

Chapter 9 Major Market Participants: Their Influence on Investment Performance

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OVERVIEW

Who Are the Major Players?

Economists often speak of perfect markets and perfect competition. Such a pure model presupposes a market made up of large numbers of identical players, none with any real power to move prices. Information is free and instantly available to all. However, the real bond market bears little, if any, resemblance to this hypothetical model. Large firms dwarf small ones, and government agencies have even greater market power than the largest firms. Most important, information costs money: the last person to know is the first person to lose.

In this chapter, we will discuss major players in the bond market to describe the impact each player has on securities markets and their influence on investment yields. These players, in order of their potential impact on prices, are the U.S. Federal Reserve, the U.S. Treasury, dealers, and foreign investors. A brief description of the players appears below.

The U.S. Federal Reserve. By far the most influential player in the market is the U.S. Federal Reserve. The Fed owes this distinction to the fact that it is the largest single buyer and seller of U.S. Treasury securities. The Fed makes these transactions to implement monetary policy by regulating interest rates. Thus, the Fed is important not only for the effect of its massive presence but also for its intentions.

The U.S. Treasury. Theoretically, it is the U.S. Treasury that decides how many securities are issued. In fact, this is a political decision dictated by the budget deficit and is largely outside the Treasury's hands. The Treasury does, however, have virtually unlimited control of the maturity distribution of the securities issued, a factor of almost equal importance to market players as the number of bonds outstanding.

Dealers. Dealers are an important part of the market because of their willingness to take a risk. Dealers stand ready to do this because they believe they can trade profitably, and because they maintain a large customer base to assist in efficient distribution of securities. Many dealers consider their customer base, and the tremendous source of "free" information it provides, to be their greatest asset.

Foreign Investors. No single group of investors has played so prominent a role in the last decade as the Japanese. Without following any organized plan, the Japanese have saved the U.S. government from bankruptcy by single-handedly financing the bulk of our steeply growing national debt.

How Can the Major Players Be "Read?"

Readers hoping to find in this chapter a fail-safe trading strategy will be disappointed. What will be found here is a thorough investigation of the motivations of the major players in the market. An investor who fully understands the motivations of the Fed, the Treasury, and the Japanese is unlikely to become captivated by the enticing scenarios spun by ill-informed (or unscrupulous) bond salespeople. In the long run, avoiding such pitfalls will save more money than any "system" could guarantee.

Unfortunately, no neat set of rules governs the actions of the major market players. If we want to understand what motivates the Fed, the Treasury, or the Japanese investors, we must examine their past behavior. We must identify how they responded to various economic and political events.

In the 1980s, the bond markets were affected by many dramatic events. These events included:

- Growth of the trade deficit
- Passage (and subsequent de facto abandonment) of the Gramm-Rudman Amendment
- Failure of Continental Illinois
- A 500-point drop in the Dow Jones Index
- Fed Chairman Paul Volcker's experiment with monetarism
- A plunge in oil prices
- The decade-long dominance of a Republican presidency
- The savings and loan crisis and its bailout

These events, and others like them, dominated the decision making of thousands of institutional investors during the 1980s. However, most of these situations are unlikely to occur again in the future. In fact, many of the major economic trends of the 1980s, such as the growth of the trade deficit, will probably be reversed in the 1990s.

The idea, then, is not to become experts on events of the 1980s but to find the common thread that runs through them. What is important for us is not events themselves but the *reactions* to these events of the major players in the market. What motivated the Fed during the 1987 stock market crash? Why did the Japanese take on a monumental proportion of the U.S. debt? What caused the Group of 5 to plunge the dollar to half of its third quarter 1985 value?

Understanding what motivates the major market players is the key to making intelligent judgments about the market. Even if you have been exposed to the market for only a short time, you know that every story in the business press, and every "spin" by a securities salesperson is couched in the same format: event X will cause player Y to take action Z. For example:

- The failure of Continental Illinois will cause the Fed to ease.
- The fall of the dollar will cause Japanese investors to stay away from this quarter's refunding auction.
- The rise of the gross national product (GNP) will cause institutional investors to move out of bonds and into stocks.

Thus, the purpose of this chapter is simple. We will provide the reader with such a firm understanding of the motivations of the major players in the market that he will be able to project how these players will react to situations in the future. More important, he will have the tools to separate fact from fantasy, no matter what "expert" opinion is current with the "spin doctors."

THE FED

Structure of the Fed

Background

The U.S. Federal Reserve System is a quasi-governmental organization created by Congress in 1917 to bring stability to the banking industry. The impetus for the Fed's creation was a two-year congressional investigation of bank panics, which concluded that our nation lagged behind other major industrial powers in its lack of a central bank.

