Economics 302 (Sec. 001)
Intermediate Macroeconomic Theory and Policy (Spring 2012)
4/23/2012

Instructor: Prof. Menzie Chinn
UW Madison

21-1 The Medium Run

$$\varepsilon = \frac{EP}{P^*}$$

•There are two ways in which the real exchange rate can adjust: *E*, or *P* & *P**

•The aggregate demand relation in an open economy with fixed exchange rate is

$$Y = Y\left(\frac{\bar{E}P}{P*}, G, T\right)$$
$$(- , + , -)$$

M/P doesn't appear, but real rate does.

21-1 The Medium Run

Aggregate Demand Under Fixed Exchange Rates

$$Y = Y\left(\frac{\bar{E}P}{P*}, G, T\right)$$
$$(- , + , -)$$

- In a closed economy, the aggregate demand relation took the same form as above, except for the presence of the real money stock M/P instead of the real exchange rate ĒP/P*.

  - Under fixed exchange rates, the central bank gives up monetary policy as a policy instrument. This is why the money stock no longer appears in the aggregate demand relation.

  - At the same time, the fact that the economy is open implies that we must include a variable that we did not include when looking at the closed economy earlier, namely, the real exchange rate, ĒP/P*.
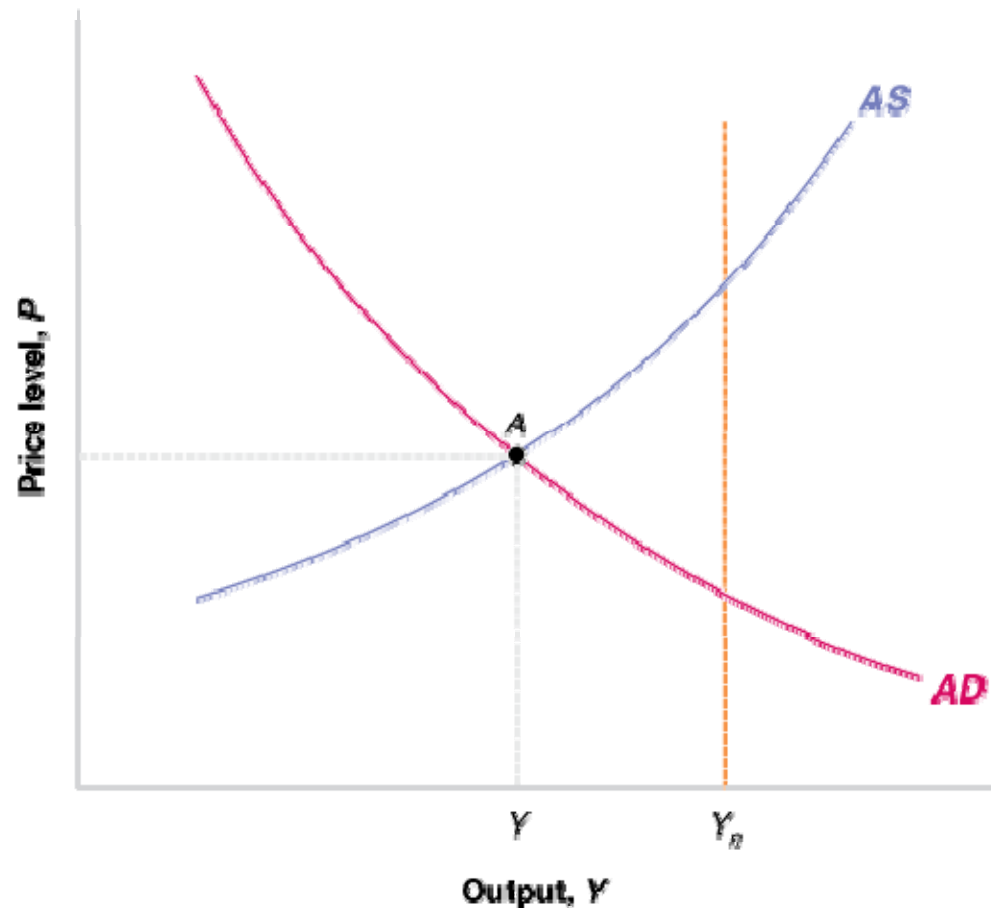
21-1 The Medium Run

Equilibrium in the Short Run and in the Medium Run

Figure 21 – 1

Aggregate Demand and Aggregate Supply in an Open Economy Under Fixed Exchange Rates

An increase in the price level leads to a real appreciation and a decrease in output: The aggregate demand curve is downward sloping. An increase in output leads to an increase in the price level: The aggregate supply curve is upward sloping.

