Problem 1 (Sample Final Question 5). The Republic of Banania is currently pegging the Bananian peso to the dollar at $E = 1$ peso per dollar. In year 1 the money supply is $M = 12500$ pesos, reserves are $R = 4500$ pesos, and domestic credit is $B = 8000$ pesos. To finance spending, B is growing at 25 percent per year. Inflation is currently zero, prices are flexible, PPP holds at all times, and initially $P = 1$. Assume also that the foreign price level is $P^* = 1$, so PPP holds. The government will float the peso if and only if it runs out of reserves. The US nominal interest rate is $i^* = 5\%$. Real output is fixed at $Y = 12500$ at all times. Real money balances are initially $M/P = 12500 = L(i)Y$, when $i = 5\%$, and L is initially equal to 1.

(a) Assume that Bananian investors are myopic and do not foresee the reserves running out. Compute domestic credit in years 1, 2, 3, 4, and 5. At each date, also compute reserves, money supply, and the growth rate of money supply since the previous period (in percent).

(b) Continue to assume myopia. When do reserves run out? Call this time T. Assume inflation is constant after time T. What will that new inflation rate be? What will the rate of depreciation be? What will the new domestic interest rate be?

(c) Continue to assume myopia. Suppose that at time T, when the home interest rate i jumps up, $L(i)$ drops from 1 to $4/5$. Recall that Y remains fixed. What is M/P before time T? What will be the new level of M/P after time T, once reserves have run out and inflation has started?

(d) Continue to assume myopia. At time T, what is the price level going to be right before reserves run out? Right after? What is the percentage increase in the price level? In the exchange rate?

(e) Suppose investors know the rate at which domestic credit is growing. Given the above data, when do you think a speculative attack would occur? At what level of reserves will such an attack occur? Explain your answer.

Problem 2. Evaluate how the following shocks affect a country's ability to defend a peg.

(a) The central bank sells government bonds.

(b) Currency traders expect a depreciation in the home currency in the future.

(c) The foreign interest rate falls.