Global Economic Issues and Policies

First edition

UNIT THREE
International Finance: Enduring Issues

Chapter 6
Balance of Payments and Foreign Exchange Markets

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PowerPoint Presentation by Charlie Cook
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Fundamental Issues

1. What is a country’s balance of payments, and what does this measure?

2. What is the role of foreign exchange markets in the global marketplace?

3. What is the spot foreign exchange market?

4. What is foreign exchange risk, and what is the role of forward foreign exchange markets?

5. What determines the value of a currency?
Fundamental Issues

6. How are the spot and forward exchange markets related?

7. What other foreign exchange instruments are commonly traded?
Balance of Payments As a Double-entry Bookkeeping System

• Debit Entry
  ➢ A negative entry in the balance of payments that records a transaction resulting in a payment abroad by a domestic resident.

• Credit Entry
  ➢ A positive entry in the balance of payments that records a transaction resulting in a payment to a domestic resident from abroad.
### Table 6-1a  Summary Statements of the U.S. Balance of Payments

<table>
<thead>
<tr>
<th>Line</th>
<th>(Credits +, Debits –) $ million</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Account</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Exports of goods, services, and income</td>
<td>1,298,397</td>
</tr>
<tr>
<td>2</td>
<td>Goods</td>
<td>720,831</td>
</tr>
<tr>
<td>3</td>
<td>Services</td>
<td>283,758</td>
</tr>
<tr>
<td>4</td>
<td>Income receipts</td>
<td>293,808</td>
</tr>
<tr>
<td>5</td>
<td>Imports of goods, services, and income payments</td>
<td>–1,665,325</td>
</tr>
<tr>
<td>6</td>
<td>Goods</td>
<td>–1,147,446</td>
</tr>
<tr>
<td><strong>Current Account</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Services</td>
<td>–204,953</td>
</tr>
<tr>
<td>8</td>
<td>Income payments</td>
<td>–312,926</td>
</tr>
<tr>
<td>9</td>
<td>Unilateral current transfers, net</td>
<td>–50,501</td>
</tr>
<tr>
<td>10</td>
<td>Balance on merchandise trade</td>
<td>–426,615 (lines 2 and 6)</td>
</tr>
<tr>
<td>11</td>
<td>Balance on goods, services, and income (lines 1 and 5)</td>
<td>–366,928</td>
</tr>
<tr>
<td>12</td>
<td>Balance on current account (lines 1, 5, and 9)</td>
<td>–417,429</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Economic Analysis, International Accounts Data, U.S. Department of Commerce.

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Table 6-1b  Summary Statements of the U.S. Balance of Payments (cont’d)

<table>
<thead>
<tr>
<th>Line</th>
<th>(Credits +, Debits −) $ million</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Capital Account</strong></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>U.S. private assets abroad, net [increase/financial outflow (−)]</td>
<td>−434,079</td>
</tr>
<tr>
<td>14</td>
<td>Foreign private assets in the United States, net [increase/financial inflow (+)]</td>
<td>889,367</td>
</tr>
<tr>
<td>15</td>
<td>Other capital account transactions, net</td>
<td>726</td>
</tr>
<tr>
<td>16</td>
<td><strong>Capital account</strong> (lines 13, 14 and 15)</td>
<td>456,014</td>
</tr>
<tr>
<td>17</td>
<td>U.S. official reserve assets and other U.S. government assets abroad, net</td>
<td>−5,484</td>
</tr>
<tr>
<td>18</td>
<td>Foreign official assets in the United States, net</td>
<td>6,092</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>(Credits +, Debits −) $ million</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Capital Account</strong></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td><strong>Official settlement balance (lines 17 and 18)</strong></td>
<td>608</td>
</tr>
<tr>
<td>20</td>
<td><strong>Statistical discrepancy (lines 12, 16 and 19 with sign reversed)</strong></td>
<td>−39,193</td>
</tr>
<tr>
<td>21</td>
<td><strong>Overall balance of payments (lines 12, 16, 19, and 20)</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Economic Analysis, International Accounts Data, U.S. Department of Commerce.
Balance of Payments

• Balance of Payments
  ➢ A system of accounts that measures transaction of goods, services, income, and financial assets between domestic residents, businesses, and governments and the rest of the world during a specific time period.
### Table 6-2

**Recording a U.S. Firm’s Export in the Balance-of-Payments Accounts**

<table>
<thead>
<tr>
<th>Transaction</th>
<th>Offsetting Entries</th>
<th>Credit</th>
<th>Debit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer export</td>
<td>$2,000 computer exported by the U.S. firm</td>
<td>$2,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$2,000 payment received by the U.S. firm</td>
<td></td>
<td>–$2,000</td>
</tr>
</tbody>
</table>
Balance-of-Payments Accounts

• Current Account

➤ Measures the flow of goods, services, income, and transfers or gifts between domestic residents, businesses, and governments and the rest of the world.

