

Department of Economics, University of Maryland  
International Finance (Econ 741)  
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## FINAL EXAM

This is a three hour, closed-book exam. The points corresponding to each question (which add up to 180 points) are indicated in parentheses.

### 1 True, false, or uncertain (30 points)

Indicate whether you consider each of the following statements to be TRUE, FALSE, OR UNCERTAIN. In each case, give a *brief* explanation of your answer. *Your grade will depend heavily on your explanation.*

1. For a speculative attack to happen, we need to add uncertainty to the standard balance of payment crisis model.
2. If we observe that a nominal devaluation leads to a real devaluation, we can infer that nominal prices are sticky.
3. When money is a veil, the exchange rate regime is irrelevant for the behavior of *nominal* variables.
4. Overshooting (in the Dornbusch sense) refers to the fact that a nominal devaluation leads to a real devaluation.
5. In a simple endowment model, a temporary reduction in the rate of money growth will increase consumption.
6. In practice, money-based-stabilizations and exchange rate-based stabilizations have similar real effects.

### 2 Liquidity shocks in a simple monetary model (90 points)

In analyzing the current financial situation in the United States, some observers have argued that at some point lack of confidence in the financial

system led to a liquidity shock (i.e., people/financial institutions wanted to hold more liquidity). This exercise analyzes the effect of a liquidity shock in our basic monetary model and the possible policy responses under either predetermined or flexible exchange rates.

Consider a small open economy perfectly integrated with world capital and goods markets. There are two goods: tradables and non-tradables. The law of one price holds for the tradable good. The foreign price of the tradable good is assumed to be unity.

- Preferences are given by:

$$\int_0^{\infty} [\log(c_t^T) + \log(c_t^N)] e^{-\beta t} dt,$$

where  $c^T$  is consumption of tradables,  $c^N$  is consumption of non-tradables, and  $\beta (= r)$  is the discount rate.

- The endowment of both goods is constant over time and given by  $y^T$  and  $y^N$ , respectively.
- There is a cash-in-advance constraint of the form

$$m_t = \alpha_t (c_t^T + p_t c_t^N),$$

where  $m_t (\equiv M_t/E_t)$  are real money balances in terms of tradable goods,  $p_t$  is the relative price of non-tradable goods in terms of tradable goods, and  $\alpha_t$  is a positive parameter. Notice that the parameter  $\alpha$  may not be constant over time. Changes in  $\alpha$  will be interpreted as a “liquidity shock.”

- Let  $b$  denote the consumer’s net foreign assets and  $a (\equiv b + m)$  denote total real financial assets. Consumers’ flow budget constraint is then given by:

$$\dot{a}_t = r a_t + y^T + p_t y^N + \tau_t - c_t^T - p_t c_t^N - i_t m_t,$$

where  $\tau$  are lump-sum transfers from the government and  $i_t$  is the nominal interest rate.

In this context:

1. Derive the first-order conditions (if you use the intertemporal budget constraint, just state it; you do not need to derive it).
2. Suppose that the economy is operating under *predetermined exchange rates* (PER).
  - (a) Characterize a perfect foresight equilibrium path for a constant rate of devaluation and a constant path of  $\alpha$ .
  - (b) Suppose that, starting from the equilibrium characterized above, there is an unanticipated and temporary increase in  $\alpha$ . Solve for the path of all endogenous variables, including the path of nominal money balances. Make sure that you plot the time path of all variables. Explain the intuition behind the results.
  - (c) Suppose that policymakers are willing to change the path of the nominal exchange rate (their policy instrument) to counteract the effects of the temporary increase in  $\alpha$ . What is the best that they can do? State the policy and solve for the ensuing paths of all endogenous variables. Explain why the policy works (if applicable).
3. Suppose now that the economy is operating under *flexible exchange rates* (FLEX).
  - (a) Characterize a perfect foresight equilibrium path for a constant rate of money growth and a constant path of  $\alpha$ .
  - (b) Suppose that, starting from the equilibrium characterized above, there is an unanticipated and temporary increase in  $\alpha$ . Solve for the path of all endogenous variables, including the path of the nominal exchange rate. Make sure that you plot the time path of all variables. Explain the intuition behind the results.
  - (c) Suppose that policymakers are willing to change the path of the nominal money supply (their policy instrument) to counteract the effects of the temporary increase in  $\alpha$ . What is the best that they can do? State the policy and solve for the ensuing paths of all endogenous variables. Explain why the policy works (if applicable).

4. Compare the policy responses under PER and FLEX. Are they equally effective? Why or why not?

### 3 Liquidity shocks in a fully dollarized economy (60 points)

Consider a small open economy model with no interest-bearing bonds and where foreign currency is the only asset (think of a fully dollarized economy like, say, Panama, where the U.S. dollar is the legal tender). There are two goods: tradables and non-tradables. The endowment of each good is constant over time. Foreign inflation is assumed to be zero.

- Preferences are given by:

$$\int_0^{\infty} (\log c_t^T + \log c_t^N + \alpha_t \log f_t) e^{-\beta t} dt,$$

where  $c_t^T$  and  $c_t^N$  are consumption of tradables and non-tradables, respectively,  $f$  are foreign currency holdings and  $\alpha_t$  is a preference parameter (think of it as a liquidity shock)

- The consumer's flow constraint is given by

$$\dot{f}_t = y^T + p_t y^N - c_t^T - p c_t^N.$$

In this context:

- Solve the model for a constant value of  $\alpha_t$ .
- Analyze the effects of an unanticipated and permanent increase in  $\alpha_t$ . Make sure to plot the time path of all endogenous variables. Discuss the intuition behind your results.
- Is there a role for policy in this model? Why or why not?