

The Choice of Short-Run Targets for Monetary Policy

Part I: A Theoretical Analysis

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In the day-to-day conduct of monetary policy, the Federal Reserve operates directly in financial markets to purchase and sell securities which in turn affects interest rates, bank reserves, and the money supply. Viewed over a longer time horizon, these daily activities in financial markets are less important in themselves than in their impact on the longer run goals of monetary policy, such as the attainment of full-employment output and the maintenance of stable prices.

An important issue in recent discussion of monetary policy is the Federal Reserve's choice of short-run policy targets. The role of these targets is to connect Federal Reserve actions in financial markets with its ultimate goals. That is, policymakers hope to influence national output and prices by controlling the variables selected as short-run targets. In recent years, controversy has developed over the choice of interest rates versus money and reserve aggregates as short-run targets. At the same time, actual Federal Reserve targeting procedures also have undergone considerable development.

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The purpose of this article is to examine the Federal Reserve's choice of short-run policy targets. The first section discusses the role that short-run targets play in monetary policy, the distinction between intermediate and operating targets, and the nature of the controversy over the use of interest rate or aggregates targets. In the following section, an analytical framework is developed that connects Federal Reserve actions, the choice of short-run targets, and the ultimate policy goals—prices and real output. In this framework, four types of exogenous disturbances may affect economic activity, causing prices and output to differ from their desired levels. The appropriate choice of intermediate and operating targets depends critically on the type of disturbance affecting the economy. In Part II, to be presented in a subsequent issue of this *Review*, the theoretical framework developed here is used to discuss the historical evolution of Federal Reserve targeting procedures from 1951 to the present.

THE ROLE OF POLICY TARGETS

In considering the role of short-run monetary targets, it is important to analyze the relationship between goal variables, such as real output and prices, and Federal Reserve actions. Federal Reserve actions have an indirect rather than a direct or immediate impact on output

and prices. Generally speaking, real output and the average level of prices are determined by the aggregate demand for and the aggregate supply of goods and services.

The Federal Reserve influences the longer run goal variables by using its policy instruments—open market operations and the discount rate—to directly affect money and credit markets. The influence of Federal Reserve policy actions on money and credit markets is transmitted to the goal variables through the effects of changes in market interest rates on aggregate demand. For example, suppose that the Federal Reserve wishes to moderate inflationary pressures. By reducing bank reserves through the sale of government securities, the Federal Reserve slows monetary growth and places upward pressure on interest rates. Higher interest rates, in turn, cause a reduction in the demand for goods and services, lowering real output and placing downward pressure on prices.

In this framework, the need for short-run monetary targets arises from two sources: a lack of timely and accurate information on the longer run goals of output and prices, and a recognition that it takes time for Federal Reserve policy actions to have an impact on these ultimate objectives. At any point in time, policymakers may be uncertain about both the current state of the economy and its future course.

It is important to recognize that while the Federal Reserve has an important effect on economic activity, other factors may prevent the attainment of the long-run goals. Unexpected shifts in consumer, business, or government spending, or shifts in the demand for money, may cause aggregate demand to be greater or less than desired. Similarly, changes in the costs of production or in the productivity of labor and capital may cause shifts in aggregate supply. To wait for additional clarifying information on the source of these

disturbances runs the risk of delaying too long in taking appropriate policy actions and so possibly exacerbating the underlying economic problems. For these reasons the Federal Reserve frames its actions not in terms of the longer run goals but in terms of short-run targets such as interest rates, money, and bank reserves which can be observed and affected over a short time span.

The Federal Reserve's choice of short-run monetary policy targets can be divided conceptually into two stages. First, policymakers choose a short-run "intermediate target," a variable that is thought to be closely linked to real output and inflation but which is not controlled precisely over a short period of time. For example, the Federal Reserve might choose a monetary aggregate as an intermediate target and establish a desired three-month growth path for the aggregate. Second, the Federal Reserve chooses a short-run "operating target" that is closely linked to the intermediate target and over which policymakers can exercise quite close control.¹ For example, the Federal Reserve might establish weekly or monthly targets for a short-term interest rate or a reserve aggregate. The aim of Federal Reserve policy is to maintain the operating variable near its targeted value so as to control the intermediate variable. By controlling the intermediate variable it is hoped that the ultimate goal variables of prices and output can be maintained at their desired levels.

¹ A good discussion of this two-stage process can be found in B. Friedman, "Targets, Instruments, and Indicators of Monetary Policy," *Journal of Monetary Economics*, October 1975, pp. 443-73. Friedman and others have questioned the efficiency of using this two-stage targeting procedure. See also Friedman, "The Inefficiency of Short-Run Monetary Targets for Monetary Policy," *Brookings Papers on Economic Activity*, 2:1977, pp. 293-335, and R. Bryant, *Money and Monetary Policy in Interdependent Nations*, Brookings Institution, 1980, especially pp. 278-333.

As an illustration, suppose the Federal Reserve chooses a monetary aggregate such as M1-A as an intermediate target and the interest rate on Federal funds as an operating target. The aim of monetary policy, then, is to use the purchase and sale of securities by the Federal Reserve to maintain the Federal funds rate near its target value. Ideally, this action would also keep monetary growth within its targeted range over a longer time horizon and would ultimately lead to the achievement of the long-run goals.

