

Lecture 9

Economic Policy Under Fixed Exchange Rates

Table 9.1, below shows the Bank of England's balance sheet:

Table 9.1
Central Bank Balance Sheet

Assets	Liabilities
Foreign Assets: £1,000	Deposits of Banks: \$500
Domestic assets: £1,500	Currency in Circulation: £2,000

Foreign assets are the BoE's international reserves: these are either claims on foreigners or an internationally accepted means of making transactions (gold).

Domestic assets are BoE's claims against domestic residents – UK government bonds or loans to UK banks.

Liabilities are deposits by private banks and coins and notes in circulation.

When the BoE *buys* an asset (say, a Treasury Bill), its payment for this directly enters the money supply. When the BoE *sells* an asset the payment it receives for this directly comes out of the money supply.

Example

Suppose the BoE sells/buys \$150 worth of US bonds and receives/pays £100 for this. Its foreign assets fall/rise by £100. If the BoE is paid/pays in cash, currency in circulation falls/rises by £100 and liabilities fall/rise by £100. If the BoE is paid/pays by a cheque for £100 drawn on Barclays Bank, the BoE debits/credits £100 from Barclays' account with the BoE and liabilities fall/rises by £100. Barclays Bank debits/credits its customers account by £100 and money supply falls/rises.

Sterilisation

Sterilisation occurs when a foreign exchange transaction is offset by a domestic transaction of equal value, but in the opposite direction.

Suppose the BoE sells \$150 worth of US bonds and receives £100 for this. As a consequence, UK money supply falls by £100. In order to offset this, the BoE buys UK government bonds of £100 and UK money supply increases by £100.

Table 9.2
Central Bank Balance Sheet after Sterilisation

Assets	Liabilities
Foreign Assets: £900	Deposits of Banks: \$500
Domestic assets: £1,600	Currency in Circulation: £2,000

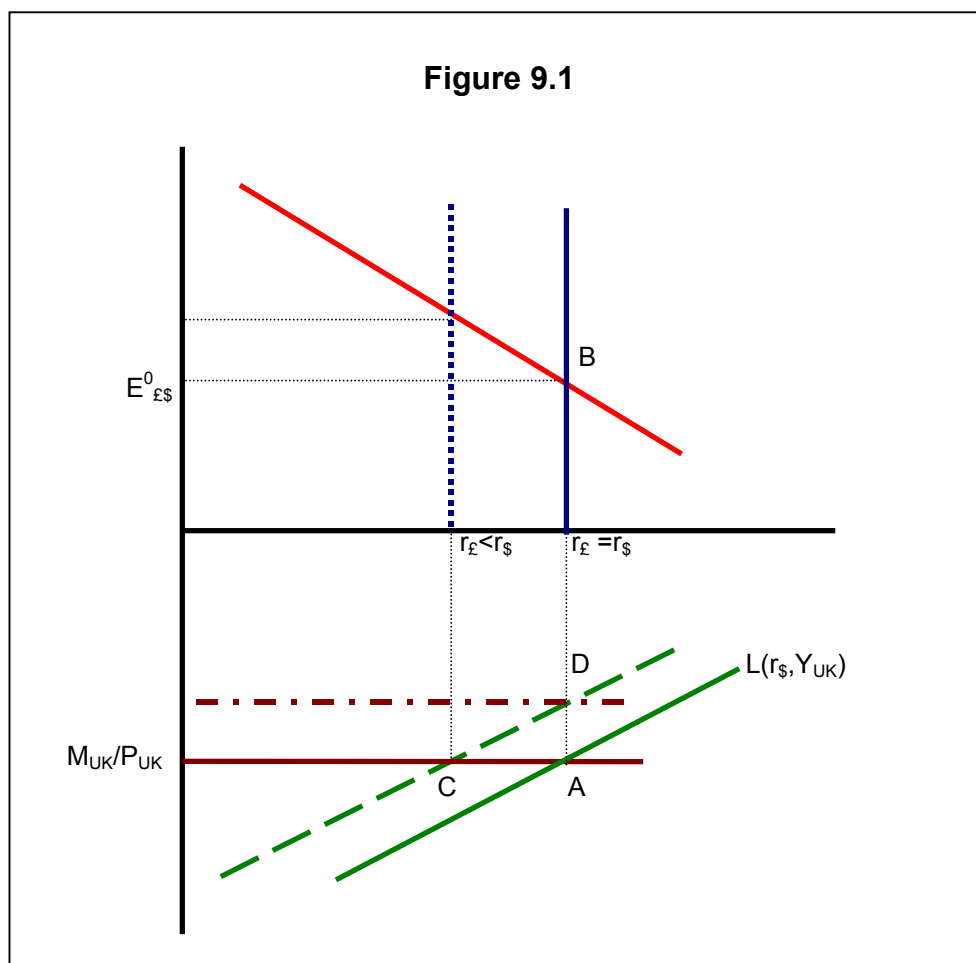
Balance of Payments and the Money Supply

The Balance of Payments is the net amount of foreign assets purchased by the Bank of England less the net amount of UK assets purchased by foreign

Central Banks. If this amount is positive/negative, the BoP is in surplus/deficit.

