

EE432 Monetary Theory and Policy



Lecture 12 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.**

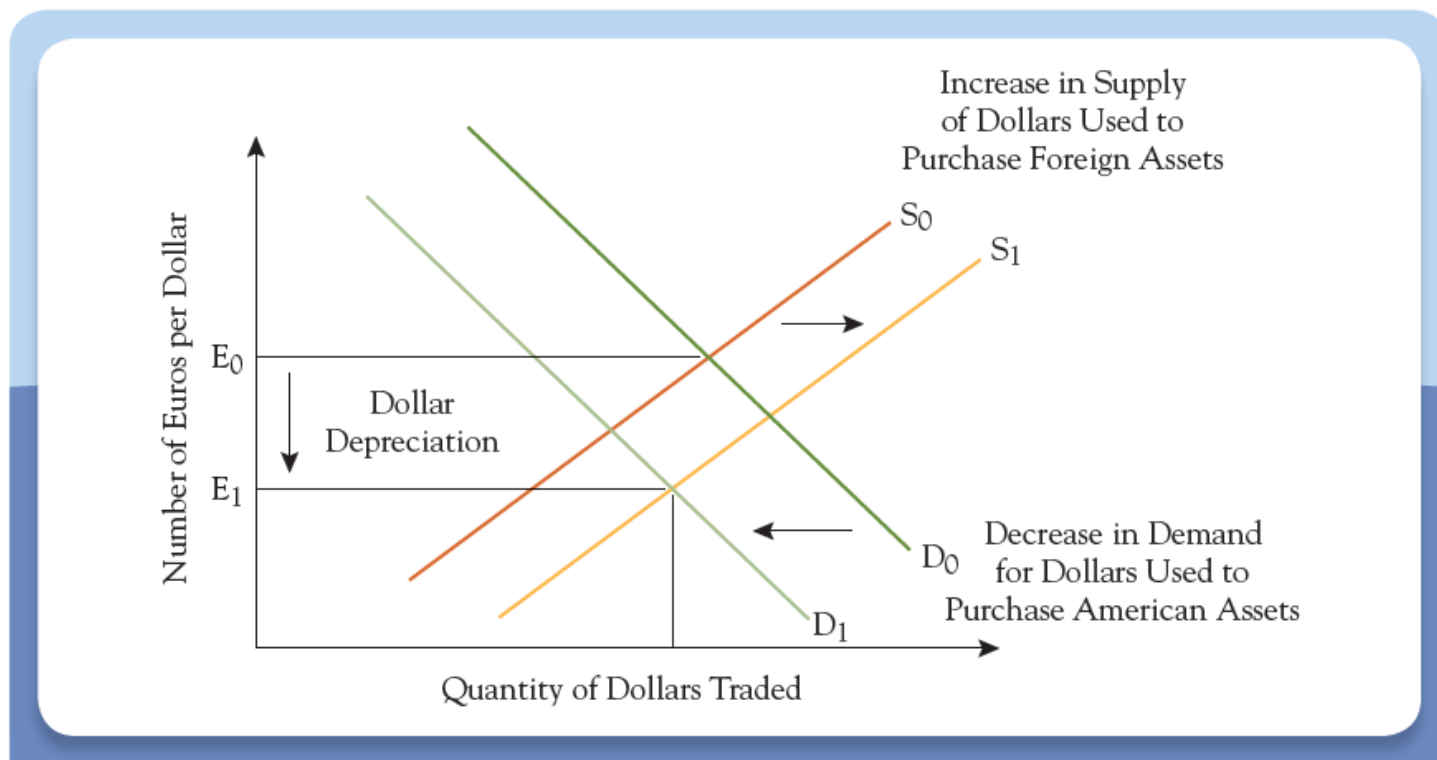
The Central Bank's Balance Sheet

- 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* 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

Exchange-Rate Pegs and the Bretton Woods System

- In 1944, a group of 44 countries agreed to form the ***Bretton Woods system***.
 - It was a system of fixed exchange rates that offered *more policy flexibility* over the short term than had been possible under the gold standard.
- The system **lasted from 1945 to 1971**.
- Each country maintained an ***agreed-upon exchange rate with the U.S. dollar***.
 - It ***pegged*** its exchange rate to the ***dollar***.

Exchange-Rate Pegs and the Bretton Woods System

- The **U.S. dollar** was what is known as a ***reserve currency***.
- Other countries did **not** want to adopt U.S. monetary policy, their ***fixed exchange rates required complex capital controls***.
 - Countries ***had to intervene regularly*** to maintain their exchange rates at the peg.

Exchange-Rate Pegs and the Bretton Woods System

- The **system** had *some flexibility* because of the *International Monetary Fund (IMF)*.
 - by making loans to countries in *need of short-term financing* to pay for an **excess of imports over exports**; trade deficit.
- With a *fixed exchange rate* and the *free movement of capital*, countries could not have their **own discretionary monetary policies**.

Exchange-Rate Pegs and the Bretton Woods System

- Because their **exchange rate was fixed to the dollar**, participating countries were ***forced to adopt policies*** that **resulted in the same amount of inflation as in the U.S.**
 - By **1971**, the ***system had completely fallen apart.***
- The response of **American officials** has been to **allow the dollar to float freely** ever since.

Exchange-Rate Pegs and the Bretton Woods System

- **Monetary policy** should be *time consistent*.
- In 2010/11 investors were **worried about a euro-area breakup** and *fled from the euro to the Swiss franc*.
- Given Switzerland's size and location, the **rise in the franc** threatened to *drive them from stable prices to deflation*.
- The **Swiss National Bank (SNB)** had already *lowered interest rates close to zero*.

Exchange-Rate Pegs and the Bretton Woods System

- To *stop the runaway franc*, the SNB promised to sell unlimited francs at a ***fixed rate of 1.20 Swiss francs per euro***.
- In *early 2015*, the SNB gave up and **let the franc float**
- **Fixed exchange-rate** commitments ***typically fail*** when a central bank is **trying to prevent the domestic currency *from depreciating***
 - In the **absence of capital controls** this ***cannot be maintained*** for long as it *lacks time consistency*

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