

# EE432 Monetary Theory and Policy



## Lecture 10 The Exchange Rate Policy

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# Outline

- Linking Exchange-Rate Policy with Domestic Monetary Policy
- Mechanics of Exchange-Rate Management
- The Costs, Benefits, and Risks of Fixed Exchange Rates
- Fixed Exchange-Rate Regimes

# Chapter 19

## Exchange Rate Policy and the Central Bank

# Linking Exchange-Rate Policy with Domestic Monetary Policy

# Linking Exchange-Rate Policy with Domestic Monetary Policy

- Exchange-rate policy is *integral* to any monetary policy regime.
- When **capital flows *freely across*** a country's *borders*, a fixed exchange rate means **giving up** domestic monetary policy.

# Linking Exchange-Rate Policy with Domestic Monetary Policy

There are two ways to see the **connection** between *exchange rates* and *monetary policy*.

1. Think about the *market for goods* and **purchasing power parity**.
2. *Short-run movements in exchange rates* are tied to the **supply and demand** in the *currency markets*.

# Inflation and the Long-Run Implications of Purchasing Power Parity

- *Ignoring transportation costs, the law of one price says that **identical goods should sell for the same price** regardless of where they are sold.*
- The concept of **purchasing power parity (PPP)** *extends the logic of the law of one price to a basket of goods and services.*

# Inflation and the Long-Run Implications of Purchasing Power Parity

- As long as goods can *move freely across international boundaries*, **one unit of domestic currency should buy the same basket of goods** anywhere in the world.
- When **prices change** *in one country* but not in another, the **exchange rate will adjust** to reflect the change.
- In the *long run*, **changes in the exchange rate** are tied to **differences in inflation**.
- *The central bank must choose either a fixed exchange rate or an independent inflation policy.*

# Interest Rates and the Short-Run Implications of Capital Market Arbitrage

- In the **short run**,
  - A country's **exchange rate** is *determined* by **supply and demand**.
- When the bonds have *different yields*, the **prices** will be *bid up or down* until the returns are equal.

# Capital Controls and the Policymaker's Choice

- **Impossible Trinity:** a country cannot complete 3 conditions
  - Free capital flows
  - Sovereign monetary policy
  - Fixed exchange rate
- Policymakers must ***choose two of these three*** options.
- *If* a country is willing to participate in **international capital markets**, it *can*:
  - Liberalize capital mobility
  - Conduct **independent monetary policy**
  - But, it could not keep its ***exchange rate fixed***

# Capital Controls and the Policymaker's Choice

- Internationally **integrated capital markets** *ensure* that **capital goes to its *most efficient* uses.**
- **Disturbances** in one country's financial market *can be quickly **transmitted** to other countries.*
- For emerging-market countries, **greater openness** of capital markets *poses **greater risks.***

# Capital Controls and the Policymaker's Choice

- Countries with ***open capital markets*** are **vulnerable to *sudden changes*** in *investor sentiment*.
- Investors may **decide to sell a *country's bonds***.
  - The **value of the domestic currency** is ***driven down***.
  - **Bond prices** are ***driven down***.
  - **Interest rates** are ***driven up***.
- The ***result*** is **similar to a *bank run***.
  - ***All investors leave*** at once, **triggering a financial collapse**.

# Mechanics of Exchange-Rate Management

*The Central Bank's  
Balance Sheet*

# The Central Bank's Balance Sheet

- As the Fed works to **maintain a fixed dollar-euro exchange rate**, its *balance sheet shifts*.
- **Buying euros or selling dollars increases the supply of reserves** to the banking system.
- These *interventions* have an impact on **interest rates** and the **quantity of money** in the economy.
- **Controlling the exchange rate means giving up control of the size of reserves** so that the *market determines the interest rate*.

# The Central Bank's Balance Sheet

- In *September 2000*, the world's largest central banks **intervened** to ***bolster*** the **value of the euro**.
- The **Fed** ***purchased €1.5 billion*** in exchange for \$1.34 billion.
  - They did this **by purchasing bonds *issued by euro-area governments***.

