

# Economic Investigations

Investigation #10: Monetary Policy:  
Can the Federal Reserve Diagnose  
and Treat An Ailing Economy?



*There Is More to the Story*



Junior Achievement®





# Economic Investigations: There Is More to the Story

“Economic Investigations: There Is More to the Story” was a National Science Foundation funded project, which began in September 2003. The Social Science Education Consortium (SSEC) of Boulder, Colorado, was the grantee agency. James Davis, Executive Director of the SSEC, was the project director, and Donald Wentworth, Professor Emeritus of Pacific Lutheran University, was project co-director.

The overall project goal was to help students achieve a deeper understanding of puzzling economics questions so they could explain and provide thorough, supported, and justifiable accounts of economic phenomena, facts, and data. Three objectives guided project development:

- Create a classroom laboratory orientation for the investigations similar to those students would encounter in a laboratory science course.
- Develop quantitative skills in students—more so than they would acquire in a standard high school economics course.
- Focus the investigations on intriguing economics questions to spark student and teacher interest.

## The Investigations

Twelve investigations were created by teams of economics curriculum materials developers and high school economics teachers. The titles of each investigation identify its content area followed by the main question addressed in the investigation. The investigation titles are:

### Microeconomic Investigations

1. Women’s Wages: Do Women Earn Less Money Than Men?
2. Organ Transplants: Where Are the Missing Kidneys?
3. Minimum Wage: Does Raising the Rate Help Younger Workers?
4. Poverty: How Can a Family Be in Poverty and Not Be Poor?
5. Health Care: Who Should Pay the Cost?

### Macroeconomic Investigations

6. Performance of the National Economy: How Do We Measure the Economy’s Health?
7. Inflation: Are Higher Prices the Only Problem?
8. Employment and Unemployment: How Can Both Rates Rise at the Same Time?
9. Fiscal Policy: Can Congress Diagnose and Treat an Ailing Economy?
10. Monetary Policy: Can the Federal Reserve Diagnose and Treat an Ailing Economy?

### International Investigations

11. African-U.S. Trade: What’s in It for Africa?
12. Imports: Does American Employment Decline Because of International Trade?



## **Investigation and Field Test Results**

The investigations were field-tested by high school teachers in the spring semesters of 2004 and 2006. Field test locations included Jefferson County Colorado; Milwaukee, Wisconsin; Sioux Falls, South Dakota; Scottsdale/Mesa, Arizona; and Plano, Texas. Based on this field test, the investigations were found to promote deeper student understanding of economic issues through the use of effective instructional methods. Students acknowledged that they learned a great deal from the investigations and teachers stated they would recommend the investigations to other teachers.

## **Cooperative Publishing Agreement**

The Social Science Education Consortium has transferred the copyright of these investigations to JA Worldwide. JA Worldwide is making them available to teachers by posting them on the JA Worldwide website ([www.ja.org](http://www.ja.org)) and distributing them in CD-ROM format. The investigations also will be posted on the SSEC website ([www.socialscience-ed.org](http://www.socialscience-ed.org)). Ultimately, the investigations will support the revised Junior Achievement high school program, JA Economics.

## **Authorship and Consultants**

The project was fortunate to have an excellent group of authors and consultants. These individuals are listed below.

### **Colorado Development Team**

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## Field-Test Teachers

Below are the teachers who completed field tests during the second year of the project.

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**Investigation # 10:**  
**Monetary Policy:**  
**Can the Federal Reserve Diagnose  
and Treat An Ailing Economy?**

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## **Investigation #10: Monetary Policy: Can the Federal Reserve Diagnose and Treat An Ailing Economy?**

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### **Introduction**

This investigation examines the Federal Reserve System (The Fed) and its use of monetary policy to regulate the performance of the national economy. The investigation includes two readings. The first (optional) is a brief overview of The Fed and the objectives and tools of monetary policy. The second concentrates on the liquidity preference theory of interest, which tells more of the story behind monetary policy. The theory serves as a foundation for The Fed's current monetary policy and focuses on the use of open-market operations to regulate short-term interest rates.

The investigation includes a set of six visuals on The Fed and monetary policy. In small groups, students examine three cases using the data set in Table 1, and one case using current data retrieved from Internet websites. In exploring these cases, students are to:

- Describe the state of the economy.
- Describe a general stabilization policy appropriate to the situation in the economy.
- Recommend a monetary policy appropriate to the economy.

To complete the investigation, students engage in a Federal Open Market Committee (FOMC) simulation that was developed by the Federal Reserve Bank of New York. Students play roles of committee members, prepare for the simulation by searching the Internet to obtain data on current economic indicators, and conduct an FOMC meeting to decide an interest rate policy.

### **Student Comprehension**

This investigation will help students learn about and apply the tools of monetary policy, including the following:

- What is the Federal Reserve System, and what are its functions?
- What are the goals and tools of monetary policy?
- How do easy and tight monetary policies work, and what are the likely outcomes of each type of policy?



## Concepts

Money Supply  
Reserve Requirement  
Primary Credit Rate  
Open-Market Operations  
Federal Funds Rate  
Liquidity Preference Theory of Interest  
Aggregate Demand

## Objectives

After completing this investigation, students will be able to:

- Describe the nature of the Federal Reserve System and its role in the economy.
- Analyze production, employment, and price-level data of the U.S. economy.
- Explain how the liquidity preference theory of interest relates to monetary policy.
- Justify taking certain monetary policy actions in light of actual economic performance conditions.

## Economic Principles

The Federal Reserve System is the nation's national bank, sometimes called the bankers' bank. The Fed implements monetary policy, keeping two major goals in mind: (1) to promote maximum sustainable production and employment and (2) to maintain stable prices in the economy. The Fed has three policy tools at its disposal: (1) the reserve requirement, (2) the discount rate (also called the primary credit rate), and (3) open-market operations. Employing any of these tools can change the supply of loanable funds, which can be used to finance consumer expenditures and business investment.

The liquidity preference theory of interest is an analytical tool that examines the relationship between the interest rate and the quantity of money. Using supply and demand analysis, demanders of money (consumers and businesses) will tend to spend more as the interest rate falls and spend less as the interest rate rises. The Fed uses open-market operations—the buying and selling of bonds—to affect the rate of interest. If The Fed buys bonds, the supply of money increases, and the interest rate falls. If The Fed sells bonds, the supply of money decreases, and the interest rate rises. The liquidity preference theory of interest tells much more about monetary policy than is normally explained in a high school class.



## Investigation

### Description

Depending on what the students have learned in class prior to this investigation, they are either introduced to the nature and goals of The Fed in a short reading or are provided with a review through overhead visuals. Students then engage in a reading on the liquidity preference theory of interest, supported by two visuals. They also are given an actual data table, which provides monthly/quarterly economic performance data.

In small groups, students examine one quarter's actual performance data. Then they are asked to explain the state of the economy for the quarter, recommend a general stabilization policy, and recommend a specific monetary policy to move the economy toward a state of relative stability. Following the exercise, they are asked to investigate economic performance data for a recent quarter and engage in a similar analysis. This part of the investigation is accompanied by a recommended performance assessment.