21-1 The Medium Run

Equilibrium in the Short Run and in the Medium Run

The aggregate supply relation is:

$$P = P^e (1 + \mu) F\left(1 - \frac{Y}{L}, z\right)$$

• The price level P depends on the expected price level P^e, and on the level of output Y. There are two mechanisms at work:

– The expected price level affects nominal wages which affect price levels.

– Higher output leads to higher employment, which leads to lower unemployment, higher wages, and higher price levels.
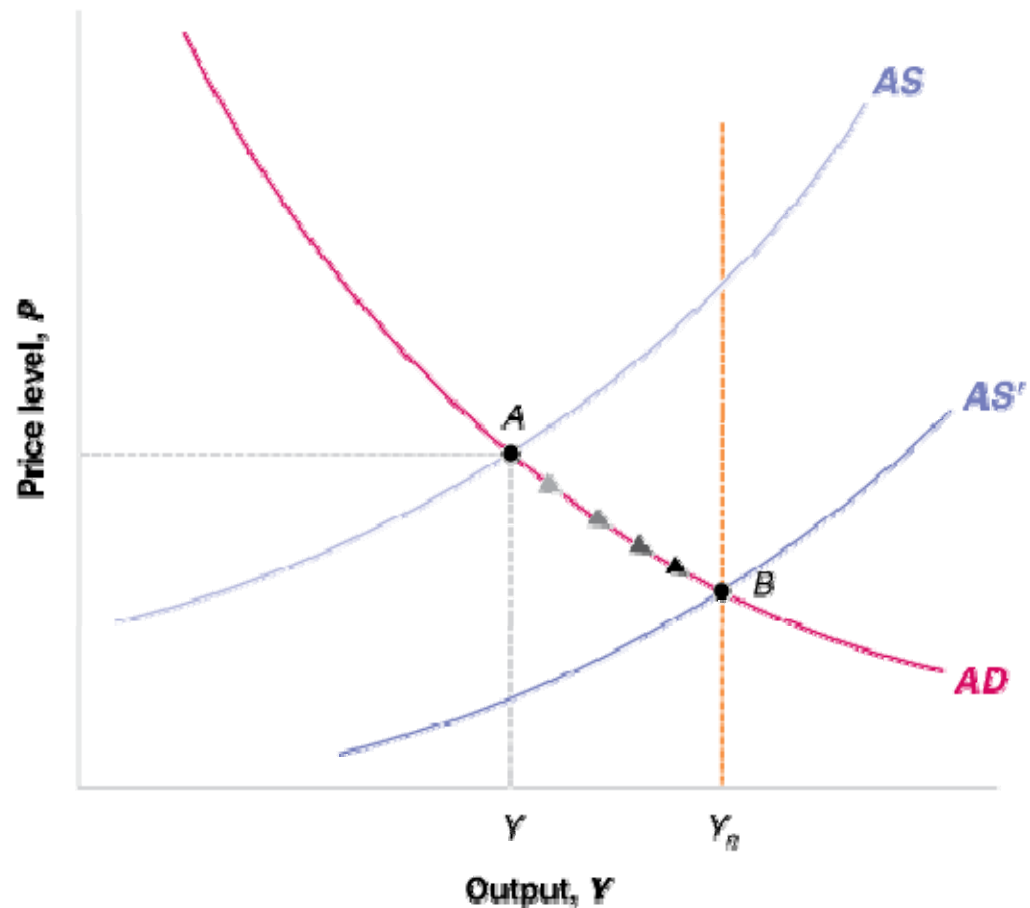
21-1 The Medium Run
Equilibrium in the Short Run and in the Medium Run

