Chapter

25

Money, the Interest Rate, and Output: Analysis and Policy

Prepared by:

Fernando & Yvonn Quijano

PART IV MACROECONOMIC ANALYSIS

Money, the Interest Rate, and Output: Analysis and Policy

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Chapter Outline

The Links Between the Goods Market and the Money Market

Investment, the Interest Rate, and the Goods Market

Money Demand, Aggregate Output (Income), and the Money Market

Combining the Goods Market and the Money Market

Expansionary Policy Effects

Contractionary Policy Effects

The Macroeconomic Policy Mix

Other Determinants of Planned Investment

Looking Ahead: The Price Level

Appendix: The IS-LM Diagram

MONEY, THE INTEREST RATE, AND OUTPUT: ANALYSIS AND POLICY

goods market The market in which goods and services are exchanged and in which the equilibrium level of aggregate output is determined.

money market The market in which financial instruments are exchanged and in which the equilibrium level of the interest rate is determined.

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

There are two key *links* between the goods market and the money market:

- Link 1: Income and the Demand for Money

Income, which is determined in the goods market, has considerable influence on the demand for money in the money market.

- Link 2: Planned Investment Spending and the Interest Rate

The interest rate, which is determined in the money market, has significant effects on planned investment in the goods market.

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

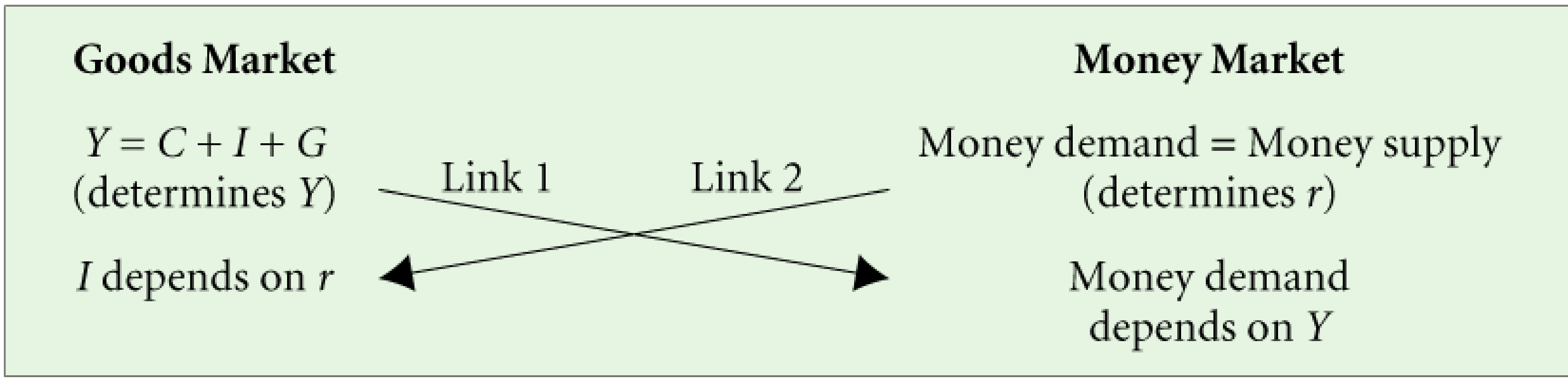

FIGURE 12.1 Links Between the Goods Market and the Money Market

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

INVESTMENT, THE INTEREST RATE, AND THE GOODS MARKET

When the interest rate falls, planned investment rises.

When the interest rate rises, planned investment falls.