 çevre: imports and exports of tangible goods.

Services: imports and exports of services, tourism and travel, and military transactions.

Income: interest and dividend payments to foreign holders of domestic financial assets.

Unilateral transfers: international transfers, or gifts, between individuals and governments.
Balance-of-Payments Accounts (cont’d)

• Capital Account
  ➢ A tabulation of the flows of financial assets between domestic private residents and businesses and foreign private residents and businesses.
  ➢ Includes three categories of financial assets:
    ❖ Financial assets of the domestic government
    ❖ Private domestic financial assets
    ❖ Foreign financial assets.
  ➢ Tabulates two types of asset flows
    ❖ Investment flows and changes in banks’ and brokers’ cash deposits that arise from foreign transactions.
The Official Settlements Balance

• Official Settlements Balance
  ➢ A balance-of-payments account that tabulates transactions of reserve assets by official government agencies.
  ➢ Official assets:
    ✤ Gold and foreign currencies
    ✤ Special Drawing Rights at the International Monetary Fund
    ✤ Other government assets.
Deficits and Surpluses in the Balance of Payments

• Statistical Discrepancy
  ➢ An offsetting entry in the balance of payments if the sum of the credits and debits in the current account, private capital account, and official settlements is not zero.

• Overall Balance of Payments
  ➢ The sum of the credits and debits in the current account, capital account, official settlements, and the statistical discrepancy.
Deficits and Surpluses in the Balance of Payments (cont’d)

• Balance-of-Payments Deficit
  - The sum of the credits and debits in the current account and the private capital account is negative.

• Balance-of-Payments Surplus
  - A situation where the sum of the debits and credits in the current and private capital account is positive.

• Balance-of-Payments Equilibrium
  - A situation where the sum of the debits and credits in the current account and the private capital account is zero.
Other Deficit and Surplus Measures

• Balance on Merchandise Trade
  - The sum of the debit and credit entries in the merchandise or goods category.

• Balance on Goods, Services, and Income
  - The sum of the debit and credit entries that appear in the merchandise, service, and income categories.

• Balance on the Current Account
  - The sum of all the debit and credit entries in the categories of goods, services, income, and unilateral transfers.
Other Deficit and Surplus Measures (cont’d)

• Balance on the Capital Account
  ➢ The net inflow or outflow of capital (financial assets) purchased by private domestic and foreign residents.
The Role of Foreign Exchange Markets in the Global Marketplace

• Exchange Rate
  - The value of one currency relative to another currency as the number of units of one currency required to purchase one unit of the other currency.

• Foreign-Currency-Denominated Financial Instrument
  - A financial asset, such as a bond, a stock, or a bank deposit, whose value is denominated in the currency of another nation.
What Is the Foreign Exchange Market?

• It is the oldest and largest financial market in the world—more than $1 trillion.
  ➢ Has no central trading floor where buyers and sellers meet.
  ➢ Is open twenty-four hours a day, except for short gaps on weekends.
  ➢ Global banks account for about two-thirds of the market volume, while foreign exchange brokers and dealers account for approximately 20 percent.
Figure 6-1  How Foreign Exchange Transaction Is Conducted
The Spot Market for Foreign Exchange

• Spot Market
  ➢ A market for the immediate purchase and delivery of currencies.

• Spot Exchange Rates
  ➢ Market prices of foreign exchanges in the spot market that are the rates pertaining to the trading of foreign-currency-denominated deposits among major banks in amounts of $1 million and more.
Exchange Rates As Relative Prices

• Bilateral Exchange Rate
  > An exchange rate that relates the values of two currencies, it is a relative price meaning “two sides.”

• Currency Appreciation
  > The amount of one currency required to purchase another currency has decreased.

