Written Exam for the M.Sc. in Economics, Winter 2010/2011

International Monetary Economics

Master's Course

January 3, 2011

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by "eksamen på dansk" in brackets, you must write your exam paper in Danish.

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Number of questions: This exam consists of 3 questions.

1. **Which of the following statements are correct? Remember to provide a brief explanation.**

   (a) An unsterilized open market operation purchase of domestic assets by the ECB must according to *the Purchasing Power Parity theory* lead to a depreciation of the euro.

   (b) An unsterilized open market operation purchase of domestic assets by the ECB must according to *the Portfolio Balance model* lead to a depreciation of the euro.

   (c) The Finance Minister problem"(or Peso problem) is that the appointment of a new finance minister affects the exchange rate.

   (d) If the foreign exchange market is efficient, then the exchange rate is unaffected by changes in monetary policy.

2. **The second generation currency crisis model**

   Consider the Obstfeld second generation currency crisis model

   $$\mathcal{L} = \theta \dot{p}^2 + (y - \tilde{y})^2 \tag{1}$$

   $$y = \bar{y} + \dot{p} - \dot{p}^e - v \tag{2}$$

   $$\tilde{y} - \bar{y} = k > 0 \tag{3}$$

   $$s = p - p^* \tag{4}$$

   where notation is standard.

   (a) Comment on the four equations above.

   (b) Assume now the following sequencing of events: Private agents choose $\dot{s}^e$ before the shock v hits the economy. Monetary authorities then choose $\dot{s}$ after observing both $\dot{s}^e$ and v. Derive the monetary authorities reaction function under no commitment to a fixed exchange rate. Comment on your result!

(c) Derive the rational expectation of a devaluation when there is no commitment.

(d) Compare the value of the loss function under no commitment and under a fixed exchange rate regime. Is there a temptation to cheat? What factor(s) determine whether there exist a temptation to cheat?

(e) How are currency crises generated in this model?

3. **Evaluation of fixed and flexible exchange–rate regimes**
   Consider the following open–economy model. Money demand is given by

$$Md_t = Pi_t + \eta Y_t - \sigma r_t + U_t^1$$

where Md is money demand, Pi is the observable aggregate price level, r is the nominal interest rate, and U^1 is a money demand shock (a white noise sequence). The aggregate price level is a weighted average of the domestic price level and the domestic price of imports

$$Pi_t = \alpha P_t + (1 - \alpha)(S_t + P_t^*)$$

where $0 \le \alpha \le 1$, s is the nominal exchange rate and P^* is the price of imported goods. The demand for domestic output is

$$Yd_t = \theta(s_t + P_t^* - P_t) - \beta(r_t + P_t - P_{t+1|t}) + \pi Yn + U_t^2$$

where $P_{t+1|t}$ is the expected price level in period $t + 1$ conditional on information available at time t, Yn is the natural level of output, and U^2 is an aggregate demand shock (a white noise sequence). The supply of domestic output is given by

$$Ys_t = \phi(P_t - W_t) + U_t^3$$

where W_t is the nominal wage, and U^3 is a supply shock (a white noise sequence). We also assume that uncovered interest parity holds continuously. Wages are set such that output is equal to the target $Y = Yn$ in the beginning of each period. Assume that $\eta(\theta + \beta) < \alpha$.

Assume that the monetary authority is assumed to minimize the following objective function

$$O(P) = (P - Pn)^2$$

where P is the actual price level and Pn is the target price level.

(a) Give a brief interpretation of the main assumptions and economic mechanisms underlying the equations.

(b) Determine the equilibrium graphically in the price–output plane. Comment!

(c) What is the optimal exchange rate regime if the economy is affected by aggregate supply shocks? Explain carefully!

(d) Use your results to discuss whether it is optimal for the Euroarea and for Sweden to have floating exchange rates.