Econ 434 Fall 2006

Final Exam

Instructions

Read the entire exam over carefully before beginning. The value of each question is given. Allocate your time efficiently given the price schedule that is imposed. Graphs and diagrams can be very helpful, use whenever possible and label clearly. There are no trick questions.

1. *(24%)* Consider a small open economy with a fixed exchange rate and open capital markets (high degree of capital mobility). The economy is in both internal and external balance. Draw a diagram showing the initial situation (in $i - e$ space).

   (a) Provide a brief explanation of the slopes of the internal and external balance conditions. Why do they have the slopes they do?

   (b) Suppose that, all of a sudden, foreign investors become scared about this country. The economy is no longer in external balance. If the economy does not suffer from currency mismatch show that exchange rate and interest rate policies can be used (in some combination) to restore external balance and maintain internal balance. What policies are changed and in what direction?

   (c) Suppose that the country suffers from currency mismatch. Why might the normal (conventional) assignment of policies to deal with the loss of external balance be problematic? Explain. Why does this differ from what happens in part (b)? Explain.

   (d) Why does currency mismatch make the response to a negative shock problematic for an economy? Explain.

2. *(36%)* True, False, Uncertain, and Explain. Provide concise answers and explanations, and cite the relevant theories, when applicable.

   (a) If the price of oil were to *temporarily* fall to $15 a barrel, we should expect the U.S. and other oil dependent countries to run a smaller current account deficit.

   (b) According to the World Bank, GDP per capita in 2002 was close to $1,000 in China and $36,000 in the U.S. [This is a fact; do not discuss]. This implies that the typical U.S. person has about 36 times the purchasing power of a typical Chinese person.

   (c) Under the Bretton Wood system, the country at the center (the U.S.) can set its monetary policy at will. Other countries will have to adjust their monetary conditions.

   (d) Under a fixed exchange rate regime, a country can generally attain internal and external balance using only fiscal policy.

   (e) Bubbles in asset markets can only occur if investors are irrational.

   (f) The interwar gold standard failed because the price of gold was too high.

3. *(20%)* The US Treasury Secretary was just in China trying to persuade Chinese policymakers to let the value of the yuan be determined by the market.

   (a) Why would the US want China to adopt a more flexible exchange rate policy?

   (b) Why does China seemingly prefer its fixed rate of exchange to the dollar? What would happen to the yuan if China allowed it to float?

   (c) Under these circumstances, what do you think speculators are thinking? Is capital flowing into or out of China?

   (d) How does China manage to prevent inflation given its pegged exchange rate? Explain. If China could not prevent inflation would the US really care about whether they had a fixed or flexible exchange rate? Explain.

4. *(20%)* Consider a small open economy with a flexible exchange rate and a high degree of capital mobility. Suppose that money demand suddenly decreases.

   (a) What happens to the exchange rate once adjustment is complete? What happens at impact? Explain.

   (b) Can monetary policy be used to prevent the exchange rate from changing? Explain. Can fiscal policy be used to prevent the exchange rate from changing? Explain.

   (c) Suppose, instead, that money demand was stable, but the Fed announced that the money supply would contract next period. What would happen to the exchange rate today, if anything? Explain. What would happen next period when the money supply actually contracts (as expected)?

Final Exam: Answer Sheet

1. *(24%) Consider a small open economy with a fixed exchange rate and open capital markets (high degree of capital mobility). The economy is in both internal and external balance. Draw a diagram showing the initial situation (in $i - e$ space).*

   (a) *Provide a brief explanation of the slopes of the internal and external balance conditions. Why do they have the slopes they do?*

   brief answer Choose a point and call it internal balance. Now let $\Delta e > 0$. This increases competitiveness and net exports so the economy is now overheated. To restore internal balance interest rates must rise, so IB is positively sloped. Repeat the exercise from a position of external balance. We are now in an external surplus. So we need a lower interest rate, and hence capital outflows to restore external equilibrium.

   (b) *Suppose that, all of a sudden, foreign investors become scared about this country. The economy is no longer in external balance. If the economy does not suffer from currency mismatch show that exchange rate and interest rate policies can be used (in some combination) to restore external balance and maintain internal balance. What policies are changed and in what direction?*

   brief answer We start at point A in figure 1. External balance shifts upwards to EB_1. If the exchange rate appreciates sufficiently we reach external balance, but now the economy is overheated. So interest rates must rise, follow the arrows to point B.