The Federal Reserve's choice of short-run monetary policy targets is quite controversial. The key issue is whether policymakers should use price variables such as interest rates or quantity variables like monetary and reserve aggregates as intermediate and operating targets.² If the structure of the economy were determinate and known so that policymakers could accurately forecast the behavior of the goal variables, the ultimate goals could be reached using either type of target.³ However, spending and investment decisions in the economy always involve chance elements or disturbances that can cause unexpected shifts in aggregate demand. In addition, unanticipated external shocks such as energy price increases may adversely affect the domestic economy. These disturbances can cause the goal variables to deviate from their desired values.

Unfortunately, there is no one set of policy targets that will be successful in offsetting the

impact of these disturbances. Control of interest rates may work well for some disturbances, while control of money and reserves may be superior in other cases. Any analysis of the Federal Reserve's choice of monetary policy targets, then, must be based on an understanding of the types of disturbances causing inflation and unemployment problems and the impact of these factors on financial markets.

THE CHOICE OF INTERMEDIATE AND OPERATING TARGETS

The Federal Reserve's choice of short-run targets can be analyzed using the framework shown in Figure 1. In Figure 1a, the price level, P , and real output, Y , are determined by the aggregate demand, AD , for and aggregate supply, AS , of goods and services. Factors influencing aggregate demand are the planned spending decisions of consumers, firms, and the government, the public's planned holdings of money balances, the money supply behavior of depository institutions, and the amount of nonborrowed reserves supplied by the Federal Reserve. Changes in these factors cause the aggregate demand curve to shift, resulting in changes in prices and output. Factors influencing aggregate supply are the productivity of labor and capital and the costs of inputs to the production process. Changes in productivity, wages, and other input prices shift the aggregate supply curve, again leading to changes in prices and real output.⁴

The choice of an intermediate target is shown in Figure 1b. The interest rate, r , and the quantity of money, M , are determined by the

² The analysis of the choice of an intermediate target was developed by W. Poole, "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model," *Quarterly Journal of Economics*, 84 (May 1970), pp. 197-216. The extension of this analysis to the choice of an operating target can be found in J. Pierce and T. Thomson, "Some Issues in Controlling the Stock of Money," in *Controlling Monetary Aggregates II: The Implementation*, Federal Reserve Bank of Boston, 1972, pp. 115-36.

³ For a discussion of this point, see Poole, p. 200.

⁴ The analysis focuses on a short-run situation in which there is a tradeoff between inflation and real output growth. The positive slope of the aggregate supply curve reflects an underlying assumption of downward wage rigidity or incomplete adjustment of inflationary expectations.

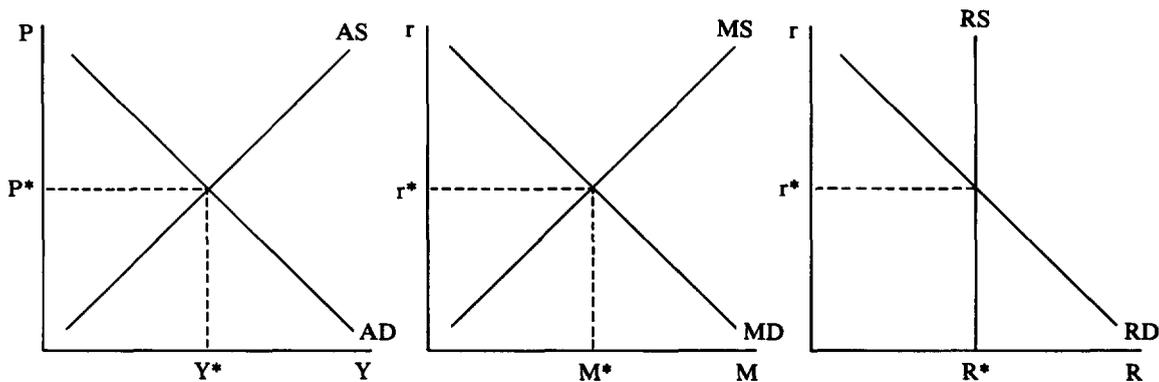


Figure 1a
POLICY GOALS

Figure 1b
INTERMEDIATE TARGETS

Figure 1c
OPERATING TARGETS

public's demand for money and by the amount of money supplied by depository institutions and the Federal Reserve. The demand for nominal money balances is assumed to depend upon nominal income, the interest rate, and the public's preference between money and other assets. The supply of money is determined by the desired holdings of reserves by depository institutions and by the quantity of nonborrowed reserves provided by the Federal Reserve.⁵ Figure 1c illustrates the operating target problem. The demand for nonborrowed reserves, R , is determined by depository institutions' demand for required, excess, and borrowed reserves. The supply of nonborrowed reserves is determined by the Federal Reserve through its open market operations.

