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# ECN 135 Lecture 16

## Money, Banks & Financial Institutions

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# Plan for today

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- Chapter 20: Monetary Policy & ForEx Market
- An application: explaining US Dollar behavior. We will use information from recent NYT (2005) articles:
  - 02.10-11: on US Trade Deficit (in 2004 exceeded \$600 billion)
  - 02.20: Greenspan - the puzzle of low long term interest rates
  - 02.22-23: Dollar plunges on South Korea CB proposal to diversify
  - 02.24: On Dollar vulnerability & Honey, I shrunk the Dollar
  - 02. 27: Still On Dollar dominance

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# Exchange Market Intervention UnSterilized

- **Unsterilized:** Fed sells \$1 billion of \$, buys \$1 billion of foreign assets

## *Fed Assets*

Foreign assets+ \$1 b  
(international reserves)

## *Fed Liabilities*

Currency / reserves + \$1 b  
(monetary base)

- **Results:**

- 1. International reserves, +\$1 billion (Fed's assets denominated in foreign currencies, for example - French Government Bonds)
- 2. Monetary base, + \$1 billion
- 3. For analysis, see slide 5, [M] p. 466, Fig 1,  $E_f \downarrow$

# Exchange Market Intervention Sterilized

- **Sterilized:** Fed's purchased \$1 billion foreign assets  $\rightarrow$   $MB \uparrow$  To reduce  $MB$  back to its old level, Fed sells \$1 billion of government bonds

*Fed Assets*

*Fed Liabilities*

Foreign assets + \$1 b      Currency or reserves \$0 b  
(international reserves)      (monetary base)

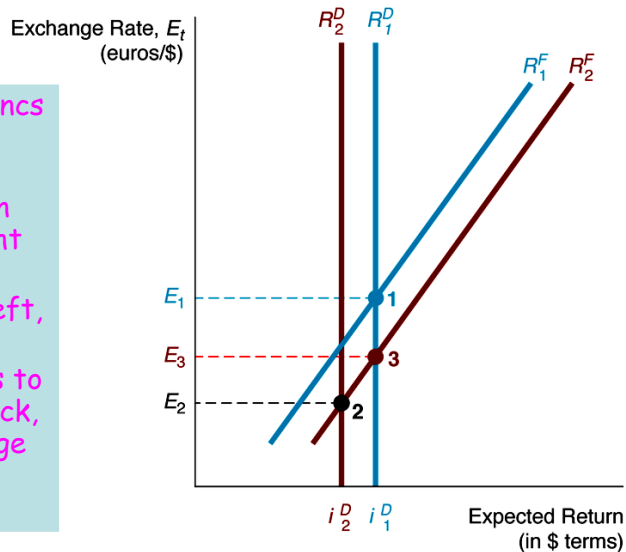
Government bonds - \$1 b

- **Results**

- 1. International reserves, +\$1 billion
- 2. Monetary base unchanged (because Fed offsets  $MB$  changes. This is called sterilization.)
- 3.  $E_{\dagger}$  unchanged: no shift in  $R^D$  and  $R^F$

# Ex Rate Intervention, Sell \$

1. Fed: sells \$, buys Francs /euros  $MB \uparrow, M^s \uparrow$
2.  $M^s \uparrow, P \uparrow, E_{t+1}^e \downarrow$ , expected appreciation of  $F \uparrow, R^F$  shifts right in Fig. 1
3.  $M^s \uparrow, \rho \downarrow, R^D$  shifts left, go to point 2 and  $E_t \downarrow$
4. In long run,  $\rho$  returns to old level,  $R^D$  shifts back, go to point 3: Exchange rate overshooting



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[M] Figure 1, page 466 (Un-sterilized). Un-sterilized intervention (selling \$) by Fed causes \$ depreciation.

$R^F$  is rate of return on foreign deposits

If  $MB \uparrow \rightarrow$  dollar prices  $P \uparrow$ , and expected exchange rate  $\downarrow$ .

Initial exchange rate is at point 1, then at point 2 (overshooting), and then exchange rate increases to point 3. (if we assume that in the long run dollar interest rate would bounce to its original level)

Trade balance = net receipts from trade = Exports - Imports

If  $E-I < 0 \leftrightarrow$  Trade deficit

# The Gold Standard = Fixed Exchange rates

## Currency convertible (directly) into gold at some fixed value

Example of how it worked:

U.S.: \$20 converted into 1 ounce (1\$ = 1/20 ounce)

U.K.: £4 converted into 1 ounce

Par value of £1 = \$5.00

If £ ↑ (appreciates) to \$5.25, importer of £100 of  
tweed has two alternatives:

1. Pay \$525
2. Buy \$500 gold ( $500/20 = 25$  ounces), ship to U.K.,  
convert into £100 ( $= 25 \times £4$ ) and buy tweed

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If £ ↑ (appreciates) → tweed importer could be better off paying in gold directly, (i.e. buying pounds with gold, which will push exchange rate back to its par. In this case, Britain accumulates more gold reserves.

