

# Getting Markets in Synch with Monetary Policy

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**P**rices in speculative markets respond sensitively to all kinds of events, including policy actions and frequently even hints of policy actions. The response of markets to policy actions has fascinated me for a long time. This fascination only intensified after I became president of the St. Louis Fed. The markets I am referring to include the equity, bond, commodity, and foreign exchange markets. Although I think of policy actions in the broad sense, this afternoon I will limit my discussion to Federal Reserve policy actions. My discussion today is an application of, and further development of, an argument I first outlined in a speech in Philadelphia in August 1999.

Before proceeding further, I want to acknowledge the valuable comments provided by my colleagues at the Federal Reserve Bank of St. Louis, especially those by Daniel Thornton, vice president in the Research Division at the Bank, and Robert Rasche, director of Research. However, I accept full responsibility for errors. The views expressed are mine and do not necessarily reflect official positions of the Federal Reserve System.

The fact that markets react to information about monetary policy is illustrated by the stock market's reaction to the last two Fed policy actions. At its regularly scheduled meeting on March 20, 2001, the Federal Open Market Committee (FOMC) reduced the target for the federal funds rate by 50 basis points. This action was widely anticipated, as the entire 50 basis points move was priced into the federal funds futures rate at the close of business the day before. While this action was widely anticipated, the size of the cut

in the target rate was less than some market analysts had hoped for. Perhaps as a consequence, on the day of the policy action, the Dow Jones Industrial average declined 2.4 percent and the S&P 500 and the Nasdaq declined 2.4 and 4.8 percent, respectively.

About a month later, on April 18, 2001, the FOMC again reduced the funds rate target by 50 basis points. This action occurred during the intermeeting period and took the market completely by surprise. Although the market had priced in a 50 basis point cut at the forthcoming May 15 FOMC meeting, essentially no part of the April 18 intermeeting move was priced into the federal funds futures rate at that time. In this case, the stock market reacted positively, with the Dow increasing by 3.9 percent that day and the S&P 500 and the Nasdaq increasing by 3.9 and 8.1 percent, respectively.

The equity price responses illustrate a point that I believe is true more generally: Policy-induced market responses are unproductive except in certain circumstances. Indeed, I will attempt to convince you that monetary policy works best when Fed policy actions are completely anticipated by the time they occur—that is, when policy actions are a nonevent in the markets.

The corollary to this proposition is that large market responses to monetary policy action or inaction can represent, depending on circumstances and at least to some degree, a potential failing of monetary policy. Of course, market reactions to news are part of the American landscape. They will not be eliminated no matter how hard the Fed attempts to convey its intentions to the public. I hope to convince you that aligning

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market expectations with policy should be an important central bank objective, even though it will never be fully achieved. To be very explicit about a point I've made above implicitly, I do not believe that all reactions to changes in the funds rate target represent a failing of monetary policy. Sometimes the market gets it wrong no matter how hard the Fed tries. The Fed has a responsibility to get policy right even if doing so surprises the market.

This argument motivates the title of my speech today: "Getting Markets in Synch with Monetary Policy." This is also the title of the St. Louis Fed's annual economic conference this year, to be held at the Bank on October 11 to 12, 2001. Our hope is that this conference will give us better insight into how we might get markets more in synch with monetary policy.

## THE EFFICIENT MARKETS PARADIGM

The efficient markets paradigm is at the core of my belief. According to the efficient markets hypothesis, speculative markets respond efficiently as market participants assess all relevant information. Absolutely everything that might influence markets is reflected in market prices. Given that investors bid current prices to levels at which risk-adjusted expected rates of return are equalized across various investment alternatives, each new piece of information may move market prices. The efficient markets model is not perfect, but it certainly goes a long way to explain the behavior of speculative prices.

Markets respond to the flow of all sorts of information, including that from the central bank. Federal Reserve policy actions and statements by Federal Reserve officials—especially the chairman—affect market expectations and, therefore, market prices.