To conclude this investigation, students engage in a simulation that was developed by the Federal Reserve Bank of New York. In the simulation, students assume roles as members of the Federal Open Market Committee (FOMC), research selected current economic indicators, prepare for an FOMC meeting, and make monetary policy recommendations at a simulated FOMC meeting.

**Time Required:** 120 minutes, plus Internet search time

**Technology:** This investigation includes an activity that requires either a student or teacher to conduct online research on current economic performance data for a recent quarter. Also, the FOMC simulation requires an Internet search of certain selected economic indicators.

### Materials

Reading #1	The Federal Reserve System and Monetary Policy
Reading #2	The Liquidity Preference Theory of Interest
Visual #1	The Federal Reserve System (The Fed)
Visual #2	Monetary Policy
Visual #3	The Goals of Monetary Policy
Visual #4	The Tools of Monetary Policy
Visual #5	Open Market Operations: Loose Monetary Policy
Visual #6	Open Market Operations: Tight Monetary Policy
Activity #1	Applied Monetary Policy: Cases 1-4
Table #1	Production, Employment, and Purchasing Power in the United States Economy, 2000-03
Assessment #1	New York Fed Simulation





## Procedure

1. Use the description above to tell students how this investigation will proceed. You may have introduced your students to the nature of The Fed and some aspects of monetary policy, in which case **Reading #1 – The Federal Reserve System and Monetary Policy**, can be omitted.
2. If your students have not been introduced to the nature of The Fed and some aspects of monetary policy, copy and distribute **Reading #1 – The Federal Reserve System and Monetary Policy**. As an alternative, you may want to review the nature and structure of The Fed by discussing **Visuals #1 – #4 - The Federal Reserve System (The Fed), Monetary Policy, The Goals of Monetary Policy, and The Tools of Monetary Policy**.
3. Make a copy of **Table #1 – Production, Employment, and Purchasing Power in the United States Economy, 2000-03**, for each student and distribute it. Tell students what the column headings mean and how to read the data. Note that the data are presented as both monthly and quarterly information. Review with students the target economic performance data from **Investigation #6 – Performance of the National Economy**, if you used that investigation. The targets are as follows: (1) Production – to maintain a positive growth in real Gross Domestic Product (GDPC); (2) Employment – to maintain an unemployment rate (UNER) at or below 5 percent; and (3) Purchasing Power – to maintain average annual price increases at a level equal to or less than 3 percent.
4. Copy **Reading #2 – The Liquidity Preference Theory of Interest**, and assign it to be read by pairs of students. Ask students to think about these questions as they read:
  - Why is liquidity preference theory of interest important?
  - What is the relationship between the quantity demanded for money and the interest rate?
  - What is the relationship between the quantity supplied of money and the interest rate?
  - What is aggregate demand?
  - What is the difference between a loose monetary policy and a tight monetary policy?
5. To debrief the reading, show and discuss **Visuals #5 and #6 – Open Market Operations: Loose Monetary Policy and – Open Market Operations: Tight Monetary Policy**.
6. Organize students into work groups of four each. Assign at least two student groups to use each of **Cases #1, #2, or #3**. Distribute the appropriate Cases to students. Allow time for each group to present its diagnosis of the economy and its policy recommendations. Once the groups have presented, distribute (or announce) the answers for each Case. Then distribute the Federal Reserve press releases appropriate for each Case.



7. How you decide to engage in **Case #4** will depend on whether your students have access to the Internet. Ideally, student groups should search the Internet to find the most recent quarterly data that are the same type as shown in **Table #1 – Production, Employment, and Purchasing Power in the United States Economy, 2000-2003**. If students do not have Internet access, it is important that you obtain the data for them via an online search. Note that each student group is to prepare a written memo that includes:
- ⊙ An analysis of the state of the economy.
  - ⊙ A statement on the monetary policy their group is recommending on the current situation, including justifications for each policy action.
8. As a group-work assessment of **Case #4**, you may wish to use the following rubric. The maximum score using this rubric would be an 8.

*Economic Analysis*

4 points	Thorough, accurate analysis
3 points	Mostly complete, accurate analysis
2 points	Partially complete, accurate analysis
1 point	Incomplete analysis, inaccuracies present

**Monetary Policy Recommendations**

4 points	Outstanding and fully justified recommendations
3 points	Very good and mostly justified recommendations
2 points	Acceptable and partially justified recommendations
1 point	Weak and poorly justified recommendations

## **The Federal Reserve System and Monetary Policy**

The Federal Reserve System (The Fed) was created by an Act of Congress in 1913. Headed by the Board of Governors in Washington, D.C., it is the central bank of the United States. The Fed's activities include regulating banking institutions and providing financial services for institutions and the public, all with the goal of maintaining an orderly and stable financial system. A major Fed activity is the implementation of the nation's monetary policy. The implementation of monetary policy is the matter of central interest in this investigation. What is monetary policy? It consists of actions taken by The Fed to regulate reserves in commercial banks and the supply of money and credit in the economy. Reserves back savings and demand deposits (checking accounts) in commercial banks that serve as the base for loans (credit). The supply of money consists of paper currency issued by The Fed, coins issued by the United States Treasury, and savings and demand deposits in commercial banks and other financial institutions. Credit consists of loans, including securities (notes and bonds), issued by depository and other financial and nonfinancial institutions. What are the goals of monetary policy? Monetary policy is carried out to maintain stability in the national economy over time. In this connection, two goals are important. The first goal is to promote maximum sustainable production and employment in the national economy. The second goal is to maintain stable prices in the national economy.





What are the tools of monetary policy? The Fed has three tools it can use to regulate reserves in the commercial banking system, as well as the supply of money and credit. They are (1) the reserve requirement, (2) the discount rate (also called the primary credit rate), and (3) open-market operations. It should be emphasized, the reserves in the banking system are important because they constitute a pool of loanable funds – money used to finance large volumes of consumer expenditures and business investment.

### **The Reserve Requirement**

The reserve requirement is the percentage of the savings and checking account deposits that a commercial bank must hold on reserve in its account at The Fed. Decreasing the reserve requirement decreases the percentage of current deposits that commercial banks must have on reserve. This increases the banking system's ability to extend loans to consumers and business firms and, thereby, potentially increases credit available and the rate of growth in the money supply. Conversely, increasing the reserve requirement increases the percentage of current deposits that commercial banks must have on reserve. This reduces the banking system's ability to extend loans to consumers and business firms and, thereby, restricts credit and the rate of growth in the money supply.

### **The Discount Rate**

The discount rate is the rate of interest The Fed charges commercial banks on funds borrowed from The Fed. A decrease in the discount rate decreases the price of Fed money loaned to commercial banks.



Commercial banks may be inclined to borrow more money from The Fed at this lower interest rate and add to its reserves or loanable funds. This increases the banking system's ability to extend loans to consumers and business firms, potentially increasing the rate of growth in the money supply. On the other hand, an increase in the discount rate increases the price of Fed money loaned to commercial banks. In this instance, commercial banks may be inclined to borrow less money from The Fed at the higher interest rate, thus reducing their reserves or loanable funds. This decreases the banking system's ability to extend loans to consumers and business firms and decreases the rate of growth in the money supply and credit.