• Currency Depreciation
  > The amount of one currency required to purchase another currency has increased.
<table>
<thead>
<tr>
<th>Country</th>
<th>U.S. Dollar per Currency¹</th>
<th>Previous Close</th>
<th>Currency per U.S. Dollar¹</th>
<th>Previous Close</th>
<th>Bank of England Index²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina ($)</td>
<td>0.2703</td>
<td>0.2755</td>
<td>3.7000</td>
<td>3.6300</td>
<td>—</td>
</tr>
<tr>
<td>Australia (A$)</td>
<td>0.5741</td>
<td>0.5723</td>
<td>1.7419</td>
<td>1.7472</td>
<td>76.4832</td>
</tr>
<tr>
<td>Brazil (R$)</td>
<td>0.3570</td>
<td>0.3479</td>
<td>2.8010</td>
<td>2.8740</td>
<td>—</td>
</tr>
<tr>
<td>Canada (C$)</td>
<td>0.6553</td>
<td>0.6545</td>
<td>1.5260</td>
<td>1.5279</td>
<td>77.5296</td>
</tr>
<tr>
<td>Denmark (DKr)</td>
<td>0.1304</td>
<td>0.1314</td>
<td>7.6700</td>
<td>7.6085</td>
<td>102.349</td>
</tr>
<tr>
<td>Euro (€)</td>
<td>0.9691</td>
<td>0.9658</td>
<td>1.0319</td>
<td>1.0354</td>
<td>79.658</td>
</tr>
<tr>
<td>Hong Kong (HK$)</td>
<td>0.1282</td>
<td>0.1282</td>
<td>7.8000</td>
<td>7.8000</td>
<td>—</td>
</tr>
<tr>
<td>Japan (¥)</td>
<td>0.0082</td>
<td>0.0081</td>
<td>121.3900</td>
<td>123.3700</td>
<td>131.8623</td>
</tr>
<tr>
<td>Malaysia (M$)</td>
<td>0.2632</td>
<td>0.2632</td>
<td>3.8000</td>
<td>3.8000</td>
<td>—</td>
</tr>
<tr>
<td>Mexico (P)</td>
<td>0.1004</td>
<td>0.1010</td>
<td>9.9600</td>
<td>9.9025</td>
<td>—</td>
</tr>
<tr>
<td>Thailand (Bt)</td>
<td>0.0238</td>
<td>0.0238</td>
<td>42.0300</td>
<td>42.0650</td>
<td>—</td>
</tr>
<tr>
<td>United Kingdom (£)</td>
<td>1.4995</td>
<td>1.5033</td>
<td>0.6669</td>
<td>0.6652</td>
<td>107.5153</td>
</tr>
<tr>
<td>United States ($)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>118.5031</td>
</tr>
</tbody>
</table>


1. Closing midpoint value
### Table 6-4  Cross-Rate Table Based on Rates in Table 6-3

<table>
<thead>
<tr>
<th></th>
<th>U.S. Dollar</th>
<th>Canadian Dollar</th>
<th>Euro</th>
<th>British Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Dollar</td>
<td>—</td>
<td>1.5260</td>
<td>1.0319</td>
<td>0.6669</td>
</tr>
<tr>
<td>Canadian Dollar</td>
<td>0.6553</td>
<td>—</td>
<td>0.6762</td>
<td>0.4370</td>
</tr>
<tr>
<td>Euro</td>
<td>0.9691</td>
<td>1.4788</td>
<td>—</td>
<td>0.6463</td>
</tr>
<tr>
<td>British Pound</td>
<td>1.4995</td>
<td>1.2882</td>
<td>1.5473</td>
<td>—</td>
</tr>
</tbody>
</table>

To calculate the British-pound-per-Euro cross rate, divide the dollar rate of exchange for the Euro by the dollar exchange rate for the British pound. Thus, the pound-euro cross rate equals:

\[
\frac{0.9691 \, \text{$/€}}{1.4995 \, \text{$/€}} = \frac{0.9691}{1.4995} \times \frac{\text{€}}{\$, \text{£}} = \frac{1}{0.6463 \, \text{£/€}} = 1.5473 \, \text{€/£}
\]
Real Exchange Rates

• Nominal Exchange Rate
  - A bilateral exchange rate that is unadjusted for changes in the two nations’ price levels.

• Real Exchange Rate
  - A bilateral exchange rate that has been adjusted for price changes that occurred in the two nations.

• Consumer Price Index (CPI)
  - A weighted sum of prices of goods and services that a typical consumer purchases each year.
Figure 6-2
Consumer Price Indexes in the United States and the European Monetary Union

Measuring the Overall Strength or Weakness of a Currency

• Effective Exchange Rate

  ➢ A weighted-average measure of the value of a currency relative to two or more currencies (the currency basket).
    ✓ Expressed in an index number form, where a value of 100 applies to the base year, which serves as a reference point in time.
    ✓ Currency weights are selected to place greater emphasis on the more important currencies in the currency basket and smaller emphasis on the less important currencies in the currency basket.
Figure 6-3  Effective Exchanges Rates Since 1980

Source: http://www.bankofengland.co.uk.
Foreign Exchange Risk and the Forward Market for Foreign Exchange

• Foreign Exchange Risk
  - The risk that the value of a future receipt or obligation will change due to variations in foreign exchange rates.

• Types of Foreign Exchange Risk Exposure
  - Transaction exposure
  - Translation exposure
  - Economic exposure
Types of Foreign Exchange Risk Exposure

• Transaction Exposure
  ➢ The risk that the revenues or costs associated with a transaction expressed in terms of the domestic currency changes due to exchange rate variations.

