

Written Exam at the Department of Economics summer 2019

Economics of Exchange Rates

Final Exam

May 28, 2019

(3-hour closed book exam)

Answers only in English.

This exam question consists of 3 pages in total

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- contact an invigilator who will show you how to register and submit a blank exam paper.
- leave the examination.
- contact your GP and submit a medical report to the Faculty of Social Sciences no later than five (5) days from the date of the exam.

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You cheat at an exam, if during the exam, you:

- Make use of exam aids that are not allowed
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- Or if you otherwise violate the rules that apply to the exam

Written exam for the M. Sc in Economics Economics of Exchange Rates

May 28, 2019

Number of questions: This exam consists of 2 questions.

1. Exchange rate determination

Consider the Mundell-Fleming model comprised of the following equations

$$\dot{s} = i - i^* \tag{1}$$

$$m = \sigma s + \kappa y - \theta i \tag{2}$$

$$\dot{y} = \chi (\alpha + \mu s - y) \tag{3}$$

where notation is standard.

- (a) Explain the economic rationale behind these equations.
- (b) Derive the two differential equations (the LM-curve and the IS-curve) and illustrate the model in the y - s plane.
- (c) Show the effects of expansionary monetary policy on the exchange rate and output. Explain carefully!
- (d) Show the effects of expansionary fiscal policy on the nominal exchange rate and output. Compare with the effects from monetary policy. Is fiscal policy effective? If so explain why.
- (e) Consider then the model where we replace equation 3 with

$$\dot{p} = \gamma (\alpha + \mu (s - p) - \bar{y}) \tag{4}$$

such that the model the three equations (1), (2) and (4) comprise the model. What are the main differences between these two models?

- (f) Derive the two differential equations (the goods market and the money market equilibrium curves) and illustrate the model in the s - p plane.
- (g) What are the effects of expansionary monetary policy on the nominal exchange rate and the price level in this model? Compare and contrast these effects to the effects of monetary policy in the Mundell-Fleming model above.

2. Micro-based macro model

- (a) Explain the underlying assumptions of Evans micro-based macro model.
 (b) Demand for euros in week t by agent $n \in [0, 1]$ is given by

$$\alpha_t^n = \alpha_s (\mathbb{E}_t^n \Delta s_{t+1} + \hat{r}_t - r_t) + h_t^n \quad (5)$$

hedging demand is

$$h_t^n = \alpha_z z_t^n \quad (6)$$

and the link between the microeconomic environment of agent n and the state of the economy is given by

$$z_t^n = z_t + v_t^n \quad \text{where} \quad \int_0^1 v_t^n dn = 0 \quad (7)$$

Show that the aggregate demand for euros can be written as

$$\alpha_t = \alpha_s (\overline{\mathbb{E}}_t^n s_{t+1} - s_t + \hat{r}_t - r_t) + h_t$$

where h_t is the aggregate hedging demand and $\overline{\mathbb{E}}_t^n s_{t+1} = \int_0^1 \mathbb{E}_t^n s_{t+1} dn$.

- (c) Assume that the spot exchange rate quoted by dealers is given by

$$s_t = \mathbb{E}_t^D s_{t+1} + \hat{r}_t - r_t - \delta_t. \quad (8)$$

Show that the risk premium can be written as

$$\delta_t = \mathbb{E}_t^D \left[s_{t+1}^e - \frac{1}{\alpha_s} h_t \right] \quad (9)$$

where $s_{t+1}^e = s_{t+1} - \overline{\mathbb{E}}_t^n s_{t+1}$ under efficient risk sharing $\mathbb{E}_t^D \alpha_t = 0$. Provide an interpretation!

- (d) The spot exchange rate in this model is given by

$$s_t = (\hat{r}_t - r_t) + \mathbb{E}_t^D \sum_{i=1}^{\infty} \rho^i f_{t+i} + \frac{1}{\alpha_s} \mathbb{E}_t^D \sum_{i=0}^{\infty} \rho^i h_{t+i} - \frac{1}{\rho} \mathbb{E}_t^D \sum_{i=1}^{\infty} \rho^i s_{t+i}^e. \quad (10)$$

Discuss the implications of this expression and how it relates to standard monetary models of the exchange rate.

- (e) Summarize the empirical evidence on the relationship between order flows, news announcements and exchange rates.