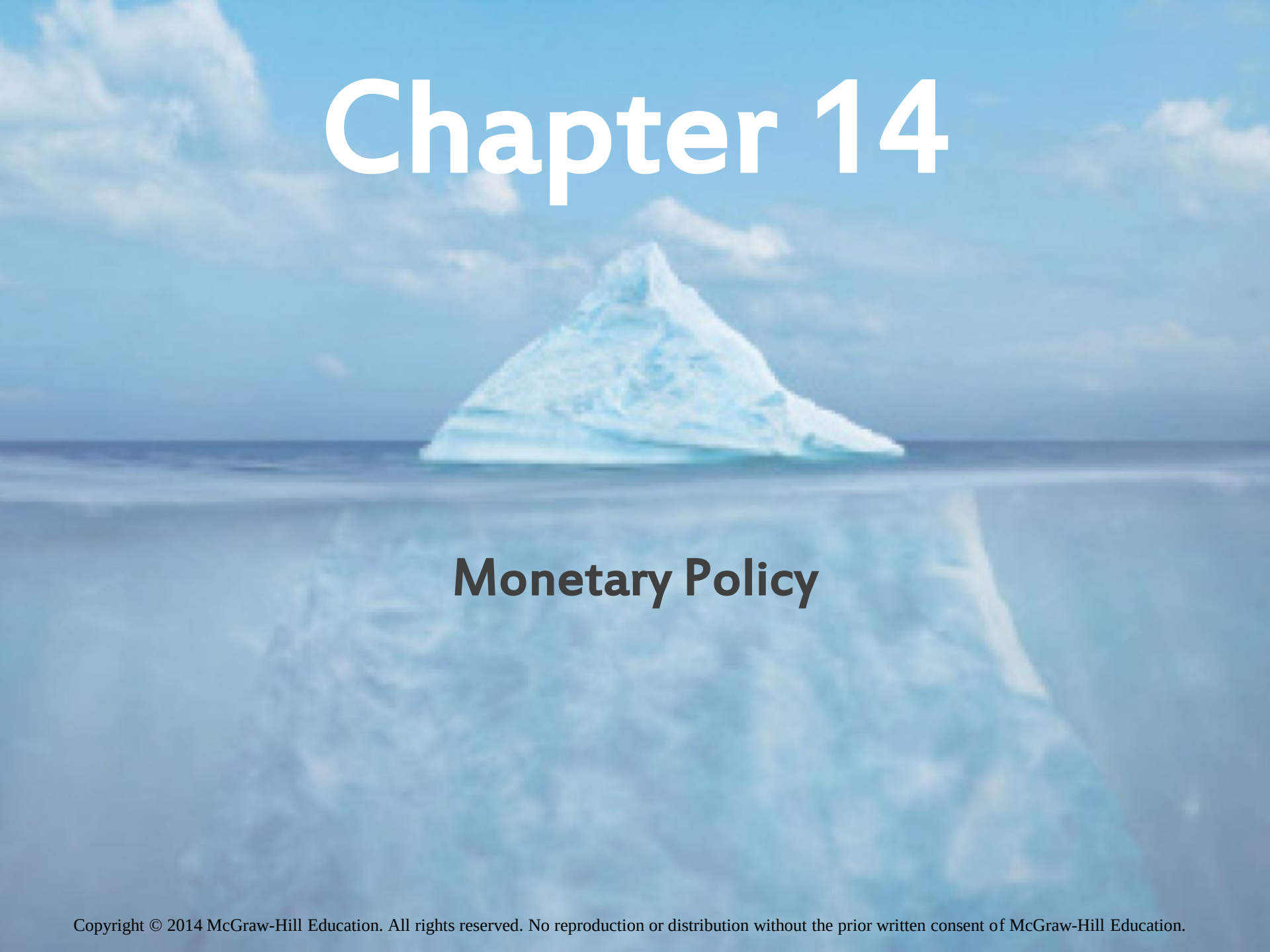
Chapter 14



Monetary Policy

Chapter 14

- The goal of this chapter is to examine monetary policy. Specifically:
  - How does government control the amount of money in the economy?
  - How does the money supply affect macroeconomic outcomes?