# The Central Bank's Balance Sheet

Figure 19.1

Change in the Federal Reserve's Balance Sheet Immediately following a Purchase of Euros

Assets		Liabilities	
Euro reserves (German government bonds)	+\$1.34 billion	Commercial bank reserves	+\$1.34 billion

- The Fed ***increased*** its **euro-denominated foreign exchange assets** by \$1.34 billion.
- On the liabilities side, **commercial bank reserves** have increase by the same amount.

# The Central Bank's Balance Sheet

- This transaction is identical to a *purchase of U.S. Treasury bonds*.
- A foreign exchange intervention has the same impact on reserves as a *domestic open market operation*.
- The **Fed** did **supply dollars** to the market through its intervention, but *more importantly*, the **interest rate has fallen**.

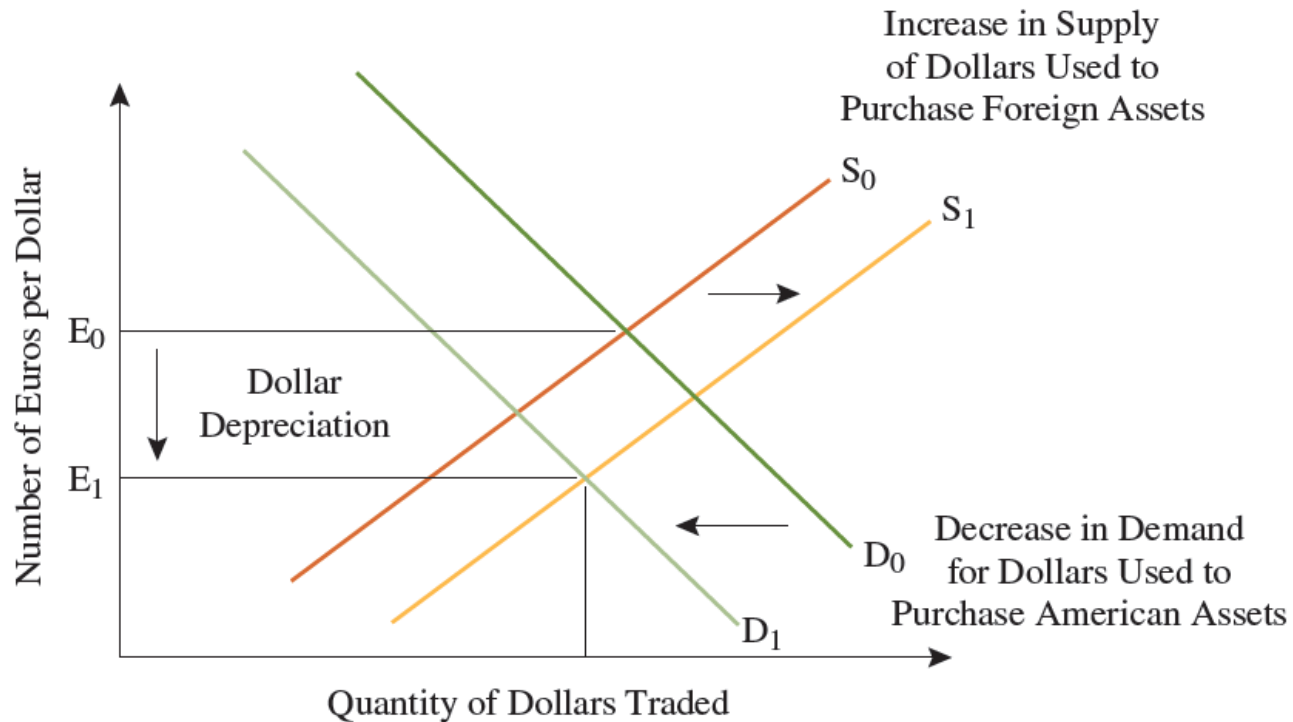
# The Central Bank's Balance Sheet

- The **U.S. interest rate** will *fall*, while **European interest rates** *remain the same*.
- Foreign investors will want to **buy fewer U.S. bonds**, and they will *need fewer dollars* to do it.
  - The **demand for dollars** in the foreign exchange market *falls*.
- **U.S. investors** will **sell US bonds** to *buy more foreign bonds*.
  - The **supply of dollars** will *increase*.