In this analysis, policymakers are assumed to have two goals: achieving a level of real output consistent with full employment of resources and maintaining an acceptable price level. The

initial equilibrium values of the goal variables, Y^* and P^* , are taken to be at levels desired by policymakers.⁶ Corresponding to the desired levels of the two goal variables are values for the prospective intermediate targets, r^* and M^* , and for the operating targets, r^* and R^* . Initially, there is no policy problem as the goal variables are consistent with either interest rate or aggregate targets. However, if disturbances cause aggregate demand or aggregate supply to shift in Figure 1a, the goal variables will differ from their desired values. These disturbances will also cause shifts in the money demand or money supply curves in Figure 1b and in the demand for reserves in Figure 1c, leading to changes in interest rates and monetary growth. At this point, the Federal Reserve has to decide whether to attempt to maintain the original interest rate or quantity of money and whether to maintain the original supply of nonborrowed

⁵ The money supply curve is constructed under the assumptions of an interest-sensitive demand for free reserves by depository institutions and a given quantity of nonborrowed reserves. The analysis abstracts from the complications introduced by multiple monetary aggregates.

⁶ This is clearly a simplifying assumption. If one or more goal variables are not initially at their desired levels, the analysis is considerably more complex. A detailed discussion of the form of the policymakers' "loss function" or the weights attached to the goal variables is beyond the scope of this article.

reserves. The appropriate choice of targets depends on the type of disturbance affecting the economy.⁷

Spending Disturbances

The first type of disturbance to be considered is a "spending disturbance," which is typically an unanticipated change in consumer or investment spending or perhaps an unplanned change in government spending or taxes. An unanticipated increase in spending, for example, causes aggregate demand for goods and services to expand, raising real output but also causing upward pressure on prices. Without timely information on these output and price changes, the Federal Reserve uses financial market information and control over its short-run targets in an attempt to offset this disturbance. The key question is whether interest rate or aggregates targets are better able to accomplish this objective.

Consider, first, the problem of choosing an intermediate target. As shown in Figure 2a, an increase in spending shifts the aggregate demand curve from AD to AD' raising both prices and real output. The rise in prices and output increases nominal income so that there is a corresponding increase in the public's demand for nominal money balances. In Figure 2b, there is an outward shift in the money demand curve from MD to MD'. As a result, the interest rate rises to r' and money growth accelerates to M' , as depository institutions finance additional loans by reducing their

holdings of excess reserves and increasing their borrowings from the Federal Reserve.

If the Federal Reserve uses the interest rate as an intermediate target, it will increase the supply of money to try to reduce the interest rate to its original level. In Figure 2b, this action shifts the money supply curve to MS' which increases the money stock to M'' and restores the original interest rate, r^* . By accommodating the increase in money demand resulting from the spending disturbance, the use of an interest rate target actually amplifies the impact of the spending disturbance on the goal variables. As shown in Figure 2a, the Federal Reserve policy actions cited above induce an increase in aggregate demand, shifting the AD' curve out to AD''. Real output increases to Y'' and prices rise to P'' so that the goal variables move further from their desired levels.

Alternatively, the Federal Reserve could use a monetary aggregate as an intermediate target. In this case, it would respond to the spending disturbance by returning the money stock to its original level, M^* . In Figure 2b, such a decrease in the money supply is shown by a shift in the money supply curve from MS to MS'', which restores the original quantity of money. By offsetting rather than accommodating the increased demand for money, these policy actions lead to additional upward pressure on interest rates. The increase in the interest rate from r' to r'' tends to reduce the investment component of aggregate demand. In Figure 2a, the Federal Reserve policy actions of restoring the original quantity of money would shift the aggregate demand curve from AD' back toward AD. Thus, for a spending disturbance, a monetary aggregate intermediate target tends to offset the effects of the disturbance and moves real output and prices back toward their desired levels.

Over a shorter time horizon, the Federal Reserve also must choose an operating target

⁷ It is important to note that this article is concerned with the implications of policymakers' setting and attempting to achieve short-run targets. As new information about the economy is received, policymakers may react to this information and change the values of the short-run targets. Thus, an operating variable such as an interest rate or a reserve aggregate may be a target over one time period and an instrument over a longer time period. The analysis in this section is restricted to the time frame in which policymakers set and attempt to hit the initial short-run targets.

SPENDING DISTURBANCE

Choice of an Intermediate Target

Figure 2a

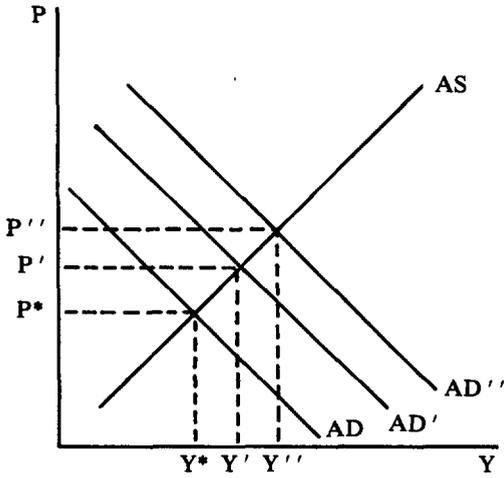
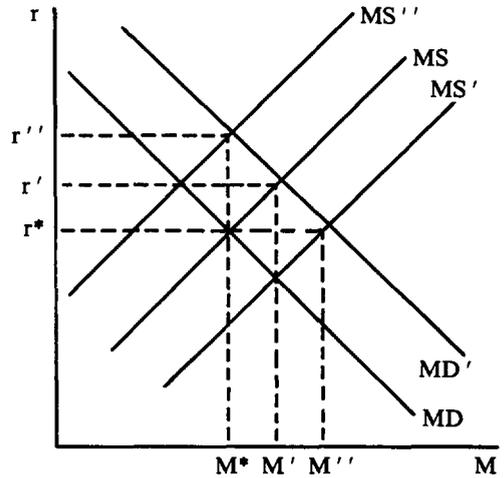