If the UK has a BoP surplus, then some of this surplus results in BoE holdings of foreign assets increasing and, *unless the BoE sterilises this*, the UK money supply increases. The remainder of this surplus in the holdings of UK assets by foreign central banks decreasing (say, the Federal Reserve) and, *unless the Federal Reserve sterilises this*, the US money supply decreases.

Central Banks and the Exchange Rate



In Figure 9.1, the BoE wants to fix the exchange rate at $E^0_{\pounds\$}$. The exchange rate market is in equilibrium when the expected rate of depreciation is equal to the UK-US interest rate differential:

$$r_{\pounds} - r_{\$} = (E^1_{\pounds\$} - E^0_{\pounds\$}) / E^0_{\pounds\$} \Rightarrow r_{\pounds} = r_{\$} \text{ if } \Delta E^0_{\pounds\$} = 0 \quad (1)$$

To maintain the exchange rate at $E^0_{\pounds\$}$, the BoE must ensure that $r_{\pounds} = r_{\$}$. For a given UK output Y and price level, P the UK money supply must be such that:

$$\frac{M^S}{P} = L(r_{\$}, Y) \quad (2)$$

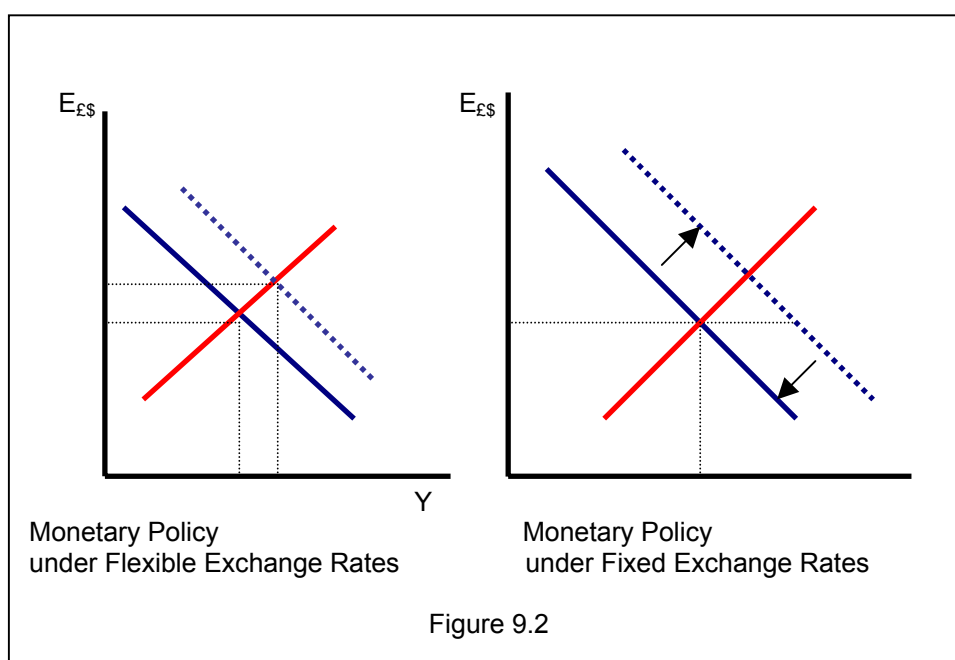
This is represented by points A and B in Figure 9.1.

Suppose UK output falls, so that the demand for money schedule shifts inwards. If the BoE takes no action, r_{\pounds} falls below $r_{\$}$ (point C) and \pounds will depreciate to yield the required rate of depreciation for the interest parity condition to hold.

But if the BoE wants to hold the exchange rate at $E_{\pounds\0 , then, with $r_{\pounds} < r_{\$}$, there is an excess demand for \$ relative to \pounds . In order to restore balance, the BoE must increase the supply of \$. This it does by selling US assets. By selling US assets, the BoE reduces the supply of \pounds . Consequently, the UK money supply decreases so that the new equilibrium is at D when $r_{\pounds} = r_{\$}$.

Monetary Policy under Fixed Exchange Rates

Suppose the BoE increases the money supply by buying domestic assets.



Under floating rates, an increase in the money supply, reduces r_{\pounds} and to restore interest rate parity $E_{\pounds\$}$ rises: this shifts the AA curve outwards and $E_{\pounds\$}$ rises.

