

Written Exam at the Department of Economics winter 2017

Economics of Exchange Rates

Final Exam

May 30, 2017

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language for which you registered during exam registration.

This exam question consists of 3 pages in total

NB: If you fall ill during the actual examination at Peter Bangsvej, you must contact an invigilator in order to be registered as having fallen ill. Then you submit a blank exam paper and leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) days from the date of the exam.

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

May 30, 2017

Number of questions: This exam consists of 2 questions.

1. UIP, CPI and Carry Trade

(a) Consider the CIP relation

$$(1 + R_t^*) = \frac{1}{S_t} (1 + R_t) F_t \quad (1)$$

and the UIP relation (assuming no risk premium)

$$(1 + R_t^*) = (1 + R_t) \left[E_t \left(\frac{S_{t+1}}{S_t} \right) \right] \quad (2)$$

where notation is standard. These two relations are often motivated using arbitrage arguments. Explain how these two relations are derived using arbitrage arguments.

(b) Another approach is to derive these relations using a small-open economy model. Assume that this model is populated by a representative agent that maximizes expected lifetime utility

$$U = \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t u(C_t, M_t/P_t) \quad (3)$$

subject to the budget constraint measured in foreign currency units

$$\begin{aligned} S_t B_{t+1} + B_{t+1}^* &= S_t B_t (1 + R_{t-1}) + B_t^* (1 + R_{t-1}^*) \\ &+ S_t (M_t - M_{t+1}) + x_{t-1} (F_{t-1} - S_t) + S_t P_t (Y_t - C_t) \end{aligned} \quad (4)$$

where notation is standard. Derive the first order conditions and show that these imply both the CIP relation in equation (1) and the UIP relation in equation (2).

(c) Summarize the empirical evidence on the CIP and the UIP relations above.

(d) Explain, in words, how the empirical evidence on UIP can be exploited by formulating carry trade strategies. Summarize the empirical findings related to carry trade. Is it possible to obtain a significant excess return using carry trade?

2. The Dornbusch overshooting model

Consider the Dornbusch overshooting model where we have added an exogenous risk premium to the UIP relation

$$r - r^* - rp = E\dot{s}^e \quad (5)$$

$$E\dot{s} = \theta(\bar{s} - s) \quad (6)$$

$$m - p = \eta y - \sigma r \quad (7)$$

$$y^d = \beta + \alpha(s - p + p^*) + \phi y - \lambda r \quad (8)$$

$$\dot{p} = \pi(y^d - y). \quad (9)$$

- (a) Explain the main assumptions and economic mechanisms underlying the Dornbusch model including an interpretation of the equations above.
- (b) Derive the money market and goods market equilibrium curves and illustrate the model in a graph. Explain how the slopes of the money market and goods market equilibrium curves are affected by the inclusion of an exogenous risk premium.
- (c) Derive the overshooting effect, i.e., derive an expression for $\frac{ds}{dm}$. What determines the extent of overshooting?
- (d) Consider the Mundell-Fleming model. Illustrate the model in the $y - s$ plane and show how expansionary monetary policy affects the exchange rate and output. Compare the results to the effects of expansionary monetary policy in the Dornbusch model.
- (e) What are the main differences between the Dornbusch model and the Mundell-Fleming model?