Adjustment under Fixed Exchange Rates

The aggregate supply curve shifts down over time, leading to a decrease in the price level, to a real depreciation, and to an increase in output. The process ends when output has returned to its natural level.
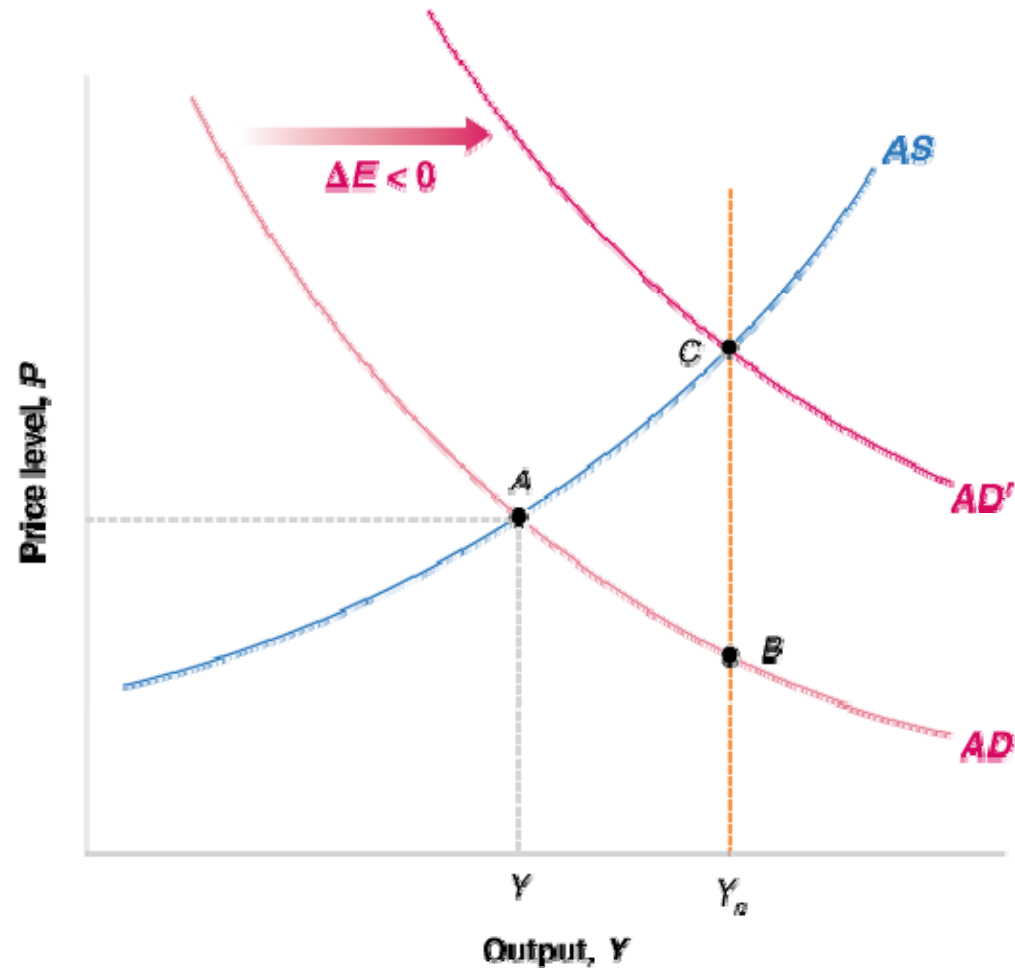
21-1 The Medium Run

