Objectives

After studying this chapter, you will able to

- Distinguish among the different theories of the business cycle
- Explain the Keynesian and monetarist theories of the business cycle
- Explain the new classical and new Keynesian theories of the business cycle
- Explain real business cycle theory
- Describe the origins of, and the mechanisms at work during, the expansion of the 1990s, the recession of 2001, and the Great Depression
Must What Goes Up Always Come Down?

In some ways, the 1990s were like the 1920s: rapid economic growth and unprecedented prosperity.

From 1929 through 1933, real GDP fell 30 percent and the economy entered the Great Depression, which lasted until World War II.

There have been ten recessions since 1945; must the cycle continue?

Cycle Patterns, Impulses, and Mechanisms

Business Cycle Patterns
The business cycle is an irregular and nonrepeating up-and-down movement of business activity that takes place around a generally rising trend and that shows great diversity.

Table 30.1 in the textbook dates business cycles since 1920 and the magnitude of the fall in real GDP from peak to trough.
Cycle Patterns, Impulses, and Mechanisms

Cycle Impulses and Mechanisms
Cycles can be like the ball in a tennis match, the light of night and day, or a child’s rocking horse.
These cycles differ according to the role of outside force and basic system design.

In a tennis match, an outside force is applied at each turning point.
In the night and day cycle, no outside force is applied and the cycle results from the design of the solar system.
In the rocking of a horse, an outside force must be applied to start the cycle but then the cycle proceeds automatically until it needs another outside force.

The business cycle is a combination of all three types of cycles; that is, both outside forces (the “impulse”) and design (the “mechanism”) are important.
The Central Role of Investment and Capital

All theories of the business cycle agree that investment and the accumulation of capital play a crucial role.

Recessions begin when investment slows and recessions turn into expansions when investment increases.

Investment and capital are crucial parts of cycles, but are not the only important parts.

The AS-AD Model

All business cycle theories can be described in terms of the AS-AD model.

Business cycle theories can be divided into two types:

- Aggregate demand theories
- Real business cycle theory.
Aggregate Demand Theories of the Business Cycle

Three types of aggregate demand theories have been proposed:

- Keynesian
- Monetarist
- Rational expectations

Keynesian Theory

The Keynesian theory of the business cycle regards volatile expectations as the main source of business cycle fluctuations.
Aggregate Demand Theories of the Business Cycle

Keynesian Impulse

The impulse in the Keynesian theory is expected future sales and expected future profits.

A change in expected future sales and expected future profits changes investment.

Keynes described these expectations as “animal spirits,” which means that because such expectations are hard to form, they may change radically in response to a small bit of new information.

Aggregate Demand Theories of the Business Cycle

Keynesian Cycle Mechanism

The mechanism of the business cycle is the initial change in investment, which affects aggregate demand, combined with a flat (or nearly so) SAS curve.

An increase in investment has multiplier effects that shift the $AD$ curve rightward; a decrease has similar multiplier effects that shift the $AD$ curve leftward.
Aggregate Demand Theories of the Business Cycle

The asymmetry of money wages means that leftward shifts of $AD$ lower real GDP but, without some other change, money wages do not fall and so the economy remains in a below full-employment equilibrium.

The Keynesian theory is most like the tennis match, in which cycles are the result of outside forces applied at the turning points.

Figure 30.1 illustrates a Keynesian recession.
Aggregate Demand Theories of the Business Cycle

Figure 30.2 illustrates a Keynesian expansion.

Monetarist Theory
The monetarist theory of the business cycle regards fluctuations in the quantity of money as the main source of business cycle fluctuations in economic activity.

Monetarist Impulse
The initial impulse is the growth rate of the money supply.
Aggregate Demand Theories of the Business Cycle

Monetarist Cycle Mechanism

The mechanism is a change in the monetary growth rate that shifts the $AD$ curve combined with an upward sloping SAS curve.

An increase in the growth rate of the money supply lowers interest rates and the foreign exchange rate, both of which have multiplier effects that shift the $AD$ curve rightward.

A decrease in the monetary growth rate has opposite effects.

Aggregate Demand Theories of the Business Cycle

Money wages are only temporarily sticky, so an increase in aggregate demand eventually raises money wage rates and a decrease in aggregate demand eventually lowers money wage rates.

Rightward shifts in the $AD$ curve cause an initial expansion in real GDP, but money wages rise and the expansion ends as GDP returns to potential GDP.

Decreases in $AD$ are similar: they cause an initial decrease in real GDP, but money wages fall and the recession ends as GDP returns to potential GDP.
Aggregate Demand Theories of the Business Cycle

The monetarist theory is like a rocking horse, in that an initial force is required to set it in motion, but once started the cycle automatically moves to the next phase.

