. Explain **why** you can compute the Mexico-China exchange rate given the data you have in question 1. Provide the formula for the Mexico-China exchange rate, in terms of other exchange rates.

3. Consider a Dutch investor with 1,000 euros to place in a bank deposit in either the Netherlands or Great Britain. The (one-year) interest rate on bank deposits is 2% in Britain and 4.04% in the Netherlands. The (one-year) forward euro-pound rate is 1.575 euros per pound and the spot rate is 1.5 euros per pound. Answer the following questions using CIP and UIP where appropriate.

[This is mostly question six from the problems in Feenstra and Taylor, chapter 13.]

 - (a) What is the euro-denominated return on Dutch deposits for this investor?
 - (b) What is the riskless euro-denominated return on British deposits for this investor using forward cover?
 - (c) Is there an arbitrage opportunity here? Why or why not?
 - (d) If the spot rate is 1.5 euros per pound and the interest rates are as stated previously, what is the equilibrium forward rate, according to CIP?
 - (e) If uncovered interest parity holds, what is the expected depreciation of the euro (against the pound) over one year?
 - (f) Based on your answer to e, what is the expected euro-pound exchange rate one year ahead?

4. Your U.S. firm needs 10,000 Mexican pesos to pay for imported parts one year from today. Looking to remove the exchange rate risk from the payment, you devise two strategies.
 - (a) Put X in a U.S. bank account that earns 5% interest per year. Buy a forward contract to purchase pesos at 0.2 pesos per dollar in one year. What is the dollar-cost (X) of the imported parts under this strategy?
 - (b) If covered interest parity holds, is there an advantage to the following strategy? Sell Y dollars for pesos today and put the pesos in a Mexican bank account that earns 20% interest per year.
 - (c) What is the spot exchange rate (in dollars per peso) if CIP holds?