### **Open Market Operations**

Open-market operations involve the purchase and sale of securities (government bonds) on the open market by The Fed. The purchase of securities held by commercial banks increases reserves – loanable funds – in the banking system. This increases the banking system's ability to extend loans to consumers and business firms, potentially increasing the supply of money and credit. Conversely, the sale of securities to commercial banks decreases reserves – loanable funds – in the banking system. This decreases the banking system's ability to extend loans to consumers and business firms and decreases the supply of money and credit.

Of the three tools of monetary policy, open-market operations is perhaps the most important because it is currently used daily to regulate bank reserves and the money supply in order to maintain targeted short-term interest rates in the economy. The Federal



## **Investigation #10 – Reading #1, page 4**

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Open Market Committee (FOMC) meets eight times per year to formulate policy based on current conditions in the national economy. The selected policy is then put into effect through open-market operations and is carried out at the Trading Desk in the Federal Reserve Bank of New York. As stated above, purchases of securities by The Fed at the Trading Desk add reserves to the banking system, while sales of securities drain reserves from the system.





## **The Liquidity Preference Theory of Interest**

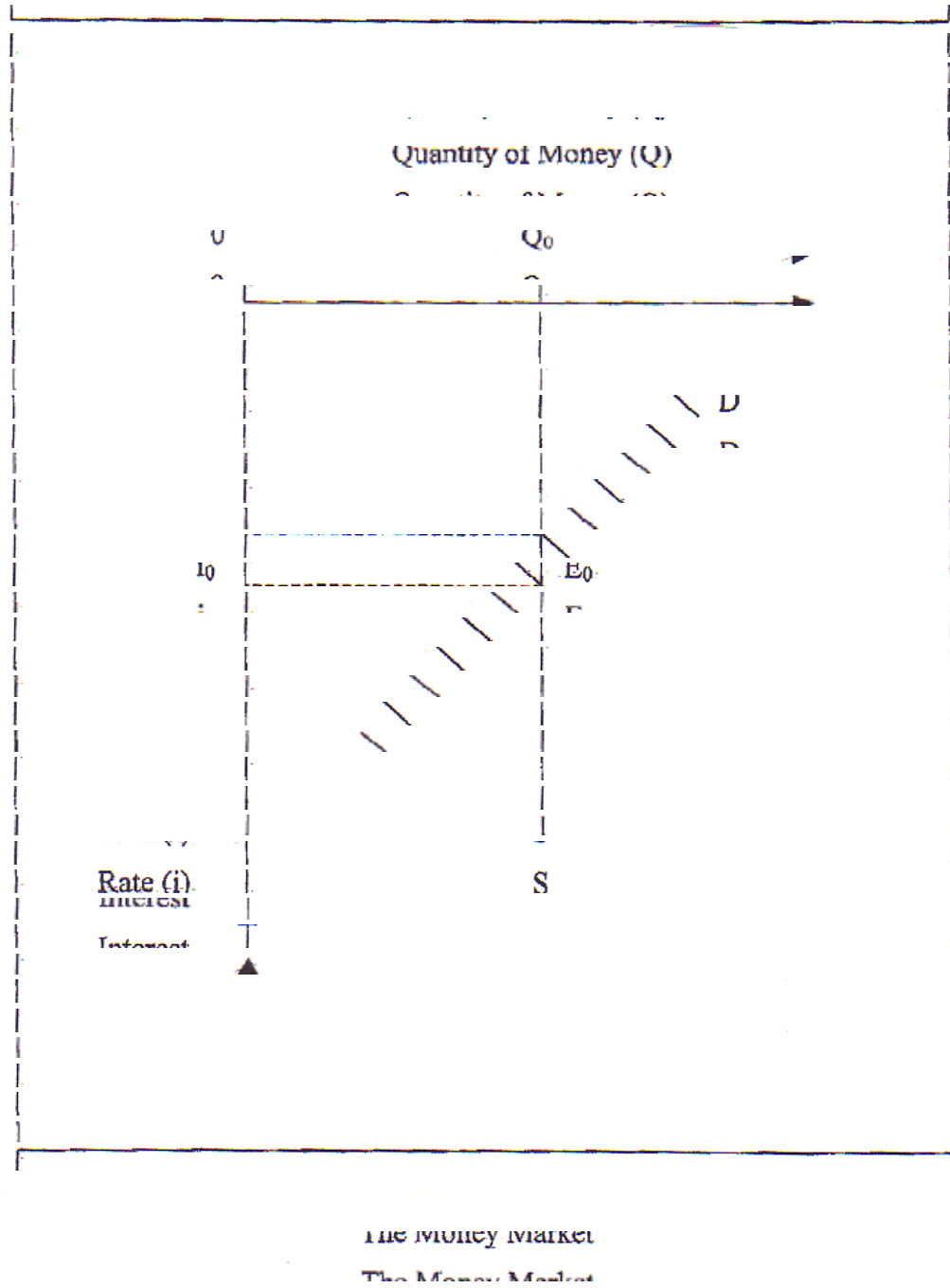
The liquidity preference theory is important because it provides much of the analysis that links Fed monetary policy to the performance of the national economy. It affords the essential guidance on which type of monetary policy is appropriate for various conditions in the economy. We'll examine the liquidity preference theory in three parts. First, we need to examine some rudimentary elements of the money market, since it is through this market that monetary policy is implemented. Second, we'll look at the linkages between open-market operations carried out by The Fed and their effects on the supply of money (liquidity in the system) and the targeted federal funds rate, which is the rate of interest commercial banks charge each other for short-term loans. Other short-term interest rates, offered by banks to consumers and business firms, tend to move in the same direction as the federal funds rate. So in targeting the federal funds rate, The Fed is regulating a whole range of short-term interest rates in the economy. Third, we want to trace the effects of changes in the interest rate on total spending, output and employment, and prices in the economy — measures of the national economy's performance.

### **The Money Market**

The liquidity preference theory focuses on the short-term interest-rate determination in the economy's money market. Consider the model of the money market in Figure 1. The quantity of money ( $Q$ ) is given on the horizontal axis, with the interest rate shown on the vertical axis.



Figure 1



The demand curve (D) in this model indicates the inclination of people to hold money. People are inclined to hold money for its liquidity – its use in purchasing goods and services. And yet the opportunity-cost of holding money is the foregone interest that could have been earned if the money were in interest-bearing assets. So, the inclination of





people to hold money is embodied in the negative slope of the demand curve, which shows the preference to hold more money at a lower interest rate and less money at a higher interest rate, other things being equal.

The supply curve (S) represents the supply of money in the economy, which at any point in time is fixed. The Fed regulates the money supply by increasing or decreasing the reserves of commercial banks. It increases reserves by purchasing securities on the open market, and decreases reserves by selling securities in the marketplace. The extension of loans by commercial banks increases the money supply; the retirement of loans decreases the money supply. The location of the supply curve, with reference to the horizontal axis, indicates the quantity of money supplied to the economic system by The Fed, a quantity that can be considered more-or-less fixed in the short-run.