• Translation Exposure
  ➢ Foreign exchange risk resulting from the conversion of a firm’s foreign-currency-denominated assets and liabilities into the domestic currency value.

• Economic Exposure
  ➢ The risk that changes in exchange values might alter today’s value of a firm’s future income streams.
Hedging Foreign Exchange Risk

• Hedging
  ➢ The act of offsetting or eliminating risk exposure.

• Covered Exposure
  ➢ A foreign exchange risk that has been completely eliminated with a hedging instrument.
    ➢ Forward contract for foreign exchange
    ➢ Derivative instruments
The Forward Market for Foreign Exchange

• Forward Contract
  ➢ A guarantee of a rate of exchange at a future date that can eliminate foreign exchange risk, or cover an exposure.

• Forward Exchange Market
  ➢ A market for contracts that ensures the future delivery of and payment for a foreign currency at a specified exchange rate.

• Forward Exchange Rates
  ➢ The prices of contracts traded in the forward exchange market.
Demand for and Supply of Currencies

• Derived Demand for a Currency
  ➢ The demand for a currency arises from the demand for the goods, services, and assets that people use the currency to purchase.

• Supply of a Currency
  ➢ The supply of a currency is derived from domestic residents’ demand for another nation’s goods, services, and financial assets.
Figure 6-4 The Demand for the Euro

Decrease in the exchange rate

Increase in the demand for euros
Figure 6-5  The Dollar Demand-Euro Supply Relationship

Exchange Rate

\[ S^*_\text{(€/$)} \]

\[ S^*_A \quad S^*_B \]

\[ Q^*_A \quad Q^*_B \]

Increase in the demand for dollars

Exchange Rate

\[ S^*_\text{($/€)} \]

\[ S^*_A \quad S^*_B \]

\[ Q^*_A \quad Q^*_B \]

Increase in the supply of euros
The Equilibrium Exchange Rate

The market-clearing free exchange rate at which the quantity of a currency demanded is equal to the quantity supplied.
Relationship between the Spot Market and the Forward Market

• Forward Premium or Discount
  ➢ The difference between the forward exchange rate and the spot exchange rate expressed as a percentage of the spot exchange rate.

• Standard Forward Premium/Discount
  ➢ where $F_N$ is the forward rate, $S$ is the spot rate, and $N$ is the number of months of the forward contract.

$$(F_N - S)/S \times \frac{12}{N} \times 100$$
Relationship between the Spot Market and the Forward Market

• The Forward Rate and the Expected Future Spot Rate

- The expectation that the future appreciation of a currency will be different from the forward premium of the currency.

- In equilibrium, the forward premium equals the expected appreciation of the currency, and the forward discount equals the expected depreciation of the currency.

\[
\frac{F_N - S}{S} = \frac{S^e_N - S}{S} = F_N = S^e_N.
\]
Other Foreign Exchange Instruments

• Foreign Exchange Derivative Instruments
  - Currency instruments with a return that is linked to, or derived from, the returns of other financial instruments.
  - Foreign exchange market participants can use foreign exchange derivatives to hedge against risks and to engage in speculative activities.
<table>
<thead>
<tr>
<th><strong>Table 6-5</strong> Basic Foreign Exchange Derivative Instruments</th>
</tr>
</thead>
</table>
| **Forward Exchange Contract** 
A contract that ensures the delivery of a foreign currency at a specified exchange rate. |
| **Currency Futures Contract** 
An agreement to deliver to another party a standardized quantity of a specific nation’s currency at a designated future date. |
| **Currency Option Contract** 
A contract granting the right to buy or sell a given amount of a nation’s currency at a certain price within a specific time period. |
| **Currency Swap** 
A contract entailing an exchange of different payment flows denominated in different currencies. |
Other Foreign Exchange Instruments (cont’d)

- **Currency Options**
  - A contract providing the holder the right to purchase or sell an amount of a national currency at a given price.

- **Call Options**
  - Options that allow the holder to purchase an amount of a currency at the exercise price.

- **Put Options**
  - Options that allow the buyer to sell an amount of a currency at the exercise price.
Other Foreign Exchange Instruments (cont’d)

• American Option
  - An option granting the holder the right to exercise the right of purchase or sale at any time before or including the date at which the contract expires.

• European Option
  - An option that allows the holder to exercise the right of purchase or sale only on the date that the contract expires.
Figure 6-7
A Sample Currency Swap

Currency Swap
An exchange of payment flows denominated in different currencies.
### Questions and Problems - 3)

<table>
<thead>
<tr>
<th></th>
<th>U.S. $</th>
<th>U.K. £</th>
<th>Canadian $</th>
<th>Euro €</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. $</td>
<td>—</td>
<td>0.7001</td>
<td>1.5433</td>
<td>1.0225</td>
</tr>
<tr>
<td>U.K. £</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian $</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro €</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>