## The Gold Standard & Monetary Policy

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If shipping cheap, alternative 2 is preferred:

1. Gold flows to U.K.
2.  $MB \uparrow$  in U.K,  $MB \downarrow$  in U.S.
3. Price level  $\uparrow$  in U.K., and  $\downarrow$  in U.S.
4. £ depreciates back to par

### Two Problems:

1. Country on gold standard has no control of  $M^s$
2. World inflation determined by gold production  $\rightarrow$  difficult to conduct monetary policy!

# Fixed Exchange Rate Systems: Bretton Woods

- **Bretton Woods = dollar was a reserve currency**
- 1. Fixed exchange rates
- 2. Other central banks keep exchange rates fixed to \$: \$ is reserve currency
- 3. \$ convertible into gold for central banks only (\$35 per ounce)
- 4. International Monetary Fund (IMF) sets rules and provides loans to deficit countries
- 5. World Bank makes loans to developing countries
- And ... how this system ended? Due to US high inflation monetary policy (Fed's effort to fight unemployment) → high inflation in other countries / Bretton Woods members → system collapsed

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## Goals and Structure of the IMF

The IMF agreement tried to incorporate sufficient flexibility to allow countries to attain external balance without sacrificing internal objectives or fixed exchange rates.

Two major features of the IMF Articles of Agreement helped promote this flexibility in external adjustment:

IMF lending facilities

**IMF conditionality** is the name for the surveillance over the policies of member countries who are heavy borrowers of Fund resources.

Adjustable parities

But IMF has no means to make surplus countries to pursue more inflationary policies

## The End of Bretton Woods

### Worldwide Inflation and the Transition to Floating Rates

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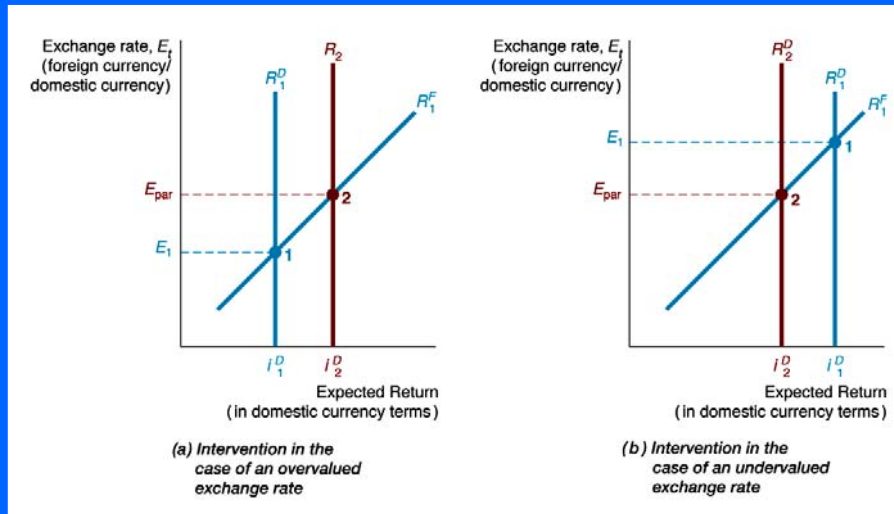
- The acceleration of American inflation in the late 1960's was a worldwide phenomenon.
  - It had also speeded up in European economies.
- When the reserve currency country speeds up its monetary growth, one effect is an automatic increase in monetary growth rates and inflation abroad.
- U.S. macroeconomic policies in the late 1960s helped cause the breakdown of the Bretton Woods system by early 1973. (1971 attempt to fix the system, but it was abolished in 1937) → floating ex rate regime