Figure 30.3 illustrates a Monetarist business cycle. Part (a) shows a recession phase.
Aggregate Demand Theories of the Business Cycle

Rational Expectations Theories

A *rational expectation* is a forecast based on all the available relevant information.

There are two rational expectations theories.

The *new classical theory of the business cycle* regards *unanticipated* fluctuations in aggregate demand as the main source of economic fluctuations.

Part (b) shows an expansion phase.
The *new Keynesian theory of the business cycle* also regards unanticipated fluctuations in aggregate demand as the main source of economic fluctuations but also leaves room for *anticipated* fluctuations in aggregate demand to play a role.

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**Rational Expectations Impulse**

Both rational expectations theories regard unanticipated fluctuations in aggregate demand as the impulse of the business cycle.

But the new Keynesian theory says that workers are locked into long-term contracts, so even though a fluctuation in aggregate demand is today anticipated, if it was unanticipated when the contract was signed, it will create a fluctuation in economic activity.
Aggregate Demand Theories of the Business Cycle

Rational Expectations Cycle Mechanisms

The mechanism in both theories stresses that changes in aggregate demand affect the price level and hence the real wage, which then leads firms to alter their levels of employment and production.

In both theories, a recession occurs when a decrease in aggregate demand lowers the price level and thereby raises the real wage rate.

This change causes firms to reduce employment so that unemployment rises.

Aggregate Demand Theories of the Business Cycle

In both theories, eventually money wages fall so that the recession ends.

The new classical theory asserts that only unanticipated changes in aggregate demand affect real wages; anticipated changes affect the nominal wage rate and have no effect on real wage rates.

Anticipated changes in aggregate demand have no effect on real GDP.
Aggregate Demand Theories of the Business Cycle

The new Keynesian theory asserts that long-term labor contracts prevent anticipated changes from affecting the nominal wage rate, so even if a change is correct anticipated today, if it was unanticipated when the labor contract was signed, it affects the real wage rate. Hence, both anticipated and unanticipated changes in aggregate demand affect real GDP.

Aggregate Demand Theories of the Business Cycle

Both theories are like rocking horses, in which an initial force starts the business cycle but then the fluctuation automatically proceeds to the end of the cycle.
Aggregate Demand Theories of the Business Cycle

Figure 30.4 illustrates a rational expectations business cycle. Part (a) shows a recession.

Aggregate Demand Theories of the Business Cycle

Part (b) shows an expansion.
Aggregate Demand Theories of the Business Cycle

**AS-AD General Theory**

All three of these types of business cycle explanation can be thought of as special cases of a general AS-AD theory of the business cycle, in which fluctuations in aggregate demand (and sometimes aggregate supply) cause the business cycle.

Real Business Cycle Theory

The *real business cycle theory* (RBC theory) regards technological change that creates random fluctuations in productivity as the source of the business cycle.

**The RBC Impulse**

The *impulse* in RBC theory is the growth rate of productivity that results from technological change.

Growth accounting is used to measure the effects of technological change.
Real Business Cycle Theory

Figure 30.5 illustrates the RBC Impulse over 1963–2003.

The RBC Mechanism
Two immediate effects follow from a change in productivity

- Investment demand changes
- The demand for labor changes
Real Business Cycle Theory

Figure 30.6 illustrates the capital and labor markets in a real business cycle recession.

Real Business Cycle Theory

A decrease in productivity lowers firms' profit expectations and decreases both investment demand and the demand for labor.
Real Business Cycle Theory

The interest rate falls.

Real Business Cycle Theory

The lower the real interest rate lowers the return from current work so the supply of labor decreases.
Real Business Cycle Theory

Employment falls by a large amount and the real wage rate falls by a small amount.

Real Business Cycle Theory

Real GDP and the Price Level

The decrease in productivity shifts the LAS curve leftward (there is no SAS curve in the RBC theory).

The decrease in investment demand shifts the AD curve leftward.

The price level falls and real GDP decreases.
Real Business Cycle Theory

Figure 30.7 illustrates the changes in aggregate supply and aggregate demand during a real business cycle recession.

What Happened to Money?

Money plays no role in the RBC theory; the theory emphasizes that real things, not nominal or monetary things, cause business cycles.

Cycles and Growth

The shock that drives the cycle in RBC is the same force as generates economic growth.

RBC concentrates on its short-run consequences: growth theory concentrates on its long-term consequences.
Real Business Cycle Theory

Criticisms of Real Business Cycle Theory
Money wages are sticky—a fact ignored by RBC theory
The intertemporal substitution effect is too weak to shift the labor supply curve by enough to decrease employment with only a small change in the real wage rate.
Technology shocks an implausible source of business cycle fluctuations and measured technology shocks are correlated with factors that change aggregate demand so are not good measures of pure aggregate supply shocks.