Figure 2b



Choice of an Operating Target

Figure 3a

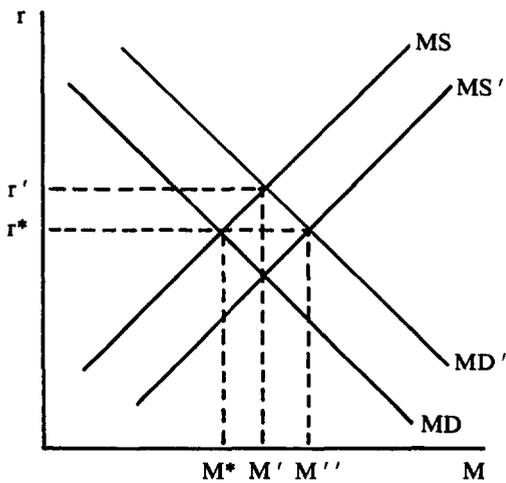
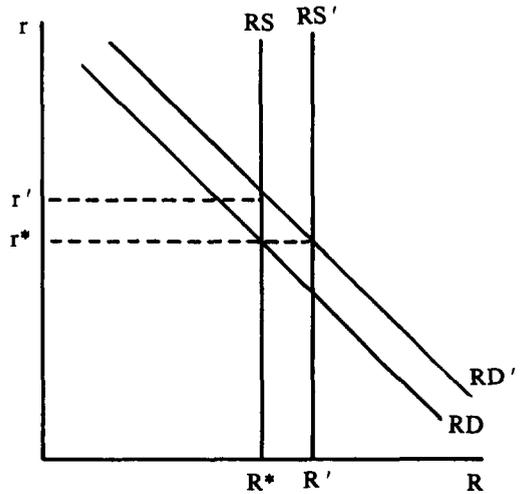


Figure 3b



that will be most successful in keeping M near M^* . In this endeavor, the choice is between an interest rate target and a reserve aggregate target. As shown in Figure 3b, the increase in money demand associated with the spending disturbance increases financial institutions' demand for nonborrowed reserves, shifting the demand curve from RD to RD' . With an interest rate operating target, the Federal Reserve will accommodate the increased demand for reserves by an increase in reserve availability. An increase in nonborrowed reserves shifts the RS curve to RS' in Figure 3b and shifts the money supply curve from MS to MS' in Figure 3a. While this action restores the original interest rate, r^* , money growth rises to a level, M'' , which is further from the desired level. In contrast, with a nonborrowed reserve operating target, the Federal Reserve will maintain the original supply of nonborrowed reserves. As a result, there is no shift in either the RS curve or the MS curve in Figures 3a and 3b. Such policy action leads instead to a higher interest rate, r' , and money growth, M' . However, this money growth is closer to the desired level, M^* , than that achieved using an interest rate target.⁸

In summary, when a spending disturbance is the source of undesirable changes in real income and prices, a monetary aggregate intermediate target and a reserves operating target are superior to interest rate targets. In this situation, aggregates targets tend to offset the impact of the spending disturbance on the goal variables, while interest rate targets tend to amplify the effects of the disturbance.

⁸ It is important to note that a policy of maintaining the initial supply of nonborrowed reserves will not restore money growth to target. To restore money growth to target requires a reduction in nonborrowed reserves. For this type of disturbance, however, a policy of holding nonborrowed reserves constant will result in money, output, and prices being closer to their desired levels than under an interest rate operating target.

Portfolio Disturbances

The second type of disturbance is termed a "portfolio disturbance." In a simple framework where investors have the choice between holding money and an interest-bearing bond, unanticipated shifts between these assets are portfolio disturbances. For example, suppose that investors decide to hold more money and less bonds. This increased portfolio demand for money tends to lower bond prices and raise interest rates. In Figure 4b, an increase in the demand for money is shown to shift the MD curve to MD' , leading to a higher interest rate, r' , and a greater quantity of money, M' .⁹ The increase in the interest rate, in turn, tends to depress the investment spending component of the aggregate demand for goods and services. In Figure 4a, the portfolio disturbance results in a shift in the aggregate demand curve from AD to AD' . As a result there is a decrease in real output to Y' and a fall in prices to P' . Note, however, that the drop in real output and prices occurs at the same time that interest rates and money growth are increasing. This is in sharp contrast to the spending disturbance illustrated in Figure 2, where rising income and prices are associated with higher interest rates and faster money growth.

