Global Economic Issues and Policies

First edition

UNIT THREE
International Finance: Enduring Issues

Chapter 9
Global Money and Banking—Where Central Banks Fit into the World Economy

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PowerPoint Presentation by Charlie Cook
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Fundamental Issues

1. What are the responsibilities of the world’s central banks?

2. What are the primary instruments of monetary policy available to central banks, and how do monetary policy actions affect market interest rates?

3. How do economists measure a nation’s aggregate output and price level?
Fundamental Issues

4. How are the equilibrium levels of aggregate output and prices determined, and how do central bank actions altering the quantity of money or exchange rates influence equilibrium real output and the price level?

5. How do central banks intervene in foreign exchange markets?

6. How effective are foreign exchange interventions?
The Role of Central Banks

• Central Bank Functions
  ➢ Raising government funds to finance wars.
  ➢ Holding unused funds on deposit at a single central bank office or in regional branch offices of central banks.
  ➢ Operating as a fiscal agent for national governments by issuing, servicing, and redeeming government debts.
  ➢ Preventing bank runs by serving as the lender of last resort to any temporarily illiquid but otherwise solvent bank.
Central Banking Assets and Activities

• Domestic Credit
  ➢ Total domestic securities and loans held as assets by a central bank.

• Discount Rate
  ➢ The interest rate that the Federal Reserve (Fed) charges on discount window loans that it extends to depository institutions.

• Monetary Aggregate
  ➢ A grouping of assets sufficiently liquid to be defined as a measure of money.
Central Banking Assets and Activities (cont’d)

• Monetary Base
  - Central bank holdings of domestic securities and loans plus foreign exchange reserves, or the sum of currency and bank reserves.
Figure 9-1 The Number of Central Banking Institutions, 1670–Present

### Table 9-1a The Consolidated Balance Sheet of the Federal Reserve System

(a) The Federal Reserve System ($ Billions, as of February 28, 2002)

<table>
<thead>
<tr>
<th>Asset</th>
<th>Dollar Amount</th>
<th>Percent of Total Assets</th>
<th>Liability</th>
<th>Dollar Amount</th>
<th>Percent of Total Liabilities and Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury Securities</td>
<td>$676.6</td>
<td>86.4%</td>
<td>Federal Reserve Notes</td>
<td>$606.3</td>
<td>92.2%</td>
</tr>
<tr>
<td>Loans to Depository Institutions</td>
<td>0.1</td>
<td>0.0%</td>
<td>Bank Reserve Deposits</td>
<td>20.9</td>
<td>3.2%</td>
</tr>
<tr>
<td>Gold &amp; SDR Certificates</td>
<td>13.2</td>
<td>2.0%</td>
<td>U.S. Treasury Deposits</td>
<td>5.8</td>
<td>0.9%</td>
</tr>
<tr>
<td>Foreign Currency Assets</td>
<td>14.2</td>
<td>2.2%</td>
<td>Deferred Credit Items</td>
<td>6.2</td>
<td>1.0%</td>
</tr>
<tr>
<td>Cash Items in Process of Collection</td>
<td>5.3</td>
<td>0.8%</td>
<td>Other Liabilities</td>
<td>2.7</td>
<td>0.4%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>56.9</td>
<td>8.6%</td>
<td>Total Liabilities</td>
<td>641.9</td>
<td>97.7%</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$657.3</td>
<td>100.0%</td>
<td>Equity Capital</td>
<td>15.4</td>
<td>2.3%</td>
</tr>
<tr>
<td>Total Liabilities &amp; Capital</td>
<td>$657.3</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Data from *Federal Reserve Bulletin*, May 2002, Board of Governors of the Federal Reserve System.
Table 9-1b  The Consolidated Balance Sheet of the European Central Bank

(b) The European System of Central Banks (ESCB) (Billions of Euros, as of March 22, 2002)