The Case for and against a Devaluation

Figure 21 – 3

Adjustment with a Devaluation

A devaluation of the right size can shift aggregate demand to the right, moving the economy to point C. At point C, output is back to the natural level of output.
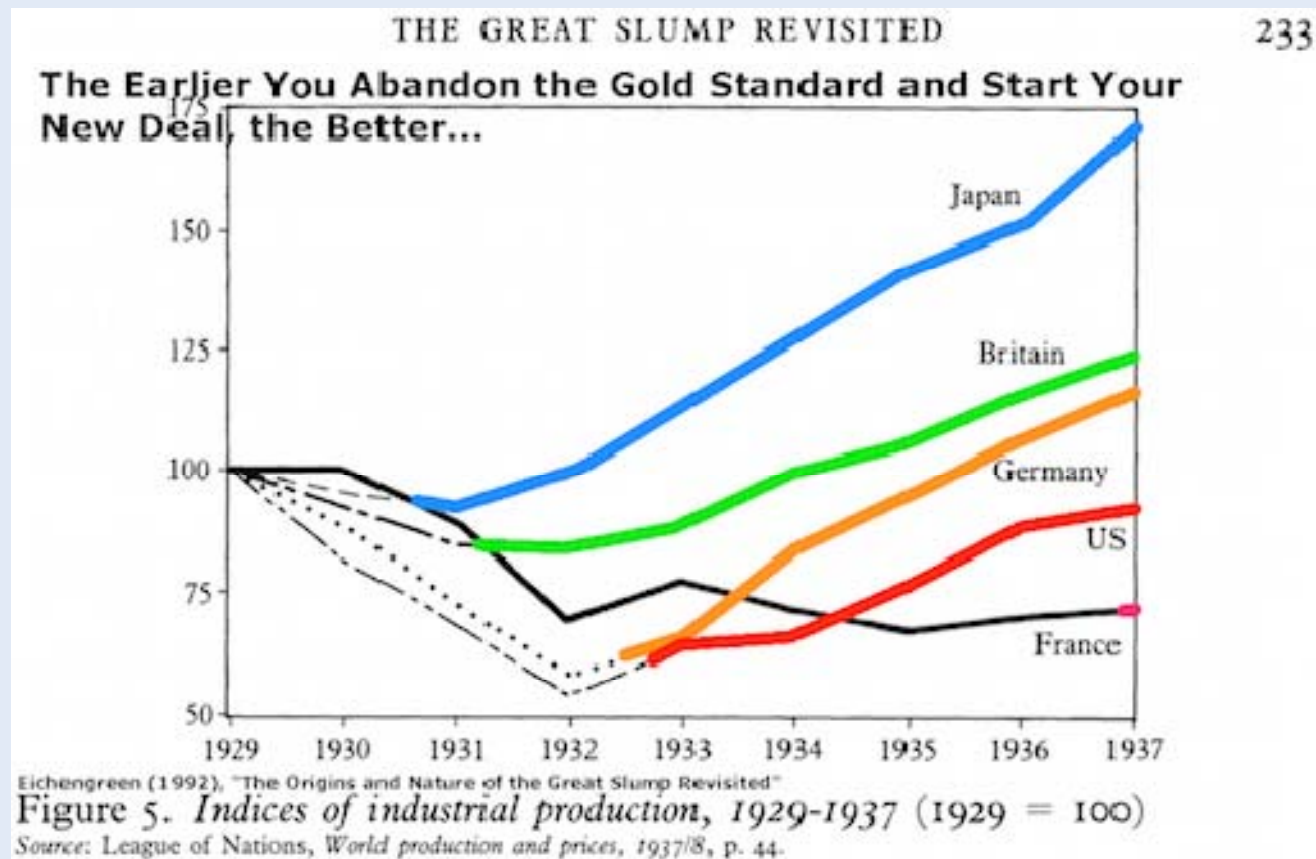
FOCUS

The **gold standard** was a system in which each country fixed the price of its currency in terms of gold and stood ready to exchange gold for currency at the stated parity.

THE GREAT SLUMP REVISITED   233

The Earlier You Abandon the Gold Standard and Start Your New Deal, the Better...

Figure 5. *Indices of industrial production, 1929-1937* (1929 = 100)

Eichengreen (1992), "The Origins and Nature of the Great Slump Revisited"

Source: League of Nations, *World production and prices, 1937/8*, p. 44.

21-2 Exchange Rate Crises under Fixed Exchange Rates

- Suppose a country is operating under a fixed exchange rate, and that financial investors start believing there may soon be an exchange rate adjustment:

  - The real exchange rate may be too high, the domestic currency may be overvalued.

