In this chapter, look for the answers to these questions:

- In an open economy, what determines the real interest rate? The real exchange rate?
- How are the markets for loanable funds and foreign-currency exchange connected?
- How do government budget deficits affect the exchange rate and trade balance?
- How do other policies or events affect the interest rate, exchange rate, and trade balance?

Introduction

The previous chapter explained the basic concepts and vocabulary of the open economy: net exports (NX), net capital outflow (NCO), and exchange rates.

This chapter ties these concepts together into a theory of the open economy.

We will use this theory to see how govt policies and various events affect the trade balance, exchange rate, and capital flows.

We start with the loanable funds market…
The Market for Loanable Funds

- An identity from the preceding chapter:
  \[ S = I + NCO \]

  - Supply of loanable funds = saving.
  - A dollar of saving can be used to finance
    - Domestic investment
  - So, demand for loanable funds = \( I + NCO \)

How NCO Depends on the Real Interest Rate

- The real interest rate, \( r \), is the real return on domestic assets.
- A fall in \( r \)
Suppose the government runs a budget deficit (previously, the budget was balanced).

Use the appropriate diagrams to determine the effects on the real interest rate and net capital outflow.
Another identity from the preceding chapter:

\[ NCO = NX \]

- Net capital outflow
- Net exports

In 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.
FYI: Disentangling Supply and Demand
When a U.S. resident buys imported goods, does the transaction affect supply or demand in the foreign exchange market? Two views:

1. The person needs to sell her dollars to obtain the foreign currency she needs to buy the imports.

2. The increase in imports reduces $NX$, which we think of as the demand for dollars. (So, $NX$ is really the net demand for dollars.)

Both views are equivalent. For our purposes, it’s more convenient to use the second.

ACTIVE LEARNING 2
The budget deficit, exchange rate, and $NX$

- 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 “Twin Deficits”

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Federal Budget Deficit</th>
<th>U.S. Net Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-65</td>
<td>-2%</td>
<td>0%</td>
</tr>
<tr>
<td>1966-70</td>
<td>-3%</td>
<td>-1%</td>
</tr>
<tr>
<td>1971-75</td>
<td>-4%</td>
<td>-2%</td>
</tr>
<tr>
<td>1976-80</td>
<td>-5%</td>
<td>-3%</td>
</tr>
<tr>
<td>1981-85</td>
<td>0%</td>
<td>-4%</td>
</tr>
<tr>
<td>1986-90</td>
<td>1%</td>
<td>-5%</td>
</tr>
<tr>
<td>1991-95</td>
<td>2%</td>
<td>-6%</td>
</tr>
<tr>
<td>1996-2000</td>
<td>3%</td>
<td>-7%</td>
</tr>
</tbody>
</table>

SUMMARY: The Effects of a Budget Deficit

- National saving falls
- The real interest rate rises

A MACROECONOMIC THEORY OF THE OPEN ECONOMY
SUMMARY: The Effects of a Budget Deficit

Due to many years of budget and trade deficits,

<table>
<thead>
<tr>
<th>International investment position of the U.S. 31 December 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of U.S.-owned foreign assets $17.6 trillion</td>
</tr>
<tr>
<td>Value of foreign-owned U.S. assets $20.1 trillion</td>
</tr>
<tr>
<td>U.S.' net debt to the rest of the world $2.5 trillion</td>
</tr>
</tbody>
</table>

The Connection Between Interest Rates and Exchange Rates

Anything that increases \( r \)

\[
NCO_1 = NCO_1
\]

\[
S_1 = NCO_1
\]

\[
D = NX
\]

\[
dollars
\]

ACTIVE LEARNING 3

Investment Incentives

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
Budget Deficit vs. Investment Incentives

A tax incentive for investment has similar effects as a budget deficit:

- But one important difference:
  - Investment tax incentive
  - Budget deficit

Trade Policy

- Trade policy:

- Examples:
  - Tariff
  - Import quota
  - “Voluntary export restrictions”
Trade Policy

- Common reasons for policies to restrict imports:

- Do such trade policies accomplish these goals?
- Let’s use our model to analyze the effects of an import quota on cars from Japan designed to save jobs in the U.S. auto industry.

Analysis of a Quota on Cars from Japan

An import quota

![Graph showing the loanable funds market and net capital outflow](image)

Analysis of a Quota on Cars from Japan

Market for foreign-currency exchange

![Graph showing the market for foreign-currency exchange](image)
Analysis of a Quota on Cars from Japan

What happens to $NX$?

- If $E$ could remain at $E_1$, $NX$ would rise, and the quantity of dollars demanded would rise.
- But the import quota does not affect $NCO$, so
- Since $NX$ must equal $NCO$,
- Hence, the policy of restricting imports

Analysis of a Quota on Cars from Japan

Does the policy save jobs?

The quota reduces imports of Japanese autos.

But

CASE STUDY: Capital Flows from China

- In recent years, China has accumulated U.S. assets to reduce its exchange rate and boost its exports.
- Results in U.S.:
  - Some U.S. politicians want China to stop, argue for restricting trade with China to protect some U.S. industries.
  - Yet, U.S. consumers benefit, and the net effect of China's currency intervention is probably small.
**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:**

We analyze this using our model, but from the prospective of Mexico, not the U.S.

---

**Capital Flight from Mexico**

Market for foreign-currency exchange

- **Loanable funds**
  - Supply: \( S_1 \)
  - Demand: \( D_1 \)

- **Net capital outflow**
  - \( LF \)
  - \( NCO \)

- **Net capital outflow equation:** \( NCO = r - r_1 \)

---

**Capital Flight from Mexico**

Men's market in foreign-currency exchange

- Supply: \( S_1 = NCO \)
- Demand: \( D_1 \)

- **Equilibrium exchange rate:** \( E_1 \)

---
Examples of Capital Flight: Mexico, 1994

Examples of Capital Flight: S.E. Asia, 1997

Examples of Capital Flight: Russia, 1998
Examples of Capital Flight: Argentina, 2002

CASE STUDY: The Falling Dollar

U.S. trade-weighted nominal exchange rate index, March 1973 = 100

From 10/2005 to 6/2008, the dollar depreciated 17.3%

CASE STUDY: The Falling Dollar

Two likely causes:

- Reduced confidence in U.S. mortgage-backed securities
- From 7/2006 to 7/2008, Federal Funds target rate reduced from 5.25% to 2.00% to stimulate the sluggish U.S. economy.

A MACROECONOMIC THEORY OF THE OPEN ECONOMY
CONCLUSION

The U.S. economy is becoming increasingly open:
- Trade in goods is rising relative to GDP.
- Increasingly, people hold international assets in their portfolios and firms finance investment with foreign capital.

Yet, we should be careful not to blame our problems on the international economy. When politicians and commentators discuss international trade and finance, the lessons of this and the preceding chapter can help separate myth from reality.