Learning Objectives

After completing this chapter, you should know:

1. How the Federal Reserve is organized.
2. The Fed's three primary policy tools.
3. How open-market operations work.

Learning Objectives

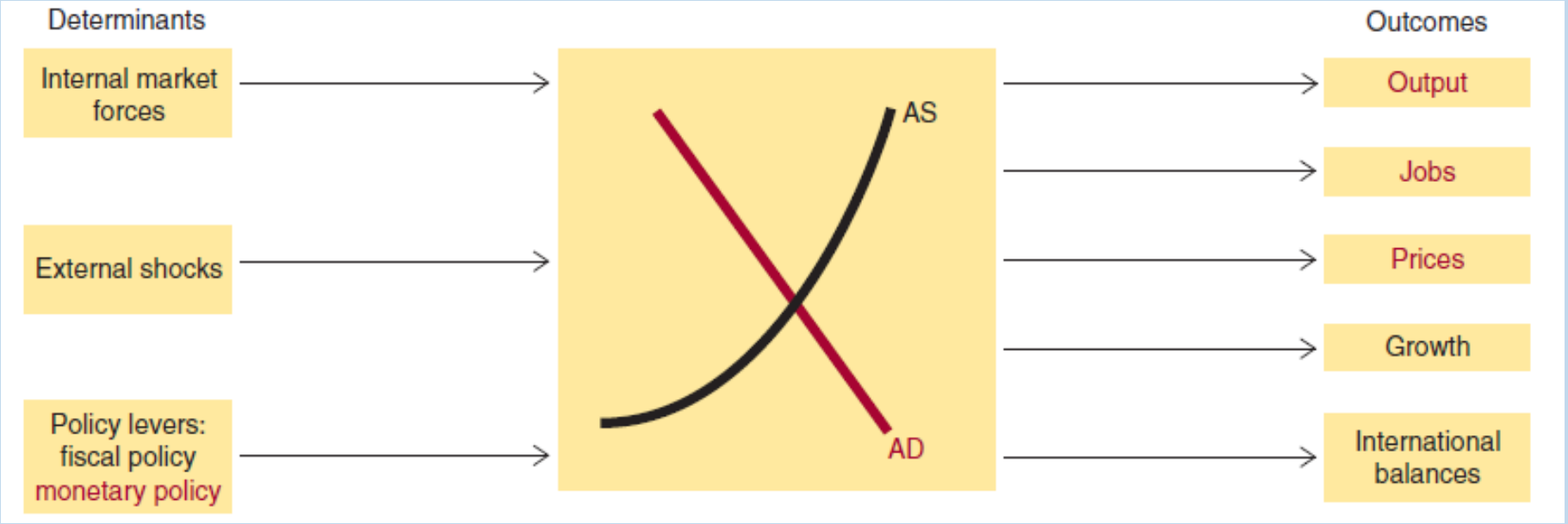
After completing this chapter, you should know:

4. How monetary stimulus or restraint is achieved.
5. How monetary policy affects macro outcomes.

The Federal Reserve System

- The Federal Reserve System (***the Fed***) was created in 1913 as the central banking system of the United States.
- A central responsibility of the Federal Reserve is ***monetary policy:*** the use of money and credit controls to influence macroeconomic activity.

Figure 14.1


Determinants
Internal market forces
External shocks
Policy levers: fiscal policy
monetary policy
AS
AD
Outcomes
Output
Jobs
Prices
Growth
International balances

Federal Reserve District Banks

- The 12 district banks perform many critical services, including the following:
  - Clearing checks between private banks.
  - Holding bank reserves.
  - Providing currency.
  - Providing loans (called *discounting*).