Of course, only new information matters. Everything that is known or could be predicted has already been bid into market prices; only the reports coming across the wires that change the probabilities of future outcomes affect current

market prices. This point is well understood by most market participants and most in the financial press.

## MONETARY POLICY ACTIONS

Now consider the interactions of speculative markets with monetary policy actions. Market participants are trying to forecast the future, and so they are naturally interested in what the Fed is trying to do. I will now make the assumption—which I think is accurate, but will not discuss further here—that the goal of the Federal Reserve is to keep the rate of inflation low and steady, a goal that I'll call "price stability." Insofar as possible, given its price stability goal, the Fed also wants its policy actions to contribute to the stability of employment and output. I believe that price stability will, if anything, yield lower average unemployment than would be achieved at higher inflation. Hence, when policymakers pursue stable prices, they simultaneously pursue the goal of maximum sustainable economic growth. Consequently, I assume that the Fed's primary goal is price stability and its secondary goal is stability of output and employment, to the extent possible.

Markets must not only assess the Fed's goals, but the likelihood the Fed will be able to achieve them. Consequently, for the sake of making my point, I also assume that the Fed can achieve its goals by making adjustments to its policy instrument. The Fed's policy goals and procedures are key pieces of information that help market participants predict how the Fed will respond to new information.

The Fed's principal policy instrument—and I will assume its only policy instrument—is the federal funds rate. The final outcome of each meeting of the FOMC is its decision on the target, or intended, federal funds rate. In a manner similar to efficient markets, policymakers set their policy instrument at a level consistent with their policy objective, given all of the information available at the time. Only in a static world would the Fed keep the funds rate constant forever. As new infor-

mation comes in about the economy, policymakers evaluate the information and decide whether or not to change the setting of the policy instrument. Markets anticipate that the Fed will adjust the funds rate in response to new information about the economy in a manner consistent with its policy objective. The important question is when and by how much will the Fed change the federal funds rate?

FOMC members are constantly examining the flow of incoming information on the state of the economy and deciding what policy actions may be necessary to keep the economy on the desired track. The implications of a particular event or piece of news for policy are rarely perfectly clear. For one thing, individual FOMC members may have different interpretations of the incoming flow of data and the appropriate policy responses. Moreover, information tends to arrive in “packets,” not in individual pieces. Each day brings new information on a variety of variables. The response to a particular piece of information is always conditional on information about other variables—the policy relevance of a fall in equity prices, for example, is different when other economic indicators suggest the economy is strong than when such indicators suggest the economy may be weakening. Economics provides considerable guidance on how policymakers should respond, but the timing and size of the response is frequently unclear. Indeed, in some instances even the appropriate direction of policy action is unclear.

Despite these limitations, it is convenient to think about policy as if, in principle, there is a correct policy response to new information that comes in during the intermeeting period. The job of the FOMC is to evaluate this information and dial in the appropriate response at its next meeting. The appropriate response is often to keep the funds rate steady. Indeed, I believe that one of the greatest benefits that a high degree of market confidence in the Fed affords is that it enables the Fed to wait until new information makes it quite clear what policy action is appropriate. Of course, given the lags in the effects of monetary policy on the economy, there is always a danger

that policymakers will wait too long before acting.

Now consider the markets’ reaction to policy actions. At this point, let’s assume that the markets and the Fed get the same information at the same time—neither has an informational advantage. It is easy to see the nature of the expectational equilibrium in such an environment. If the markets know the Fed’s policy objectives and what policy adjustments are appropriate given the new information, the markets and the Fed have a common response. Each time the FOMC meets, the markets know what policy adjustment, if any, is necessary and desirable. When the Fed adjusts policy according to its objectives and the information it has received since the last meeting, no one is surprised—the Fed’s action is a nonevent to the markets. The market’s expectation is fulfilled because the market and the Fed have interpreted the same information the same way.

If the FOMC acts as the market expects, the FOMC’s actions will not themselves be information and will elicit no adjustment of market prices. Those adjustments will have already taken place during the period between FOMC meetings as the markets respond to the steady flow of new information in the form of the employment report, housing starts, productivity, employment cost index, etc.

