

## Chapter 8

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# Responses to Federal Reserve Policy

**Monetary policy** has a wide range of direct and indirect effects on economic activity, prices, and interest rates. Although there is considerable agreement among economists about the channels through which monetary policy impulses are transmitted to the economy, the relative importance of each of these channels remains controversial. Most economists believe that monetary policy influences economic activity and prices by affecting the availability and cost of money and credit to producers and consumers. People make spending and investment decisions based upon current and expected wealth, income, prices, and credit availability, all of which are influenced by past, current, and expected future monetary policy actions. Interest rates respond to the current and prospective economic climate and to monetary policy. Decisions about consumption, savings, and investment respond to monetary policy actions. The effects of policy will both influence and depend upon the underlying economic environment, including perceptions about federal government expenditures and receipts, the strength of credit demands and supplies in the United States and abroad, and the outlook for the exchange value of the dollar.

This chapter explores some of the ways in which domestic monetary policy can affect the U.S. economy. The first section examines how economists over the last sixty years have interpreted the transmission of monetary policy.<sup>1</sup> Considerable understanding has been gained from the experience and analysis of recent decades; most economists currently believe that monetary policy influences prices and income through a number of chan-

nels. Among those cited are interest rates, wealth, the exchange rate, asset prices, the cost of credit, the condition of corporate and household balance sheets, and the health of financial institutions. Nonetheless, the significance of particular channels of transmission is still debated, and questions persist about the way people respond to new information. No single, comprehensive, widely accepted view has emerged about the role of monetary policy in determining economic activity and price behavior.

The second section considers the impact of policy on the cyclical behavior of the interest rate maturity structure, commonly called the yield curve. The potential effect of policy on the individual sectors of the economy is the subject of the third section; the discussion demonstrates that the sectors' different compositions and constraints shape their responses to interest rates and income. The final section discusses the communication of policy developments through the activities of "Fed watchers"—economists who forecast and interpret economic behavior, interest rates, and Federal Reserve actions.

## Evolving Views of Policy Transmission

Economists' understanding of the transmission of monetary policy to the financial markets and to the economy has been modified extensively during past decades. One school of thought begins with J. M. Keynes' *General Theory*, published in 1935. Influenced by the Great Depression, Keynes argued that monetary policy had limited power to promote economic expansion; once interest rates fell close to zero, as they did during the depression, no further declines to stimulate investment would be possible. Wages were believed to be sticky and particularly resistant to declines, even in the face of high unemployment. A. C. Pigou, a member of the earlier classical school, objected to Keynes' arguments, saying that they depended upon an implausible failure of workers to respond to changes in their purchasing power. Pigou argued that as long as lower wages gave workers the same buying power, eventually the workers would accept lower wages. In turn, economic activity would return to its earlier path, and only the price level would have changed. In other words, monetary policy actions would be neutral with respect to economic activity in the long term.

Despite Pigou's arguments, the predominant belief in academic and policymaking circles during the 1940s was that the long term in which that mechanism would work was too long to be important in practice and that monetary policy had little power to promote economic expansion. In the postwar period, economic expansion and inflation were the dominant conditions. Interest rates were no longer close to zero and "Keynesian"

economists modified Keynes' models. These economists came to expect that monetary policy would work primarily by affecting interest rates, which in turn would affect investment.<sup>2</sup>

Monetary policy was frequently analyzed in the context of business cycles, both by Keynesians and by economists who were extending and modifying the classical analysis.<sup>3</sup> Some economists suggested that business cycles resulted, at least in part, from the policy process itself.<sup>4</sup> Their arguments ran as follows: Monetary authorities would respond to weakness in the economy with an easier monetary policy that would lower interest rates by making loanable funds more plentiful. (Deliberate fiscal stimulus might make a difference in long contractions, but lags in recognizing the recession and in changing policy would preclude its use in countering short recessions.) Lower rates and increased credit availability would encourage more expenditures on investment and consumption, which in turn would support economic expansion as long as there was excess capacity to absorb the increased demand. When capacity constraints were felt, increased demand would merely lift prices, producing "demand pull" inflation. Interest rates would begin to rise, and investment would be choked off as credit became more expensive. If ceilings were then placed on the interest rates that banks could pay or charge, or if banks became reluctant to make loans that they perceived to be risky, credit availability would be reduced. The "credit crunch" would constrain economic activity, bringing the business expansion to its close.