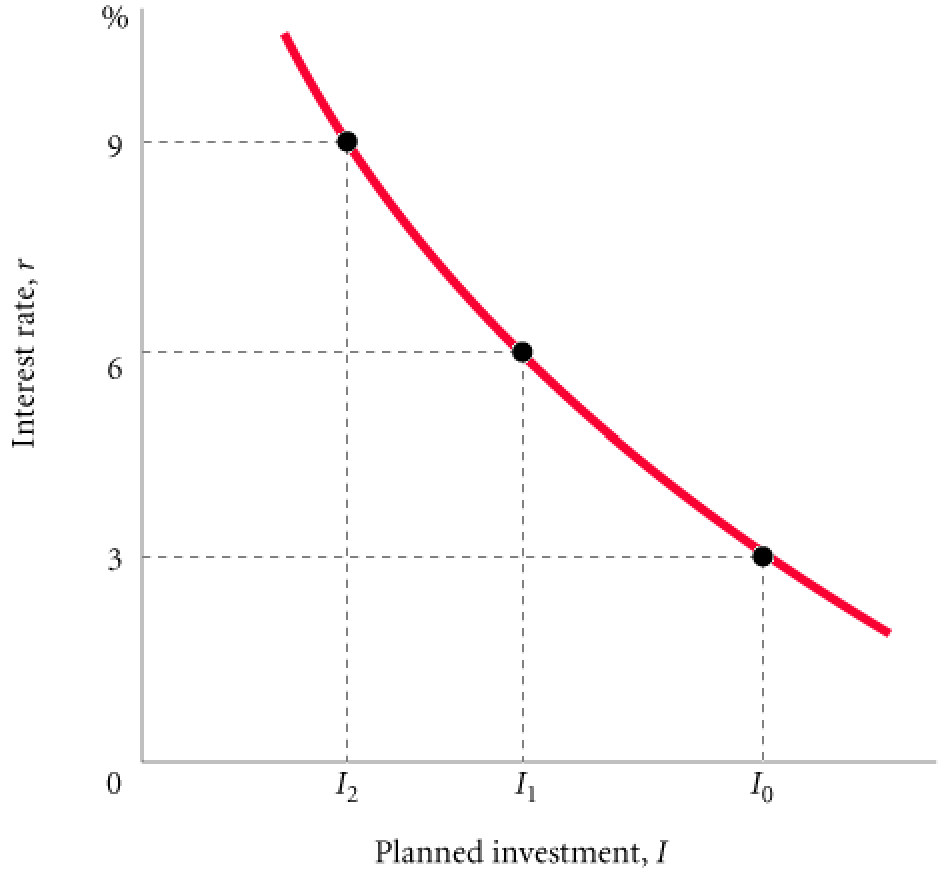

FIGURE 12.2 **Planned Investment Schedule**

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

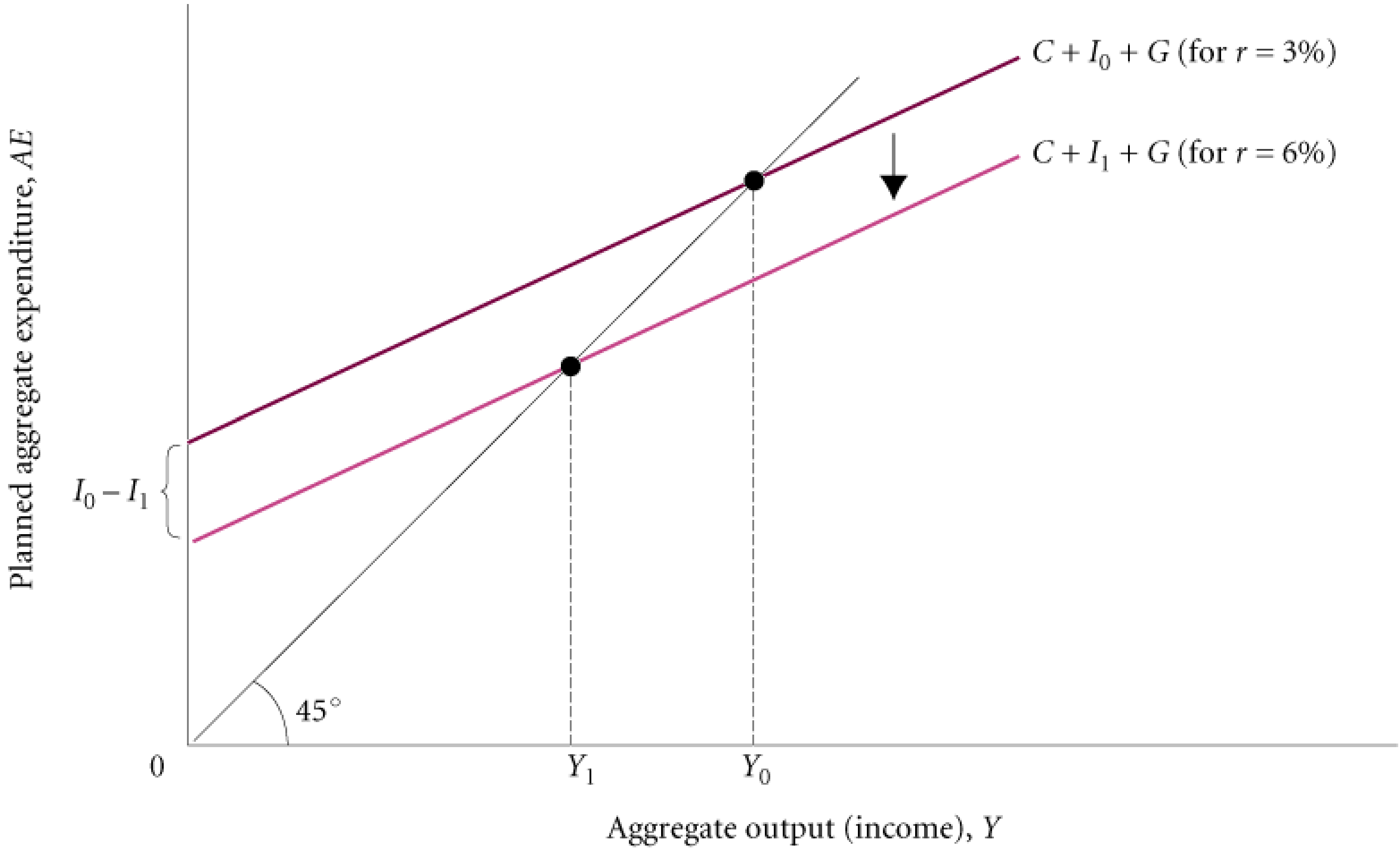

FIGURE 12.3 The Effect of an Interest Rate Increase on Planned Aggregate Expenditure

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

The effects of a change in the interest rate include:

- **High interest rate (*r*) discourages planned investment (*I*).**
- **Planned investment is a part of planned aggregate expenditure (*AE*).**
- **Thus, when the interest rate rises, planned aggregate expenditure (*AE*) at every level of income falls.**
- **Finally, a decrease in planned aggregate expenditure lowers equilibrium output (income) (*Y*) by a multiple of the initial decrease in planned investment.**

