

::Solutions::

Exam 3

- You have 75 minutes to complete this exam.
- You may use a calculator; you may **not** use any other device (cell phone, etc.)
- You may consult one page of notes (both sides); you may not use books, notebooks, etc.
- Show your work.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, nor tolerate those who do.

Signature

Printed Name

1. [5 pts] Multilateral fixed exchange rate systems have the advantage that cooperative adjustments are possible. Why would cooperative adjustments increase the viability of the multilateral system?

Cooperative adjustments decrease the costs of a fixed exchange rate. When one country is in a recession, the other countries can make adjustments (that might be bad for their own economies) in order to help the country in a recession.

2. [5 pts] In 1994, political uncertainty in Mexico worried international investors, who thought that Mexico might default on its government debt. At the same time, Mexico had a currency crisis and had to devalue its exchange rate. Explain how a sovereign debt crisis can contribute to a currency crisis.

Extended UIP:

$$i = i^* + \frac{E^e}{E} - 1 + \gamma_{df} + \gamma_{fx}$$

An increase in the probability of a default increases γ_{df} , which increases the domestic interest rate. Increasing the interest rate requires spending reserves to purchase the domestic currency. Running down reserves makes a crisis more likely.

3. [5 pts] In the 1890s, the U.S. was experiencing a period of deflation. Explain the role the gold standard played in creating deflation.

The quantity theory of money can be summarized as

$$\frac{M}{P} = L(i)Y$$

If Y (real output) is growing faster than M (the money supply) and L is not changing, P has to fall — and there is deflation. On the gold standard, the money supply is constrained by the amount of gold that exists. The central bank cannot increase the money supply, so, as the real economy grew, prices fell.

4. [5 pts] In the “second generation” crisis model, why do small recessions not cause self-fulfilling currency crises?

A small recession comes with a small cost of maintaining the peg, regardless of the beliefs of the market. The market knows that the central bank will always defend the peg, so they do not attack the currency.

Consider the “first generation” currency crisis model in which fiscal dominance creates the crisis. Assume that home country government debt grows at rate μ_b and that the home central bank monetizes the debt. Home has international capital mobility and the price level is flexible. Use this information to answer questions 5–8.

5. [6 pts] Assume agents are **myopic**. Provide a clearly labeled plot showing the evolution of M , B , and R . The x-axis should be time.

See the attached figures.

6. [8 pts] Continue to assume that agents are **myopic**. Why does home’s interest rate “jump” when $R = 0$? Explain your answer.

When reserves run out the peg is broken and the money supply grows at μ_b . The myopic agents are surprised to learn this and **immediately** update their expectation of inflation from zero to μ_b . By the Fisher equation

$$i = \pi^e + r$$

the interest rate jumps because r is unchanged and π^e jumps.

7. [6 pts] Now assume that agents are **forward looking**. Provide a clearly labeled plot showing the evolution of M , B , and R . The x-axis should be time. [Make this figure large and clear. You will need to modify it for question 8.]

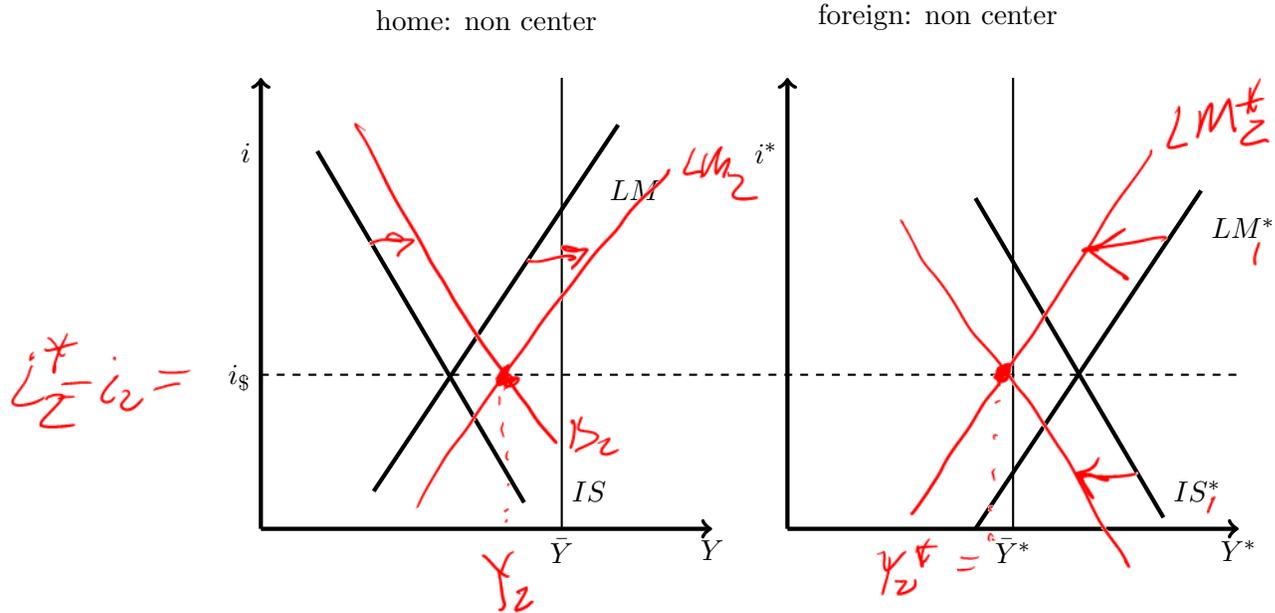
See attached figures.

