Chapter 1
Monetary Interaction: Case A

1. The Model

1) The static model. The world economy consists of two monetary regions, say Europe and America. The monetary regions are the same size and have the same behavioural functions. This chapter is based on target system A. The target of the European central bank is zero inflation in Europe. And the target of the American central bank is zero inflation in America.

An increase in European money supply lowers European unemployment. On the other hand, it raises European inflation. Correspondingly, an increase in American money supply lowers American unemployment. On the other hand, it raises American inflation. An essential point is that monetary policy in Europe has spillover effects on America and vice versa. An increase in European money supply raises American unemployment and lowers American inflation. Similarly, an increase in American money supply raises European unemployment and lowers European inflation.

The model of unemployment and inflation can be represented by a system of four equations:

\[ u_1 = A_1 - M_1 + 0.5M_2 \]  
\[ u_2 = A_2 - M_2 + 0.5M_1 \]  
\[ \pi_1 = B_1 + M_1 - 0.5M_2 \]  
\[ \pi_2 = B_2 + M_2 - 0.5M_1 \]

Here \( u_1 \) denotes the rate of unemployment in Europe, \( u_2 \) is the rate of unemployment in America, \( \pi_1 \) is the rate of inflation in Europe, \( \pi_2 \) is the rate of inflation in America, \( M_1 \) is European money supply, \( M_2 \) is American money supply, \( A_1 \) is some other factors bearing on the rate of unemployment in Europe, \( A_2 \) is some other factors bearing on the rate of unemployment in America, \( B_1 \) is
some other factors bearing on the rate of inflation in Europe, and $B_2$ is some other factors bearing on the rate of inflation in America. The endogenous variables are the rate of unemployment in Europe, the rate of unemployment in America, the rate of inflation in Europe, and the rate of inflation in America.

According to equation (1), European unemployment is a positive function of $A_1$, a negative function of European money supply, and a positive function of American money supply. According to equation (2), American unemployment is a positive function of $A_2$, a negative function of American money supply, and a positive function of European money supply. According to equation (3), European inflation is a positive function of $B_1$, a positive function of European money supply, and a negative function of American money supply. According to equation (4), American inflation is a positive function of $B_2$, a positive function of American money supply, and a negative function of European money supply.

Now consider the direct effects. According to the model, an increase in European money supply lowers European unemployment. On the other hand, it raises European inflation. Correspondingly, an increase in American money supply lowers American unemployment. On the other hand, it raises American inflation. Then consider the spillover effects. According to the model, an increase in European money supply raises American unemployment and lowers American inflation. Similarly, an increase in American money supply raises European unemployment and lowers European inflation.

According to the model, a unit increase in European money supply lowers European unemployment by 1 percentage point. On the other hand, it raises European inflation by 1 percentage point. And what is more, a unit increase in European money supply raises American unemployment by 0.5 percentage points and lowers American inflation by 0.5 percentage points. For instance, let European unemployment be 2 percent, and let European inflation be 2 percent as well. Further, let American unemployment be 2 percent, and let American inflation be 2 percent as well. Now consider a unit increase in European money supply. Then European unemployment goes from 2 to 1 percent. On the other hand, European inflation goes from 2 to 3 percent. And what is more, American unemployment goes from 2 to 2.5 percent, and American inflation goes from 2 to 1.5 percent.