Chapter 1
Competition between European Central Bank, German Labour Union, and French Labour Union

1. The Dynamic Model

1) The static model. As a point of reference, consider the static model. It can be represented by a system of three equations:

$$Y_1 = A_1 + 0.5\alpha M_{12} - \lambda W_1 - \mu W_2 \quad (1)$$

$$Y_2 = A_2 + 0.5\alpha M_{12} - \lambda W_2 - \mu W_1 \quad (2)$$

$$Y_3 = A_3 - \beta M_{12} + \nu W_1 + \nu W_2 \quad (3)$$

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, W_1 is German nominal wages, W_2 is French nominal wages, A_1 is some other factors bearing on German output, A_2 is some other factors bearing on French output, and A_3 is some other factors bearing on American output. α, β, λ, μ and ν are positive coefficients with $\alpha > \beta$, $\lambda > \mu$ and $\lambda > \nu$. The endogenous variables are German output, French output, and American output.

According to equation (1), German output is a positive function of European money supply, a negative function of German nominal wages, and a negative function of French nominal wages. According to equation (2), French output is a positive function of European money supply, a negative function of French nominal wages, and a negative function of German nominal wages. According to equation (3), American output is a negative function of European money supply, a positive function of German nominal wages, and a positive function of French nominal wages.

An increase in European money supply raises German output and French output but lowers American output. An increase in German nominal wages lowers German output. And what is more, it lowers French output. On the other hand, it raises American output. Correspondingly, an increase in French nominal wages lowers French output. And what is more, it lowers German output. On the other hand, it raises American output.

An increase in European money supply of 1 causes an increase in German output of 0.5α, an increase in French output of equally 0.5α, and a decline in American output of β. An increase in German nominal wages of 1 causes a decline in German output of λ, a decline in French output of μ, and an increase in American output of ν. Similarly, an increase in French nominal wages of 1 causes a decline in French output of λ, a decline in German output of μ, and an increase in American output of ν.

2) The dynamic model. At the beginning there is unemployment in Germany and France. More precisely, unemployment in Germany is high, and unemployment in France is low. By contrast there is full employment in America. The primary target of the European central bank is price stability in Europe. The secondary target of the European central bank is high employment in Germany and France. The specific target of the European central bank is that unemployment in Germany equals overemployment in France. In a sense, the specific target of the European central bank is full employment in Europe. The instrument of the European central bank is European money supply. The European central bank raises European money supply so as to close the output gap in Europe.

The target of the German labour union is full employment in Germany. The instrument of the German labour union is German nominal wages. The German labour union lowers German nominal wages so as to close the output gap in Germany. The target of the French labour union is full employment in France. The instrument of the French labour union is French nominal wages. The French labour union lowers French nominal wages so as to close the output gap in France.

We assume that the central bank and the labour unions decide sequentially. First the central bank decides, then the labour unions decide. In step 1, the