8. [10 pts] Continue to assume that agents are **forward looking**. Suppose agents learned about the fiscal authority's plans to cut taxes in the future. The agents now believe that μ_b has increased. Show the effect of this change in beliefs in your answer to question 7. In the space below, explain your answer.

If agents believe that μ_b has increased, they will attack the currency sooner. The agents stop holding the domestic currency (run on, or attack, the currency) when the exchange rate in floating case is equal to the exchange rate in the fixed case.

When μ_b increases, the two are equal sooner (see the attached figure), so the run on the currency happens sooner.

The home and foreign countries both peg their currencies to the dollar. The countries current economic situations are summarized below. Use this information to answer questions 9–11.



9. [5 pts] Would the foreign country like to depreciate or appreciate its currency against the dollar? Would the home country agree to the change?

The foreign country would like to appreciate its currency. The home country agree to this change.

10. [15 pts] Show the effects of the change made by the foreign country (whether the home country likes it or not) in the figure above. Label the new equilibrium $\{Y_2, i_2, Y_2^*, i_2^*\}$. Below, explain what is happening in the home country.

When the foreign country appreciates (“revalues”) its currency against the dollar, it is also appreciating its currency against the home country. This increases the trade balance in the home country, which shifts IS to the right.

11. [10 pts] Show the effect of the foreign country's change in the exchange rate in the foreign-exchange diagram for the foreign country. Explain your answer. [The foreign-exchange diagram has the exchange rate on the x-axis and the domestic and foreign returns on the y-axis.]

When the foreign country announces that they will revalue the currency, agents change their expectations about future exchange rate, which shifts FR to the right. This immediately appreciates the currency.

See the attached figures.

12. [5 pts] *Challenging.* Suppose the United Kingdom had international capital controls in place in 1992. Would that have made it easier for the U.K. to stay in the fixed exchange rate system? Explain your answer.

Yes. Capital controls would mean that UIP does not hold and the Bank of England can set an interest rate that is not the same as that in Germany. With this version of the trilemma, the BoE can keep interest rates low in England and keep the fixed exchange rate.

[Capital controls would mean that London would not be a very good international financial center...]

The home country fixes its exchange rate against the dollar at one-to-one and allows for the free flow of international capital. The home country's central bank holds \$300 of home country bonds, makes \$100 of loans to its domestic commercial banks, and holds \$500 of dollar reserves. Use this information to answer questions 13–14.

13. [5 pts] Liquidity demand in the home country rises: the value of $L()$ is now larger at any interest rate. Show the effect of this change in the home country money market diagram. Assume that the price level is fixed. [This diagram has M/P on the x-axis and i on the y-axis.]

See the attached figures.

14. [10 pts] How does the central bank respond to the change in liquidity demand? Show the effect in your figure above. Below, show the central bank's balance sheet after it responds. Assume that the increase in money demand is \$150.

See the attached figure.

The central bank must increase the money supply by buy reserves with the domestic currency.