## **SYNCHING MARKETS AND POLICY**

An environment where markets and the Fed respond in the same way to the same information is clearly idealized, but I believe it is the environment the FOMC should be striving to achieve. Price stability is desirable because avoiding inflation surprises adds to the efficiency of the market economy and promotes maximum sustainable economic growth. Of course, we cannot avoid all surprises. By nature, the future is unpredictable. These unpredictable events include natural disturbances, such as earthquakes and floods, political disturbances at home and abroad, many changes in tastes and technology, and so

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forth and so on. Markets respond efficiently to these disturbances most of the time.

Nearly everyone believes that, when possible, monetary policy should offset shocks to prevent them from pushing the economy away from price stability. A less well-recognized way that monetary policy can contribute to the goal of maintaining price stability is to prevent monetary policy disturbances per se from adversely affecting price stability.

My analysis assumes that policymakers' goals and the public's goals are the same. When they are different, policymakers may have an incentive to surprise the market. When the goals are the same, however, it is difficult to conceive of situations where policymakers have an incentive to surprise or fool the public just for the sake of surprise itself. Surprises may sometimes be necessary to get policy right, and are therefore unavoidable, but they are not in and of themselves desirable. For many years now the Fed has pursued the goal of price stability with genuine conviction. I believe that society shares the goal and understands and appreciates that conviction.

I don't really believe that the coincidence of policymakers' goals and the public's goals is an assumption. In a democratic society, I am inclined to think that it is impossible for a central bank to pursue long-run goals that are not acceptable to society at large. This does not mean that society immediately accepts the central bank's goals. There is likely to be some learning on both sides.

The point I want to make here is that the markets and the Fed cannot converge on a common understanding of the direction of monetary policy if the Fed does not pursue its goals in a consistent fashion over time. The job of the central bank is to maintain a clear focus on price stability and to convey that focus to the markets. The central bank and the markets can then respond in identical fashion to the flow of incoming information because they reach the same conclusion about the implications of the information for monetary policy. In this environment, market participants are not surprised by the Fed's action because they also know what needs to be done.

There are a number of examples that illustrate how making sure the market understands policymakers' intentions improves the response. I will mention only two. In the mid-1960s, the Board of Governors began stating why the discount rate was changed when it announced a discount rate change. Frequently, the discount rate was changed simply to bring it into alignment with market rates that had changed. We now know that when rate alignment was the only reason that the Board gave for the discount rate change, market rates did not respond, which is just as the Fed intended. However, when the Board gave some other reason for the changes, market rates responded significantly. Prior to the mid-1960s, the Board simply announced discount rate changes and the market responded significantly even when the Board was simply realigning the discount rate to market rates. Hence, when the Board was not clear about its intentions when changing the discount rate, market rates responded even when the change in the discount rate was not motivated by policy considerations.

A second example occurred on December 3, 1990, when the Board of Governors announced that, effective December 13, 1990, it was reducing from 3 percent to zero percent the reserve requirement on certain nonpersonal time deposits and eurocurrency liabilities. The effect of this action was to reduce reserve requirements by a total of about \$13.2 billion. The Board had given no indication that it was going to take this step. Even many inside the Federal Reserve were surprised by the action. As a result of this surprise action, the federal funds rate was higher and generally more volatile for about two and a half months, as banks adjusted to their new circumstance.

In contrast, on February 18, 1992, the Board announced that the reserve requirement on transactions deposits would be reduced from 12 percent to 10 percent effective April 2, 1992. This action reduced total reserve requirements by nearly \$9 billion. In this case, however, the change was announced well in advance of its effective date, giving banks adequate time to prepare for the new circumstance. As a result, there was no

marked change in the level or variability of the federal funds rate.

I think this idealized picture takes us a long way toward understanding how monetary policy and the markets *should* interact when policy is on a successful track. In this environment, the Fed and the markets are in synch. With complete synchronization, the markets and the Fed have a common understanding of the objectives of monetary policy and a common interpretation of the significance of incoming information.