Real Business Cycle Theory

Defense of Real Business Cycle Theory
RBC theory explains both cycles and growth in a unified framework
RBC theory is consistent with a wide range of microeconomic evidence about labor demand and supply, investment demand, and other data
The correlation between money and the business cycles can arise from economic activity causing changes in the quantity of money and not vice versa.
Real Business Cycle Theory

RBC theory raises the possibility that business cycles are efficient so that efforts to smooth the business cycle reduce economic welfare.

Expansion and Recession During the 1990s and 2000s

The U.S. Expansion of the 1990s

The expansion that started in March 1991 lasted 120 months.

The previous all-time record for an expansion was 106 months, which took place in the 1960s.
Expansion and Recession During the 1990s and 2000s

Productivity Growth in the Information Age

Massive technological change occurred during the 1990s (computers and related technologies exploded, as did biotechnology.)

The technological change created profit opportunities, which increased investment demand.

In turn, the higher capital stock increased aggregate supply.

Expansion and Recession During the 1990s and 2000s

Fiscal policy and monetary policy

Fiscal policy was restrained.

As a fraction of GDP, government purchases remained about constant and tax revenues increased, largely as a result of a growing economy.

Monetary policy also was restrained.

The Fed generally kept the money supply at a relatively slow and steady rate that lead to falling inflation and interest rates.
Expansion and Recession During the 1990s and 2000s

Aggregate Demand and Aggregate Supply During the Expansion

Figure 30.8 illustrates the changes in aggregate demand and aggregate supply that occurred during the 1990s expansion.

In 1991, there was a small recessionary gap.

Expansion and Recession During the 1990s and 2000s

Aggregate demand and long-run aggregate supply both increased.

But aggregate demand increased more than long-run aggregate supply, so both the price level and real GDP increased.

In 2001, the economy was at full employment.
Expansion and Recession During the 1990s and 2000s

A Real Business Cycle Expansion Phase

This expansion seems identical to those RBC predicts: technological change increases productivity, with the result that labor demand and aggregate supply increase.

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Expansion and Recession During the 1990s and 2000s

The U.S. Recession of 2001

The 2001 recession was the mildest on record.

There was no clearly visible external shock to set off the recession.

There were no major fiscal shocks to trigger the recession.

There were no major monetary shocks prior to the start of the recession, although the Fed had raised interest rates a little in 2000 and held M2 growth steady.
Expansion and Recession During the 1990s and 2000s

Real Business Cycle Effects
The growth of productivity did slow in early 2001 according to preliminary data, and this would have slowed the real GDP growth rate.

In itself, it seems insufficient to have caused a recession, but it was associated with a very severe reduction of business investment that was the proximate cause of the fall in aggregate demand and the start of the recession.

Expansion and Recession During the 1990s and 2000s

Labor Market and Productivity
Labor productivity increased, as did the real wage, because employment and aggregate hours fell more than GDP and unemployment rose.

The rise in real wages reduced short-run aggregate supply.
Expansion and Recession During the 1990s and 2000s

Figure 30.9 illustrates the changes in aggregate demand and aggregate supply in the 2001 recession.

The Great Depression

In early 1929 unemployment was at 3.2 percent.

In October the stock market fell by a third in two weeks.

The following four years were a terrible economic experience: the Great Depression.

In 1930, the price level fell by about three percent and real GDP declined by also about nine percent.

Over the next three years several adverse shocks hit aggregate demand and real GDP declined by 29 percent and the price level by 24 percent from their 1929 levels.
The 1920s were a prosperous era but as they drew to a close increased uncertainty affected investment and consumption demand for durables.

The stock market crash of 1929 also heightened uncertainty.

The uncertainty caused investment to fall, which decreased aggregate demand and real GDP in 1930.

Until 1930, the Great Depression was similar to an ordinary recession.

Figure 30.10 shows the changes in aggregate demand and aggregate supply during the Great Depression.
The Great Depression

Why the Great Depression Happened

Some economists think that decrease in investment was the primary cause that decreased aggregate demand and created the depression.

Other economists (notably Milton Friedman) assert that inept monetary policy was the primary cause of the decrease in aggregate demand.

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The Great Depression

Banks failed in an unprecedented amount during the Depression.

The main initial reason was loans made in the 1920s that went sour.

Bank failures fed on themselves; people seeing one bank fail took their money out of other banks and caused the other banks to fail.

The massive number of bank failures caused a huge contraction in the money supply that was not offset by the Federal Reserve.
The Great Depression

Can It Happen Again?
Four reasons make it less likely that another Great Depression will occur

- Bank deposit insurance
- Lender of last resort.
- Taxes and government spending
- Multi-income families

THE END