# More Fixed Rates: EMU

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- **European Monetary System**
  - 1. Value of currency not allowed outside "snake" (+/- 2.25% around exchange rate, in 1993 +/- 15%) "managed float"
  - 2. New currency unit: ECU
  - 3. Exchange Rate Mechanism (ERM)
- **Key weakness of fixed rate system**
  - Asymmetry: pressure on deficit countries losing international reserves to  $\downarrow M$ ,
  - but no pressure on surplus countries to  $\uparrow M$
- **European Monetary System: Costs & Benefits**
  - Costs: can lead to "speculative attacks on weak currencies (remember September 1992 ForEx crisis Negara speculations on pound?)
  - Benefits: Makes [small] currencies more liquid, eases / makes international trade / capital movements more efficient

# Intervention in a Fixed Exchange Rate System



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[M], p. 371

See next slide for Analysis of Figure 2

$R^F$  is rate of return on foreign deposits

$R^D$  is rate of return on domestic deposits

## Analysis of Figure 2: Intervention in a Fixed Exchange Rate System

Since  $E_{t+1}^e = E_{\text{par}}$  with fixed exchange rate,  $R^F$  doesn't shift

### **Overvalued exchange rate (panel a)**

1. Central bank sells international reserves to buy domestic currency
2.  $MB \downarrow$ ,  $M^s \downarrow$ ,  $P \uparrow$ ,  $R^D$  to right to get to point 2
3. If don't do this, have to devalue

### **Undervalued exchange rate (panel b)**

1. Central bank sells domestic currency and buys international reserves
2.  $MB \uparrow$ ,  $M^s \uparrow$ ,  $P \downarrow$ ,  $R^D$  to left to get to point 2
3. If don't do this, have to revalue

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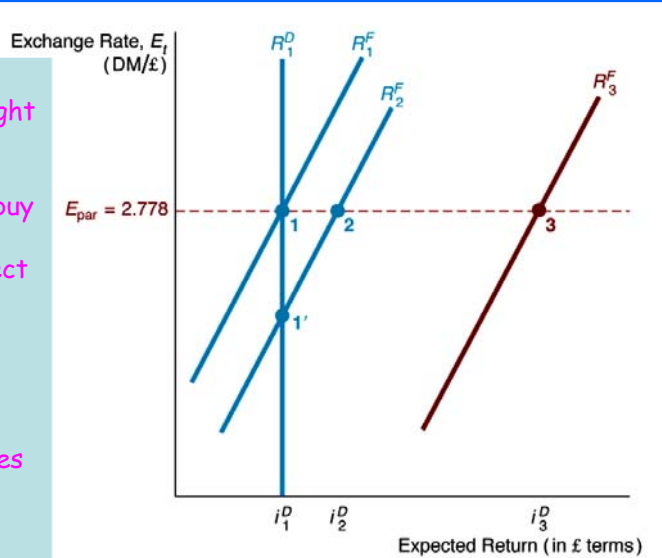
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[M], p. 471

$R^F$  is rate of return on foreign deposits

# Exchange Rate Crisis

1. At  $E_{\text{par}}$ ,  $R_2^F$  right of  $R^D$  because Bundesbank tight money keeps German interest rates high
2. Bank of England could buy £,  $\rho \uparrow$ ,  $R^D$  shifts right
3. When speculators expect devaluation,  $E_{t+1} \downarrow$ ,  $R^F$  shifts right
4. Requires much bigger intervention by UK
5. When UK pulls out of ERM, £  $\downarrow$  10%, big losses to central bank



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[M], p. 476

$R^F$  is rate of return on foreign deposits

# International Financial Architecture

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- **Capital Controls (distort markets)**
  - 1. Controls on outflows unlikely to work
  - 2. Controls on inflows may prevent lending boom and financial crisis, but cause distortions
- **Role of IMF**
  - 1. There is a need for international lender of last resort (ILLR) [and IMF has played this role]
  - 2. As usual, ILLR creates moral hazard problem
  - 3. IMF needs to limit moral hazard
    - Lend only to countries with good bank supervision
  - 4. Need to play ILLR role fast and infrequently

## Monetary Policy: International Considerations

- 1. Direct effects of FX market. When intervene (un-sterilized), MB changes
- 2. Balance of payments considerations  
When B of P is in deficit need  $M^s \downarrow$ 
  - B of P = records of country international transactions / movements of funds
    - Current account international transactions that involve goods and services
    - Capital account (net receipts from capital transactions)
- 3. Exchange rate considerations  
When want lower  $E$ , need  $M^s \uparrow$

# Next Lecture

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- Next lecture ISLM model
- Your preparation: read [M] Ch 24

# Summary of Today

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- Monetary Policy & International Issues
- ForEx intervention
  - Un-sterilized
  - Sterilized
- International Financial Architecture
  - Fixed and floating exchange rates
- Have a Nice Night