Using a convenient shorthand:

$$r\uparrow \rightarrow I\downarrow \rightarrow AE\downarrow \rightarrow Y\downarrow$$

$$r\downarrow \rightarrow I\uparrow \rightarrow AE\uparrow \rightarrow Y\uparrow$$

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

MONEY DEMAND, AGGREGATE OUTPUT (INCOME), AND THE MONEY MARKET

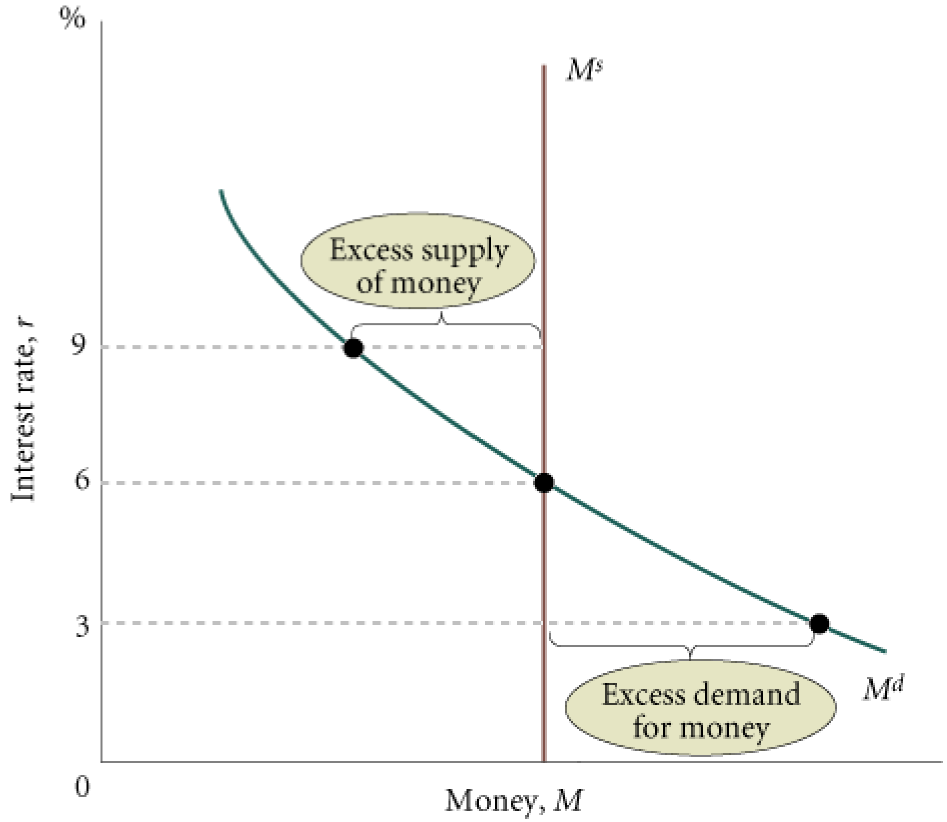

FIGURE 12.4 **Equilibrium in the Money Market**

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

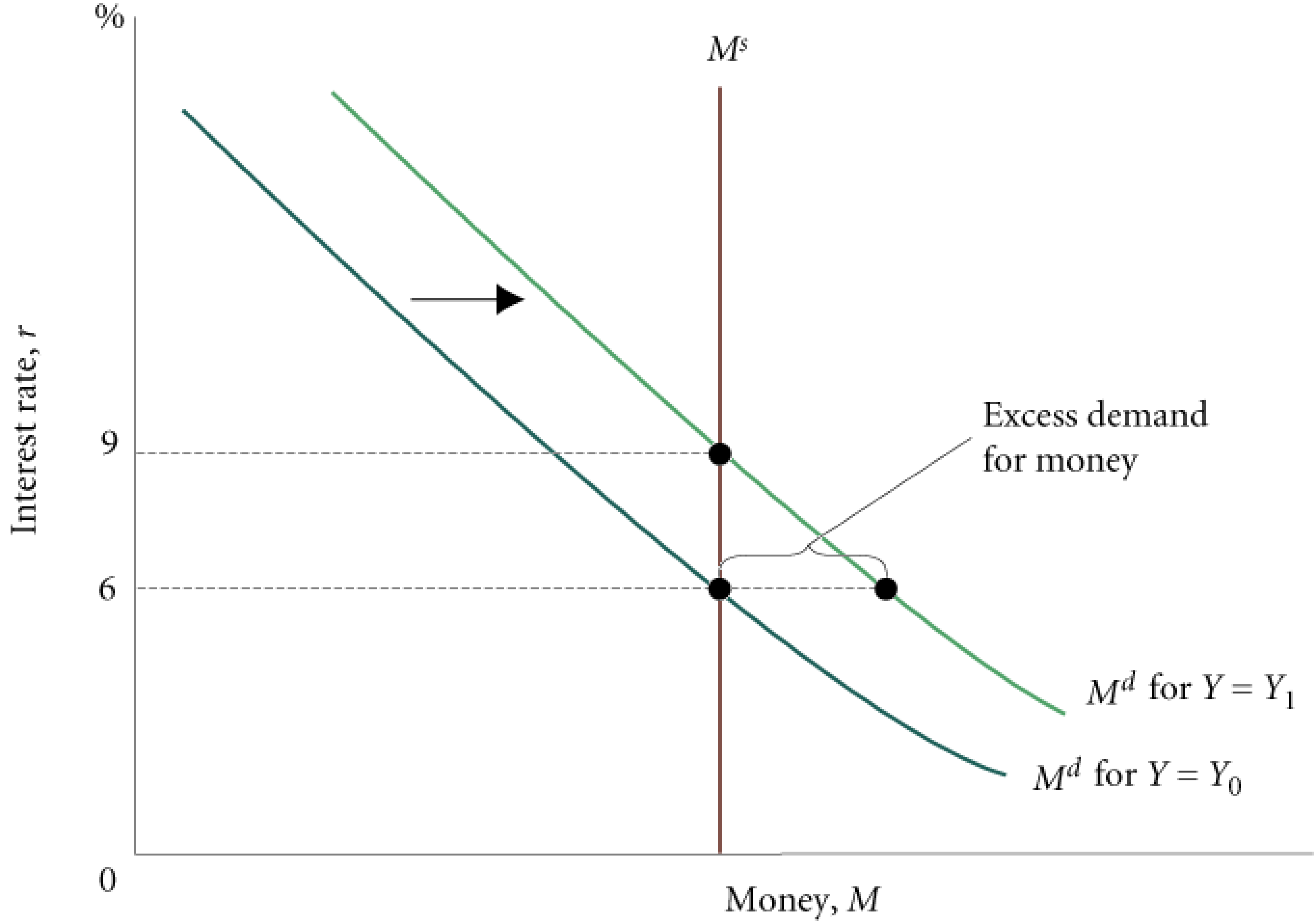

FIGURE 12.5 **The Effect of an Increase in Income (*Y*) on the Interest Rate (*r*)**

THE LINKS BETWEEN THE GOODS MARKET AND THE MONEY MARKET

The equilibrium level of the interest rate is not determined exclusively in the money market. Changes in aggregate output (income) (*Y*), which take place in the goods market, shift the money demand curve and cause changes in the interest rate. With a given quantity of money supplied, higher levels of *Y* will lead to higher equilibrium levels of *r*. Lower levels of *Y* will lead to lower equilibrium levels of *r*, as represented in the following symbols:

$$Y\uparrow \rightarrow M^d\uparrow \rightarrow r\uparrow$$

$$Y\downarrow \rightarrow M^d\downarrow \rightarrow r\downarrow$$

COMBINING THE GOODS MARKET AND THE MONEY MARKET

EXPANSIONARY POLICY EFFECTS

expansionary fiscal policy An increase in government spending or a reduction in net taxes aimed at increasing aggregate output (income) (*Y*).

expansionary monetary policy An increase in the money supply aimed at increasing aggregate output (income) (*Y*).

COMBINING THE GOODS MARKET AND THE MONEY MARKET

Expansionary Fiscal Policy: An Increase in Government Purchases (*G*) or a Decrease in Net Taxes (*T*)

crowding-out effect The tendency for increases in government spending to cause reductions in private investment spending.