What is the appropriate choice of an intermediate target for a portfolio disturbance? Consider first the interest rate approach. To return the interest rate to its original level, r^* , in the face of an increase in the demand for money, the Federal Reserve would need to increase the money supply. In Figure 4b, the increase in the money supply shifts the MS

⁹ Note that this shift in money demand occurs without an initial change in nominal income, unlike the previous case of a spending disturbance. Once again, the increase in money growth is a result of depository institutions reducing their demand for free reserves as the interest rate increases.

PORTFOLIO DISTURBANCE

Choice of an Intermediate Target

Figure 4a

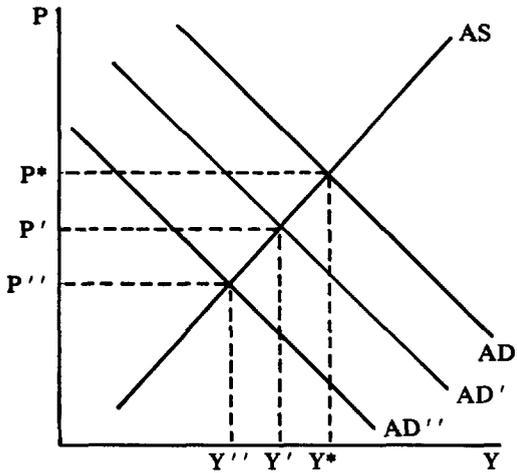
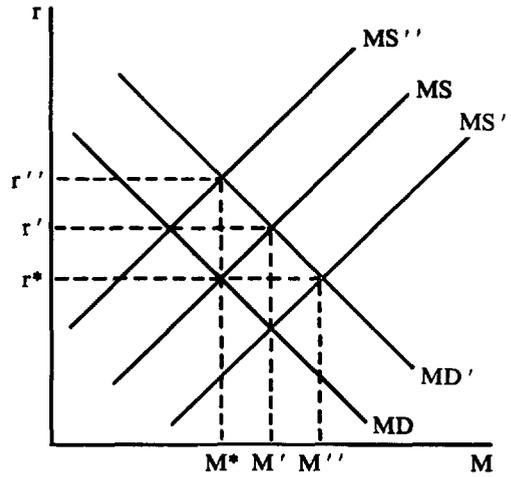


Figure 4b



Choice of an Operating Target

Figure 5a

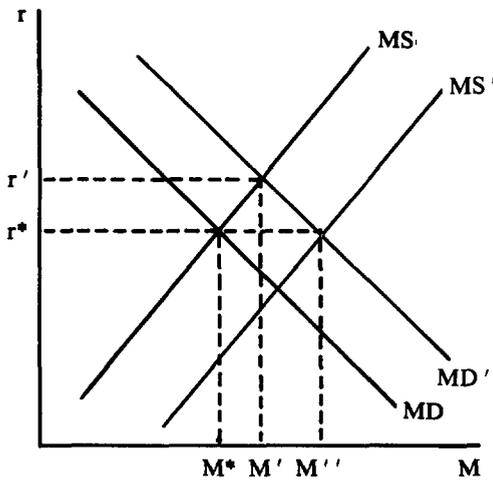
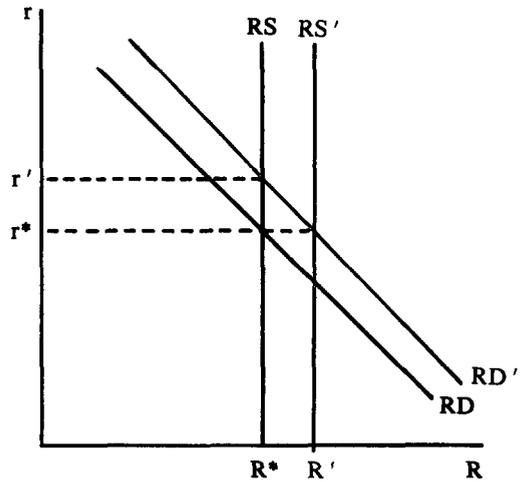


Figure 5b



curve to MS' , which restores the original interest rate but leads to still faster money growth. By returning the interest rate back down to its initial level, this action has a beneficial effect on the goal variables. In Figure 4a, the Federal Reserve's policy actions induce an upward shift in the aggregate demand curve from AD' back to AD . Thus, both output and prices are moved back to their desired levels. In contrast, with a monetary aggregate intermediate target, a restrictive policy in terms of output and prices is required to offset the increase in money demand. In this case, policymakers would reduce the money supply, shifting the MS curve to MS'' in Figure 4b. The higher interest rates resulting from this action tend to reduce investment spending and lower the level of economic activity. In Figure 4a, the Federal Reserve's actions shift the aggregate demand curve downward from AD' to AD'' so that both real output, Y'' , and prices, P'' , are even further below their desired levels.

For a portfolio disturbance, an interest rate is also the preferred choice as an operating target. In the example above, a portfolio disturbance increases the demand for money and also raises depository institutions' demand for nonborrowed reserves. In Figure 5b the demand for reserves shifts from RD to RD' so that the interest rate rises to r' . If the interest rate is used as an operating target, policymakers will accommodate the increased demand for reserves and money. In this situation, they will increase the supply of nonborrowed reserves which shifts the RS curve to RS' in Figure 5b and the money supply curve from MS to MS' in Figure 5a. By restoring the initial interest rate, r^* , this policy also shifts the aggregate demand curve from AD' to AD in Figure 4a so that price and output are moved back to their desired levels. In contrast, if the Federal Reserve uses a nonborrowed reserve operating target, it will maintain the original

quantity of nonborrowed reserves, R^* . In this case there is no shift in the RS curve in Figure 5b or the MS curve in Figure 5a, and the interest rate rises from r^* to r' . Using a nonborrowed reserve operating target, therefore, implies that the portfolio disturbance is not actively offset so that price and output remain below their desired levels.