The intersection of the demand and supply curves at  $E_0$  is the point of equilibrium in the money market. This point is important because it determines the market clearing interest rate,  $i_0$ , the interest rate at which the quantity of money supplied in the system is equal to the quantity of money demanded. At an interest rate lower than  $i_0$ , there will be a shortage of money in the market. People want to hold more money than

The Fed is supplying. People will increase their monetary holdings by reducing their holdings of interest-bearing bonds. Bond traders then will have to raise the interest rate to retain bond holders. Thus, the interest rate moves back to the higher equilibrium rate. At an interest rate higher than  $i_0$ , there will be a surplus of money in the market. People will want to hold less money than The Fed is supplying. People will decrease their holdings of money by increasing their holdings of interest-bearing assets. Bond traders will respond



to the surplus of money by offering bonds at lower interest rates, since they prefer to pay lower rates. Thus, the interest rate moves back to the lower equilibrium rate. Briefly stated, demand and supply in the money market determine the equilibrium interest rate and quantity of money in the economy.

### **The Interest Rate and the Money Supply**

Now let's turn to The Fed's implementation of monetary policy. Currently, The Fed implements monetary policy by targeting short-term interest rates, in particular the federal funds rate, which is the rate of interest commercial banks charge one another for short-term loans. Once the Federal Open Market Committee (FOMC) sets the target rate of interest – for example, 2 percent – open-market operations are carried out to adjust reserves and the money supply to establish equilibrium in the money market at the 2 percent interest rate.

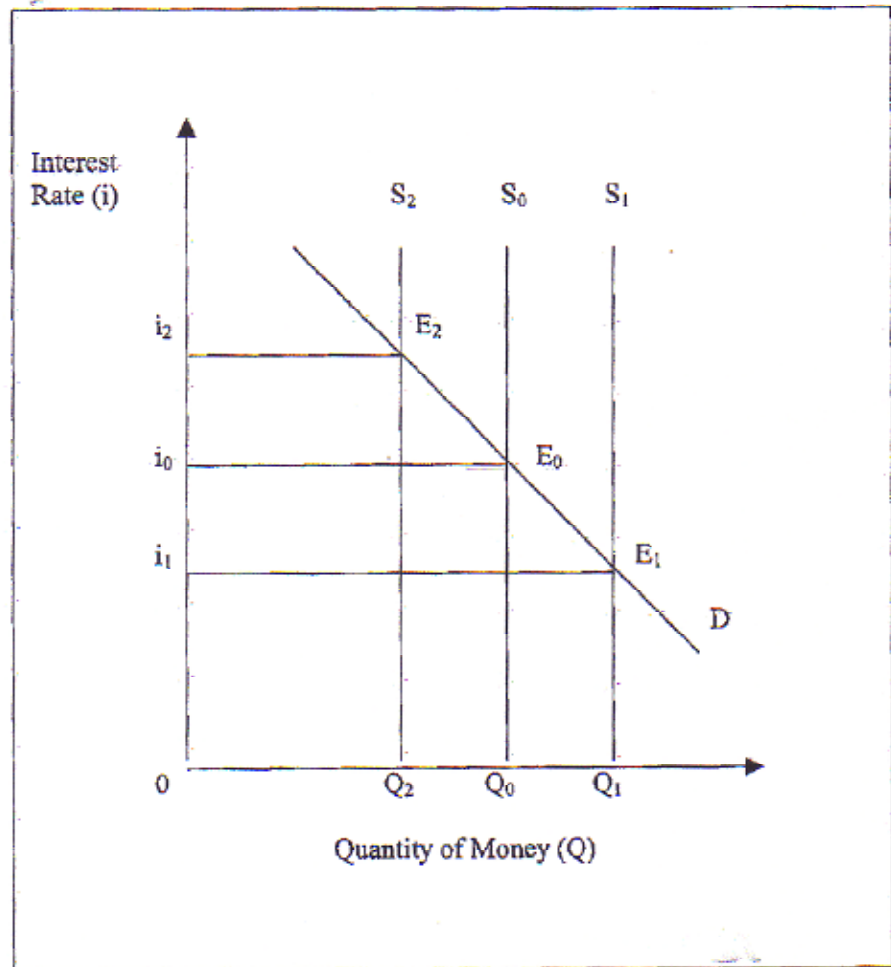
In general, The Fed has a menu of three forms of policy from which to choose: a status quo policy, an expansionary (loose money) policy, or a contractionary (tight money) policy. The condition of the economy determines which policy is put into effect.

**Status Quo Policy.** A status quo monetary policy is one that keeps the federal funds rate at its current level. Consider this policy in the context of the money market model in Figure 2.



Figure 2

The Money Supply and the Interest Rate



Suppose the federal funds rate is currently at the equilibrium rate,  $i_0$ . A status quo policy is one that maintains the federal funds rate at  $i_0$ . So, if the demand for money,  $D$ , is not expected to change in the near future, then Fed open-market operations will be carried out to keep the money supply in its current position,  $S_0$ , yielding the desired



equilibrium interest rate,  $i_0$ , and quantity of money,  $Q_0$ , in the system. This status quo policy is appropriate in an economy operating at full capacity with respect to production and employment, and without excessive inflationary pressures. The intent of a status quo policy, of course, is to keep production and employment at their current target levels and to maintain price stability.

**Expansionary Policy.** An expansionary monetary policy, or loose money policy, is one that reduces the federal funds rate below its current level. Consider this policy in the context of Figure 2. Suppose the federal funds rate is currently at the equilibrium rate,  $i_0$ . An expansionary policy is one that reduces the federal funds rate to  $i_1$ . In this case, The Fed will purchase securities on the open market, resulting in an increase in the supply of money from  $S_0$  to  $S_1$ , yielding the intended lower equilibrium interest rate,  $i_1$ , and greater quantity of money,  $Q_1$ , in the system. This expansionary policy is appropriate in an economy in a recession marked by sluggish or falling production, and/or high unemployment with stable or falling prices. The intent of an expansionary policy is to increase production and employment to their target levels while maintaining stable prices in the economy.

**Contractionary Policy.** A contractionary monetary policy, or tight money policy, is one that increases the federal funds rate above its current level. Consider this policy with reference to Figure 2. Suppose the federal funds rate is at the equilibrium rate,  $i_0$ . A contractionary policy increases the federal funds rate to  $i_2$ . In this case, The Fed will sell securities on the open market, resulting in a decrease in the supply of money from  $S_0$  to  $S_2$ , yielding the intended higher-equilibrium interest rate,  $i_2$ , and a