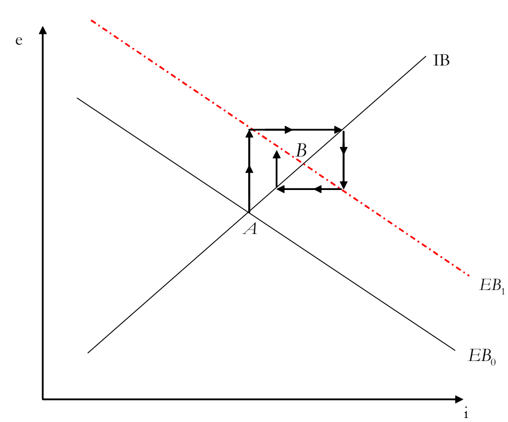

Figure 1: Internal and External Balance

   (c) *Suppose that the country suffers from currency mismatch. Why might the normal (conventional) assignment of policies to deal with the loss of external balance be problematic? Explain. Why does this differ from what happens in part (b)? Explain.*

brief answer If there is currency mismatch exchange rate appreciation causes balance sheet difficulties for banks and other debtors. This can cause investment to decline, and outweigh the positive benefits of exchange rate appreciation on competitiveness. In that case, IB is negatively sloped. Suppose we have figure 2 and we are at point C. To achieve internal balance we need to cut interest rates to prevent banks from failing (act as lender of last resort). But that would move us farther from external balance and make the currency collapse more. We are in a straitjacket.

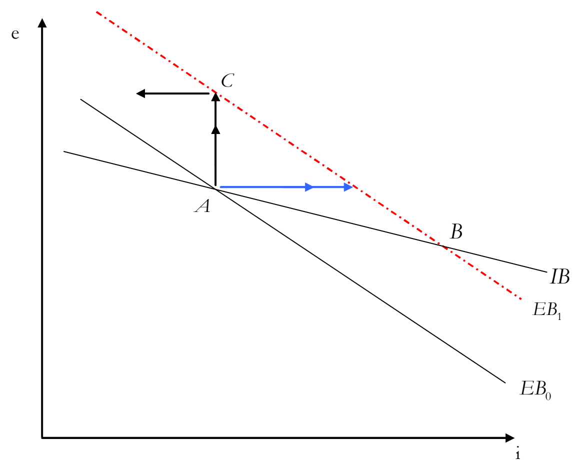

Figure 2: Currency Mismatch

(d) *Why does currency mismatch make the response to a negative shock problematic for an economy? Explain.*

brief answer Because our debt is denominated in foreign currency our debt burden rises when we need to borrow. Our insurance premiums are increasing when we need to make a claim.

2. *(36%) True, False, Uncertain, and Explain. Provide concise answers and explanations, and cite the relevant theories, when applicable.*

(a) *If the price of oil were to temporarily fall to \$15 a barrel, we should expect the U.S. and other oil dependent countries to run a smaller current account deficit.*

brief answer TRUE: Intertemporal Approach to the Current Account. This is a temporary favorable shock for oil dependent countries. Hence they should save more and run a smaller current account deficit. Current income is temporarily high. So we should save today for higher oil prices tomorrow.

(b) *According to the World Bank, GDP per capita in 2002 was close to \$1,000 in China and \$36,000 in the U.S. [This is a fact; do not discuss]. This implies that the typical U.S. person has about 36 times the purchasing power of a typical Chinese person.*

brief answer FALSE. the purchasing power needs to be computed on a PPP basis. Many goods are non-traded and these are cheaper in a poorer country like China. China's PPP income is much larger, relative to the US than its dollar income.

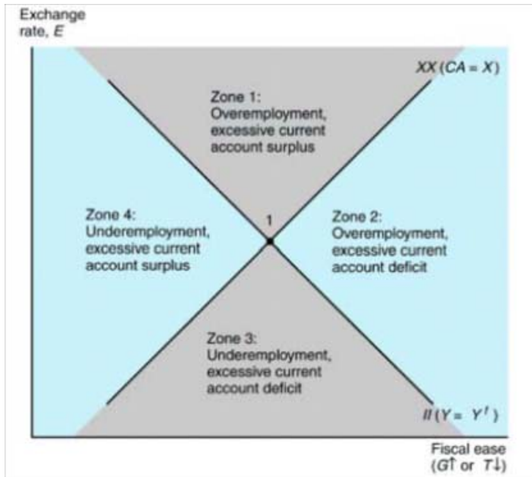

Figure 3: Internal and External Balance

(c) *Under the Bretton Wood system, the country at the center (the U.S.) can set its monetary policy at will. Other countries will have to adjust their monetary conditions.*

brief answer UNCERTAIN/FALSE: It is true that the country at the center is free to set its monetary policy at will and countries at the periphery have to adjust. However, in the Bretton Woods system, the parity between Gold and US dollar needs to be maintained. If the US runs a monetary policy that is too expansionary (as they did), then, other central banks might run against the dollar and ask for gold (as it happened). So even US monetary policy is not unconstrained. But this constraint is only felt in the longer run (Triffin problem). For thirty years, the US was able to set monetary policy with an eye mostly to internal balance.