COMBINING THE GOODS MARKET AND THE MONEY MARKET

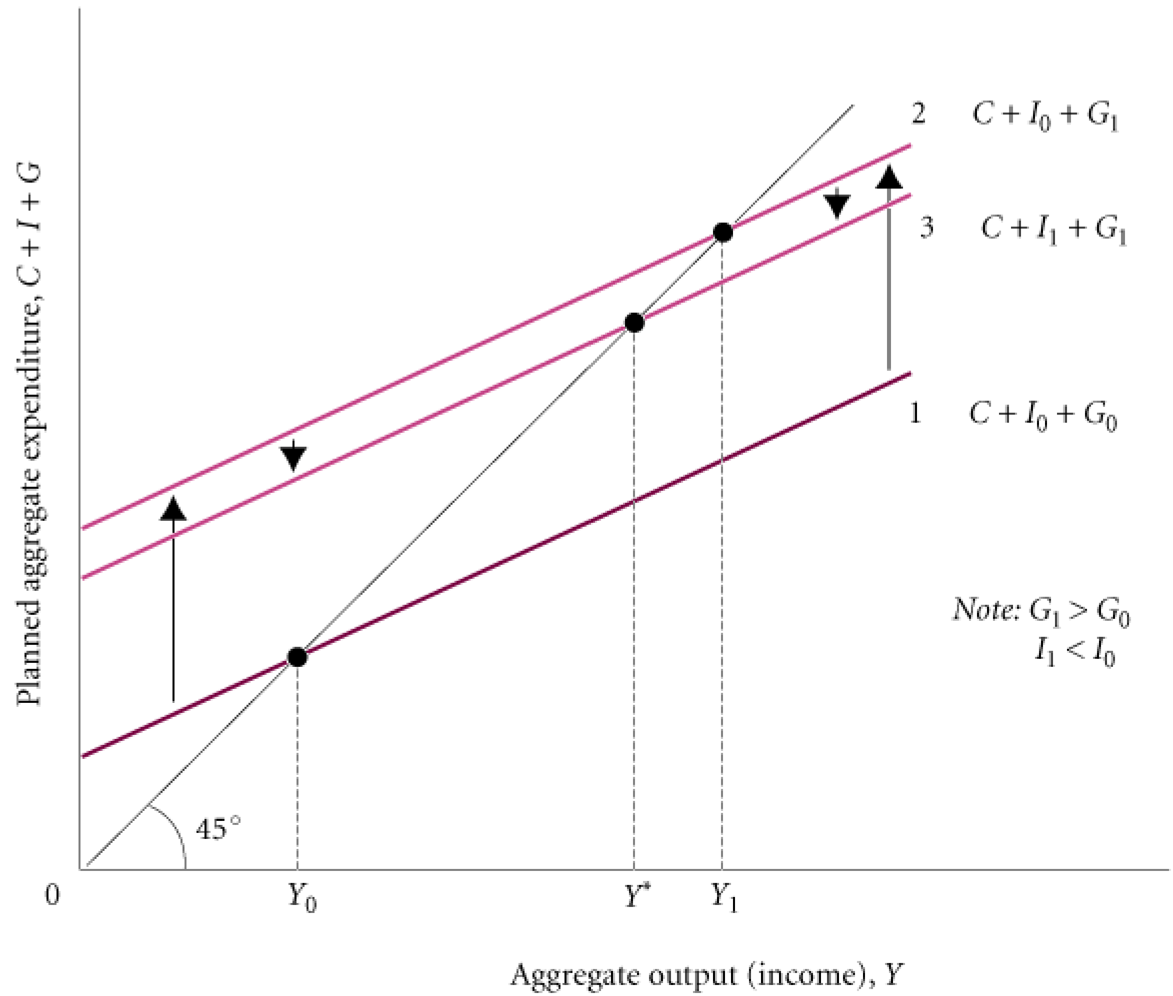

FIGURE 12.6 **The Crowding-Out Effect**

COMBINING THE GOODS MARKET AND THE MONEY MARKET

interest sensitivity or insensitivity of planned investment The responsiveness of planned investment spending to changes in the interest rate. Interest sensitivity means that planned investment spending changes a great deal in response to changes in the interest rate; interest insensitivity means little or no change in planned investment as a result of changes in the interest rate.

Effects of an expansionary fiscal policy:

$$G\uparrow \rightarrow Y\uparrow \rightarrow M^d\uparrow \rightarrow r\uparrow \rightarrow I\downarrow$$

→ Y increases less than if r did not increase

COMBINING THE GOODS MARKET AND THE MONEY MARKET

Expansionary Monetary Policy: An Increase in the Money Supply

Effects of an expansionary monetary policy:

$$M^s \uparrow \rightarrow r \downarrow \rightarrow I \uparrow \rightarrow Y \uparrow \rightarrow M^d \uparrow$$

$\rightarrow$ r decreases less than if M^d did not increase

COMBINING THE GOODS MARKET AND THE MONEY MARKET

Expansionary Policy in Action: The Recessions of 1974–1975, 1980–1982, 1990–1991, and 2001

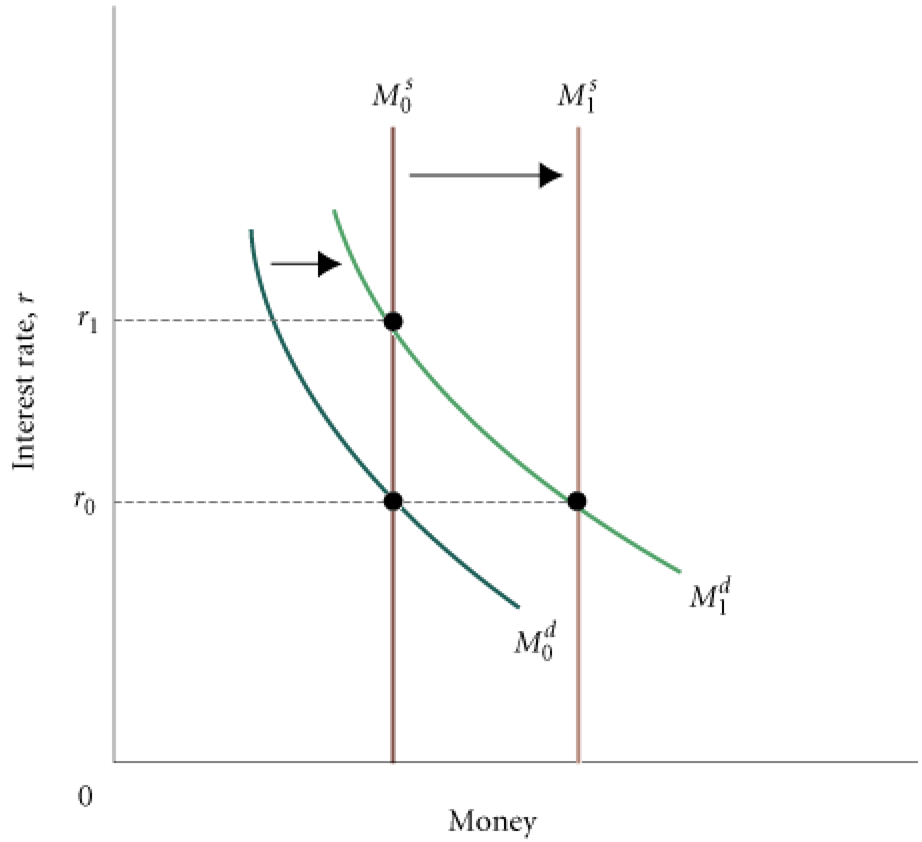

FIGURE 12.7 Fed Accommodation of an Expansionary Fiscal Policy

COMBINING THE GOODS MARKET AND THE MONEY MARKET

CONTRACTIONARY POLICY EFFECTS

Contractionary Fiscal Policy: A Decrease in Government Spending (*G*) or an Increase in Net Taxes (*T*)

contractionary fiscal policy A decrease in government spending or an increase in net taxes aimed at decreasing aggregate output (income) (*Y*).

