

Problem Set 3

May 15, 2003

Due: **Thu, June 5, 9:30am**
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1 Open-economy Trilemma

The open-economy trilemma states that a country can only achieve two out of the following three objectives simultaneously: international capital mobility, monetary autonomy, and stable exchange rates.

There are three ways for a country to resolve the open-economy trilemma: Sacrifice one objective in lieu for two others. For each of the three possibilities, explain how the sacrificed objective would conflict with the other two objectives if it were not given up. For each of the three possibilities, give an historical example of an international financial system that adopted a similar arrangement and comment briefly on its advantages and disadvantages.

2 Capital Controls, Monetary Autonomy and Exchange Rate Stability

Suppose a country has strict capital controls in place and restricts capital flows unless approved by the government. Argue that this policy makes the Uncovered Interest Parity condition break down. Use a diagram showing the exchange rate, expected currency returns and real money holdings to verify that the central bank can reduce the domestic interest R to a level of its choice without an effect on the exchange rate.

Now suppose that capital is completely free to flow in and out of the country. However, investors assess the risk of the country's securities as very different from other countries assets. Show how the central bank can reduce the interest rate R without affecting the exchange rate level. [*Hint:* Engineer a sterilized intervention that moves the risk premium to the right degree.]

3 Debt Sustainability

We speak of a Ponzi scheme when an agent's debt grows at a rate α such that interest payments on existing debt fall short of new borrowing. What does a Ponzi scheme imply for the relationship between α and r^* ? Explain why this

would leave the borrower with unlimited resources as time passes. Will lenders be willing to tolerate this?

Now suppose that, at some date T in the future, the interest on the debt contracts is anticipated to *permanently* increase to some $r^{*'}$ so that $\alpha < r^{*'}$ from T on forever. Can the borrower start to accumulate new debt at a rate α from today on? Would your answer change if the interest rate were anticipated to fall back to r^* at some time $T' > T$?

4 Currency Attacks

Consider a fixed exchange rate regime, in which the fundamental value of the exchange rate depreciates at a constant rate. The central bank uses its foreign exchange reserves to maintain the exchange rate peg. At what point in time will the currency attack occur? Will the central bank still hold foreign exchange reserves at the time? Could the central bank retain its foreign exchange reserves if it abandoned the peg just an instant before the anticipated attack?

5 Currency Union

The incentives to join a currency union depend on the likely sources of economic shocks and how they would be absorbed when the country joins the monetary union. Consider two sources of shocks:

- Candidate country M anticipates to suffer large and frequent shocks to money demand. All other things equal, will country M be more likely to join the monetary union than a country with smaller and less frequent shocks?
- Candidate country L has a population that is historically reluctant to move. All other things equal, will country L be more likely to join the monetary union than a country with a more mobile labor force? What would your answer be if the education system in country L awarded many degrees that are little comparable to other countries' degrees in the monetary union?

6 Financial Fragility

Different sources of financial fragility have been pointed out as causal for recent financial crises. Two important sources are

- Bailout guarantees by lenders of last resort and international financial organizations
- Increasing securitization of debt

Explain why the financial system may have become more risky with these developments.