During the 1950s and 1960s, economists struggled to explain inflation that arose when the economy seemingly was not at full employment. It was generally described as a "cost push" phenomenon and was attributed to structural distortions in the labor markets rather than to aggregate monetary or fiscal policies. A related hypothesis was developed by A. W. Phillips.<sup>5</sup> He observed that increasing levels of employment seemed to be associated with rising nominal wage rates. Graphical relationships between the unemployment rate and changes in wages or prices came to be referred to as Phillips curves.

These economic models relied on nominal wage rigidities, which meant that the prevailing descriptions of the policy transmission process could at best hold only in the short run. At some stage, people would change their behavior as prices and wages were observed to rise (or fall) persistently. In economic parlance, people would not suffer permanent money illusion but would, in time, recognize the change in their wages defined in "real" terms—adjusted to take account of price changes. In particular, as prices rose, workers would demand higher wages for a given amount of work to offset the loss of purchasing power, or alternatively would work less for the same wages.

The Phillips curve would not represent a long-run equilibrium. Once inflation expectations rose, the curve would shift outward.<sup>6</sup>

During these years, Milton Friedman and several other economists argued that the standard view of the monetary transmission process gave too little emphasis to the role of money balances. Consumers who found themselves with larger amounts of money when an increase in the aggregate quantity worked its way through the economy would feel wealthier and increase their spending. Sellers would respond to the increased purchases by ordering more goods and by raising prices; the increased total quantity of money available for purchases would sustain the higher prices.

The theory did not define how the increase in aggregate demand stimulated by the higher money balances would be divided between output and prices. Drawing on the classical model, the economists who emphasized the role of the quantity of money argued that increasing money balances would not affect output indefinitely but in the end would only lift prices. The short-run dynamics of a response to a series of increases in money balances, however, would affect both economic activity and prices. The pattern followed would depend upon how the increases affected expectations and how quickly people adjusted their behavior when their expectations changed.

When inflation was expected to pick up, nominal interest rates—those observed directly—would increase. If the change were merely offsetting the expected decline in purchasing power over the term of the loan, the increase in nominal rates would not raise the inflation-adjusted or real cost of borrowing or the return to lending. Consequently, using nominal rates as a gauge of the tightening or easing of policy could prove misleading and could induce perverse results. For instance, the monetary authorities might think they were providing for a steady cost of credit by holding interest rates constant, but if the expected rate of inflation rose, they would really be fostering easier money and credit conditions.<sup>7</sup>

It became increasingly important to deal with distortions in nominal interest rates as inflation gained force in the late 1960s and 1970s. Economists made use of the concept, introduced years earlier by Irving Fisher,<sup>8</sup> of real interest rates—approximated as the nominal rate less the expected rate of inflation. This concept held that borrowers and lenders made their decisions based on expected real rates. These rates, however, could not be observed but had to be derived from expectations of inflation. Fisher suggested that the real rate was related to underlying economic conditions as they affected investment and savings opportunities and therefore might be reasonably constant. If that were the case, changes in nominal interest rates could be used as an indication of changes in inflationary expectations. Using that hypothesis, Fisher and subsequent observers found that interest rates appeared to

adjust to changes in inflation with long lags, possibly because it took time for borrowers and lenders to realize that a change in the rate of inflation would be sustained.

Fisher's hypothesis is difficult to test because ex ante real rates cannot be measured directly. Ex post rates may or may not be a good proxy. If real rates are computed ex post by subtracting actual inflation from nominal interest rates—even averaged over fairly long periods—we find that real rates have been far from constant (Chart 1). Ex post real returns have often been low and sometimes negative during periods of accelerating inflation such as the 1970s; they were well above levels of the previous decades in the early part of the 1980s when inflation was slowing.<sup>9</sup> The apparent variability in real rates may mean either that expectations of inflation are subject to substantial errors or that ex ante real rates are not constant.<sup>10</sup> Real rates may well change as part of the price adjustment process.

With the distinction between real and nominal measures attracting increased attention, analysts considered how to measure inflationary expectations. Most work done in the 1960s estimated expectations of future inflation by extrapolating from past inflation. During the 1970s, economists argued that this "adaptive" expectations approach was incomplete. They suggested that borrowers and lenders would make use of all of the relevant

Chart 1. **One-Year Treasury Bill Rate less Rate of Change of Consumer Price Index**



Sources: Treasury bill rate: Board of Governors of the Federal Reserve System; consumer price index: U.S. Department of Labor, Bureau of Labor Statistics.

