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

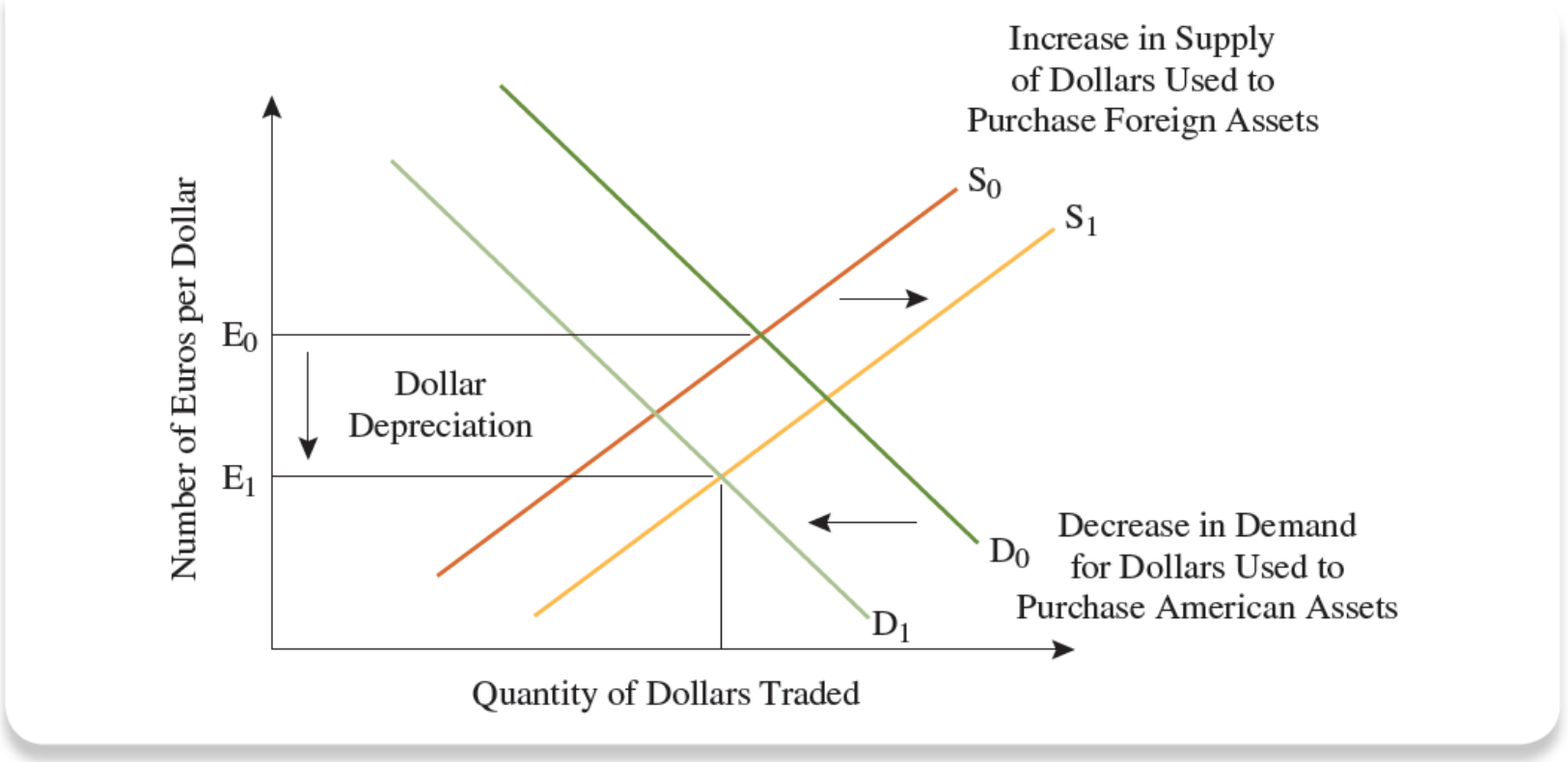
- This transaction is **identical** to a ***purchase of U.S. Treasury bonds***.
- A foreign exchange intervention has the **same impact on reserves** as a ***domestic open market operation.***
- The **Fed** did **supply dollars** to the market through its intervention, but *more importantly*, the **interest 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 <u>not</u>** ***operate that way***.
- They engage in **<u>sterilized</u> 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** ***<u>remains unaffected</u>***.

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 <u>not</u> operate*** **independent monetary policy.**
  - You **<u>must adopt</u>** the ***other country's interest-rate policy.***
- A ***fixed exchange rate policy*** makes the most sense when the *two countries involved have <u>similar</u> 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 <u>ample</u> 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 <u>cannot</u> 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, **<u>no</u> 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***.

Exchange-Rate Pegs and the Bretton Woods System

- The **Swiss National Bank (SNB)** had already ***lowered interest rates close to zero***.
- 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**

Exchange-Rate Pegs and the Bretton Woods System

- **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