The Board of Governors

- The decision maker for monetary policy, designed to be independent of political pressure.
- Consists of seven members appointed by the President and confirmed by the U.S. Senate.
- Board members are appointed for 14-year terms and *cannot* be reappointed.
- Terms are staggered every two years.

The Fed Chairman

- The most visible member of the Federal Reserve System.
- Selected by the President for a four-year term and may be reappointed.
- Ben Bernanke is the current Chairman of the Fed.

Monetary Tools

- The Fed has the power to alter the money supply through three tools:
  - Reserve requirements.
  - Discount rate.
  - Open-market operations.

Reserve Requirements

- By changing the reserve requirement, the Fed can directly alter the lending capacity of the banking system.
  - ***Required reserves*** are the minimum amount of reserves a bank is required to hold by government regulation.

Reserve Requirements

- The ability of the banking system to make additional loans (create deposits) is determined by the amount of excess reserves banks hold and the money multiplier:

Available lending capacity of the banking system = *Money multiplier* x *Excess reserves*

Decrease in Required Reserves

- A decrease in required reserves:
  - Directly increases excess reserves and enables more loans.
  - Also increases the value of the money multiplier.

Table 14.1

	Required Reserve Ratio	
	25 Percent	20 Percent
1. Total deposits	$100 billion	$100 billion
2. Total reserves	30 billion	30 billion
3. Required reserves	25 billion	20 billion
4. Excess reserves	5 billion	10 billion
5. Money multiplier	4	5
6. Unused lending capacity	$20 billion	$50 billion

Increase in Required Reserves

- An increase in required reserves:
  - Directly decreases excess reserves and requires fewer loans.
  - Also decreases the value of the money multiplier.

The Discount Rate

- The ***discount rate*** is the rate of interest charged by the Federal Reserve Banks for *lending* reserves to private banks.
- Sometimes bank reserves run low and they must replenish their reserves temporarily.

The Discount Rate

- There are three sources of last-minute extra reserves:
  - Federal Funds Market, where banks may borrow from a reserve-rich bank.
  - Securities sales.
  - Discounting, that is, obtaining reserve credits from the Federal Reserve System.

The Discount Rate

- By changing the discount rate, the Fed changes the cost of money for banks and the incentive to borrow reserves.
  - Lower the discount rate and banks may make more loans.
  - Raise the discount rate and banks may make fewer loans.

Open-Market Operations

- Open-market operations are the *principal* mechanism for directly altering the reserves of the banking system.
- Open-market operations are designed to affect portfolio decisions and the decision to hold money or bonds.