Note: The plotted series is defined as the average one-year Treasury bill rate (bond-equivalent basis) for January (time  $t$ ) less the percent change of the consumer price index over the ensuing year  $[(t+1)/(t-1)]$ .

information available, not just that on past inflation. In particular, they would consider current monetary and fiscal policies and likely future actions by the policymakers. The approach has been termed rational expectations.<sup>11</sup>

The basic rational expectations concept has attracted a wide audience. Its proponents have argued that people will incorporate all of the predictable consequences of available information about monetary policy into their decision making, including the future effects of changes in policy priorities. Hence, if the Federal Reserve enacted a change in policy procedures, people would alter the way they responded to observed monetary variables in keeping with their understanding of the revised operating guidelines.<sup>12</sup>

Some writers, particularly in the academic community, followed this line of analysis to the conclusion that people would adjust their behavior to prevent any *anticipated* monetary policy actions from having an effect on the real economy. Thus, it was argued, only when a policy action was a surprise would it affect real interest rates and economic activity. Otherwise, it would only move prices to their new equilibrium level; monetary policy would be neutral in the short run, not just in the long run, an extreme interpretation of the classical view. This version of rational expectations theory figured importantly in real business cycle theory, which held that business cycles could be caused by exogenous shocks to the economy or by unexpected monetary policy developments but not by predictable monetary policy actions.<sup>13</sup>

Most economists, however, have rejected the notion that anticipated monetary policy does not affect real economic activity in the short run. Within the rational expectations framework, predictable monetary policy could affect real activity because of the sometimes substantial costs of acquiring and interpreting all of the information available about past, current, and future monetary policy. Although a large amount of monetary and economic data can be obtained easily with short lags, their significance will not always be immediately clear. The series are all subject to random as well as systemic variation, and relationships can shift in ways that may be hard to interpret until some time has passed. Furthermore, there may be institutional rigidities, such as long-term contracts that are not indexed for inflation. Rigidities will slow down the responses to a policy impulse, permitting a more conventional adjustment process to occur.

In evaluating the routes by which monetary policy affects the economy, a number of economists have focused on variations in credit availability, either as a key means of transmitting policy impulses or as a factor that may supplement other channels. Some writers have considered bank lending practices directly, although the numerous nonbank sources of credit described in Chapter 4 should have reduced the importance of banks' actions

on all but the most marginal of borrowers. Others have concentrated on balance-sheet constraints and the difficulties for lenders of evaluating credit risks.<sup>14</sup> Both sets of writers argue that a rise in interest rates stemming from a policy tightening will affect those entities that already have variable rate loans, first by raising the cost of their existing credit. The increase in cost will also cause their balance sheets to appear weaker, making potential lenders less willing to supply additional credit. As a result, credit available to marginal borrowers is particularly sensitive to the degree of ease or restraint in monetary policy. This sensitivity may intensify the effects stemming from other channels of policy transmission.

The numerous hypotheses about the transmission mechanism proposed over the last sixty years have left their mark on current thinking and have provided useful insights. Nonetheless, experience has taken a toll on many of them. For example, in the 1960s, Phillips curve analysis, by suggesting that there was a permanent trade-off between economic expansion and inflation, encouraged many economists in the 1960s to believe that some inflation was a small price to pay for economic prosperity. The concurrent development of large econometric models that incorporated these modified Keynesian views, including persistent wage rigidities, encouraged a move to active use of government policies as a way to “fine tune” the economy to encourage growth.

During the 1970s, the use of monetary policies to stimulate the economy seemed to be associated with inflation rates that got higher with each round of stimulus. At the same time, the economy did not expand as rapidly on average as it had in the preceding two decades, when inflation rates were lower. Although the oil crises of 1973-74 and 1979 were clearly factors, the problem of inflation pointed to weakness in the Phillips curve analysis. The Phillips curve kept shifting outward as people adjusted their wage demands to the rising rates of inflation.

The experience of the 1970s also demonstrated that inflation had more costs than many economists had expected. Resource allocation was distorted because some activities proved easier to protect than others from the effects of rising prices. The tax system was based on nominal magnitudes. Increases in earnings and capital values were taxed even when they did not represent real gains. Nominal, rather than real, interest income was taxed, hurting savers, while nominal interest expenses were deductible, benefiting borrowers. Tax law revisions in 1981 introduced indexation, which offset inflation’s impact on earnings, but the changes did not address distortions to interest or to capital investment. The inability to pay interest on currency or most transaction deposits led people to economize artificially on holdings of money balances, in the process diverting resources from more productive

uses. By the late 1970s, the growing realization that it was not feasible to protect against the full costs of inflation led to increased support among economists and the public for monetary policies aimed at reducing the inflation rate.

