Lecture 20: International Capital Flows

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International Savings

Next we want to understand how the following are interconnected:

- The flows of capital between countries
- The exchange rates between currencies
- The ability of domestic governments to intervene to help the economy during recessions in an open world

Start by studying the connections between the savings behavior of countries.
How NCO Depends on the Real Interest Rate

The real interest rate, $r$, is the real return on domestic assets.

A fall in $r$ – for a given foreign $r^*$ – increases foreign demand for U.S. loanable funds (since return on U.S. savings can be with “low return” capital investments).

$\Rightarrow$ NCO rises.
A macroeconomic theory of the open economy

The Loanable Funds Market Diagram

\( D = I + NCO \)

\( r \) adjusts to balance supply and demand in the LF market.

Both \( I \) and \( NCO \) depend negatively on \( r \), so the \( D \) curve is downward-sloping.

Loanable funds

\( S = \text{saving} \)

\( D = I + NCO \)

\( LF \)
The Market for Foreign-Currency Exchange

- Another identity from last time:

\[ NCO = NX \]

Net capital outflow \quad Net exports

- In the market for foreign-currency exchange,

  - \( NX \) is the demand for dollars: Foreigners need dollars to buy U.S. net exports.
  - \( NCO \) is the supply of dollars: U.S. residents sell dollars to obtain the foreign currency they need to buy foreign assets.
The Market for Foreign-Currency Exchange

- Recall:
  The U.S. real exchange rate \((e)\) measures the quantity of foreign goods & services that trade for one unit of U.S. goods & services.

  - \(e\) is the real value of a dollar in the market for foreign-currency exchange.
An increase in $E$ makes U.S. goods more expensive to foreigners, reduces foreign demand for U.S. goods – and U.S. dollars.

An increase in $E$ has no effect on saving or investment, so it does not affect $NCO$ or the supply of dollars.
The Market for Foreign-Currency Exchange

$E$ adjusts to balance supply and demand for dollars in the market for foreign-currency exchange.

An increase in $E$ has no effect on saving or investment, so it does not affect $NCO$ or the supply of dollars.
Initially, the government budget is balanced and trade is balanced ($NX = 0$).

Suppose the government runs a budget deficit. As we saw earlier, $r$ rises and $NCO$ falls.

How does the budget deficit affect the U.S. real exchange rate? The balance of trade?
The budget deficit reduces $NCO$ and the supply of dollars.

The real exchange rate appreciates, reducing net exports.

Since $\textit{NX} = 0$ initially, the budget deficit causes a trade deficit ($\textit{NX} < 0$).
The Connection Between Interest Rates and Exchange Rates

Keep in mind:
The LF market (not shown) determines \( r \).
This value of \( r \) then determines NCO (shown in upper graph).
This value of NCO then determines supply of dollars in foreign exchange market (in lower graph).
Suppose the government provides new tax incentives to encourage investment.

Use the appropriate diagrams to determine how this policy would affect:
- the real interest rate
- net capital outflow
- the real exchange rate
- net exports
Answers

Investment – and the demand for LF – increase at each value of $r$. 

![Diagram of Loanable Funds and Net Capital Outflow](image-url)
$r$ rises, causing $NCO$ to fall.
The fall in NCO reduces the supply of dollars in the foreign exchange market.

The real exchange rate appreciates, reducing net exports.
Political Instability and Capital Flight

  - People worried about the safety of Mexican assets they owned.
  - People sold many of these assets, pulled their capital out of Mexico.

- **Capital flight**: a large and sudden reduction in the demand for assets located in a country

- We analyze this using our model, but from the prospective of Mexico, not the U.S.
As foreign investors sell their assets and pull out their capital, $NCO$ increases at each value of $r$. 

**Loanable funds**

- $S_1$, $D_1$, $D_2$, $LF$

**Net capital outflow**

- $NCO_1$, $NCO_2$
Demand for LF = \( I + NCO \).
The increase in \( NCO \) increases demand for LF.
Capital Flight from Mexico

The equilibrium values of $r$ and $NCO$ both increase.