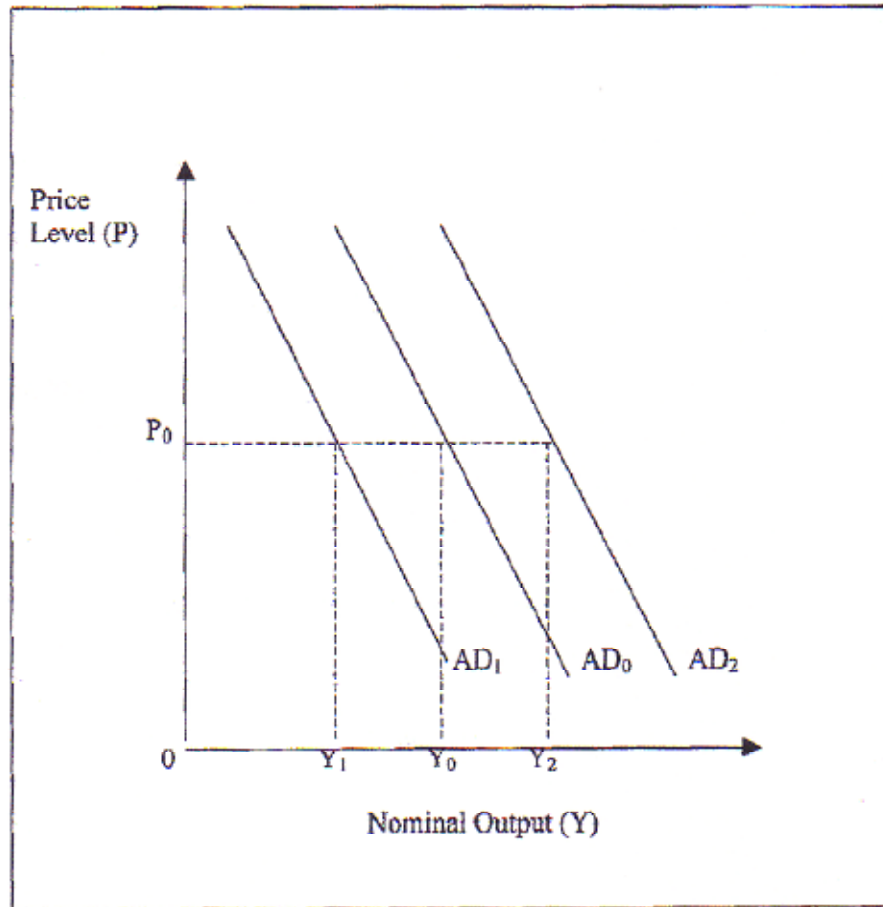
smaller quantity of money,  $Q_2$ , in the system. This contractionary policy is appropriate in an inflationary economy marked by rapidly rising prices. The intent of a contractionary policy is to decrease inflationary pressures and return the economy to a state of price stability, while maintaining high levels of production and employment.

### **The Performance of the Economy**

Finally, what are the intended effects of these forms of monetary policy on the performance of the economy? These results are shown in the aggregate demand (total spending) model in Figure 3.



Figure 3  
Aggregate Demand and Output



The price level (P) in the economy is measured on the vertical axis with nominal output (Y), measured in current dollars, measured on the horizontal axis.

**Status Quo Policy.** The status quo monetary policy, which creates no change in either the money supply or the federal funds rate, is intended to keep production and employment at their current levels, while maintaining price stability. With reference to Figure 3, if aggregate demand is currently AD<sub>0</sub> at the price level, P<sub>0</sub>, yielding the output



level,  $Y_0$ , and if these are the target levels of total demand and production, then they will be the intended levels of aggregate demand and output. The level of output,  $Y_0$ , is a production level of maximum employment and price stability in the economy.

**Expansionary Policy.** Expansionary monetary policy, which affects an increase in the money supply and a decrease in the federal funds rate, is intended to increase production and employment to their target levels, while maintaining price stability. It is intended to stimulate economic activity in a period of recession. Using Figure 3, suppose current recessionary levels of aggregate demand and output are  $AD_1$  and  $Y_1$ , respectively, at price level,  $P_0$ . Other things being equal, a reduced interest rate can be expected to stimulate increased spending among consumers and business firms. This will result in the increase in aggregate demand from  $AD_1$  to  $AD_0$ , with the consequent increase in output from  $Y_1$  to  $Y_0$ . At the higher target level,  $Y_0$ , production and employment are at their maximum, without excessive inflationary pressures, and the recession is over. It should be noted that the increase in output from  $Y_1$  to  $Y_0$  can be taken to represent an increase in both nominal and real production, since there is little or no inflation in the system in this case.

**Contractionary Policy.** Contractionary monetary policy, which results in a decrease in the money supply and an increase in the federal funds rate, is intended to decrease inflationary pressures, while maintaining maximum levels of production and employment. It is intended to moderate economic activity in a period of rapidly rising prices and/or excessive inflation. Once again, referring to Figure 3, suppose the current excessive, inflationary levels of aggregate demand and output are  $AD_2$  and  $Y_2$ ,



respectively, at price level,  $P_0$ . Other things being equal, the increased interest rate can be expected to reduce spending among consumers and business firms, resulting in the decrease in aggregate demand from  $AD_2$  to  $AD_0$ , with the consequent decrease in output from  $Y_2$  to  $Y_0$ . At the lower target level,  $Y_0$ , production and employment are at their maximum, without excessive inflationary pressures, and the inflation is ended. The decrease in output here, from  $Y_2$  to  $Y_0$ , is a decrease in nominal, not real, production, since the difference in the two output levels is assumed in this case to be the result of inflation alone.

### **A Concluding Word on Monetary Policy**

Historically, The Fed has used three tools to regulate commercial bank reserves and the money supply. These are the reserve requirement, the discount rate, and open-market operations. In recent years, discretionary monetary policy has centered primarily on the use of open-market operations – purchasing and selling securities in the marketplace to regulate the supply of money to maintain the targeted short-term federal funds rate of interest. The open-market operations tool is more versatile than the other tools in the sense that purchases and sales of securities on the open market can be carried out daily to achieve desired results. The other two tools do not have this versatility. While reserve requirements regulate the percentage of deposits that commercial banks hold on reserve in their Fed accounts, the requirement is not currently used in discretionary monetary policy. And the discount rate is currently set at a level one percentage point above the targeted federal funds rate.



# The Federal Reserve System (The Fed)

- Created by an Act of Congress in 1913.
- Headed by the Board of Governors in Washington, D.C.
- Regulates monetary and banking systems in the United States for the purpose of maintaining an orderly and stable financial system
- Functions include implementing monetary policy for the purpose of maintaining a healthy economy.





## Monetary Policy

- Monetary policy consists of actions taken by The Fed to regulate reserves in commercial banks and the supply of money and credit in the economy.
- The money supply consists of
  - 1) **paper currency** issued by The Fed,
  - 2) **coins** issued by the U.S. Treasury, and
  - 3) **transaction deposits** in commercial banks and other financial institutions.
- Credit consists of securities issued by depository and other financial and nonfinancial institutions; securities are notes and bonds representing loans.



## The Goals of Monetary Policy

The two central goals of monetary policy are to;

Maintain maximum sustainable production and employment in the national economy.

Maintain stable prices in the national economy.



## The Tools of Monetary Policy

The Fed has three tools that can be used to regulate reserves in commercial banks and the money supply:

- 1) Reserve Requirement: The percent of deposits that commercial banks are required to hold on reserve in their accounts at The Fed.
- 2) Discount Rate: The rate of interest The Fed charges commercial banks for money borrowed from The Fed.
- 3) Open Market Operations: The purchase and sale of securities on the open market by The Fed.





## Open Market Operations: Loose Monetary Policy

- 1) Fed purchases securities, adding money to the economy.
- 2) This puts downward pressure on the federal funds rate.
- 3) Short-term interest rates tend to go down because banks have more money to lend.
- 4) Consumers and businesses tend to borrow more money at lower interest rates.
- 5) Consumer and business spending tends to increase.
- 6) Production and employment tend to increase in the short-term; prices also may increase.



