

## Final Exam

5/1/2024

*Answer the following questions. You can use a (1 page) notes sheet and a calculator (but no other devices).*

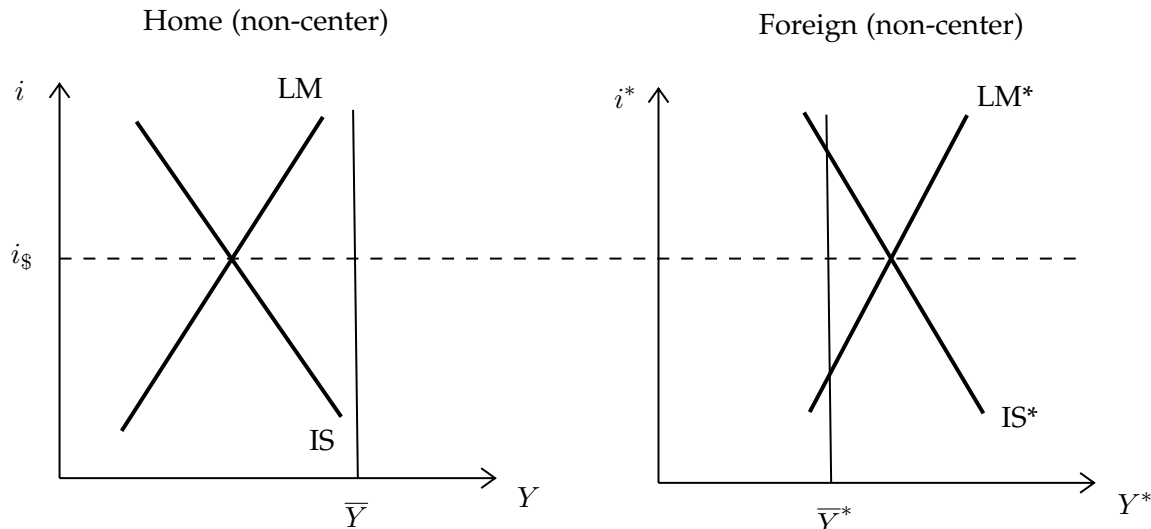
*You must answer question 1 and 2. Then, pick any other 3 questions to answer (you will respond 5 questions in total). Your grade is computed as a percentage of the sum of possible points of the choice.*

1. (28 points) **Exchange Rates.** Use some hypothetical currencies of countries "A", "B", and "C" as necessary to answer the following questions (A, B, and C, are the countries adopting the currencies with the same name, e.g., we can talk about country A or currency A).
  - (a) Define briefly what is an exchange rate? Focus on what it's being priced and explain what depreciates and what appreciates when it increases. Use currency A and B for this definition. Either can be home or foreign but state which is which.
  - (b) If you have the exchange rate of A for B and of B for C, how can you get the exchange rate of currency A for currency C? Show your work with formula(s).
  - (c) Set the UIP between country A and B. Take A as home and B as foreign. If the interest rate at home goes up what happens with the spot exchange rate, and what happens with the expected (future) exchange rate?.
  - (d) If the interest rate after the increase at home is higher than that of country B, is the depreciation term in the UIP positive or negative?
  - (e) Plot the trajectory over time of the exchange rate after this increase in the interest rate at home and explain whether overshooting occurs and in what direction. Indicate how the overshooting is reflected in the plot.
  - (f) Explain what happens with the spot exchange rate if: (i) Money supply at home increases, (ii) The interest rate abroad increases
  - (g) If inflation in country A is always 8%, and inflation in C is always 2% what do you expect the depreciation of currency A against currency C to be? What theory do you use for this and in what horizon is valid?
2. (24 points) **Balance of Payments and External Wealth.**
  - (a) Define briefly what is the balance of payments (BOP)? Could a country run a balance of payment surplus or deficit?
  - (b) List each big account in the BOP and describe what transactions are recorded in each.
  - (c) For the Current Account, list each sub-account and give an example of a transaction recorded in each.