# The Central Bank's Balance Sheet

Figure 19.2

Effect of a Decrease in U.S. Interest Rates Relative to Interest Rates in the Euro Area



**A foreign exchange intervention affects the value of a country's currency by changing domestic interest rates.**

# The Central Bank's Balance Sheet

- When Fed intervened to buy euros, it did **not change *interest-rate targets***.
- We assumed that when the Fed bought euros, it **increased *commercial bank reserves***, which would **reduce the interest rate** in the *absence of any other action*.
- This is an example of an **unsterilized foreign exchange intervention**

# *Sterilized Intervention*

# Sterilized Intervention

- In fact, **central banks** in large countries **do not operate that way.**
- They engage in **sterilized foreign exchange interventions:**
  - A change in foreign exchange reserves alters the *asset side* of the *central bank's balance sheet* but the **domestic monetary base remains unaffected.**

# Sterilized Intervention

A sterilized intervention is a *combination* of two transactions:

1. There is the **purchase or sale of foreign currency reserves**, which *changes the central bank's liabilities*.
2. Then, an **immediate open market operation**, of exactly the same size, designed to **offset** the impact of the first transaction on the *monetary base*.

# Sterilized Intervention

- For example, the Fed's purchase of a German government bond, is offset by the sale of a U.S. Treasury bond.
  - These two actions leave the level of reserves unchanged.
- This intervention is **sterilized** with respect to its *effect on the monetary base*, or the *size of the central bank's balance sheet*.
- An intervention is **sterilized** since it does not change the *monetary base*.

# Sterilized Intervention

- The **FOMC** had not changed the **target federal funds rate**.
- The *foreign exchange desk* had **purchased bonds issued by a euro-area government, paying for them with reserves**, and the *open market desk* had **sold U.S. Treasury bonds to reverse the potential impact**.

Figure 19.3

Change in the Federal Reserve's Balance Sheet following a Sterilized Purchase of Euro-Denominated Bonds

Assets		Liabilities
Euro reserves (German government bonds)	+\$1.34 billion	Commercial bank reserves unchanged
Securities (U.S. Treasury bonds)	-\$1.34 billion	

# The Costs, Benefits, and Risks of Fixed Exchange Rates

# The Costs, Benefits, and Risks of Fixed Exchange Rates

- **Fixed exchange rates** not only *simplify operations* for *international trade businesses*, they also *reduce the risk* that investors face when they *hold foreign stocks and bonds*.
- *In countries* that are prone to bouts of *high inflation*, a **fixed exchange rate** may be the only way to *establish* a **credible low-inflation policy**.

# Assessing the Costs and Benefits

- One serious **drawback** to a **fixed exchange rate** is that it *could not operate* independent monetary **policy**.
  - You must adopt the *other country's interest-rate policy*.
- A ***fixed exchange rate policy*** makes the most sense when the *two countries involved have similar macroeconomic fluctuations*.
  - Otherwise, the *country with the flexible exchange rate* that is in **control of monetary policy** might be *raising interest rates* at the same time **another country** in going into a recession.

# Assessing the Costs and Benefits

Policymakers should consider several additional matters.

1. When a country **fixes its exchange rate**, the central bank is ***offering*** to **buy and sell its own currency** at a **fixed rate**.
  - Monetary policymakers will **need ample currency reserves**.
2. *Fixing the exchange rate* means **reducing** the domestic economy's natural **ability to respond to macroeconomic shocks**.