## Open Market Operations: Tight Monetary Policy

- 1) The Fed sells securities, taking money out of the economy.
- 2) This puts upward pressure on the federal funds rate.
- 3) Short-term interest rates tend to go up because banks have less money to lend.
- 4) Consumers and businesses tend to borrow less money.
- 5) Consumer and business spending tends to decrease.
- 6) Production and employment tend to decrease in the short-term; prices also may decrease.



## **Applied Monetary Policy**

**Directions:** These activities consist of cases of applied monetary policy. Generally, the students are instructed to (1) diagnose data for the economy in a given time period, (2) identify the state of the economy, and then (3) recommend monetary policies appropriate to the problem in the economy. The following list shows the sets of cases included in this investigation.

- Case 1:       Stable Economy
- Case 2:       Recession
- Case 3:       Unemployment Recession
- Case 4:       Most Recent Quarter

# **Case 1**

## **Student Handout**

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the second quarter of 2000, and write short answers to the following diagnosis and policy questions.

### Diagnosis and Policy Questions

1. What is the state of this economy? Explain.

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2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

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3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

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**TABLE 1  
PRODUCTION, EMPLOYMENT, AND PURCHASING POWER  
IN THE UNITED STATES ECONOMY, 2000-2003**

YEAR.MONTH/ QUARTER	GDPN*	GDPR*	GDPC*	CVLF†	UNEM†	UNER†	CPIA‡	CPIC‡
2000.01				142,283	5,674	4.0	169.3	3.6
2000.02				142,423	5,786	4.1	169.9	4.3
2000.03/Q1	9,649.5	9,097.4	2.6	142,391	5,713	4.0	171.0	7.8
2000.04				142,795	5,483	3.8	170.9	-0.7
2000.05				142,349	5,773	4.1	171.2	2.1
2000.06/Q2	9,820.7	9,205.7	4.8	142,624	5,671	4.0	172.3	7.7
2000.07				142,252	5,763	4.1	172.7	2.8
2000.08				142,508	5,864	4.1	172.7	0.0
2000.09/Q3	9,874.8	9,218.7	0.6	142,554	5,645	4.0	173.6	6.3
2000.10				142,636	5,559	3.9	173.9	2.1
2000.11				142,965	5,676	4.0	174.2	2.1
2000.12/Q4	9,953.6	9,243.8	1.1	143,279	5,659	3.9	174.6	2.8
2001.01				143,797	5,951	4.1	175.6	6.9
2001.02				143,638	5,990	4.2	176.0	2.7
2001.03/Q1	10,028.1	9,229.9	-0.6	143,871	6,108	4.2	176.0	0.0
2001.04				143,624	6,271	4.4	176.5	3.4
2001.05				143,280	6,244	4.4	177.4	6.1
2001.06/Q2	10,049.9	9,193.1	-1.6	143,395	6,526	4.6	177.9	3.4
2001.07				143,616	6,610	4.6	177.5	-2.7
2001.08				143,331	7,075	4.9	177.5	0.0
2001.09/Q3	10,097.7	9,186.4	-0.3	144,042	7,183	5.0	178.1	4.1
2001.10				144,128	7,758	5.4	177.6	-3.4
2001.11				144,296	8,078	5.6	177.4	-1.4
2001.12/Q4	10,152.9	9,248.8	2.7	144,379	8,312	5.8	177.3	-0.7
2002.01				143,826	8,035	5.6	177.6	2.0
2002.02				144,510	8,060	5.6	177.9	2.0
2002.03/Q1	10,313.1	9,363.2	5.0	144,367	8,224	5.7	178.5	4.0
2002.04				144,763	8,567	5.9	179.3	5.4
2002.05				144,911	8,424	5.8	179.5	1.3
2002.06/Q2	10,376.9	9,392.4	1.3	144,852	8,469	5.8	179.8	2.0
2002.07				144,786	8,443	5.8	180.1	2.0
2002.08				145,123	8,366	5.8	180.5	2.7
2002.09/Q3	10,506.2	9,485.6	4.0	145,634	8,321	5.7	180.9	2.7
2002.10				145,393	8,405	5.8	181.2	2.0
2002.11				145,180	8,637	5.9	181.4	1.3
2002.12/Q4	10,588.8	9,518.2	1.4	145,150	8,711	6.0	181.6	1.3
2003.01				145,838	8,302	5.7	182.2	4.0
2003.02				145,857	8,450	5.8	183.3	7.2
2003.03/Q1	10,688.4	9,552.0	1.4	145,793	8,445	5.8	183.9	3.9
2003.04				146,473	8,786	6.0	183.3	-3.9
2003.05				146,485	8,998	6.1	183.3	0.0
2003.06/Q2	10,802.7	9,629.4	3.3	147,096	9,358	6.4	183.6	2.0
2003.07				146,540	9,062	6.2	183.9	2.0
2003.08				146,530	8,905	6.1	184.5	3.9
2003.09/Q3	11,063.4	9,821.2	8.2	146,545	8,973	6.1	185.0	3.3
2003.10				146,793	8,779	6.0	185.0	0.0
2003.11				147,277	8,653	5.9	184.5	-3.2
2003.12/Q4	11,252.3	10,599.2	4.1	146,878	8,398	5.7	184.3	-1.3

\*GDPN = Nominal Gross Domestic Product in billions of current dollars; GDPR = Real Gross Domestic Product in billions of chained 1996 dollars; and GDPC = Gross Domestic Product, percent change from preceding period, based on chained 1996 dollars. All production data are seasonally adjusted annual rates.

†CVLF = Civilian labor force, thousands of persons 16 years of age and over;

UNEM = Unemployment, thousands of persons 16 years of age and over;

and UNER = Unemployment rate, unemployment as a percent of the civilian labor force.

All labor force and unemployment figures are seasonally adjusted.

‡CPIA = Consumer Price Index, all urban consumers, all items, seasonally adjusted, 1982-84 = 100; and CPIC = Consumer Price Index, percent change over preceding month annualized.

## **ANSWER KEY– Case 1**

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the second quarter of 2000, and write short answers to the following diagnosis and policy questions.

### Diagnosis and Policy Questions

1. What is the state of this economy?

**Answer:** In this quarter, real production is growing at an attractive rate of 4.8 percent with unemployment rates at desired levels, around 4 percent. However, there is some inflationary pressure in the economy, with average prices increasing to a spike of 7.7 percent in June, the final month of the quarter. So the economy may be in something of a state of inflation.

2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

**Answer:** This situation calls for a neutral, status quo, stabilization policy. The June price spike of 7.7 percent suggests the possibility of some inflationary pressure in the economy, but only subsequent data will reveal whether there is an inflation problem in need of correction. Policy should be determined by clear trends in data, not spikes. A spike may or may not suggest a clear trend in the data.

3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

**Answer:** The Fed will want to pursue a status quo policy of holding the federal funds rate at the current level. Open market operations should be carried out so as to maintain the current federal funds rate.

## Case 1 FOMC Meeting Press Release

Federal Reserve Release



# Press Release

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*Release Date: August 22, 2000*

For immediate release

The Federal Open Market Committee at its meeting today decided to maintain the existing stance of monetary policy, keeping its target for the federal funds rate at 6-1/2 percent.