(d) *Under a fixed exchange rate regime, a country can generally attain internal and external balance using only fiscal policy.*

brief answer False: refer to the internal-external balance diagram. In general, internal and external balance require using both expenditure reducing policy (fiscal policy) and expenditure switching policies (devaluation). If you have two targets you need two instruments.

(e) *Bubbles in asset markets can only occur if investors are irrational.*

brief answer FALSE. Rational stochastic bubbles are possible They can exist if expected price growth compensates for the capital loss that occurs when the bubble bursts. Hence a stochastic bubble must grow faster than a deterministic bubble.

(f) *The interwar gold standard failed because the price of gold was too high.*

brief answer FALSE. Perhaps it failed because the price of gold was too low. This led to insufficient quantities of monetary gold. The low price of gold meant that the price level need to fall to restore equilibrium, but this jeopardized internal balance. Policymakers did not want deflation and prevented it, creating imbalance that led to the decline of the gold standard.

3. *(20%) The US Treasury Secretary was just in China trying to persuade Chinese policymakers to let the value of the yuan be determined by the market.*

   (a) *Why would the US want China to adopt a more flexible exchange rate policy?*

   brief answer The US would like the yuan to appreciate against the dollar so our exports to China would rise and our imports would fall (of course this neglects the fact that many Chinese exports are processed using imported inputs and so revaluation would not affect their prices too much). This would reduce our bilateral trade deficit with China which policymakers see as a problem.

   (b) *Why does China seemingly prefer its fixed rate of exchange to the dollar? What would happen to the yuan if China allowed it to float?*

   brief answer Their undervalued currency makes their exports cheaper and fuels growth of exports. If the yuan were to float it would likely appreciate.

   (c) *Under these circumstances, what do you think speculators are thinking? Is capital flowing into or out of China?*

   brief answer Speculators would like to purchase yuan now so that they can profit from appreciation. Hence, capital should be flowing into China, further increasing pressure on their currency. Of course their current account surplus also leads to a capital outflow. They buy lots of US assets. If the currency were to appreciate less would flow out.

   (d) *How does China manage to prevent inflation given its pegged exchange rate? Explain. If China could not prevent inflation would the US really care about whether they had a fixed or flexible exchange rate? Explain.*

   brief answer They sterilize the inflow. They sell domestic securities to absorb the excess liquidity and offset the effects on the MB of pegging the rate when there is excess demand for domestic currency. They are aided in this by capital controls which keep domestic interest rates low. If they did not have such controls they could not sterilize as cheaply as they do (not an essential point, but true). If China could not prevent inflation then their price level would rise and their real exchange rate would depreciate even with a fixed nominal rate. They would be less competitive and the US would be happy even though they did not resort to "market determination" of the exchange rate.

4. *(20%) Consider a small open economy with a flexible exchange rate and a high degree of capital mobility. Suppose that money demand suddenly decreases.*

   (a) *What happens to the exchange rate once adjustment is complete? What happens at impact? Explain.*

   brief answer If money demand decreases there is an excess supply of money. To restore equilibrium the price level (or output in a Keynesian model) must rise. So the LL curve shifts to the right and the exchange rate rises. At impact, the exchange rate must rise even more – overshoot – since the price level adjustment takes time. The adjustment is shown in figure 4

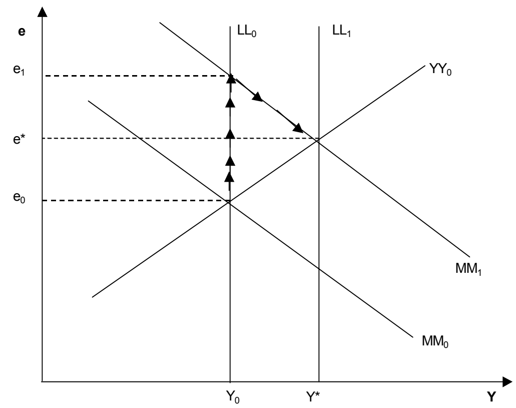

Figure 4: Adjustment of the Exchange Rate to an Unanticipated Decrease in Money Demand

(b) *Can monetary policy be used to prevent the exchange rate from changing? Explain. Can fiscal policy be used to prevent the exchange rate from changing? Explain.*

brief answer Yes. If the money supply contracts then money market equilibrium can be maintained at the initial price level. The decrease in money demand shifts LL to the right, a decrease in the money supply shifts LL to the left.

(c) *Suppose, instead, that money demand was stable, but the Fed announced that the money supply would contract next period. What would happen to the exchange rate today, if anything? Explain. What would happen next period when the money supply actually contracts (as expected)?*

brief answer The exchange rate would fall today. Investors know that in the new equilibrium with a lower money supply the currency is worth more. So they would purchase the domestic currency today, causing it to appreciate. Next period when the money supply contracts there is no new news. So we move along the MM curve to the new equilibrium.