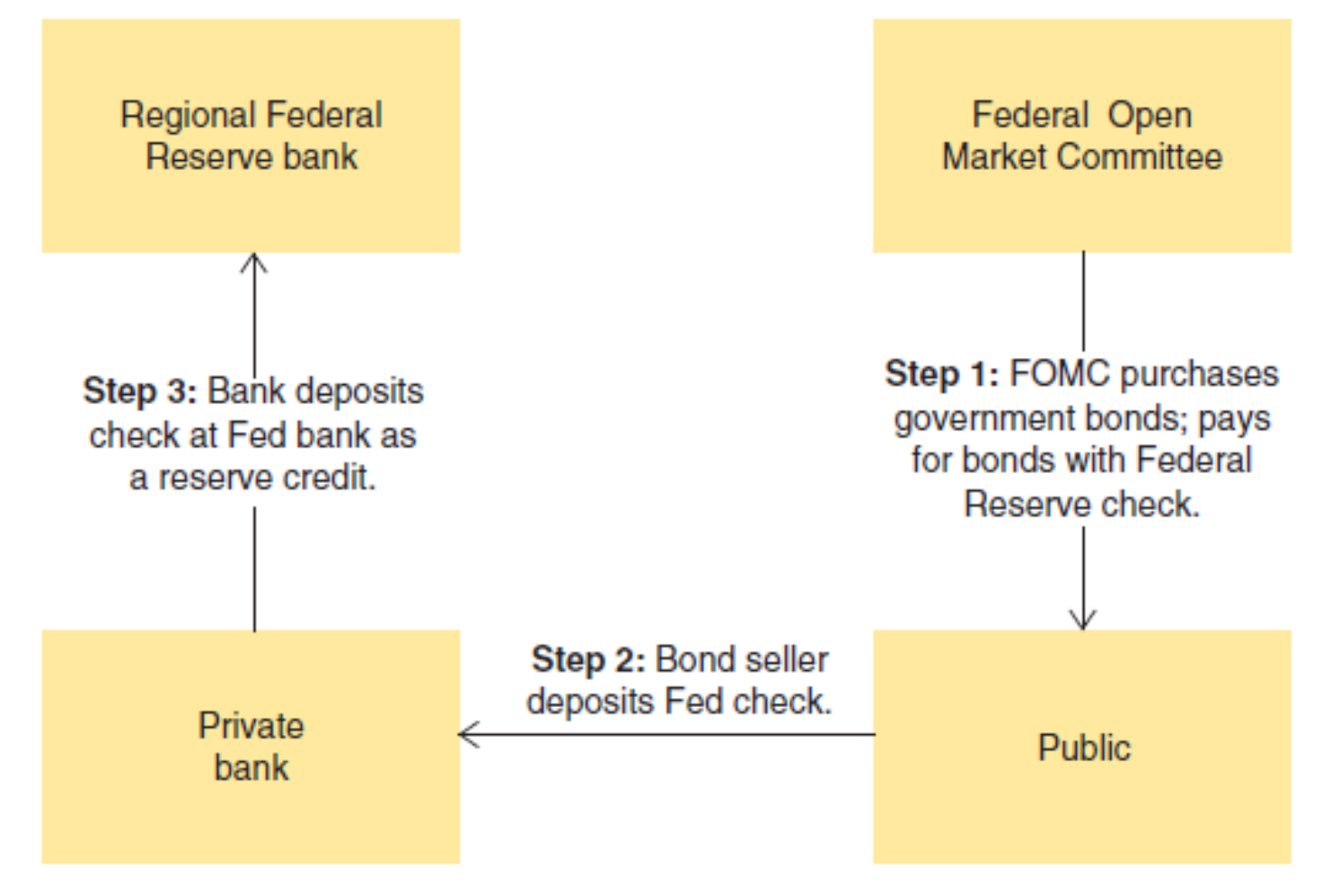
Open-Market Operations

- The Fed attempts to influence whether individuals hold idle funds in transaction accounts (in banks) or government bonds.
- Changes in bond prices alter portfolio choices.

Open-Market Operations

- ***Open-market operations:*** Federal Reserve purchases and sales of government bonds for the purpose of altering bank reserves:
  - If the Fed *buys bonds*, it *increases* bank reserves and money supply increases.
  - If the Fed *sells bonds*, it *reduces* bank reserves and money supply decreases.

Figure 14.5


Regional Federal Reserve bank
Federal Open Market Committee
Step 3: Bank deposits check at Fed bank as a reserve credit.
Step 1: FOMC purchases government bonds; pays for bonds with Federal Reserve check.
Step 2: Bond seller deposits Fed check.
Private bank
Public

Powerful Levers

- To summarize, there are three levers of monetary policy:
  - Reserve requirements.
  - Discount rates.
  - Open-market operations.
- The Fed has effective control of the nation's money supply.

Shifting Aggregate Demand

- The ultimate goal of all macro policy is to stabilize the economy at its full-employment potential.
- Monetary policy may be used to shift aggregate demand.

Expansionary Policy

- Monetary policy can be used to move the economy to its full-employment potential.
- The Fed can increase AD (increasing the money supply) by:
  - Lowering reserve requirements.
  - Dropping the discount rate.
  - Buying more bonds to increase bank lending capacity.