Market prices that anticipate what the FOMC will do are a necessary ingredient of effective monetary policy. Regularity and predictability are important to the success of policy. If the public knows that policymakers want stable prices and will carry out the actions necessary to achieve price stability, firms and workers will be less inclined to take actions that are inconsistent with the Fed's policy objective. Investors and entrepreneurs will be more willing to undertake projects that would be adversely affected by inflation surprises. Market success in anticipating FOMC actions indicates the Fed's success in designing policies to achieve those goals that society accepts and in conveying those policies to the public.

This ideal policy does not mean that the Fed is simply following markets or that the Fed is not exercising proper leadership. Indeed, there may be instances where the market gets it wrong. In such instances, policymakers must do what they have to do even if the policy action surprises the market. Such market surprises are a natural part of the learning process and are bound to occur from time to time.

For example, there have been instances when, for one reason or another, policy drifted significantly off course, eventually requiring the Fed to take rather drastic actions. One such instance occurred in October 1979, when the Fed was forced to pay much more attention to monetary aggregates in implementing policy. When policy goes off course, changes in the direction of policy are both necessary and desirable. Such changes will inevitably surprise the markets.

There have also been occasions when policy took wrong turns, such as the 1971 policy of comprehensive wage and price controls. I include this case because the introduction of wage and price controls had monetary policy implications. Many observers, including some policymakers, thought price controls would take care of inflation and permit monetary policy to be more expansionary, to drive down unemployment. The unfortunate thing about both the 1971 and the 1979 changes in policy was that they occurred in the first place as a consequence of policy going off course.

Clearly, policymakers can sink (S-I-N-K) the markets, or send them into orbit when a surprise policy action boosts market prices. To me, sinking or orbiting the markets will ordinarily be undesirable. A market surprise can occur because an undesirable policy is being corrected, or because policy is taking off in an unforeseen and, perhaps, undesirable direction, as in the above examples. More often, however, policymakers have simply done a poor job in making their objective known.

The street runs both ways: Sharp changes in market prices can also occur when the market errs. I have deep respect for market judgments, but do not believe that they are invariably correct. Sometimes markets wake up to errors, and prices adjust rapidly. Very little is known about this subject, but the 1987 stock market crash is certainly an example of a market error. No economic data or policy changes arrived at the time of the crash to justify an adjustment that large. Consequently, the crash was an error, the market advance prior to the crash was an error, or both were errors.

At times policymakers may find it necessary or desirable to take unanticipated actions to clarify the direction of policy. Consider the 1987 stock market crash and the Fed's response. The crash was a truly frightening event; if the Fed had not acted, I have little doubt that uncertainties would have multiplied and market volatility would have increased further, or at least remained at markedly elevated levels. Uncertainty would have affected the credit markets in general, and

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probably consumption as well. In fact, at the time there was widespread commentary to the effect that a recession was likely. By acting promptly, the Fed reassured the markets that liquidity would be available as needed to prevent cascading problems. The Fed's effort was clearly and unambiguously successful. There was no recession and no serious disturbances spread to credit markets. Stock market volatility declined. Similarly, in October 1998, the FOMC surprised markets by acting quickly in the face of a severe liquidity crisis with accompanying disruptions to credit markets subsequent to the Russian default.

Certainly, one way to get the market's attention at the present time is by making intermeeting surprise changes in the funds rate target. Before 1994, however, intermeeting changes were the rule rather than the exception and consequently were not of special note as they are now. Because they have been relatively infrequent recently, intermeeting moves currently tend to garner more attention than actions taken at regularly scheduled meetings.

The research question is under what conditions, beyond clear and dramatic cases such as the 1987 stock market crash or the 1998 liquidity crisis, do surprise policy actions serve to clarify the direction of policy? One dimension of such a research agenda might be to examine the effect of surprise policy actions on market uncertainty. Are there good market measures of uncertainty, beyond survey information that arrives at discrete intervals and has various problems of interpretation? If we can find useful measures of market uncertainty in the equity and bond markets, then we can begin to explore the conditions under which surprise policy actions clarify the Fed policy intent and help to synchronize market expectations with the direction of Fed policy.