Targeting money growth, rather than interest rates, seemed to be a solution to the problems of inflationary bias and the associated misinterpretation of nominal interest rates. But using the quantity of money relationships depended on a reasonably stable demand for money on the part of the public. For a number of years, the relationships appeared to be sufficiently predictable to be of use to policymaking. By the early 1980s, however, close substitutes for traditional money measures were proliferating, partly in response to the combination of rising nominal interest rates and restricted interest payments on currency and bank deposits. Consequently, it became increasingly difficult to find an empirical measure of money that had stable demand properties, and money's usefulness in policymaking decreased.

Although the well-publicized policy of holding down average money growth during the 1979-82 period succeeded in reducing inflation, the process was far from cost-free. The economy went through a severe recession, in contrast to the optimistic predictions by some forms of the rational expectations theories.

As a group, Federal Reserve policymakers continue to regard monetary policy as a powerful tool, although individuals place different emphases on the various transmission routes and on the appropriate role of monetary policy in the short-run stabilization of economic activity. Some policymakers believe response lags are sufficiently short to allow policy actions to be used for short-run stabilization. Others are concerned that long, unpredictable lags will keep monetary policy from being a good tool for short-run stabilization. As a result of experiences of the past thirty years, in which inflation became a major problem requiring long and costly efforts to overcome it, many Federal Reserve policymakers have become strong advocates of price stability. The more pertinent question today is, What is the best strategy to achieve such stability?

## Monetary Policy and Yield Curves

Monetary policy works most directly by changing reserve availability. Such changes affect the overnight Federal funds rate and other short-term rates in a reasonably straightforward way.<sup>15</sup> When the overnight Federal funds rate is serving as a target, the funds rate will respond promptly to a change in the Federal Reserve's policy objective. Other short-term rates also tend to adjust

promptly as well, sometimes moving before the policy step if an action was widely expected.

The determinants of the relationship between short-term rates and longer term rates—often referred to as the shape of the yield curve—have long been a source of discussion and debate among both academic and market analysts.<sup>16</sup> Perhaps the most commonly accepted view is that the shape reflects both expectations of future short-term rates and preferences for liquidity that lead investors to favor shorter term maturities to varying degrees.<sup>17</sup> This view of yield curve determination is described in the literature as the liquidity-augmented expectations hypothesis.<sup>18</sup> (Liquidity in this context means the ability to turn an asset quickly into cash without facing the risk of significant loss of nominal value. Hence, short-term instruments with their smaller price fluctuations are generally considered more liquid than intermediate- and long-term Treasury debt instruments.)

The expectations hypothesis assumes that at least some investors and borrowers can adjust their maturity mix to achieve the expected yield pattern.<sup>19</sup> Their success in predicting rates will determine the extent to which expected rates are realized. The primary determinants of expected future interest rates are presumed to be the outlook for inflation and for real interest rates, which in turn are influenced by expectations about economic activity, monetary policy, and fiscal policy.<sup>20</sup>

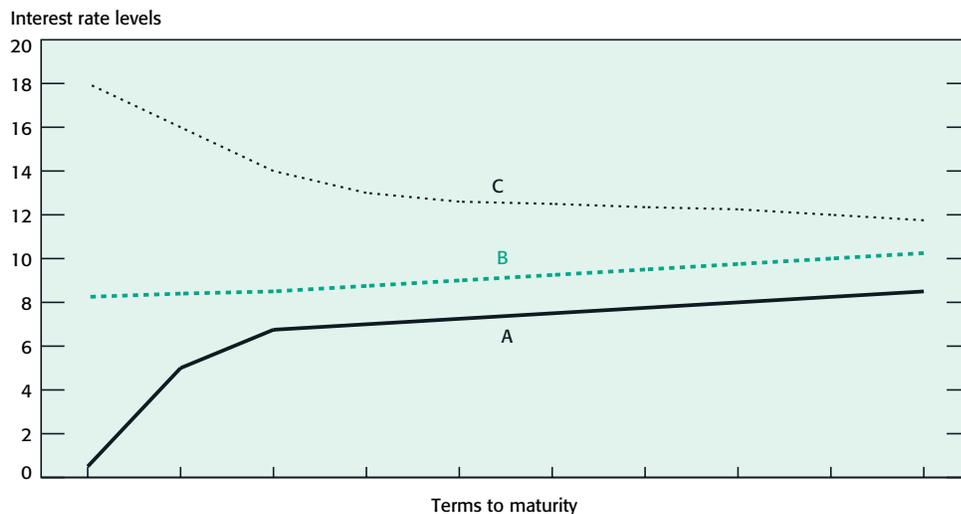
If preferences for liquidity are imposed on the expectations model, interest rates will rise as the term to maturity lengthens when expectations of steady rates would otherwise call for a flat yield curve; at other times, the yield curve will slope upward by more or downward by less than would be the case based on expectations alone. Investors would expect a higher return on longer term obligations as compensation for giving up the greater liquidity of shorter term instruments. The longer the time before maturity, the greater will be the change in price that will accompany a given change in interest rates and the greater the likelihood that rates will change substantially during the security's remaining life.