<table>
<thead>
<tr>
<th>Asset</th>
<th>Euro Amount</th>
<th>Percent of Total Assets</th>
<th>Liability</th>
<th>Euro Amount</th>
<th>Percent of Total Liabilities and Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Securities and Bills</td>
<td>€98.0</td>
<td>12.5%</td>
<td>Currency Notes</td>
<td>€280.2</td>
<td>35.8%</td>
</tr>
<tr>
<td>Direct Loans to Private Banks</td>
<td>170.6</td>
<td>21.8%</td>
<td>Bank Reserve Deposits</td>
<td>133.9</td>
<td>17.1%</td>
</tr>
<tr>
<td>Other Loans and Securities</td>
<td>5.3</td>
<td>0.7%</td>
<td>Government Deposits</td>
<td>57.1</td>
<td>7.4%</td>
</tr>
<tr>
<td>Gold and SDR Certificates</td>
<td>126.8</td>
<td>16.2%</td>
<td>Other Liabilities</td>
<td>247.3</td>
<td>31.6%</td>
</tr>
<tr>
<td>Foreign Currencies and Net Claims</td>
<td>269.9</td>
<td>34.5%</td>
<td>Total Liabilities</td>
<td>718.5</td>
<td>91.9%</td>
</tr>
<tr>
<td>on Other Central Banks</td>
<td></td>
<td></td>
<td>Equity Capital and Reserves</td>
<td>63.3</td>
<td>8.1%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>111.3</td>
<td>14.3%</td>
<td>Total Liabilities &amp; Capital</td>
<td>€781.8</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total Assets</td>
<td>€781.8</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from European Central Bank, Monthly Report, April 2002.
Table 9-1c  The Consolidated Balance Sheet of the Bank of Japan

(c) The Bank of Japan (Billions of Yen, as of May 31, 2002)

<table>
<thead>
<tr>
<th>Asset</th>
<th>Yen Amount</th>
<th>Percent of Total Assets</th>
<th>Liability</th>
<th>Yen Amount</th>
<th>Percent of Total Liabilities and Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese Government Securities</td>
<td>¥85,112</td>
<td>66.5%</td>
<td>Currency Notes</td>
<td>¥66,797</td>
<td>52.2%</td>
</tr>
<tr>
<td>Loans</td>
<td>915</td>
<td>0.7%</td>
<td>Bank Reserve Deposits</td>
<td>14,975</td>
<td>6.1%</td>
</tr>
<tr>
<td>Gold</td>
<td>446</td>
<td>0.4%</td>
<td>Government Deposits</td>
<td>7,716</td>
<td>11.7%</td>
</tr>
<tr>
<td>Bills Purchased and Discounted</td>
<td>26,585</td>
<td>20.8%</td>
<td>Other Liabilities</td>
<td>35,742</td>
<td>27.9%</td>
</tr>
<tr>
<td>Foreign Currency Assets</td>
<td>4,207</td>
<td>3.3%</td>
<td>Total Liabilities</td>
<td>125,230</td>
<td>97.9%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>10,680</td>
<td>8.3%</td>
<td>Equity Capital</td>
<td>2,715</td>
<td>2.1%</td>
</tr>
<tr>
<td>Total Assets</td>
<td>¥127,945</td>
<td>100.0%</td>
<td>Total Liabilities &amp; Capital</td>
<td>¥127,947</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Data from Bank of Japan, June 2002.
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### Table 9-2 Components of M2

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M1</strong>:</td>
<td>Currency, transactions deposits, and travelers’ checks make up the broad category generally known as money.</td>
</tr>
<tr>
<td></td>
<td><strong>Savings deposits and money market deposit accounts at depository institutions</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Small-denomination time deposits at depository institutions</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Funds held by individuals, brokers, and dealers in money market mutual funds</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Overnight repurchase agreements at depository institutions and overnight Eurocurrency deposits held by domestic residents</strong></td>
</tr>
</tbody>
</table>
Banking, Money, and Interest Rates

• Policy Instruments
  ➢ Financial variables that central banks can control, either directly or indirectly.

• The Federal Funds Rate
  ➢ The market interest rate in the U.S. interbank funds market known as the federal funds market.

• Lombard Rate
  ➢ The interest rate on central bank advances that some central banks, such as the European Central Bank, set above current market interest rates.
• Open-Market Operations
  ➢ Central bank purchases or sales of government or private securities.

• Reserve Requirements
  ➢ Central bank regulations requiring private banks to hold specified fractions of transactions and term deposits either as vault cash or as funds on deposit at the central bank.
Monetary Policy and Market Interest Rates

• The Money Multiplier
  - The means by which the Federal Reserve Bank begins the process of new money creation.
  - The Fed’s security purchases ultimately cause the quantity of money in circulation to rise by a multiple of amount of the security purchase.
  - The ratio of required reserve holdings to assets is called the “money multiplier.”
Figure 9-2: The Equilibrium Interest Rate and Monetary Policy

(a) Interest Rate vs. Quantity of Money

(b) Interest Rate vs. Quantity of Money
National Income and Price Deflators

• Gross Domestic Product (GDP)
  - The value, tabulated using market prices, of all final goods and services produced within a country’s borders during a given period.

