Chapter 34: Monetary Policy

The Consolidated Balance Sheet of the Central Bank.

The Balance Sheet of the Central Bank:

Assets	Liabilities and net worth
Securities	Reserves of commercial banks
Loans to commercial banks	Treasury deposits
	Central bank notes

The two main assets of the central banks are securities and loans to commercial banks.

The three liabilities and net worth of the central banks are Reserves to commercial banks, Treasury deposits, and Central bank notes.

Tools of Monetary Policy: (أدوات السياسة المالية)

The central bank can influence the money creating abilities of the commercial banking system.

The central bank has four tools of monetary control it can to alter the reserves of commercial banks.

- Open Market Operation
- The Reserves Ratio
- The Discount Rate

Open Market Operation

- Bond markets are “open" to all buyers and sellers of corporate and government bonds (securities).
- The open market operations consist of the buying of government bonds from, or the selling of government bonds to, commercial banks and the general public.
- The central bank buys and sells the government bonds to commercial banks and the public through two dozen or so large financial firms, called "primary dealers".

Buying Securities:

Suppose that the central bank decides to buy government bonds. They can purchase these bonds either from commercial banks or from the public. In both cases the reserves of the commercial banks will increase.

- *When central bank purchases securities from commercial banks, they increase the reserves in the banking system, which then increase the lending ability of the commercial banks ➔ money supply increase.*

Example:

Suppose that the central bank purchases of a $1000 bonds from a commercial bank. If the reserves ratio is 20%, by how much has the supply of money changed?

The purchases of a $1000 bond from a commercial bank creates $1000 of excess reserves

Δ in money supply = m x ER

m = 1 / 0.20 = 5

Δ in money supply = m x ER = 5 x 1000 = $5,000 (total increase in money supply)

From the Public

- Central bank bond purchases from commercial banks increase the actual reserves and excess reserves of commercial banks by the entire of the bond purchases.

- Central bank bond purchases from the public increase actual reserves but also increase checkable deposits when the seller place the central bank check into their personal checking accounts.

Example:

Suppose that the central bank purchases of a $1000 bonds from the public. If the reserves ratio is 20%, by how much has the supply of money changed?

Required reserves = reserves ratio x deposits = 0.2 x 1000 = $200

ER = AR – RR = 1000 – 200 = $800

Δ in money supply = m x ER

m = 1 / 0.20 = 5

Δ in money supply = m x ER = 5 x 800 = $4,000

Total increase in money supply = initial checkable deposits + money creation = 1000 + 4000 = $5,000

Selling Securities:

- When the central bank sell government bond, commercial banks reserves are reduced.
- Whether the central bank sells bonds to the public or to commercial banks, the results is the same.
- *When central bank sell securities in the open market, commercial bank reserves are reduced., this decline in commercial bank reserves produces a decline in the money supply.*

The Reserves Ratio:

The central bank can manipulate (معالجة) the reserves ratio on order to influence the ability of commercial banks to lend.

Suppose a commercial bank's balance sheet shows that reserves are $5000 and checkable deposits are $20,000. if the reserves ratio is 20%.

Required reserves = 20% x 20,000 = $4000

Excess reserves = actual reserves – required reserves = 5000 – 4000 = $1000

One bank can lend $1000, the banking system as a whole can create a maximum of $5000 of new checkable deposits money by lending. {(1/0.2 x 1000) = 5000}.

Raising the reserves ratio:

If the central bank raised the reserves ratio from 20% to 25%. What happen?

Required reserves = 25% x 20,000 = $5000

Excess reserves = actual reserves – required reserves = 5000 – 5000 = 0

Rising the reserves ratio increases the amount of required reserves bank must keep, this leads to lose excess reserves and diminishing their ability to create money by lending ➔ decrease money supply.

In the example, excess reserves are transformed into required reserves, and the money creating potential of our single bank is reduced from $1000 to zero, moreover, the banking system's money creating capacity declines from $5000 to zero.

Lowering the reserves ratio:

What would happen if the central bank lowered the reserves ratio from 20% to 10%?

Required reserves = 10% x 20,000 = $2000

Excess reserves = actual reserves – required reserves = 5000 – 2000 = $3000

Max checkable deposits creation = m x ER = 1/0.1 x 3000 = 10 x 3000 = $30,000

The single bank's lending (money creation) ability would increase from $1000 to $3000, and the banking system's money creating potential would expand from $5000 to $30,000.

Lowering the reserves ratio transforms required reserves into excess reserves and enhances the ability of banks to create new money by lending ➔ money supply increase.

The change in the reserves ratio affects the money creating ability of the banking system in two ways:

- It changes the amounts of excess reserves
- It changes the size of the money multiplier.

