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

International Monetary Economics

Master's Course

February 18, 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 4 questions.

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1. **Which of the following statements are correct? Remember to provide a brief explanation.**
   (a) News that the Fed will tighten monetary policy should result in an immediate strengthening of the dollar.
   (b) If UIP holds and countries allow free capital mobility, a government can target the exchange rate or the interest rate but not both independently.
   (c) Will stronger productivity growth in the US tradeable sector than in the U.S. nontradeable sector lead to a long-run nominal appreciation of the dollar relative to the euro?
   (d) International reserves fall when a country undertakes sterilized intervention to weaken the value of its currency.
   (e) An open market purchase of domestic assets by the Fed will always lead to a depreciated currency according to flexible as well as sticky price monetary models and the portfolio balance model.

2. **Monetary models of exchange rate determination**
   (a) Compare and contrast the flexible-price monetary model, the sticky-price Dornbusch monetary model, the real interest differential monetary model and the sticky-price portfolio model.
   (b) Summarize the empirical evidence on these models.
   (c) Are these models useful when forecasting exchange rates in the short–run and in the long–run? Summarize the main findings in the literature.

3. **The portfolio balance model.** From May 2000 until September 2001 the Swedish Krona depreciated relative to the Euro by 16 percent. During the same period, the Swedish interest rate increased slightly. Use the portfolio balance model to explain why this happened.

4. **First–generation model of currency crises.**

   Consider the following first–generation model of a currency crisis.

$$m^d - p = -\lambda i, \tag{1}$$

$$m^s = \ln\left(D_t + R_t\right), \tag{2}$$

$$s = p, \tag{3}$$

   and

$$i = E\left[\dot{s}\right] = \dot{s}. \tag{4}$$

   (a) Comment on the equations including the assumptions made.

   (b) Combine the equations above and show that

$$m - s = -\gamma \dot{s}. \tag{5}$$

   (c) Assume now that the monetary authority establishes a fixed exchange rate regime by fixing the exchange rate at its equilibrium value at a certain point in time, i.e., at the rate $\bar{s}$. During the time the exchange rate is fixed, $\dot{s} = 0$. Assume also that the monetary authority let the logarithm of domestic credit to grow at the rate μ every period, i.e., $\dot{d}_t = \mu$. Derive the growth rate of reserves under this assumption.

   (d) Derive the time at which the reserves will be exhausted, i.e., t_N. Explain in words how the parameters of the model determines this time.

   (e) Derive the shadow value of the exchange rate $\tilde{s}$ using equation (5) and then derive the time of a speculative attack, i.e., t_A. Comment on your result!

   [**Hint:** The reserves are exhausted after the collapse implying that the exchange rate must be depreciating at a constant rate, i.e., $\ddot{\tilde{s}} = 0$ such that $\dot{\tilde{s}} = \dot{m}$.]

   (f) Derive the level of reserves at the point of the attack and show that it is positive.

   (g) Illustrate the time–path of the monetary aggregates and the exchange rate under the fixed exchange rate and its collapse in a graph. Comment on the graph and explain what it illustrates.