Restrictive Policy

- Monetary policy can also be used to cool an overheating economy and to combat inflation).
- The Fed can decrease AD (decreasing the money supply) by:
  - Raising reserve requirements.
  - Increasing the discount rate.
  - Selling bonds in the open market.

Interest-Rate Targets

- Interest rates are a key link between changes in the money supply and shifts of the AD curve.
  - When the Fed raises the federal funds rate, it signals a smaller money supply and an AD shift to the left.
  - When the Fed lowers the federal funds rate, it signals a larger money supply and an AD shift to the right.

Price versus Output Effects

- The success of monetary policy depends on the conditions of aggregate demand and aggregate supply.

Aggregate Demand

- In normal times, increases in the money supply shift AD to the right.
- *Vice versa* applies.

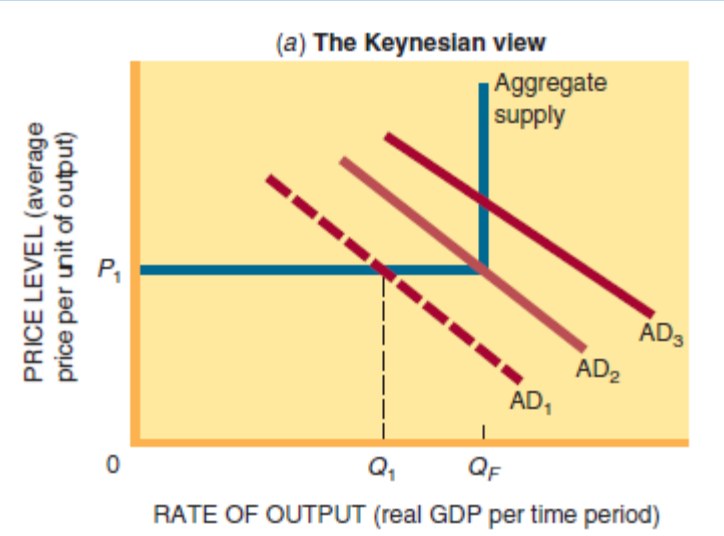
Aggregate Supply

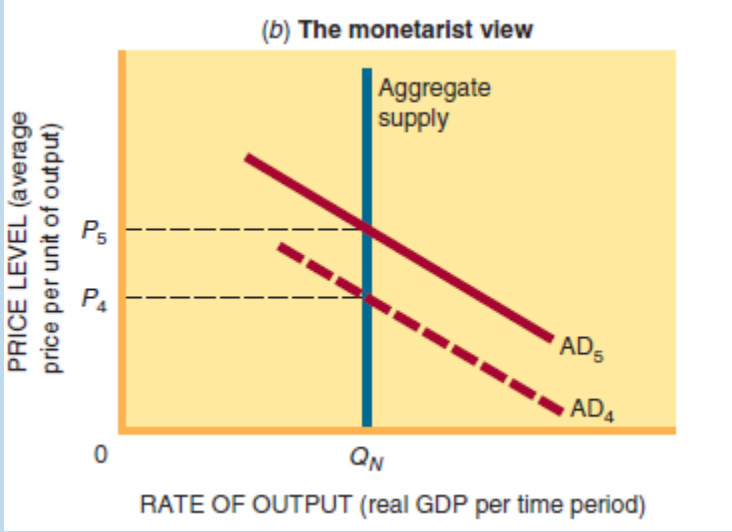
- The shape of the AS curve determines the effectiveness of expansionary monetary policy.
  - Horizontal AS: output increases without any inflation.
  - Vertical AS: inflation occurs without changing output.
  - Upward-sloped AS: both prices and output are affected by monetary policy.