Presumably, the degree of liquidity preference rises when the perceived risks of relatively high and variable inflation rates increase because the expected range of future nominal rates is larger. For instance, when confidence in the Federal Reserve's commitment to price stability was low in the late 1970s and early 1980s, nominal long-term rates moved over a wide range as investors factored in a wide band of potential inflation rates. (To be sure, short-term rates also moved over an unusually wide range during those years, complicating the interpretation of movements in long-term rates.) An extended period of low inflation rates has reduced the range of variation in long-term rates and should lead to lower liquidity premia.<sup>21</sup>

Because credit demands and inflationary expectations change over the business cycle, the shape of the yield curve may do so as well. The yield curve tends to have a steep upward slope when market participants believe that short-term rates are below sustainable levels, such as might be the case when the economy was weak and the Federal Reserve was pursuing a stimulative policy (Chart 2, line A). At some stage during an economic recovery, the yield curve tends to flatten as short-term rates rise to a range considered to represent an essentially neutral policy (Chart 2, line B). An aggressive effort to restrain inflationary tendencies may lift short-term rates above sustainable levels, and the yield curve would become downward sloping, at least over part of its length (Chart 2, line C).

These relationships cause the impact of monetary policy actions on longer term rates to depend on how the policy action affects expectations of future short-term rates.<sup>22</sup> In particular, a tightening in what is believed to be a recovery may encourage expectations of more tightening moves in coming months, since market participants will expect one move to be followed by more, based on previous experience. Thus, longer term rates are likely to rise by as much or more than short-term rates. Alternatively, if the tightening is considered to be around the end of a series, it may have little or no effect on longer term rates since it will not feed expectations of further increases. Indeed, if the action is seen as a particularly aggressive anti-inflation move, it may lead to declines in longer term rates by reinforcing expectations that nominal rates will be lower in the future.

Chart 2. **Potential Yield Curves**



## Policy's Effect on the Economic Sectors

Monetary policy influences spending and investing decisions in all sectors of the economy through the effects of interest rates and the availability of money and credit on spending and investment decisions. The various economic sectors will respond in different ways, depending on the extent to which they are borrowers or lenders and the importance and relative availability of credit to the sector.<sup>23</sup>

### 1. The Household Sector

Monetary policy's cumulative impact on the household sector can be substantial. Policy can influence household spending through numerous channels: income and employment, wealth, the division of income between saving and consumption, expectations of inflation, and the cost and availability of credit. To the extent that monetary policy changes the level of overall business activity, it affects households' incomes and employment. These factors, in turn, have strong effects on consumer spending. Changes in interest rates influence household spending by affecting wealth and income, by shifting the relative returns to future savings, and by affecting the cost of borrowing.

Households will respond to changes in interest rates according to the forms of wealth they hold, the types of debt they have incurred, and their propensities to save the changes in income brought about by changes in rates. Households as a group are net savers, so their incomes should be increased by a rise in rates. The net stimulus to spending from higher rates will be partially offset, however, by declines in existing wealth held in the form of fixed-rate investments, since their prices fall when rates rise. Furthermore, if rates rise, those households with variable-rate loans will have to make higher payments on existing loans; these obligations will take away resources that might otherwise be directed to consumption.