Recent data have indicated that the expansion of aggregate demand is moderating toward a pace closer to the rate of growth of the economy's potential to produce. The data also have indicated that more rapid advances in productivity have been raising that potential growth rate as well as containing costs and holding down underlying price pressures.

Nonetheless, the Committee remains concerned about the risk of a continuing gap between the growth of demand and potential supply at a time when the utilization of the pool of available workers remains at an unusually high level.

Against the background of its long-term goals of price stability and sustainable economic growth and of the information currently available, the Committee believes the risks continue to be weighted mainly toward conditions that may generate heightened inflation pressures in the foreseeable future.

## Case 2

### Student Handout

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the third quarter of 2001, and write short answers to the following diagnosis and policy questions.

#### Diagnosis and Policy Questions

1. What is the state of this economy? Explain.

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2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

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3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

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**TABLE 1**  
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2002.04				144,763	8,567	5.9	179.3	5.4
2002.05				144,911	8,424	5.8	179.5	1.3
2002.06/Q2	10,376.9	9,392.4	1.3	144,852	8,469	5.8	179.8	2.0
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2002.10				145,393	8,405	5.8	181.2	2.0
2002.11				145,180	8,637	5.9	181.4	1.3
2002.12/Q4	10,588.8	9,518.2	1.4	145,150	8,711	6.0	181.6	1.3
2003.01				145,838	8,302	5.7	182.2	4.0
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2003.03/Q1	10,688.4	9,552.0	1.4	145,793	8,445	5.8	183.9	3.9
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2003.07				146,540	9,062	6.2	183.9	2.0
2003.08				146,530	8,905	6.1	184.5	3.9
2003.09/Q3	11,063.4	9,821.2	8.2	146,545	8,973	6.1	185.0	3.3
2003.10				146,793	8,779	6.0	185.0	0.0
2003.11				147,277	8,653	5.9	184.5	-3.2
2003.12/Q4	11,252.3	10,599.2	4.1	146,878	8,398	5.7	184.3	-1.3

\*GDPN = Nominal Gross Domestic Product in billions of current dollars; GDPR = Real Gross Domestic Product in billions of chained 1996 dollars; and GDPC = Gross Domestic Product, percent change from preceding period, based on chained 1996 dollars. All production data are seasonally adjusted annual rates.

†CVLF = Civilian labor force, thousands of persons 16 years of age and over;  
 UNEM = Unemployment, thousands of persons 16 years of age and over;  
 and UNER = Unemployment rate, unemployment as a percent of the civilian labor force.  
 All labor force and unemployment figures are seasonally adjusted.

‡CPIA = Consumer Price Index, all urban consumers, all items, seasonally adjusted, 1982-84 = 100; and CPIC = Consumer Price Index, percent change over preceding month annualized.

## ANSWER KEY– Case 2

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the third quarter of 2001, and write short answers to the following diagnosis and policy questions.

### Diagnosis and Policy Questions

1. What is the state of this economy? Explain.

**Answer:** In this quarter, real production continues to decrease for the third consecutive quarter, with unemployment increasing to the 5 percent level, and inflation largely under control, although showing a somewhat troubling 4.1 percent gain in average prices in September. The economy thus appears to be in something of a state of recession, although there may be some inflationary pressures present also.

2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

**Answer:** This situation calls for a moderately expansionary stabilization policy. Increasing aggregate demand will provide the stimulus necessary to increase production and employment. However, policymakers should keep an eye out for evidence of worsening inflation and be prepared to respond to adverse developments.

3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

**Answer:** The Fed will want to decrease the federal funds rate in this situation. Decreasing short-term interest rates can be expected to stimulate more consumption and investment. Purchasing securities on the open market will tend to increase the money supply, which will, in turn, provide the downward pressure on interest rates.

## Case 2

### FOMC Meeting Press Release

Federal Reserve Release



# Press Release

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*Release Date: November 6, 2001*

For immediate release

The Federal Open Market Committee decided today to lower its target for the federal funds rate by 50 basis points to 2 percent. In a related action, the Board of Governors approved a 50 basis point reduction in the discount rate to 1-1/2 percent.

Heightened uncertainty and concerns about a deterioration in business conditions both here and abroad are damping economic activity. For the foreseeable future, then, the Committee continues to believe that, against the background of its long-term goals of price stability and sustainable economic growth and of the information currently available, the risks are weighted mainly toward conditions that may generate economic weakness.

Although the necessary reallocation of resources to enhance security may restrain advances in productivity for a time, the long-term prospects for productivity growth and the economy remain favorable and should become evident once the unusual forces restraining demand abate.

In taking the discount rate action, the Federal Reserve Board approved the request submitted by the Board of Directors of the Federal Reserve Bank of Richmond.

## **Case 3**

### **Student Handout**

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the third quarter of 2002, and write short answers to the following diagnosis and policy questions.

#### Diagnosis and Policy Questions

1. What is the state of this economy? Explain.

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2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

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3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

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**TABLE 1  
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IN THE UNITED STATES ECONOMY, 2000-2003**

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2003 . 01				145,838	8,302	5.7	182.2	4.0
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All labor force and unemployment figures are seasonally adjusted.

‡CPIA = Consumer Price Index, all urban consumers, all items, seasonally adjusted, 1982-84 = 100; and CPIC = Consumer Price Index, percent change over preceding month annualized.

## **ANSWER KEY– Case 3**

**Directions:** Examine the information on the performance of the economy provided in Table 1 for the third quarter of 2002, and write short answers to the following diagnosis and policy questions.

### Diagnosis and Policy Questions

1. What is the state of this economy? Explain.

**Answer:** In this quarter, real production grew at a healthy 4 percent rate, with unemployment continuing in the upper 5 percent range, and inflation staying below the 3 percent level. The economy here appears to be in something of an unemployment recession. Job creation is not keeping pace with the number of workers entering the labor force.

2. What general stabilization policy should be applied to move the economy toward the state of relative stability? Explain.

**Answer:** This situation calls for a moderately expansionary stabilization policy. Increasing aggregate demand will provide the stimulus necessary to decrease unemployment.

3. What specific monetary policy would you recommend to move the economy toward the state of relative stability? Explain.

**Answer:** The Fed will want to decrease the federal funds rate in this situation. Decreasing short-term interest rates can be expected to stimulate more consumption and investment. Purchasing securities on the open market will tend to increase the money supply, which will, in turn, provide the downward pressure on interest rates.

## Case 3

### FOMC Meeting Press Release

Federal Reserve Release



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# Press Release

*Release Date: November 6, 2002*

For immediate release

The Federal Open Market Committee decided today to lower its target for the federal funds rate by 50 basis points to 1 1/4 percent. In a related action, the Board of Governors approved a 50 basis point reduction in the discount rate to 3/4 percent.

The Committee continues to believe that an accommodative stance of monetary policy, coupled with still-robust underlying growth in productivity, is providing important ongoing support to economic activity. However, incoming economic data have tended to confirm that greater uncertainty, in part attributable to heightened geopolitical risks, is currently inhibiting spending, production, and employment. Inflation and inflation expectations remain well contained.