In summary, when a portfolio disturbance is the source of undesired changes in real income and prices, interest rate targets are superior to aggregates targets. In this situation the use of interest rate targets prevents the transmission of portfolio disturbances to the real sector of the economy.

Money Supply Disturbances

The third type of disturbance, a "money supply disturbance," is a change in the desired holdings of excess reserves or a change in discount window borrowings by depository institutions. In Figure 6b, a reduction in desired holdings of excess reserves or an increase in desired borrowings leads to an increase in the money supply curve from MS to MS' . As a result of this disturbance, interest rates fall while money growth increases. Lower interest rates tend to stimulate investment spending and the level of economic activity. In Figure 6a, this disturbance is reflected by an outward shift in the aggregate demand curve from AD to AD' . As a result, real output rises to Y' , and prices increase to P' .

For a money supply disturbance, it does not matter whether an interest rate or a monetary aggregate is chosen as an intermediate target. Whether the Federal Reserve attempts to restore the original interest rate or the original quantity of money, either approach reduces the supply of money, thereby shifting the money supply curve from MS' back to MS in Figure 6b and the aggregate demand curve from AD' back to AD in Figure 6a. Either intermediate target offsets the money supply disturbance and

MONEY SUPPLY DISTURBANCE

Choice of an Intermediate Target

Figure 6a

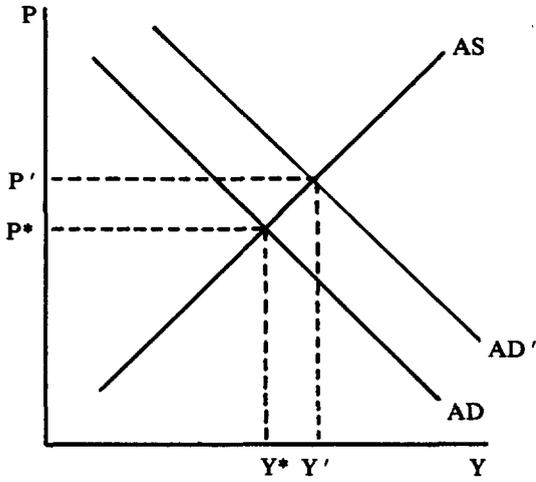
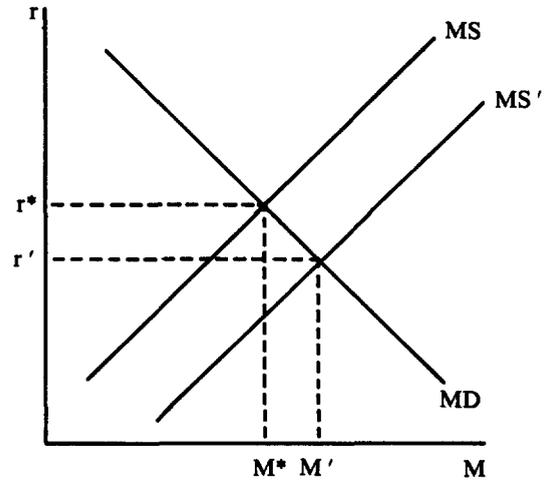


Figure 6b



Choice of an Operating Target

Figure 7a

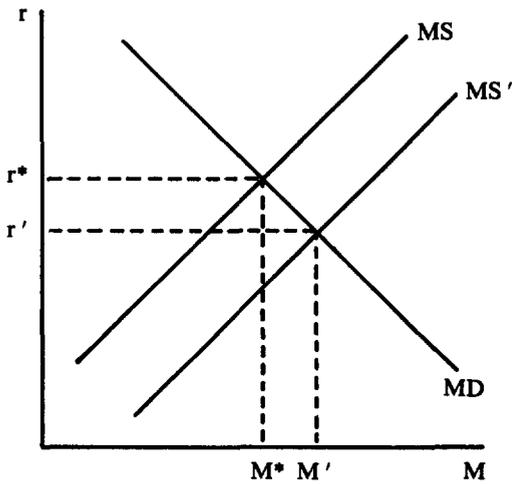
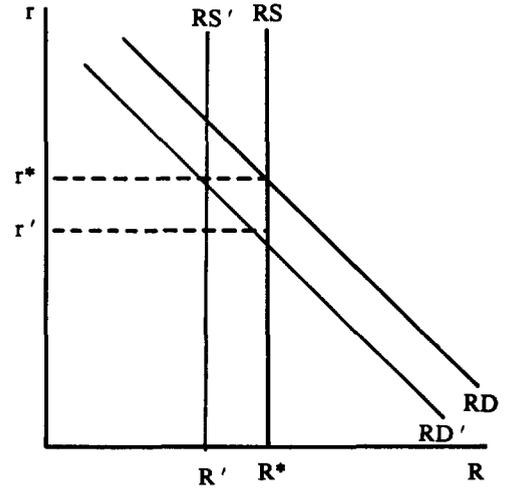


Figure 7b



prevents it from affecting prices and income.