Responses to interest rate changes will also depend upon how households interpret them. For instance, if consumers regard a sharp rise in nominal interest rates as a sign that greater economic uncertainty and rising unemployment lie ahead, they will tend to save more and borrow less. If, however, inflationary expectations shift upward such that real after tax interest rates fall, consumers may reduce saving and increase their borrowing in order to step up current spending before prices increase further. In recessions, a sharp fall in interest rates could lower borrowing costs, a development that might temper the decline in consumer spending that results from the reductions in income.

Household investment in housing is sensitive to the cost and availability of credit. The effects are less dramatic than they were in the 1970s and early 1980s, when a variety of consumer lending and deposit rates had been subject to ceilings. Those ceilings were frequently binding in the inflationary environment, thus limiting mortgage credit sharply. When credit was available, however, the demand was usually great as people sought the tax advantage of interest deductibility. As consumers came to expect increased inflation and anticipated that future home prices would provide a good hedge against it, they also stepped up home buying.

Such expectations have become less common, however, as relatively low rates of inflation have gradually become accepted as the norm. Nonetheless, in the current environment, where ceilings do not exist and lower interest rates and inflation prevail, households remain sensitive to rate changes. Prospective home buyers' responses to rising interest rates depend on their perception of future rate changes. Sometimes a rise can actually encourage a spurt of home buying to get ahead of expected future rate increases. But in time, higher rates tend to discourage home buying by reducing affordability. In addition, rising mortgage interest rates reduce the attractiveness of refinancing existing homes to provide more resources for spending. Higher rates also affect those who have variable-rate mortgages or home equity loans on a floating-rate basis, because their monthly payments may increase. Households may feel less wealthy when homes become harder to sell or the prices of existing houses decline. When interest rates fall as the economy shows weakness, the activation of deferred housing demand can contribute to economic recovery.

Monetary policy also affects the use of consumer credit such as installment and credit card loans. Consumers are heavy users of such credit, especially for purchases of automobiles and other durable consumer goods. Changes made to the tax law in 1986 phased out over five years the deductibility of interest on all personal loans, other than those secured by owner-occupied housing, encouraging the use of home equity credit. Nonetheless, credit card and installment credit have remained popular forms of finance. Interest rates on credit cards are not particularly sensitive to the banks' cost of credit, so the cost to card users does not adjust promptly to a change in monetary policy.<sup>24</sup>

## 2. The Business Sector

Monetary policy affects business decisions concerning production levels, inventories, and new investments. Businesses produce most of the goods and services consumed by the other sectors. To

be successful, they must anticipate and respond to the demands of consumers, other businesses, governmental units, and foreign buyers. These demands will be influenced by monetary policy as it affects and responds to general business conditions.

Businesses depend heavily on the credit markets to finance both productive capacity and inventories needed to meet customer demands. The Federal Reserve's flow of funds statistics show that during the first half of the 1990s, corporate cash flow from retained earnings and depreciation allowances provided about three-fourths of the funds used for capital spending, the extension of trade credit, and the acquisition of other financial assets. The remainder came chiefly from borrowing in the credit markets. Moreover, business credit demand typically grows more rapidly than the economy once the expansion phase of the business cycle is well under way, as internal sources of finance are exhausted and expectations of strong demand stimulate plans for increasing capacity.<sup>25</sup> For instance, retained earnings provided more than 80 percent of financing in 1990 and 1991, when the economy was soft, but only about 65 percent in 1995, when the economy had been expanding for several years.

Businesses manage inventories much more efficiently than they once did, thus making proportionately less use of credit to finance inventories. Nonetheless, expectations of strong sales will encourage some inventory buildup. When interest rates rise, business managers have to weigh the increasing cost of financing inventories against the risk of losing sales if supplies are inadequate. Price expectations also enter their calculations. If inflation is expected to be low, there is every incentive to keep inventories lean. If, however, inflation is expected to accelerate, or even if the cost of selected raw materials is expected to rise, managers may increase purchases of affected inputs ahead of anticipated price increases. When the economy slows unexpectedly, inventories may become unintentionally heavy, requiring a reduction in current production to bring them back in line.<sup>26</sup>

Rising costs, associated with higher perceived real interest rates, and slowing demand, associated with monetary stringency, can put pressure on profit margins, leading businesses to step up their efforts to cut costs. If their businesses are heavy credit users, they may choose to trim capital spending or lenders may force them to do so by not providing additional financing. The rise in long-term rates may itself reduce the attractiveness of prospective projects by increasing the rate at which projected income streams are discounted. Often the spreads widen between yields on bonds of well-capitalized firms that are given investment-grade ratings and yields on lower rated bonds. The increased spreads may force

potential borrowers contemplating risky uses of the funds to turn to less conventional financing; higher financing costs may also crowd some borrowers out of the credit markets altogether.<sup>27</sup> Aggregate capital spending tends to be sustained well into a recession, diminishing only as the rising margin of available capacity reduces the desirability of further additions.