- **Loanable funds**
  - $S_1$ and $D_1$ indicate supply and demand for loanable funds.
  - $r_1$ and $r_2$ represent interest rates.

- **Net capital outflow**
  - $NCO_1$ and $NCO_2$ represent net capital outflows.
  - $r_1$ and $r_2$ represent interest rates.
Capital Flight from Mexico

The increase in $NCO$ causes an increase in the supply of pesos in the foreign exchange market.

The real exchange rate value of the peso falls.
Examples of Capital Flight: S.E. Asia, 1997

- South Korea Won
- Thai Baht
- Indonesia Rupiah

US Dollars per currency unit
1/1/1997 = 100

- 12/1/1996
- 2/24/1997
- 5/20/1997
- 8/13/1997
- 11/6/1997
- 1/30/1998
- 7/19/1998
Examples of Capital Flight: Russia, 1998

US Dollars per currency unit

5/5/1998
6/14/1998
7/24/1998
9/2/1998
10/12/1998
11/21/1998
12/31/1998
Examples of Capital Flight: Argentina, 2002

U.S. Dollars per currency unit

- 7/1/2001
- 9/19/2001
- 12/8/2001
- 2/26/2002
- 5/17/2002
- 8/5/2002
- 10/24/2002
- 1/12/2003
Exchange Rate Stability

- There are many reasons that countries pursue stable prices for their currencies:
  - Encourages foreign investment
  - Increases confidence in the government
  - Large swings in currency values damage trade relationships
  - Make it easier for the government to borrow abroad

- However, trying to stabilize currencies has historically led to problems
Exchange Rate Regimes

- A **floating** currency regime is the price of a currency is allowed to fluctuate with international supply and demand.

- A **pegged** currency regime is when the price of a currency is fixed to the price of some other currency (e.g., the US dollar, or a basket of currencies).

- There are many variations that are combinations of the two (“managed float”).
Currency Management

- We have already discussed the benefits of a stable currency; what are the risks?
- Running large trade imbalances makes pegging the exchange rate difficult
- Suppose you are running a large trade surplus
  - You can use the extra foreign exchange to buy foreign assets (China’s strategy)
  - You can guarantee a rate of exchange and pay the difference (Argentina’s strategy)
Argentina, 2001

- Argentina was pegged to the US dollar, and its foreign debt was denominated in US dollars
- The economy unexpectedly shrank, and huge budget cuts led to massive strikes and riots
- Interest rates on government debt got very high
- Argentines were able to convert their money to dollars at parity, and they started doing so
- The central bank ran out of dollars and were unable to “defend the peg”
  - Led Argentina to default on its debt
The “Unholy Trinity Theorem”

- Three desirable objectives to pursue:
  - **Free Capital Flows:** Allow money unrestricted flows through the country, which allows foreigners to invest in your country and you to invest wherever you want
  - **Fixed Exchange Rate:** Stability in currency markets
  - **Flexible Monetary Policy:** Ability to use monetary policy as a tool for stabilization
  - “Unholy Trinity Theorem”: It is impossible to do all three at once.
Suppose you have...

1) Free Capital Flows + Fixed Exchange Rate
   - If money is flowing freely through the country, monetary policy must be used to keep the exchange rate fixed
   - Therefore, it isn’t available for stabilization policy

2) Fixed Exchange Rate + Active Monetary Policy
   - If monetary policy is used to stabilize the economy, the only way to control exchange rates is to control the amount of foreign currency flowing into the country
Suppose you have...

3) Free Capital Flows + Active Monetary Policy

- If neither the amount of foreign currency in the country nor the amount of domestic currency is being targeted, then the exchange rate fluctuates with the market

- China does #1: restricted capital flows and fixed exchange rate

- Germany does #2: open capital flows and fixed exchange rate

- The US does #3: free capital flows and active monetary policy
If the domestic government uses capital controls, they may control both the amount of domestic money and foreign money, which gives them the ability to control both interest rates and exchange rates.
If the domestic government does not use capital controls, they only have one policy instrument, so can only target one policy objective.
Intuitive Explanation

If the domestic government does not use capital controls, they only have one policy instrument, so can only target one policy objective.