At the operating level, however, an interest rate strategy generally works better than a reserves approach when there is a money supply disturbance. In the example above where a money supply disturbance tends to lower the interest rate and increase money growth, there will be a decreased demand for nonborrowed reserves as depository institutions reduce their desired holdings of excess reserves or increase their discount window borrowings. In Figure 7b, the RD curve shifts to RD'. If policymakers maintain the existing supply of nonborrowed reserves, they do little to offset the expansionary impact of the lower interest rate. In contrast, if an interest rate is used as an operating target, policymakers offset the disturbance by reducing the supply of nonborrowed reserves. This action shifts the RS curve to RS' in Figure 7b and the MS' curve to MS in Figure 7a. In this way the impact of the money supply disturbance on prices and output is neutralized.¹⁰

In summary, the conflict between interest rate and aggregates targets may not arise under money supply disturbances. The objective of the policymaker is to prevent money supply disturbances from being transmitted to real output and prices. At the intermediate target level, either an interest rate target or a money supply target will accomplish this objective. At the operating level, though, an interest rate target is generally preferred to a reserves target.

Supply-Side Disturbances

The fourth type of disturbance is a "supply-side disturbance." Factors such as increases in oil or other energy prices, agricultural shortages, or wage increases in excess of

productivity gains may cause a decline in real output while at the same time putting upward pressure on prices. This result is illustrated in Figure 8a where a supply-side disturbance shifts the aggregate supply curve backward from AS to AS', leading to higher prices, P', and lower real output, Y'. In the money market, a supply-side disturbance results in higher nominal demand for money. Thus, in Figure 8b, an increase in money demand shifts the MD curve to MD' so that the interest rate rises to r' and money growth increases to M'.¹¹

It is important to note that a supply-side disturbance has very different policy implications from the three types of disturbances considered previously. Spending, portfolio, and money supply disturbances all lead to a shift in the aggregate demand curve rather than the aggregate supply curve. When the aggregate demand curve shifts, prices and real output move in the same direction. In contrast, when the aggregate supply curve shifts, prices and real output move in opposite directions. As a result, when a supply-side disturbance occurs, policymakers are immediately faced with a worsening of both policy goals as real output falls, while prices increase.

The appropriate choice of an intermediate target for a supply-side shock depends critically on the relative weight that policymakers assign to real output and inflation. If the Federal Reserve chooses an interest rate target, it will accommodate the increased demand for money by increasing the money supply. This action shifts the money supply curve from MS to MS' in Figure 8b, so that the interest rate falls from r' to r* and shifts the aggregate demand curve from AD to AD' in Figure 8a. The increase in

¹⁰ A nonborrowed reserve operating target will give results that are equivalent to an interest rate operating target if money supply disturbances take the form of changes in operating factors such as float and the Treasury balance.

¹¹ These results are based on a model which does not incorporate wealth effects. When wealth effects or tax changes caused by inflation are included, interest rates and money growth need not increase.

SUPPLY-SIDE DISTURBANCE

Choice of an Intermediate Target

Figure 8a

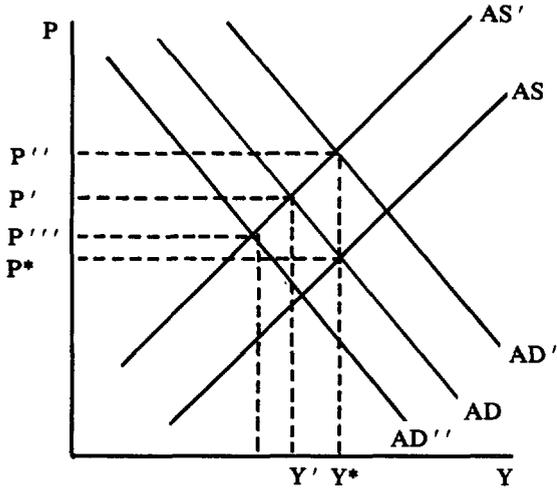
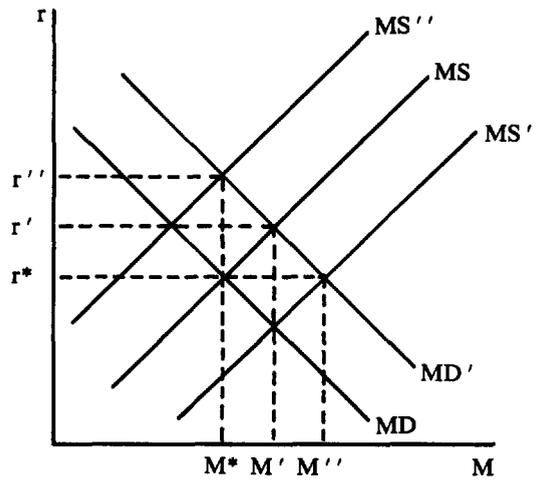