Under a fixed rate, an increase in the money supply also shifts the AA curve but the BoE prevents the rise in $E_{\pounds\$}$ by selling \$ for \pounds in the foreign exchange market. This reduces the UK money supply since the \pounds received goes out of circulation: the AA curve returns to its original position. At that point, the increase in BoE domestic assets is exactly offset by a reduction in its foreign assets.

Under fixed exchange rates central banks lose the power to use monetary policy for macroeconomic purposes: monetary policy is used entirely to defend the fixed exchange rate.

Fiscal Policy under Fixed Exchange Rates

Suppose there the UK government increases its expenditure so that there is a fiscal expansion.

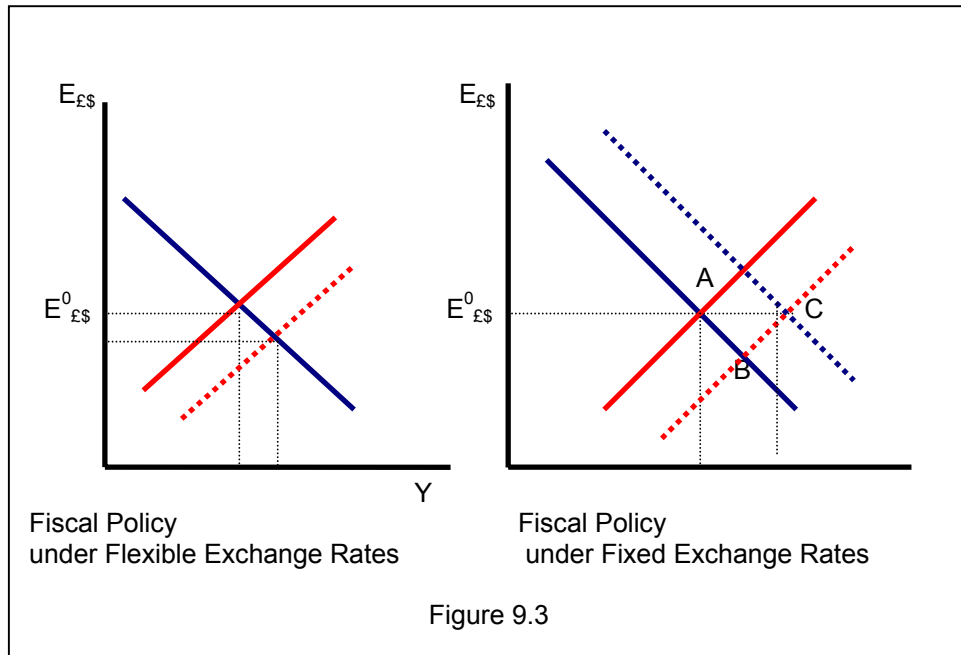


Figure 9.3

Under flexible exchange rates, an increase in government expenditure, G , shifts the DD schedule outwards leading to a fall in $E_{\pounds\$}$: the increase in G , increases transactions demand for money, so r_{\pounds} rises and $E_{\pounds\$}$ falls to restore interest rate parity.

But if the BoE wants to hold the exchange rate at $E_{\pounds\0 , then, with $r_{\pounds} > r_{\$}$, there is an excess demand for \pounds relative to $\$$. In order to restore balance, the BoE must increase the supply of \pounds . This it does by selling buying US assets. By buying US assets, the BoE increases the supply of \pounds . Consequently, the UK money supply increases so that the AA shifts outwards: the new equilibrium is at C when $r_{\pounds} = r_{\$}$.

Devaluation and Revaluation of Currencies

A **devaluation** is a *policy-induced* change in the exchange rate which causes the value of a country's currency to fall in terms of other currencies.

A **depreciation** is a *market-induced* change in the exchange rate which causes the value of a country's currency to fall in terms of other currencies.