In these circumstances, the Committee believes that today's additional monetary easing should prove helpful as the economy works its way through this current soft spot. With this action, the Committee believes that, against the background of its long-term goals of price stability and sustainable economic growth and of the information currently available, the risks are balanced with respect to the prospects for both goals in the foreseeable future.

Voting for the FOMC monetary policy action were Alan Greenspan, Chairman; William J. McDonough, Vice Chairman; Ben S. Bernanke, Susan S. Bies; Roger W. Ferguson, Jr.; Edward M. Gramlich; Jerry L. Jordan; Donald L. Kohn, Robert D. McTeer, Jr.; Mark W. Olson; Anthony M. Santomero, and Gary H. Stern.

In taking the discount rate action, the Federal Reserve Board approved the requests submitted by the Boards of Directors of the Federal Reserve Banks of Dallas and New York.

## Case 4

### Student Handout

**Directions:** Use the Internet to obtain data on production, employment, and purchasing power for the most recent quarter in the United States economy. These data are available at the websites of the Bureau of Economic Analysis, U.S. Department of Commerce ([www.bea.doc.gov](http://www.bea.doc.gov)), and the Bureau of Labor Statistics, U.S. Department of Labor ([www.bls.gov/home.htm](http://www.bls.gov/home.htm)).

Analyze the data and then prepare a memo for presentation at the next meeting of the Federal Open Market Committee (FOMC). Your memo should include:

- An analysis of the state of the economy.
- A statement on the monetary policy you are recommending for the current situation, including justifications for each policy action included in your recommendation.

## **ANSWER KEY– Case 4**

**Directions:** Use the Internet to obtain data on production, employment, and purchasing power for the most recent quarter in the United States economy. These data are available at the websites of the Bureau of Economic Analysis, U.S. Department of Commerce ([www.bea.doc.gov](http://www.bea.doc.gov)), and the Bureau of Labor Statistics, U.S. Department of Labor ([www.bls.gov/home.htm](http://www.bls.gov/home.htm)).

Analyze the data and then prepare a memo for presentation at the next meeting of the Federal Open Market Committee (FOMC). Your memo should include:

- An analysis of the state of the economy.
- A statement on the monetary policy you are recommending for the current situation, including justifications for each policy action included in your recommendation.

### **Answer:**

Memo for a meeting of the Federal Open Market Committee (FOMC) containing the following:

- An analysis of the state of the economy
- Monetary policy recommendation(s) with justification(s)



FOMC SIMULATION

**Introduction**

The Federal Open Market Committee (FOMC), made up of the seven members of the Board of Governors and the presidents of the 12 Federal Reserve Banks, is The Fed's most powerful monetary policy-making group. Meeting eight times a year, the FOMC discusses current and near-term economic and financial conditions, prior to making a decision to raise, lower, or keep short-term interest rates the same. In order to help students understand the FOMC's decision-making process, have them participate in the following simulation.

**Roles**

Assign students the roles below:

- 1 Federal Reserve Chairman (chairman of the FOMC) conducts meeting according to the agenda below
  - 1 President of the Federal Reserve Bank of New York (vice-chairman of the FOMC)
  - 10 Economist-advisers: each gives a part of the presentation described in the agenda below
  - 6 Members of the Board of Governors
  - 4 Federal Reserve Bank Presidents (If more than four students remain, have these students share the roles of each of the four presidents.)
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### **Preparing for the Simulation**

Research-advisers and other participants should be given sufficient time to prepare to complete Internet research to find the current status and future projections for this abbreviated list of economic indicators:

- Real Gross Domestic Product (GDP)
- Consumer Price Index (CPI)
- Nonfarm Payroll Employment
- Industrial Production/Capacity Utilization
- Advance Report on Durable Goods Shipments, New Orders, and Unfilled Orders

For assistance in finding this Internet data, go to the St. Louis Federal Reserve website, [www.research.stlouisfed.org/fred2/](http://www.research.stlouisfed.org/fred2/).

### **Agenda for the Simulation**

- Chairman calls the meeting to order.
- Economist advisers' presentation, including
  - an analysis of current economic conditions
  - a discussion of prospects for economic, financial, and international conditions for the near future;
  - an identification and discussion of economic issues of special concern at the present time or in the near future; and
  - a recommendation as to whether short-term interest rates should be raised, lowered, or kept the same.
- Chairman offers recommendations regarding the direction for short-term interest rates.
- Each Governor and Bank President makes a recommendation regarding the direction for short-term interest rates.
- Each of the seven members of the Board of Governors and the five Bank Presidents cast a vote regarding the direction for interest rates, with the decision going to the majority.

**Simulation Debriefing**

After the simulation is completed, as part of a whole-class discussion, have students explain answers to the following questions:

- What did you learn about the way the Federal Reserve develops monetary policy from this simulation?
- What evidence was presented here to suggest that short-term interest rates should be raised?
- What was the strongest evidence for raising interest rates?
- What evidence was presented here that short-term interest rates should be lowered?
- What was the strongest evidence for lowering interest rates?
- What arguments could you make for keeping short-term interest rates at their current level?
- Do you think this is fair?
- How can you explain the fact that the press is not allowed into FOMC meetings? Is this a good or bad idea? Do you think that FOMC meetings should be televised live? Why or why not?

*Permission to use this simulation has been granted to this project by the Department of Educational Services, Federal Reserve Bank of New York.*

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**Sources/Data Sources**

**Production Data in Table 1:**

U.S. Department of Commerce, Bureau of Economic Analysis, *Current-dollar and real GDP, 1929-2002, XLS* and *Percent change from preceding period, XLS*, November 25, 2003, given at the following website: [www.bea.doc.gov/bea/dn/home/gdp.htm](http://www.bea.doc.gov/bea/dn/home/gdp.htm)

**Unemployment Data in Table 1:**

U.S. Department of Labor, Bureau of Labor Statistics, Labor Force Statistics from the *Current Population Survey*, November 28, 2003, given at the following website: [www.bls.gov/data/](http://www.bls.gov/data/).

**Purchasing Power Data in Table 1:**

U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Price Index-All Urban Consumers*, November 29, 2003, given at the following website: [www.bls.gov/data/](http://www.bls.gov/data/).

**Monetary Policy Sources**

Mankiw, N. Gregory. *Principles of Macroeconomics* (3rd Edition; Mason, Ohio: Thomson/South-Western, 2004).

Meulendyke, Ann-Marie. *U.S. Monetary Policy & Financial Markets* (Updated Edition; New York: Federal Reserve Bank of New York, 1998).

Kansas City Federal Reserve Bank Fed101 instructional materials, given at the following website: [www.kc.frb.org/fed101/index.cfm](http://www.kc.frb.org/fed101/index.cfm)

**Applied Monetary Policy Sources**

Philadelphia Federal Reserve Bank monetary policy scenarios, given at the following website: [www.phil.frb.org/education/ftlesson.html](http://www.phil.frb.org/education/ftlesson.html)

New York Federal Reserve Bank monetary policy simulation, given at the following website: [www.newyorkfed.org/education/fomcsim.html](http://www.newyorkfed.org/education/fomcsim.html)

FOMC Meeting Press Releases, given at the following website: [www.federalreserve.gov/FOMC/previouscalendars.htm#2001](http://www.federalreserve.gov/FOMC/previouscalendars.htm#2001)