As noted in Chapters 3 and 4, during the 1980s, a number of techniques were developed to allow hedging of some interest rate risk involved in business operations. Corporations employing these techniques can reduce their sensitivity to changes in market rates, for instance, by using financial futures and other derivative products to lock in a specified interest rate cost or to cap future increases. They can use swaps to change a variable-rate commitment into a fixed-rate one or to do the reverse, depending upon their expected pattern of revenue streams. Although these devices themselves have costs and cannot insulate a firm from all effects of interest rate changes, they can reduce costs of rate changes.

### **3. The U.S. Government**

Monetary policy's direct impact on federal spending and revenue decisions generally is limited, but the indirect effects can be substantial. Changes in interest rates affect the interest cost of refinancing outstanding debt and issuing new debt. The budgetary impact can be sizable because a significant portion of the outstanding debt must be refinanced annually.<sup>28</sup> In 1995, for instance, 33 percent of the marketable debt outstanding at the start of the year was refinanced at least once during the year. Changes in Treasury interest costs over the business cycle affect annual budget deficits and the degree of concern about deficits. Nonetheless, the Treasury chooses the maturity structure of its debt on the basis of longer term objectives and rarely alters its debt management strategy in response to changes in the shape of the yield curve.

The Treasury is a major force in financial markets, competing with other borrowers for funds and for command over real resources. Because federal deficits have a cyclical aspect, real federal credit demands have tended to rise more in recessions than in expansions. Thus, over the cycle, they have generally run counter to demands of other borrowers. Real per capita spending on unemployment compensation and other income-sustaining programs generally falls during expansions and rises during contractions. Revenues generally rise slightly faster than GDP during a noninflationary expansion because the graduated income tax structure causes tax receipts to rise more than proportionately as incomes increase.

Inflation affects real government revenues and expenditures in a variety of ways, on balance raising net revenues. Parts of the tax code are not indexed, so that nominal increases in magnitudes raise tax payments even in the absence of a real increase in value.<sup>29</sup> In particular, net government revenues are raised because capital gains are taxed based on nominal increases in value, and the portion of nominal interest earnings that merely compensates the lender for the decrease in purchasing power is taxed. Net government revenues are reduced by the deduction that individual and business borrowers can take as a result of their enlarged nominal interest cost and the higher interest rates that the government must pay to borrow. Although the government pays more to borrow, inflation reduces the value of its outstanding debt. The net impact of inflation on the government's debt operations will depend upon the amount and maturity of its outstanding debt and its future borrowing needs.

Since the Treasury can always satisfy its credit needs, some observers have questioned whether its heavy borrowing might adversely affect the flow of funds to other potential borrowers. The high deficits of the 1980s were for an extended period associated with high real interest rates. Nonetheless, over time the relationship between federal deficits and real interest rates has been variable and the empirical evidence of a relationship has generally been inconclusive.<sup>30</sup> High real interest rates clearly crowd out some borrowers, although many firms that are willing to pay for credit seem to be able to get it.

#### **4. State and Local Governments**

Most units of government below the federal level operate essentially by balancing current spending with receipts from taxes and grants-in-aid from higher levels of government. Since persistent deficits are not permitted, state and local spending depends heavily on the current condition of the economy. As the economy expands, revenues increase, encouraging new spending initiatives. Conversely, disappointing revenues in times of recession often lead state and local governments to scale down their capital expenditures fairly quickly because of the need for balancing income and expenditures.<sup>31</sup> The credit market effects of monetary policy on governmental units work chiefly through capital spending, but total capital outlays are a relatively modest portion of state and local government expenditures. Major capital projects that depend heavily on bond financing include building and repairs of schools, roads, water systems, sewers, and transportation systems. At the margin, rate increases may lead to some reduction

in, or postponement of, capital spending programs. Some issuers may be unable to borrow because rates rise above ceilings established by state law on what they can pay.