In any event, the key point remains. A large market response to a Fed policy action is evidence that the markets and the Fed are not in synch. The market or the Fed, or both, must have been operating on the basis of different information, which may include different assessments of the significance of readily observable data. The more complete the convergence of views between the

market and the Fed, the better the economy will work. Convergence reduces market volatility and reduces expectational errors, which can lead to resource misallocation. Firms, for example, may make investments that prove to be unprofitable because their expectations were wrong.

The Fed has not reached the point where its policy actions elicit zero response in the markets. Nevertheless, the improved accuracy of market expectations about Fed policy has been striking in recent years. Let me offer a hypothesis about the effects of the increased synchronization—a hypothesis that I have not yet investigated, but hope to be able to. Everyone agrees that, in recent years, economic outcomes—in terms of both inflation and unemployment—have been better than in the past. My hypothesis is that monetary policy has been more regular and predictable than it used to be and that a consequence has been improved economic performance. This hypothesis can be tested by examining whether Fed policy actions account for a smaller fraction of the variance of interest rate changes in recent years than in the past. Put the other way around, my hypothesis is that nonpolicy events such as data releases account for a larger fraction of total interest rate variance now than they did in the past.

My model of synching the markets and policy is incomplete in some important respects. Two issues particularly concern me. First, the pure version of the model requires that the Fed and the markets have the same information about the economy. I think that, relative to the markets, the Fed actually has superior information in some cases and inferior information in other cases. What is clear is that full synchronization with the markets requires that the Fed pay careful attention to both collecting and conveying information. Transparency and clarity are necessary ingredients for policy success.

Second, there are considerable differences in professional opinion about how the economy works. The debates inside and outside the Fed are similar. The markets and the Fed will never be completely in synch because there will always be something for economists to argue about. Consequently, the Fed and the markets will not

necessarily come to the same judgments. Still, it is important not to lose sight of the fact that there is an enormous common base of understanding between the Fed and the markets and that this common base has a lot to do with policy success.

## **CLOSING COMMENT**

I'll close by reemphasizing my main theme. When the markets and the Fed are in synch, both will have a common reaction to incoming data and the markets will correctly anticipate Fed policy actions. An environment in which markets correctly anticipate Fed actions implies a situation in which Fed policy is widely understood, regular, and predictable. The fact that Fed policy actions sometimes take the markets by surprise shows that we have not yet reached this ideal.

Still, it is important to recognize that the Fed has made tremendous progress over the last 20 years or so in pursuing a consistent policy designed to establish price stability as the norm for the economy. The Fed and the markets are mostly in synch; surprises in the incoming data—whether on prices, employment, GDP, activity in economies abroad, and so forth—are surprises to both markets and the Fed and both read the surprises pretty much the same way. If the market and Fed readings become identical, we can expect that Fed policy adjustments will convey no new

information to the market, and therefore market prices will not respond to them because they are fully anticipated.

I believe that a policy agenda designed to heighten the degree to which the Fed and the markets are in synch is an ambitious and worthy objective. In my opinion, we in the Fed need to work on two fronts. One is the policy front itself, making sure that policy actions are as appropriately timed and scaled as possible. The second is on the disclosure front, making sure that knowledge inside and outside the Fed converges to the maximum possible extent.

Progress on both fronts will require continuing research. It is clear to me that new insights into the convergence of information, or lack thereof, between markets and the Fed will play a central role in this research. My insight today is completely consistent with—indeed is implied by—rational expectations macro models. What I had not done before I came to the Fed was to relate these abstract models to the daily ebb and flow of market reactions to new information. The conclusion I have been discussing—that, with full convergence of information, Fed policy actions will not affect market prices because the market has already predicted them—initially surprised me. But the more I think about the matter, the more compelling the conclusion is. I hope you find the conclusion compelling as well.