  - Internal conditions may call for a decrease in the domestic interest rate, a decrease in the domestic interest rate cannot be achieved under fixed exchange rates.

  If credible, then what is true is:

$$i_t = i_t^* - \frac{\left(E_{t+1}^e - E_t\right)}{E_t}$$

21-2 Exchange Rate Crises under Fixed Exchange Rates

- Expectations that a devaluation may be coming can trigger an exchange rate crisis. The government and central bank have a few options:

  - They can try to convince markets they have no intention of devaluing.

  - The central bank can increase the interest rate.

  - Eventually, the choice for the central bank becomes either to increase the interest rate or to validate the market's expectations and devalue.
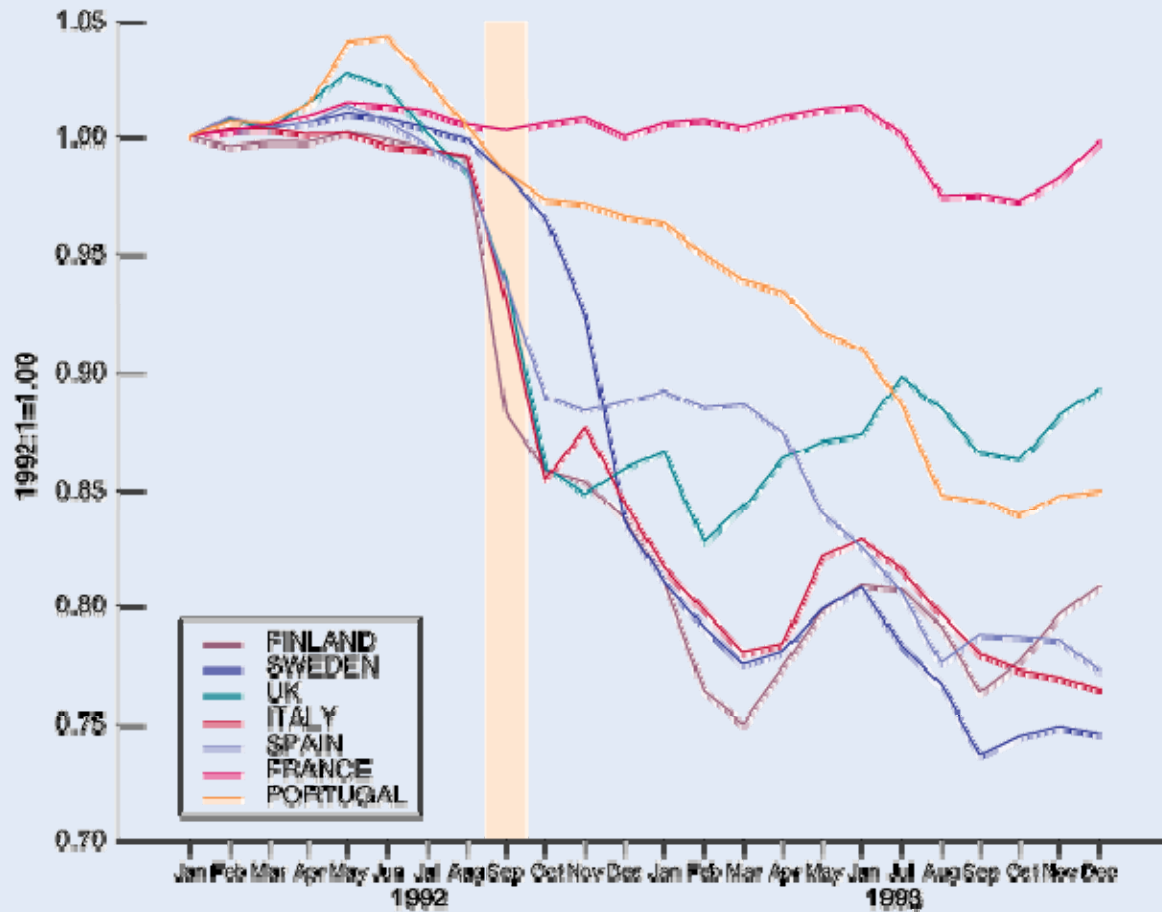
Figure 1 *Exchange Rates of Selected European Countries Relative to the Deutsche Mark, January 1992 to December 1993*