## The Role of the Fed Watchers

The participants in the money and capital markets watch the actions of the Federal Reserve. They try to understand the basic thrust of policy and to predict future policy changes by forecasting the variables they believe the Federal Reserve is following.<sup>32</sup> Financial firms employ economists—often called Fed watchers—to help them anticipate the effects of policy moves on interest rates and on the demand for credit because such information is important to the firms' trading and positioning strategies. In developing their outlooks, the economists track developments in the economy, forecast economic activity and inflation, and review statements of Federal Open Market Committee (FOMC) members to identify priorities and concerns. The analysts provide regular briefings to their own managers and analyze current developments during the day. Sales personnel at most firms circulate the views of their in-house experts. The economists also meet with clients and are available to customers for telephone consultation. Independent entrepreneurs in the field and some Fed watchers who work for dealer firms present their basic analyses to clients through weekly market letters and daily commentary on computer information systems. The computer systems serve clients in all parts of the world.

### 1. Forecasting Federal Reserve Policy Changes

For many years, one of the key aspects of Fed watching was interpreting daily market activity conducted by the Trading Desk at the Federal Reserve Bank of New York. Temporary operations were scrutinized to determine whether the Desk might be signaling a change in the stance of monetary policy. Beginning in the late 1980s, as the FOMC gave increasing weight to the behavior of the Federal funds rate in setting policy, reading the stance of policy became easier than it was over most of the preceding decade. Consequently, firms began to reduce the resources devoted to interpreting daily Trading Desk operations. In 1994, when the FOMC began to issue press releases announcing policy changes almost immediately after the decisions were made, Fed watchers no longer needed to provide analysis of daily Desk activity to interpret current FOMC policy.

Previously, considerable resources had been devoted to estimating whether the Trading Desk was likely to add or drain reserves to bring reserve supplies in line with reserve objectives. Daily temporary open market operations were easier to interpret if the Fed watchers had a sense of the nature of adjustments the Desk would be seeking to undertake. Once operations were no longer being used to signal a policy change, Fed watchers could assume that any operations were intended to bring reserve supplies into line with estimated demands.

Nonetheless, some Fed watchers have continued to make reserve forecasts. The financing desks at dealer firms, in planning the daily financing of the firms' inventories of securities, find it helpful to have an idea whether the Federal Reserve will be arranging a temporary operation. Traders of Treasury debt are interested in the potential for outright purchases or sales of securities by the Federal Reserve, because those operations affect market inventories of securities. Thus, forecasting of reserve supplies and demands has continued, although the resources devoted to it have diminished considerably. Indeed, some firms rely on the analyses available over their news screens rather than on internal forecasters.

The financial market economists—by forecasting the variables that Federal Reserve policymakers are believed to be using in their decision making—still play an important role in predicting future Federal Reserve policy moves. Currently, as discussed in Chapter 5, such variables include a range of measures of economic activity and the behavior of prices.<sup>33</sup> (The market refers to such economic indicators as “hard news.”) Fed watchers also follow speeches and other public statements by FOMC members to get a sense of their concerns and priorities. (The market refers to this information as “soft news.”)

As the behavior of the monetary aggregates became less closely linked, at least in the short run, with economic activity and Federal Reserve policy actions, the resources Fed watchers devoted to forecasting the monetary aggregates diminished as well. Some analysis of the monetary aggregates has continued, however. Those analysts who forecast reserve supplies and demands watch the behavior of the aggregates, particularly M1, because its main components—currency and transaction deposits—both affect the reserve picture, as described in Chapter 6. Others watch the monetary aggregates because they still derive some predictive power from them, at least after adjusting for factors known to change the demand for money.

## 2. Other Roles of Fed Watchers

FOMC actions are only one of many influences contributing to the behavior of market interest rates. The money market economists observe and forecast economic and price behavior for their direct influence on yields. They also analyze and forecast changes in the demands for and supplies of funding from various sources. Surveys of money managers' views, produced by several on-screen financial market services, are watched closely for what they convey about the views of other market participants. Analysts also observe foreign demand for U.S. debt instruments. Foreign participation, which can vary substantially, is large enough to influence yield movements significantly.

Federal budgetary developments are assessed to understand likely borrowing demands of the U.S. Treasury. Because of the huge amount of Treasury debt outstanding, the Treasury regularly must sell new debt to replace maturing debt. In addition, ongoing deficits require additional borrowing. As described in Chapter 4, the Treasury issues debt in a regular, predictable fashion. However, as the Treasury's needs and priorities change, it makes adjustments in the size of its debt and occasionally changes the mix of issuance. Fed watchers follow budgetary developments and forecast Treasury cash needs to anticipate the likely size of Treasury debt offerings.