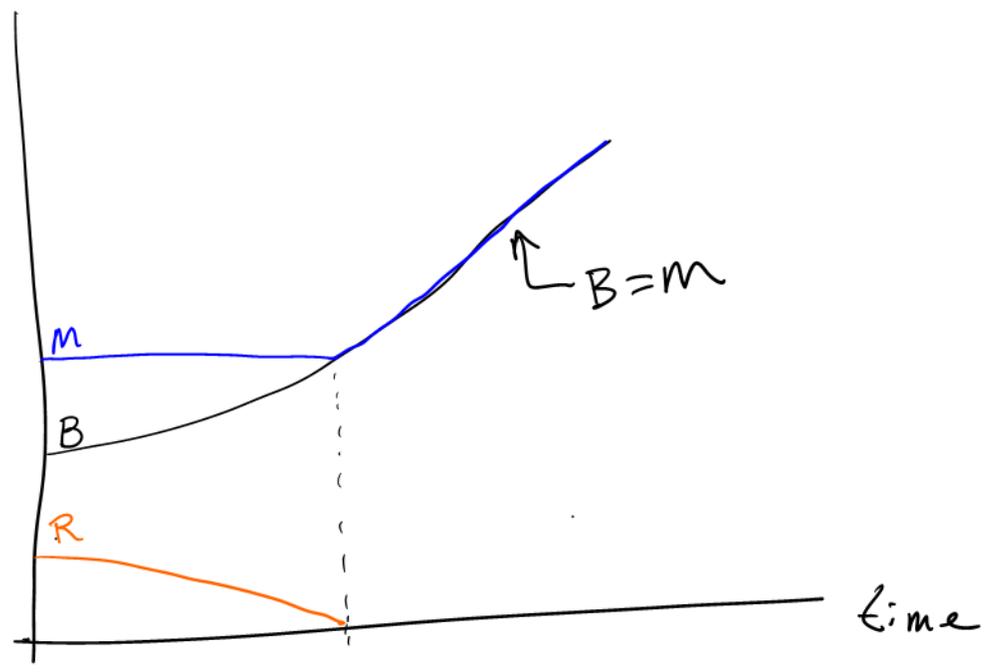
A		L	
Reserves	650	Money	1050
Loans to banks	100		
Domestic bonds	300		

Extra Space

Clearly label the question number, and leave a reference to this page near the question.