Effects of a contractionary fiscal policy:

$$G\downarrow \text{ or } T\uparrow \rightarrow Y\downarrow \rightarrow M^d\downarrow \rightarrow r\downarrow \rightarrow I\uparrow$$

$\rightarrow$ Y decreases less than if r did not decrease

COMBINING THE GOODS MARKET AND THE MONEY MARKET

Contractionary Monetary Policy: A Decrease in the Money Supply

contractionary monetary policy A decrease in the money supply aimed at decreasing aggregate output (income) (*Y*).

Effects of a contractionary monetary policy:

$$M^s \downarrow \rightarrow r \uparrow \rightarrow I \downarrow \rightarrow Y \downarrow \rightarrow M^d \downarrow$$

$\rightarrow$ r increases less than if M^d did not decrease

COMBINING THE GOODS MARKET AND THE MONEY MARKET

THE MACROECONOMIC POLICY MIX

policy mix The combination of monetary and fiscal policies in use at a given time.

TABLE 12.1 The Effects of the Macroeconomic Policy Mix

		FISCAL POLICY	
		Expansionary ($\uparrow G$ or $\downarrow T$)	Contractionary ($\downarrow G$ or $\uparrow T$)
Monetary Policy	Expansionary ($\uparrow M^S$)	$Y\uparrow, r?, I?, C\uparrow$	$Y?, r\downarrow, I\uparrow, C?$
	Contractionary ($\downarrow M^S$)	$Y?, r\uparrow, I\downarrow, C?$	$Y\downarrow, r?, I?, C\downarrow$

Key:

$\uparrow$: Variable increases.

$\downarrow$: Variable decreases.

?: Forces push the variable in different directions. Without additional information, we cannot specify which way the variable moves.

OTHER DETERMINANTS OF PLANNED INVESTMENT

The determinants of planned investment are

- **The interest rate**
- **Expectations of future sales**
- **Capital utilization rates**
- **Relative capital and labor costs**

REVIEW TERMS AND CONCEPTS

contractionary fiscal policy

contractionary monetary policy

crowding-out effect

expansionary fiscal policy

expansionary monetary policy

goods market

interest sensitivity or insensitivity of planned investment

money market

policy mix

Appendix A

THE *IS-LM* DIAGRAM

THE *IS* CURVE

An ***IS* curve** illustrates the negative relationship between the equilibrium value of aggregate output (income) (*Y*) and the interest rate in the goods market.

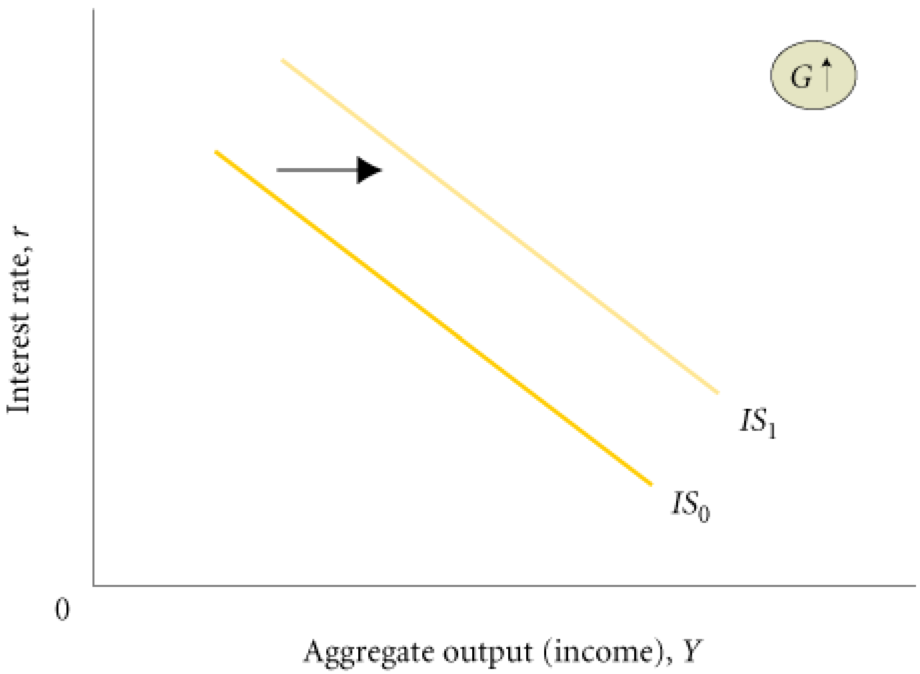

FIGURE 12A.1 **The *IS* Curve**

Appendix A

THE *LM* CURVE

An ***LM* curve** illustrates the positive relationship between the equilibrium value of the interest rate and aggregate output (income) (*Y*) in the money market.

