

Chapter 1

Monetary Competition between Europe and America

1) The static model. This chapter deals with competition between the European central bank and the American central bank. As a point of reference, consider the static model. It can be represented by a system of three equations:

$$Y_1 = A_1 + 0.5\alpha M_{12} - 0.5\beta M_3 \quad (1)$$

$$Y_2 = A_2 + 0.5\alpha M_{12} - 0.5\beta M_3 \quad (2)$$

$$Y_3 = A_3 + \alpha M_3 - \beta M_{12} \quad (3)$$

This is a reduced form of the basic model, see Part One. Y_1 denotes German output, Y_2 is French output, Y_3 is American output, M_{12} is European money supply, and M_3 is American money supply. α and β are positive coefficients with $\alpha > \beta$. According to equation (1), German output is a positive function of European money supply and a negative function of American money supply. According to equation (2), French output is a positive function of European money supply and a negative function of American money supply. According to equation (3), American output is a positive function of American money supply and a negative function of European money supply.

The static model can be compressed to a system of two equations:

$$Y_{12} = A_{12} + \alpha M_{12} - \beta M_3 \quad (4)$$

$$Y_3 = A_3 + \alpha M_3 - \beta M_{12} \quad (5)$$

Here Y_{12} denotes European output. According to equation (4), European output is a positive function of European money supply and a negative function of American money supply.

2) The dynamic model. At the beginning there is unemployment in both Europe and America. The target of the European central bank is full employment in Europe. The instrument of the European central bank is European money supply. The target of the American central bank is full employment in America. The instrument of the American central bank is American money supply. We assume that the European central bank and the American central bank decide simultaneously and independently. The European central bank sets European money supply, forming rational expectations of American money supply. And the American central bank sets American money supply, forming rational expectations of European money supply.

On this basis, the dynamic model can be characterized by a system of four equations:

$$\bar{Y}_{12} = A_{12} + \alpha M_{12} - \beta M_3^e \quad (6)$$

$$\bar{Y}_3 = A_3 + \alpha M_3 - \beta M_{12}^e \quad (7)$$

$$M_{12}^e = M_{12} \quad (8)$$

$$M_3^e = M_3 \quad (9)$$

Here is a list of the new symbols:

- \bar{Y}_{12} full-employment output in Europe
- \bar{Y}_3 full-employment output in America
- M_{12}^e the expectation of European money supply,
as formed by the American central bank
- M_3^e the expectation of American money supply,
as formed by the European central bank
- M_{12} European money supply,
as set by the European central bank
- M_3 American money supply,
as set by the American central bank.

According to equation (6), the European central bank sets European money supply, forming an expectation of American money supply. According to equation (7), the American central bank sets American money supply, forming an expectation of European money supply. According to equation (8), the