- (d) How is the BOP related to external wealth? more precisely, what part of the BOP can you add to the previous stock of wealth to get the new external wealth of an economy?
- (e) Provide a formula for the wealth on an economy at time  $t$ , assume a non-zero level of wealth the previous period, that there are no domestic workers abroad, no net unilateral transfers, but that in  $t$  the capital account (KA) is not zero.
- (f) Indicate three benefits of the financial globalization, and briefly explain at least two. One of the explanations should be made in the context of the Long-Run Budget Constraint (i.e., by using it).
3. (20 points) **External interest rate shock on IS-LM-FX.** Suppose the (Home) economy is initially in equilibrium and there is a sudden increase in the interest rate of the foreign country  $i^*$ . Use the IS-LM-FX model to answer the following questions. Assume a *floating exchange rate regime*. Provide plots with your answers.
- (a) How the change in  $i^*$  affects the new equilibrium values of the home interest rate ( $i$ ), output ( $Y$ ), and spot exchange rate  $E_{h/f}$ ? Does the home currency appreciate or depreciate?
- (b) Explain the effect in the home trade balance.
- (c) Now assume that the home country has a *fixed exchange rate regime*. How does the central bank responds to the change in  $i^*$
- (d) How does the home interest rate ( $i$ ), output ( $Y$ ), and spot exchange rate  $E_{h/f}$  change in this case? Show the new equilibrium values with plots.
- (e) When is an economy that follows a fixed exchange rate regime less likely to commit to this policy (and increase the interest rate at home). Pick one and explain your answer.
- During a recession at home and a boom in the foreign country
  - During a recession at home and a recession in the foreign country
  - During a boom at home and a boom in the foreign country
  - During a boom at home and a recession in the foreign country
4. (15 points) **Exchange rate regime choice.** Explain what are the two key features that determine the choice of a fixed vs. floating exchange rate regime and how each relates to either the benefits or the costs of setting an exchange rate peg (fixed regime).
5. (10 points) **Policy choice.** Why do countries with a fixed exchange rate use monetary policy, rather than fiscal policy, to manage the exchange rate
6. (10 points) **Exchange rate systems.** Multilateral fixed exchange rate systems have the advantage that cooperative adjustments are possible. Why would cooperative adjustments increase the viability of the multilateral system?
7. (20 points) **Cooperation in an Exchange Rate system**

A home and foreign economy both set their currencies to the dollar. Neither economy is a center in their peg arrangement (the US is the center).

In the plot below, the barred outputs  $\bar{Y}$ ,  $\bar{Y}^*$  are the desired GDP levels in each economy.



Additionally,  $i$  is the interest rate at home,  $i^*$  the interest rate at the foreign economy, and  $i_{\$}$  is the US interest rate that both countries use as reference for pegging. Variables and labels with a star  $*$  denote foreign variables (or curves).

Notice, how either economy pegs with respect to the dollar, not to each other, thus, their interest rates at any point and after the shocks is always  $i_{\$}$  that we assume does not change.

However, these countries can still apply a type of depreciation where they adjust the peg (which is credible) level, this is called a devaluation. Notice that if the peg is credible, the spot and expected rate are set to the new levels and the UIP still dictates  $i = i_{\$}$  and  $i^* = i_{\$}$ . Clearly, this has to be done infrequently or the exchange rate would be practically a floating one.

Based on this setup answer:

- Would the foreign country like to depreciate or appreciate its currency against the dollar? Would the home country agree with this change?
- Show the effects of the change made by the foreign country in the figure above (or redraw it in your answer sheet). Don't forget to include the central bank policies adjustments as needed to ensure the rates match the US one at the end. Label the new equilibrium  $\{Y_2, i_2, Y_2^*, i_2^*\}$

Optional. **Bonus question.** Describe the main idea behind one of the papers presented (maybe the one you liked more, or that you found most insightful) and explain how it relates to the contents of the course. The paper selected cannot be the paper you presented.

When answering this question, there is no need to remember the exact name of the paper or its authors. But provide a guess of it (so I can know what paper you refer to).

Note: how much extra points I provide if you answer this question depends on my assessment of the quality of your answer. *Show your knowledge of the course!*