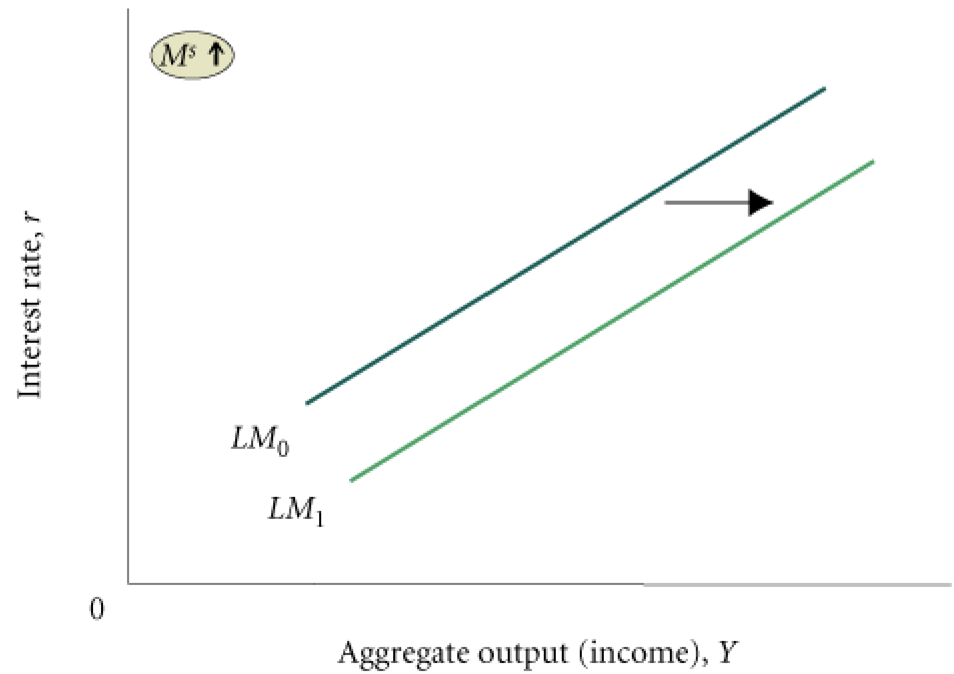

FIGURE 12A.2 The *LM* Curve

Appendix A

THE *IS-LM* DIAGRAM

The ***IS-LM* diagram** is a way of depicting graphically the determination of aggregate output (income) and the interest rate in the goods and money markets.