Reserves ratio ↑ ➔ excess reserves ↓ and money multiplier ↓ ➔ money creating ↓ (money creating = m x ER)

Reserves ratio ↓ ➔ excess reserves ↑ and money multiplier ↑ ➔ money creating ↓ (money supply ↓)

The Discount Rate:

- One of the function of a central bank is to make short term loans to commercial banks.

- As commercial banks charge interest on the loans they make to their clients, so too central bank charge interest on loans they grant to commercial banks. The interest rate they charge is called the **discount rate**.

❖ Borrowing from the central bank by commercial banks increases the reserves of the commercial banks and enhances their ability to extend credit ➔ money supply increase.

❖ A lowering of the discount rate encourages commercial banks to obtain additional reserves by borrowing from central bank. When the commercial banks lend new reserves, the money supply increases.

❖ An increase in the discount rate discourages commercial banks to obtain additional reserves by borrowing from central bank. So the central bank may raise the discount rate when it wants to restrict (يحدد) the money supply.

Example:

The following table represents the consolidated (تجميعيــة) balance sheet of the commercial banking system. Assume that the reserves ratio is 25% of the checkable deposits. All figures are in millions of dollars, and each question should be answered independently of changes specified in all preceding ones (كل فرع مستقل عن الفرع الذي يسبقه)

Assets		Liabilities and net worth	
Actual Reserves	450	Checkable Deposits	1200
Securities	650	Net Worth	800
Loans	500		
Property	400		

a. What is the maximum amount that the whole banking system in this economy can lend?

RR = 0.25 X 1200 = 300

ER = AR – RR = 450 – 300 = 150

ΔMS = m x ER = (1/0.25) X 150 = $600 million

b. Assume that the central bank has decreased the required reserves ratio to 20% (instead of 25%). What is the effect of this action on the money supply? Show your calculation.

RR = 0.2 X 1200 = 240

ER = AR – RR = 450 – 240 = 210

ΔMS = m x ER = (1/0.2) X 210= $1050 million

The ability of banks to create money has increased by $450 m.

c. Assume again that the required reserves ratio to 25% and the central bank wants to decrease the money supply by $200 million to drive up interest rates and slow down the economy. To accomplish (تحقيق) this through open market operations, what should the central bank do? Explain. Give exact numbers.

ΔMS = m x ER

-200 = 4 x ER

➔ ER = - 200 / 4 = - 50

The central bank should decrease ER of banks by $50 m

This could be done by selling government securities in the open market by the $50 m

Monetary Policy:

Expansionary Monetary Policy (Easy Money Policy).

- When the economy faces *recession and unemployment*, the expansionary monetary policy may help control it.

Problem: unemployment and recession

↓

Fed buys bonds, lowers reserve ratio, lowers the discount rate

↓

Excess reserves increase

↓

Money supply rises

↓

Interest rate falls

↓

Investment spending increases

↓

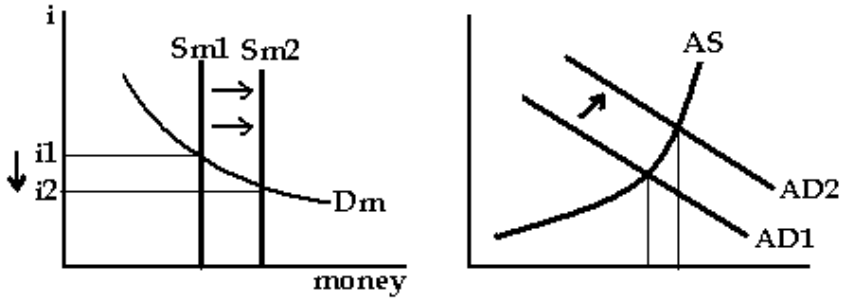
Aggregate demand increases

↓

Real GDP rises

The effect of an expansionary monetary policy on output.

The expansionary monetary policy shift money supply curve to the right ➔ lower the interest rate ➔ investment spending increase (I↑) ➔ shift AD curve to the right ➔ output (GDP) increase.



Restrictive Monetary Policy (tight Money Policy).

- Restrictive Monetary Policy is in order for periods of *rising inflation*.

Problem: inflation

↓

Fed sells bonds, increases reserve ratio
increases the discount rate

↓

Excess reserves decrease

↓

Money supply falls

↓

Interest rate rises

↓

Investment spending decreases

↓

Aggregate demand decreases

↓

Inflation declines

The effect of a restrictive monetary policy on output.

The restrictive monetary policy shift money supply curve to the left ➔ rises the interest rate ➔ investment spending decrease(I ↓) ➔ shift AD curve to the left ➔ output (GDP) decrease, and prices decrease (reduce inflation).