International macroeconomics and finance (postgraduate course) 2016–2017 — Final exam

Nikolas A. Müller-Plantenberg*

6 April 2017, 12.00

Surname: _____

First name: _____

ID or passport number: _____

Group: _____

Question	Points	Obtained
1	8	
2	8	
3	8	
4	8	
5	8	
Total	40	

Instructions

The exam consists of **five questions.**

In total, it is possible to obtain up to **40 points**.

Duration of exam: **1 hour** (= 1.5 minutes per point or 12 minutes per question).

*E-mail: nikolas@mullerpl.net. Address: Faculty of Economics and Business Administration, Universidad Autónoma de Madrid, 28049 Cantoblanco, Madrid, Spain.

1. Suppose inflation accelerates when inflation exceeds money growth, and vice versa, according to the following equation:

$$\dot{\pi}(t) = a\pi(t) - a\mu(t), \tag{1}$$

where $\pi(t)$ is inflation and $\mu(t)$ is the growth rate of the money supply.

(a) Provide an economic explanation for why the relationship in equation 1 should hold in an hyperinflationary context. (Hint: Think of what money demand in the money market equilibrium equation will primarily depend on during an hyperinflation.) [3]

(b) Solve the ordinary differential equation given in equation 1. [3]

(c) Calculate $\pi(t)$ for the special case that money growth is constant: [2]

$$\mu(t) = \mu. \tag{2}$$

Total of question 1: [8]

2. Consider the following intertemporal optimization problem:

$$\max_{B_2} u(C_1) + \beta u(C_2), \tag{3}$$

such that

$$B_2 = (1+r)B_1 + Y_1 - C_1, \tag{4}$$
$$B_3 = (1+r)B_2 + Y_2 - C_2. \tag{5}$$

(a) Derive the Euler equation for the optimization problem. [2]

(b) Use the exponential utility function to compute the difference $C_2 - C_1$. Note that the exponential utility function is given by: [3]

$$u(C) = -be^{\frac{-C}{b}}. \tag{6}$$

(c) Explain what steps one would have to follow to derive the values of C_1, C_2, CA_1 and CA_2. (Do not carry out these calculations, however.) [3]

Total of question 2: [8]

3. Consider the model of Kraay and Ventura (2000) that gives rise to the new rule for the current account.

   (a) What does dz_0 ($= z_1 dt$) stand for in this model? [1]

   (b) How is dz_0 related to da_0 and dk_0? [1]

   (c) With logarithmic utility, we have shown in class that k_0 is proportional to a_0, that is, $k_0 = Ka_0$, where [1]

   $$K = \frac{1}{1-\eta^2}\left[\frac{\pi - r}{\zeta^2} - \frac{\zeta\zeta^*\eta(\pi^* - r)}{\zeta^2(\zeta^*)^2}\right]. \tag{7}$$

   If $K < 1$, is the home country a net creditor or a net debtor? Explain briefly.

   (d) How does the value of K affect whether a positive productivity shock, $d\omega > 0$, leads to a current account surplus or a current account deficit. Please provide a technical answer. [4]

   (e) What is the main difference between the model of the new rule for the current account and the intertemporal approach to the current account. [1]

Total of question 3: [8]

4. Note that the following questions ask for very specific information. Please try to answer each of them in just one sentence.

   (a) What are the main components of currency market pressure according to the currency flow model of currency crises? [1]

   (b) What exactly does the term ”capital inflow” mean? [1]

   (c) How is real, or physical, investment determined according to the theory of Tobin’s ”q”? [1]

   (d) What happens to Tobin’s ”q” in a country that receives large capital inflows (under the assumption that physical investment picks up slowly due to adjustment costs)? [1]

   (e) According to the currency flow model of currency crises, currency crises are generally preceded by strong economic expansions that are associated with burgeoning current account deficits. What is the main reason why countries start to run such large current account deficits during the years preceding their crises? [1]

   (f) What does the term ”sterilization of capital inflows” mean? [1]

   (g) What does the term ”official intervention” mean? [1]

   (h) As was said above, currency crises are normally preceded by strong economic expansions. Given that countries start to run large current account deficits during those expansions, how is it possible that the central banks of the affected countries are often able to sterilize capital inflows and hoard official reserves during the booms? [1]

Total of question 4: [8]

5. (a) Define the concept of PPP, state its economic justification and assess its empirical validity. A brief answer to each point is sufficient. [3]

(b) Given how the nominal exchange rate is determined in the currency flow model, price level changes do not affect the real exchange rate when the exchange rate is flexible. Hence good market arbitrage can trigger price adjustments but will not equalize international prices when the latter are expressed in a common currency. Explain this argument formally, making use of the relevant equations. Also state the economic intuition behind the argument. [4]

(c) What other reason is commonly put forward for why PPP can only hold approximately? [1]

Total of question 5: [8]

References

Kraay, Aart and Jaume Ventura. Current accounts in debtor and creditor countries. *Quarterly Journal of Economics*, vol. 115, no. 4, Nov. 2000, 1137–1166.