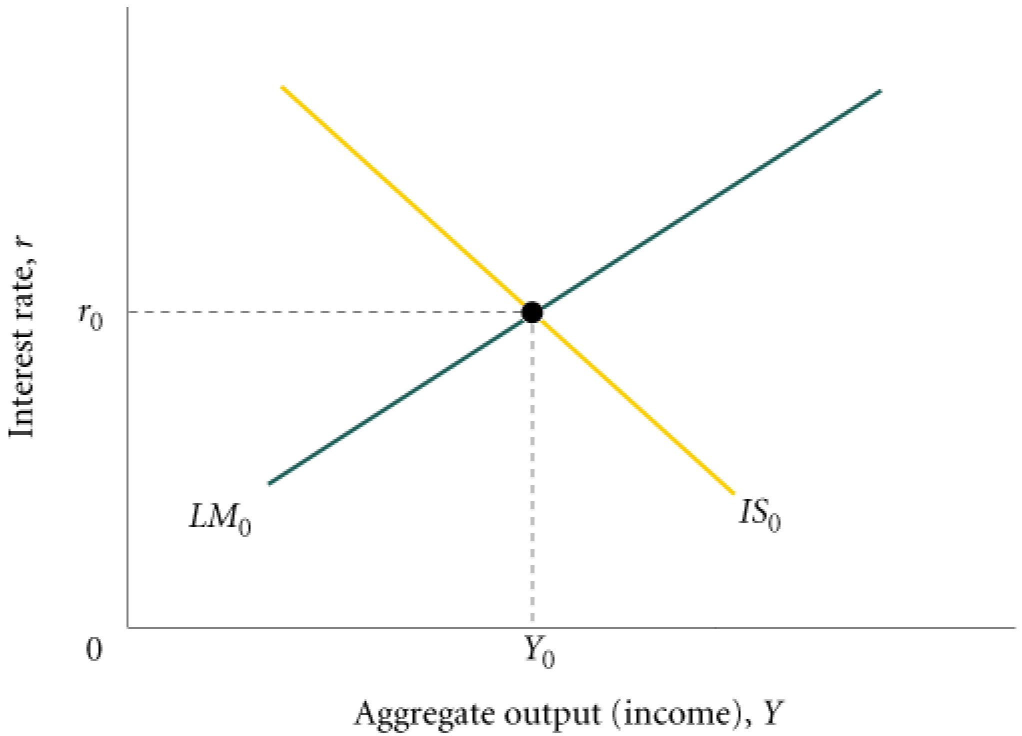

FIGURE 12A.3 The *IS-LM* Diagram

Appendix A

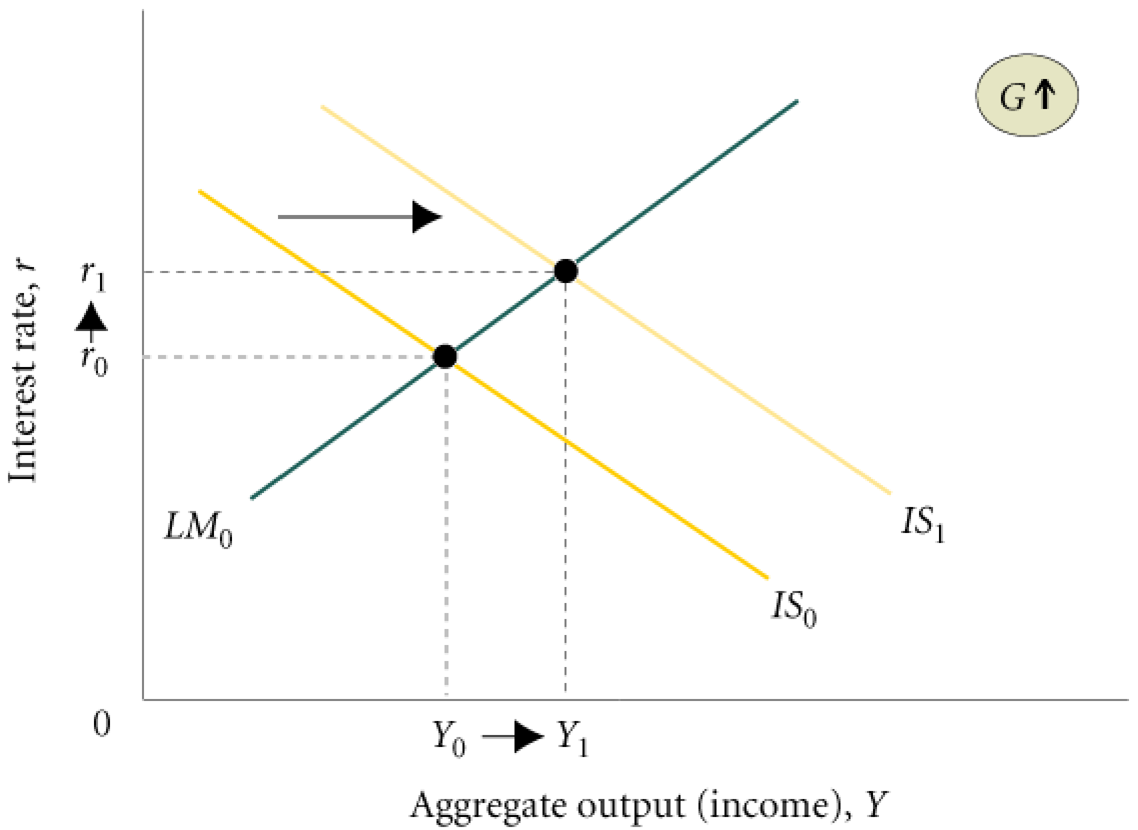