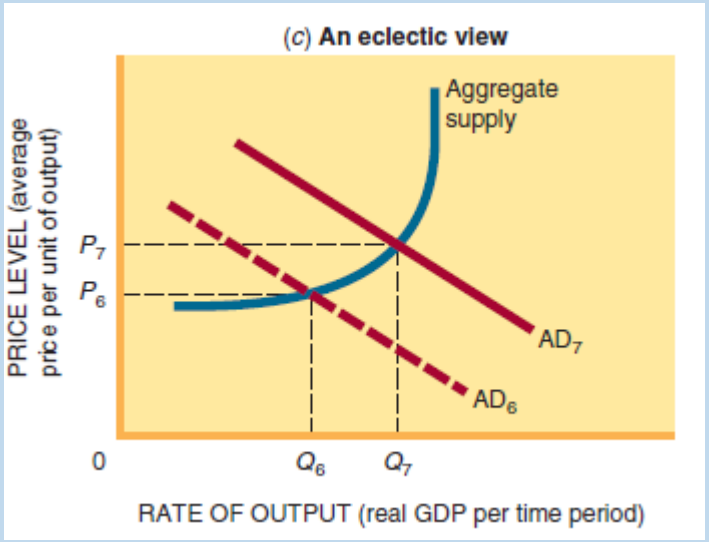
Aggregate Supply

- With an upward-sloping AS curve, expansionary policy causes some *inflation,* and restrictive policy causes some *unemployment*.

Figure 14.7


(a) The Keynesian view
PRICE LEVEL (average price per unit of output)
Aggregate supply
P_1
AD_3
AD_2
AD_1
0
Q_1
Q_F
RATE OF OUTPUT (real GDP per time period)


(b) The monetarist view
PRICE LEVEL (average price per unit of output)
Aggregate supply
P_5
P_4
AD_5
AD_4
0
Q_N
RATE OF OUTPUT (real GDP per time period)


(c) An eclectic view
PRICE LEVEL (average price per unit of output)
Aggregate supply
P_7
P_6
AD_7
AD_6
0
Q_6
Q_7
RATE OF OUTPUT (real GDP per time period)

How Much Discretion?

- The shape of the AS curve spotlights a central policy debate.
- Should the Fed try to fine-tune the economy with constant adjustments of the money supply?
- Or should the Fed instead simply keep the money supply growing at a steady pace?

How Much Discretion?

- Discretionary policy:
  - This is an activist policy calling for Fed intervention in response to positive and negative shocks.
  - Activists say that there is a need for continual adjustments to the money supply.

How Much Discretion?

- Fixed rules:
  - Critics of discretionary monetary policy raise objections linked to the shape of the AS curve.
  - With an upward-sloping AS curve, too much expansionary monetary policy leads to inflation.

How Much Discretion?

- Fixed rules:
  - Advocates say fixed rules are less prone to error than discretionary policy.
  - The Fed should increase the money supply by a constant (fixed) rate each year.

How Much Discretion?

- The Fed uses an eclectic approach of:
  - Flexible rules.
  - Limited discretion.
- The Fed mixes money-supply and interest-rate adjustments to do whatever is necessary to promote price stability and economic growth.

How Much Discretion?

- Inflation targeting:
  - Ben Bernanke, the current Fed Chairman, believes the Fed should set an upper limit on inflation, then manipulate interest rates and the money supply to achieve it.

What We Learned

1. The Fed controls the money supply and conducts monetary policy through its Board of Governors, 12 district banks, and open-market operations.
2. The Fed's three policy tools are change reserve requirements, change the discount rate, and conduct open-market operations.

What We Learned

3. If the Fed buys bonds in the open market, deposits and reserves increase and more loans are made, increasing the money supply. If the Fed sells bonds in the open market, deposits and reserves decrease and fewer loans are made, decreasing the money supply.

What We Learned

4. Monetary stimulus (increasing the money supply and lowering interest rates) will shift AD rightward. Monetary restraint (decreasing the money supply and raising interest rates) will shift AD leftward.

What We Learned

5. Monetary policy's effect on macro outcomes depends on the slope of AS. For an upward-sloping AS (the usual case), there is a trade-off between the goals of full employment and price stability.