21-3 Exchange Rate Movements under Flexible Exchange Rates

• Take the interest parity condition:

$$(1+i_t) = (1-i_t^*)\frac{E_t}{E_{t+1}^e}$$

• Multiply both sides by E_{t+1}^e

$$E_t = \frac{1+i_t}{1+i_t^*}E_{t+1}^e$$

• Then write the equation for year $t+1$ rather than for year t:

$$E_{t+1} = \frac{1+i_{t+1}}{1+i_{t+1}^*}E_{t+2}^e$$

21-3 Exchange Rate Movements under Flexible Exchange Rates

The expectation of the exchange rate in year $t+1$, held as of year t, is given by

$$E^e_{t+1} = \frac{1+i^e_{t+1}}{1+i^{*e}_{t+1}} E^e_{t+2}$$

Replacing E^e_{t+1} with the expression above gives

$$E_t = \frac{(1+i_t)(1+i^e_{t+1})}{(1+i^*_t)(1+i^{*e}_{t+1})} E^e_{t+2}$$

Continuing to solve forward in time in the same way we get

$$E_t = \frac{\left(1+i_t\right)\left(1+i^e_{t+1}\right)...\left(1+i^e_{t+n}\right)}{\left(1+i^*_t\right)\left(1+i^{*e}_{t+1}\right)...\left(1+i^{*e}_{t+n}\right)} E^e_{t+n+1}$$

21-3 Exchange Rate Movements under Flexible Exchange Rates

Exchange Rates and Current and Future Interest Rates

•Any factor that moves the current or expected future domestic or foreign interest rates between year t and $t+n$ moves the current exchange rate.

Exchange Rate Volatility

The relation between the interest rate i_t and the exchange rate E_t is all but mechanical. A country that decides to operate under flexible exchange rates must accept that it will be exposed to fluctuations over time.

21-4 Choosing betw. Exchange Rate Regimes

Should countries choose flexible exchange rates or fixed exchange rates?

- In the short run, under fixed exchange rates, a country gives up its control of the interest rate and the exchange rate.

- Also, anticipation that a country may be about to devalue its currency may lead investors to ask for very high interest rates.

- An argument against flexible exchange rates is that they may move a lot and may be difficult to control them through monetary policy.

21-4 Choosing betw. Exchange Rate Regimes

In general, flexible exchange rates are preferable. There are, however, two exceptions:

First, when a group of countries is already tightly integrated, a common currency may be the right solution.

Second, when the central bank cannot be trusted to follow a responsible monetary policy under flexible exchange rates, a strong form of fixed exchange rates, such as a currency board or dollarization, may provide a solution.

Optimal Common Currency Areas

Two conditions must be satisfied:

The countries experience similar shocks; thus, can choose roughly the same monetary policy.

Countries have high factor mobility, which allow countries to adjust to shocks.

FOCUS

The European Monetary Union (EMU) was consolidated under the **Maastricht Treaty**.

In January 1999, parities between the currencies of 11 countries and the Euro were "irrevocably" fixed.

The new **European Central Bank (ECB),** based in Frankfurt, became responsible for monetary policy for the Euro area.

The Euro Zone Crisis

- The original twelve countries were not an "Optimal Currency Area"

- The prerequisite for an OCA are:
    - Similar supply, or similar demand, shocks
    - Labor is free to move between countries
    - The United States is an OCA primarily because labor is free to move
    - The euro zone is not (except Germany, France, Netherlands, etc.)

21-4 Choosing betw. Exchange Rate Regimes

Hard Pegs, Currency Boards, and Dollarization

- One way of convincing financial markets that a country is serious about reducing money growth is a pledge to fix its exchange rate, now and in the future.

- A **hard peg** is the symbolic or technical mechanism by which a country plans to maintain exchange rate parity.

• Dollarization is an extreme form of a hard peg. A less extreme way is the use of a currency board involving the central bank.