FIGURE 12A.4 An Increase in Government Purchases (G)

Appendix A

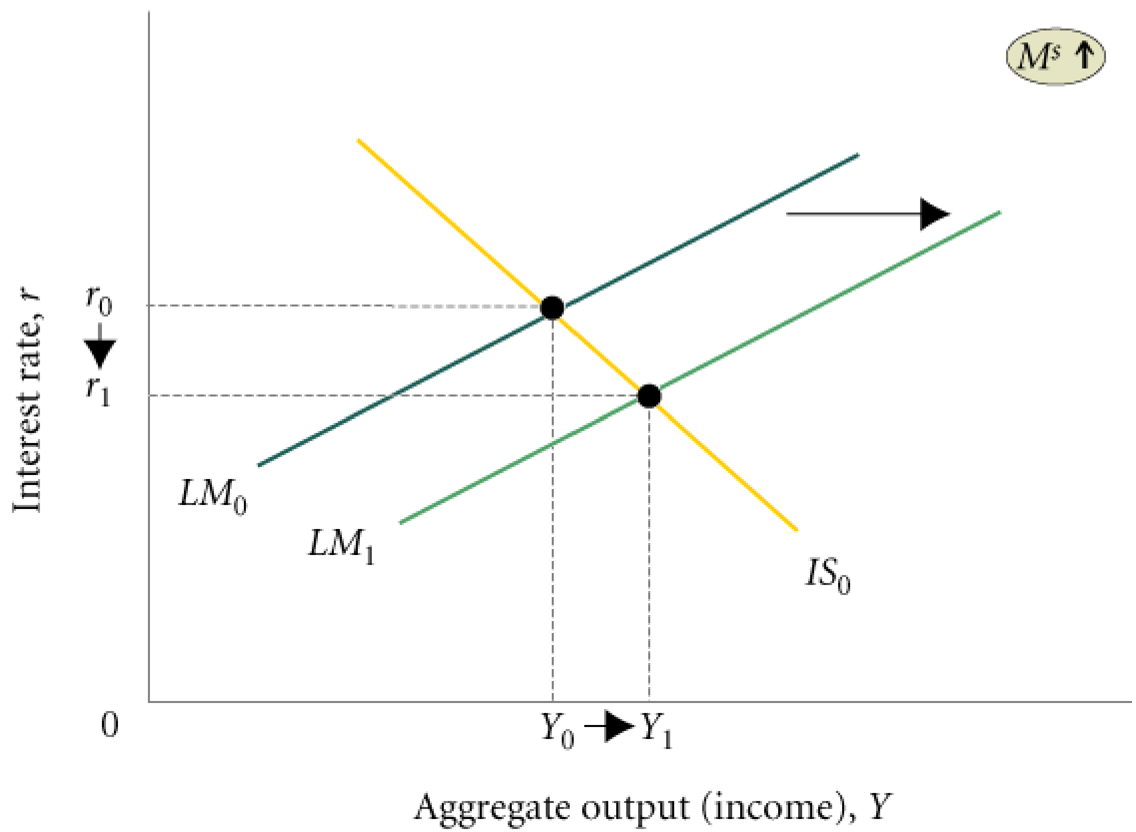

FIGURE 12A.5 **An Increase in the Money Supply (*M^s*)**