• Real Gross Domestic Product (Real GDP)
  - A price-adjusted measure of aggregate output, or nominal GDP divided by the GDP price deflator.

• Nominal Gross Domestic Product (Nominal GDP)
  - The value of final production of goods and services calculated in current dollar terms with no adjustment for effects of price changes.
Figure 9-3  U.S. Gross Domestic Product

Figure 9-4a Nominal and Real GDP Values Since 1959


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National Income and Price Deflators

• GDP Price Deflator \( (P) \)
  ➢ A flexible-weight measure of the overall price level; equal to nominal GDP \( (Y) \) divided by real GDP.

\[
Real \ Income \ (y) = \frac{Y}{P}
\]

• Base Year
  ➢ A reference year for price-level comparisons.
    ➢ A year in which nominal GDP is equal to real GDP, so that the GDP deflator’s value is equal to one.
Figure 9-4b  Annual Values of the U.S. GDP Deflator Since 1959

Aggregate Demand, Aggregate Supply, and Equilibrium

• The Equilibrium Price Level and Equilibrium Real Output
  
  - A nation’s price level adjusts to ensure that total desired spending on domestic output of goods and services by all domestic and foreign residents equals aggregate output produced by the nation’s industries.
Figure 9-5
Aggregate Demand, Aggregate Supply, and Equilibrium

[Graph showing the relationship between price level, real output, aggregate demand (AD), and aggregate supply (AS) with equilibrium at point P₁ and Y₁.]
Monetary Policy, the Exchange Rate, and Equilibrium Output and Prices

• Central banks can try to influence real output and the price level by:
  ➢ Expanding the quantity of money in circulation.
  ➢ Bringing about a change in the exchange rate.
  ➢ Pushing down the value of the nation’s currency relative to other currencies.
Figure 9-6
The Effects of an Expansionary Monetary Policy Action on Equilibrium Output and Prices

Price Level

Real Output

$P_1$ $P_2$

$y_1$ $y_2$

$AD_1$ $AD_2$ $AS$
Foreign Exchange Market Interventions

• Leaning with the Wind
  - Central bank interventions to support or speed along the current trend in the market exchange value of its nation’s currency.

• Leaning against the Wind
  - Central bank interventions to halt or reverse the current trend in the market exchange value of its nation’s currency.
Foreign Exchange Market Interventions

• Financing Interventions
  ➢ Central banks use reserves of assets denominated in foreign currencies for exchange interventions.

• Conduct of U.S. Interventions
  ➢ The Treasury has primary responsibility for initiating foreign exchange interventions.
  ➢ The Federal Reserve conducts interventions on the Treasury’s behalf.
  ➢ The Exchange Stabilization Fund (ESF) finances interventions when Federal Reserve foreign exchange reserves are not involved.
Foreign Exchange Market Interventions (cont’d)

• Sterilization of Interventions
  ➢ A central bank policy of altering domestic credit in an equal and opposite direction relative to any variation in foreign exchange reserves so as to prevent the monetary base from changing.
    ❖ The bank buys or sells domestic assets to negate the effects of an intervention.

• The Monetary Base
  ➢ The sum of domestic credit plus foreign exchange reserves or as the sum of domestic currency and bank reserves.
Figure 9-7  Combined U.S., German, and Japanese Interventions, February 1985 to August 1989

Do Interventions Matter in the Short-Term?

• Portfolio Balance Effect
  ➢ An exchange rate adjustment resulting from changes in government or central bank holdings of foreign-currency-denominated financial instruments that influence the equilibrium prices of the instruments.

• Announcement Effect
  ➢ A change in private market interest rates or exchange rates that results from an anticipation of near-term changes in market conditions signaled by a central bank policy action.
Do Interventions Matter in the Long-Term?

• Central Bank Interventions
  ➢ Tend to distort exchange markets and to subject central banks to excessive risks of loss.

• The Extent of Foreign Exchange Interventions in the Late 1980s (Bordo and Schwartz)
  ➢ Were sporadic and highly variable.
  ➢ Were very small in size relative to total trading in foreign exchange markets.
  ➢ May have added to the exchange rate.
  ➢ May have caused taxpayer losses owing to greater currency risks.