

# Problem Set No 1

Econ 14.05:  
Intermediate Applied Macroeconomics

Instructions: Answer the three following questions. Each one of them counts for 1/3. Each subsection counts 1/4.

## *Problem 1*

The European monetary union (EU) is the paradigm for the Mundell-Fleming model: member countries keep a fixed exchange rate vis-a-vis each other, and there are very few restrictions to the movement of capital between countries. They all use the euro.

1. Briefly describe the set-up of the Mundell-Fleming model with static expectations and perfect capital mobility. Draw a diagram in the  $(\epsilon, Y)$  space. In the case of fixed exchange rates, discuss the impact of monetary and fiscal policy. What is the cost in terms of policy alternatives of having a fixed exchange rate and perfect capital mobility? What are the policy options available for a country in the EU?
2. After German reunification in 1991, the West Germany government engaged in large expenditures in order to help East Germany. To avoid the increase in aggregate demand from translating into inflation, the Bundesbank simultaneously engaged in contractionary monetary policy. As Germany is the biggest economy in the Euro area, assume that the Bundesbank is indeed able to affect the interest rate, while smaller countries like Portugal, take the interest rate as given. What was be the effect of the German policies for Portugal? Draw graphs in the  $(\epsilon, Y)$  and  $(i, Y)$  spaces in your answer.
3. As a result of the effects of expansionary fiscal policy that you analyzed on (b), the EU has decided to limit fiscal policy. If a member country has high unemployment, can it use macro policies? Are there any other policies it can use?
4. The EU, as a whole, has a flexible exchange rate and imperfect capital mobility with respect to the rest of the world. Recently, the EU has imposed several trade restrictions on imports from other countries. What is the effect of those imports on EU output, interest rate and exchange rate?. Use graphs in the  $(\epsilon, Y)$  and  $(i, Y)$  spaces in your answer.

## *Problem 2*

In this question you have to use the Mundell-Fleming model discussed in class (also presented in Chapter 5 of Romer's book), to analyze the effect of some real-life economic policies. *Use graphs to develop your analysis, and provide a brief explanation.*

1. The United States has a totally flexible exchange rate regime. An important component of the Bush Administration economic program is the (temporary) reduction on taxes. Analyze the effect of this policy on income, interest rates, and exchange rate, under both perfect and imperfect capital mobility.
2. The slowdown of the US economy during the last year has taken the Fed to cut interest rates on several occasions. What is the effect of this measure on US income, interest rate, and exchange rate? Analyze both with perfect and imperfect capital mobility. Use graphs, and explain briefly.
3. Argentina operated under a currency board. In general terms a currency board is an exchange system under which any Argentinean Peso printed has to be backed by one dollar of reserves held on the Central Bank. Therefore, the value of the Argentinean peso was tied 1 by 1 with the dollar: it was a fixed exchange rate regime. At some point Argentina implemented a fiscal reform program, which was

aimed to reduce government expenditure and increase tax revenues, as a way to avoid defaulting on the payments of its external debt. What would be the effect of this program on output, interest rates, and exchange rate? Analyze the cases of perfect and imperfect capital mobility.

4. What should be the effect of the Fed's cut in US interest rate on Argentina's income, interest rate, and exchange rate? Assume perfect and imperfect capital mobility.

*Problem 3*

The Asian currency crisis of 1997 led to the biggest recession in Asia in the past 50 years. This third problem looks at some of the issues for the case of Thailand.

1. Briefly describe the set-up of the Mundell-Flemming model with static expectations and perfect capital mobility. Draw a diagram in  $(\epsilon, Y)$  space. In the case of fixed exchange rates, discuss the impact of a rise in the foreign interest rate.
2. Currency crisis I: Thailand had a fixed exchange rate vis-a-vis the dollar until the Asian crisis in 1997. In a speculative attack, international investors started betting against the Thai Baht. Write down the uncovered interest parity (UIP) condition under rational expectations. Explain why the condition  $i = i^*$  disappears when investors expect a devaluation. What is the monetary policy that the Thai Central Bank had to do to defend the exchange rate? What is the impact on output? Give an explanation in  $(\epsilon, Y)$  space. Hint: denote the *Baht/USD* exchange rate by  $\epsilon$ .
3. Currency crisis II: Defending the fixed exchange rate became untenable after several weeks, and the Thai government decided to abandon the fixed exchange rate. Show in  $(\epsilon, Y)$  space what happened to output and the exchange rate once Thailand switched to the new exchange rate regime. Using the UIP, explain what happened to the Thai exchange rate.
4. The currency crisis led to a recession in Thailand. In order to restore the economy, the government asked the International Monetary Fund (IMF) for loans. The IMF forced the Thai government to reduce its expenditures and raise taxes. Represent this policy in space  $(\epsilon, Y)$ . What happens to the interest rate, the exchange rate and output? Do you see any resemblance with the fiscal policy during the Great Depression?