Figure 8b



Choice of an Operating Target

Figure 9a

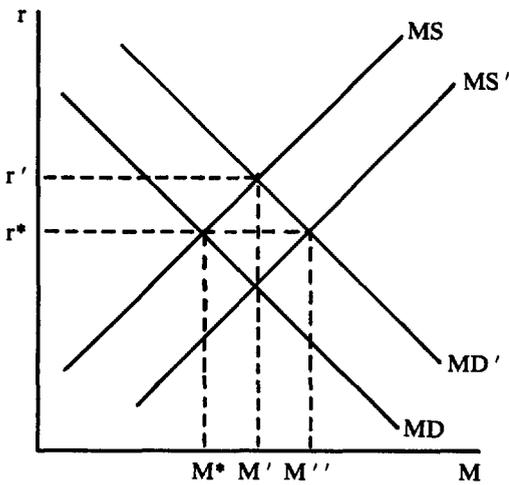
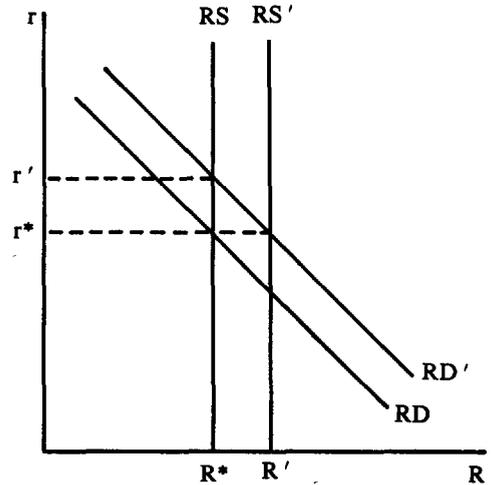


Figure 9b



aggregate demand offsets the negative impact of the supply disturbance on real output as output increases from Y' back to Y^* . At the same time, however, this expansion in real output intensifies the inflation problem as prices rise from P' to P'' . In contrast, if the Federal Reserve attempts to control money growth, it will reduce the supply of money to offset the increase in money demand resulting from the disturbance. This policy action shifts the money supply curve from MS to MS'' in Figure 8b and increases the interest rate from r to r'' . As a result, aggregate demand is reduced, as shown by a shift in the AD curve to AD'' in Figure 8a, so that the price level is lowered from P' back toward P^* and output falls further to Y'' . Thus, while the reduction in aggregate demand tends to improve the inflation situation, it exacerbates the decline in real output caused by the supply-side disturbance.

The choice of an operating target follows a similar pattern. The increased demand for nominal money balances resulting from the supply-side disturbance leads to a greater demand for nonborrowed reserves. In Figure 9b, the RD curve shifts to RD' . If policymakers maintain the initial supply of nonborrowed

reserves, the rise in interest rates tends to reduce spending which dampens inflationary pressures at the expense of a decline in real output. In contrast, if the interest rate is used as an operating target, policymakers will increase reserve availability to accommodate the increased demand. This policy action shifts the RS curve to RS' in Figure 9b and the MS curve to MS' in Figure 9a. By preventing the rise in interest rates, policymakers protect real output but worsen inflationary pressures.

In summary, when there is an adverse supply-side disturbance, policymakers are faced with a worsening of inflation and a reduction in real output. They can respond to the fall in real output by choosing interest rate targets at both levels. Doing so, however, worsens inflation. Alternatively, policymakers can respond to the inflation problem by targeting money and reserve aggregates. In this case, the gains against inflation must be balanced against further deterioration in real output.

SUMMARY AND CONCLUSIONS

This paper has examined the choice of short-run targets for monetary policy in the context of a model in which policymakers are concerned with both real output and inflation.

Table 1
THE CHOICE OF SHORT-RUN TARGETS

Type of Disturbance	Appropriate Intermediate Target	Appropriate Operating Target
Spending Disturbance	Monetary Aggregate	Reserves Aggregate
Portfolio Disturbance	Interest Rate	Interest Rate
Money Supply Disturbance	Monetary Aggregate or Interest Rate	Interest Rate
Supply-Side Disturbance	a) Monetary Aggregate for Inflation Goal b) Interest Rate for Real Output Goal	a) Reserves Aggregate for Inflation Goal b) Interest Rate for Real Output Goal

In general, the choice of interest rate targets versus aggregates targets depends upon the types of disturbances affecting the economy. Table 1 contains a summary of the results. For a spending disturbance, aggregates targets are superior to interest rate targets at both the intermediate and operating levels. In contrast, interest rate targets are preferred in the case of portfolio disturbances. For money supply disturbances, either an interest rate or a monetary aggregate may be used at the intermediate level, while an interest rate is generally superior at the operating level.

In the case of a supply-side disturbance, the

analysis is more complicated. If policymakers are primarily concerned with stabilizing real income, interest rate targets are superior to aggregates targets. In contrast, if inflation is the dominant concern, aggregates targets are preferred at both the intermediate and the operating levels.

Federal Reserve targeting procedures have undergone considerable development in the post-World War II period. In the next issue of the *Economic Review*, the analytical framework presented in this article will be used as a basis to describe the evolution of these targeting procedures from 1951 to the present.