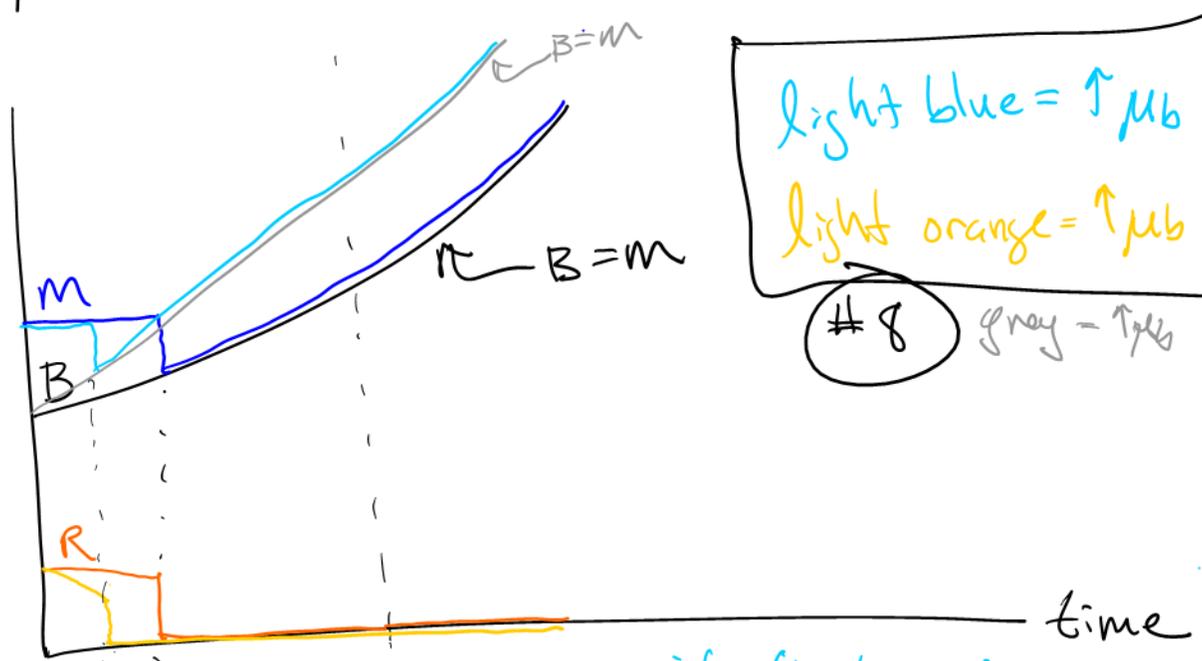
#5

B, M, R



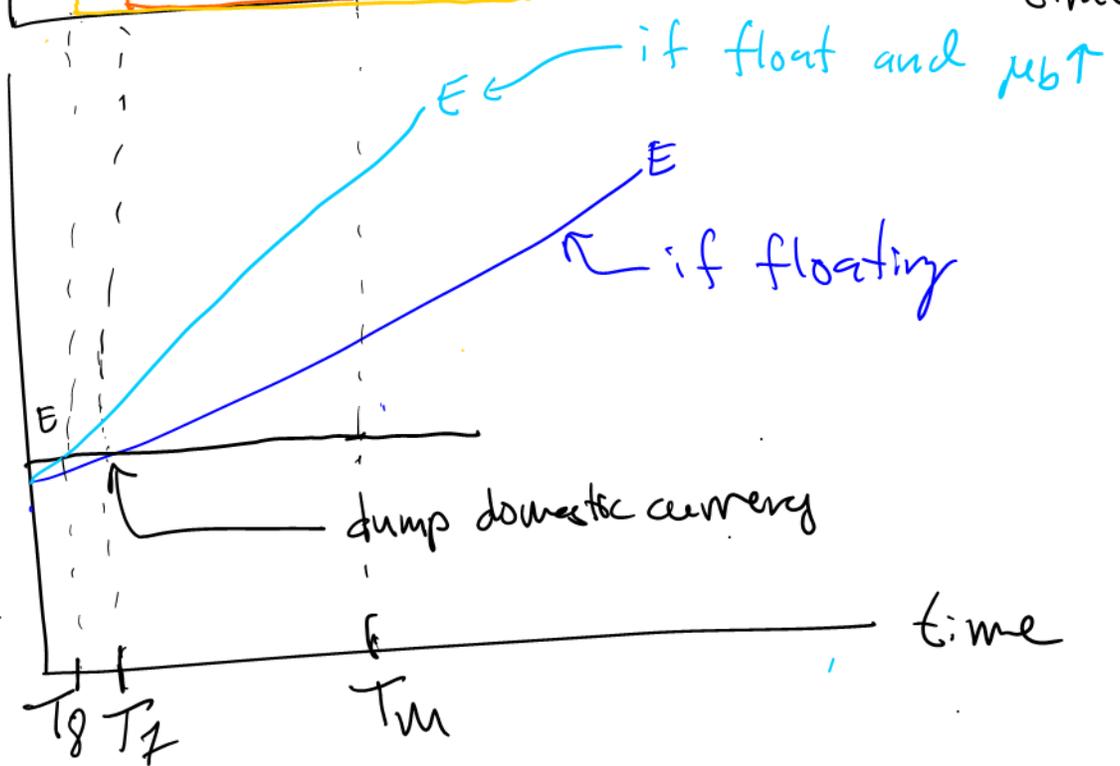
#7

M, B, R

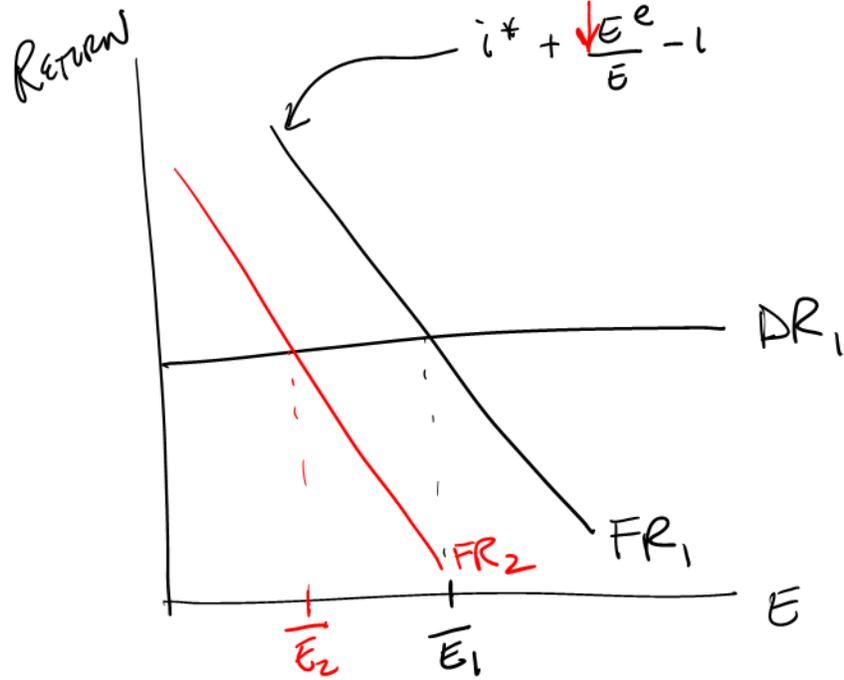


#8

E



#11



#13