# The Danger of Speculative Attacks

- **Fixed exchange rates** are *fragile and likely to a type of crisis* called a **speculative attack**.
- Suppose for some reason, *financial market participants* come to ***believe*** that the ***government will need to devalue*** its currency in the near future.
  - ***Investors*** are ***likely to attack the currency now*** and ***force*** an immediate devaluation.

# The Danger of Speculative Attacks

## Causes of a speculative attack:

### 1. Fiscal policy:

- If investors begin to think that at current levels, ***government spending must ultimately increase inflation***, they will ***not believe*** that ***officials can maintain the exchange rate*** at its fixed level.

### 2. Financial instability:

- If a country's banking system is **insufficiently capitalized**, a central bank may face pressure to ***relax monetary policy*** to avoid financial crisis.
- If investors **doubt** that the central bank will keep interest rates high enough for a ***sufficient time*** to defend the currency peg, an **attack may follow**.

# Assessing the Costs and Benefits

## 3. Spontaneously:

- If enough currency **speculators** simply *decide* that a **central bank cannot maintain its exchange rate**, they will **attack**.
- **Spontaneous speculative attacks** are like **bank runs**; they can be *contagious*.

Many observers suspect that in today's world, **no central bank *has the resources to withstand such an attack*** in the absence of capital controls

# Fixed Exchange-Rate Regimes

# Hard Pegs: Currency Boards and Dollarization

- In a **hard-peg system**, the central bank *guarantees convertibility of domestic currency into the foreign currency* to which it is pegged.
- Only *two exchange-rate regimes* can be considered hard pegs:
  - **Currency boards**
  - **Dollarization**

# Hard Pegs: Currency Boards and Dollarization

- With a **currency board**, the central bank *commits to holding enough foreign currency assets to back domestic currency liabilities* at a fixed rate.
- With **dollarization**, one country formally *adopts the currency of another country* for use in *all its financial transactions*.

# Currency Boards

- For **currency board**, the central bank's only job is to *maintain the exchange rate*.
- The central bank *can increase the size of monetary base* only if it *can accumulate additional dollar reserves*.
- **Policymakers** cannot adjust *monetary policy* in response to *domestic economic shocks*, **however**, it **allows for the control of inflation**, which is very important in an *inflation prone economy*.

# Currency Boards

In 2001, the ***Argentinean currency board collapsed*** and authorities were ***forced to allow the peso to float***.

1. The peso was pegged to the U.S. dollar, even though **Argentina's economy doesn't have much connected** with the U.S. economy.
  - *When the dollar appreciated, the peso appreciated.*
  - The **overvalued peso priced Argentinean exporters out of their markets severely damaging their economy.**

# Currency Boards

2. Fiscal policy was the other problem.
  - ***While the Argentinean economy grew*** at a healthy rate, ***government spending rose even faster.***
  - The ***more the government borrowed***, the ***more cautious lenders*** became of ***continuing to lend.***
  - When ***politicians began printing their own money***, the ***claim that Argentinean inflation would roughly mirror U.S. inflation*** was no longer credible and the **currency board collapsed.**

# Dollarization

In a *small emerging-market country*, there are many reasons why a country would **give up their currency and adopt another country's currency** for all their transactions, completely *eliminating their own monetary policy*.

1. With no exchange rate, there is **no risk of an exchange-rate crisis**.
2. Using dollars or major currencies can help a country to **become integrated into world market, increasing trade and investment**.
3. By *rejecting the possibility of inflationary finance*, a country can **reduce the risk premium** it must pay on loans and generally **strengthen its financial institutions**.

# Dollarization

There are **costs to dollarization** as well.

1. There is a **loss of revenue** that comes *from issuing currency: **seignorage***.
2. Dollarization effectively *eliminates* the central bank as the *lender of last resort* as they **cannot print their own money**.
3. There is a ***loss of autonomous monetary or exchange-rate policy***.
4. Any country that adopts the dollar as **its currency gets U.S. monetary policy**

End of lecture