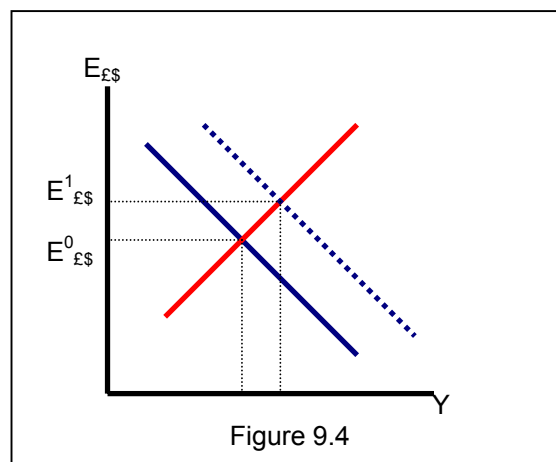
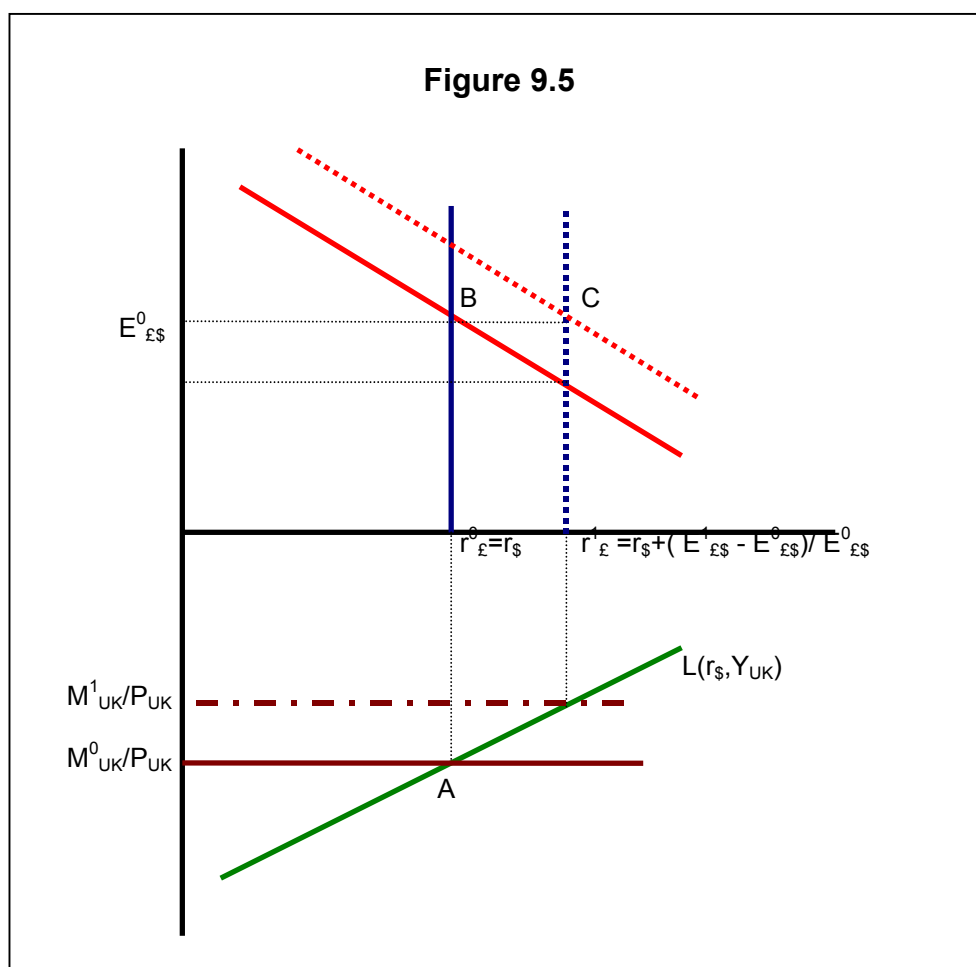


Figure 9.4

In Figure 9.4, the government devalues sterling from $E^0_{\text{£\$}}$ to $E^1_{\text{£\$}}$. At the new exchange rate, $E^1_{\text{£\$}}$, there is now an excess demand for £: the higher Y associated with the higher $E_{\text{£\$}}$ raises the transactions demand for money and pushes $r_{\text{£}}$ above $r_{\text{\$}}$. To restore equilibrium ($r_{\text{£}}=r_{\text{\$}}$), the BoE has to increase the money supply by buying US assets; this pushes the AA curve to the right. Devaluation leads to higher output and higher foreign exchange reserves.

Balance of Payments Crises and Capital Flight

A balance of payments crisis arises when the market does not believe that the central bank of a country can maintain the exchange rate at its current value.



In Figure 9.5, the BoE fixes the exchange rate at $E^0_{\text{£\$}}$. The market has 'confidence' that this rate can be maintained: $D^e_{\text{£\$}}=0$ and at interest rate parity $r^0_{\text{£}}=r_{\text{\$}}$. Now, because of a balance of payments crisis, the market believes that the rate $E^0_{\text{£\$}}$ is unsustainable and it expects a devaluation to a higher rate $E^1_{\text{£\$}}$. Consequently $D^e_{\text{£\$}}>0$, the expected £ return on \$ assets curve shifts outwards: for the interest rate parity condition to be satisfied a higher $r_{\text{£}}$ is now needed.

At the current interest rate $r^0_{\text{£}}$, \$ assets are more attractive than £ assets and there is an excess demand for \$. The BoE meets this demand by selling \$ assets with the result that money supply falls. When the money supply is M^1 ,

equilibrium is restored: the interest rate parity condition is satisfied at $r_{\text{£}}^1 = r_{\text{\$}} + D_{\text{£}\text{\$}}^e$. The expectation of a devaluation leads to a fall in reserves and to a rise in domestic interest rate above the world interest rate. The fall in reserves resulting from the defence of a fixed exchange rate, when the market expects a devaluation, is termed **capital flight**.