In the early years, the Fed served only as a lender of last resort, that is, as an institution that banks could borrow from in order to prevent a run on their deposits. The original mechanism for this lending by the Fed was the so-called discounting of commercial paper. Banks would sell some of their holdings of commercial paper to the Fed cheaply and later buy it back more dearly; in effect, the Fed was making a short-term loan to the bank. (Remember, this was long before there was a large supply of U.S. government securities; the big market was for private

commercial paper.) Along the way, the Fed realized that its lending practices had two major effects. Lending money in large sums affected the nation's money supply, while dealing in large volumes of commercial paper affected interest rates. Thus, the Fed more or less stumbled into the basic rudiments of monetary policy.

During its first 10 years, the Fed managed quite well. Then came the Great Depression. By the time the initial shock of the Depression subsided, it was already 1935. Congress, searching for someone to blame, selected the nation's banking industry as the scapegoat. Congress also believed that the management of the nation's economy was too politically sensitive to be left to the legislative or executive branches. The Glass-Steagall Act was born from the marriage of these two motivations.

Glass-Steagall Act

Most people think of the Glass-Steagall Act as the legislation that created a boundary between commercial and investment banking. However, Glass-Steagall actually had a far greater impact than that. The Glass-Steagall Act effectively made the Fed what it is today — the most powerful financial institution in the world. The Glass-Steagall Act gave the Fed sweeping regulatory powers over the nation's financial institutions and legitimized its role in the conduct of monetary policy. The discount window, through which all previous emergency bank lending had taken place, was made less intimidating, and banks were encouraged, to a certain extent, to borrow from it. Also, Congress specifically authorized open market operations, i.e., it authorized the Fed to purchase as many securities as necessary to influence interest rates (and thereby the economy) in the proper direction.

The Fed Today

In the 50 or so years since Glass-Steagall was enacted, the Fed's power over both the banking system and the economy has vastly expanded. The Fed has grown from an organization of a few hundred individuals to a bureaucracy of more than 35,000 individuals. The Fed consists of 12 district Federal Reserve Banks, located in major cities throughout the U.S., and a seven-member board of governors, located in Washington, D.C. The district banks handle much of the work dealing with bank regulation, while the board of governors is concerned primarily with the implementation of monetary policy.

Except for those involved with large money center banks, the issues of Fed banking regulation are not directly relevant to a discussion of the bond market and will not be discussed here. What is relevant to all financial market participants is the Fed's implementation of monetary policy. Monetary policy is decided upon by the Federal Open Market Committee (FOMC). The FOMC has eight permanent members, the seven members of the board of governors and the president of the New York Federal Reserve Bank. Four of the remaining district bank presidents serve on a rotating basis.

The FOMC meets eight times a year. Although the FOMC is a democratic organization (one member/one vote), it is well known that the chairman's views dominate the decision making. Similarly, although all the district bank presidents are consulted, it is the New York District

Federal Reserve Bank that actually converts the abstract theory of FOMC monetary policy decisions into a day-to-day plan of action. Consequently, to understand what motivates the Fed, it is important to understand what motivates the chairman to choose a particular direction for monetary policy, and what motivates the New York Federal Reserve Bank to implement monetary policy in a given way. In the subsections that follow, these motivations will be spelled out in the context of the Fed's relationships with the primary dealers, with the Treasury, and with foreign central banks.

The Fed and the Primary Dealers

Primary dealers are dealers in bonds who have been designated by the Federal Reserve Bank of New York. Primary dealers are important in the market in their own right, and their qualifications and duties are described in detail later. In our discussion of the New York Fed's day-to-day implementation of monetary policy, however, we will concern ourselves with only one aspect of the primary dealer's role: the duty to be prepared, at a moment's notice, to engage in a securities transaction with the New York Fed.

As we discussed earlier, the New York Fed's trading desk, commonly known as the Desk, plays an important role in regulating the reserves of the U.S. banking system. When the Fed wants to drain reserves from the system, the Desk sells U.S. government securities. When the Fed wants to add reserves, the Desk buys securities. Participants in the market, especially the primary dealers, place much emphasis on the choice and timing of the Desk's open market operations. (For a more detailed discussion of the operation of the New York Fed's trading desk, see Appendix A.) In the following pages, we present a few of the common perceptions of these operations among primary dealers. We then examine these perceptions to determine whether they are founded on fact or fantasy.

Perception 1: Adding operations are bullish; draining operations are bearish. Generally, this is a misconception. For one thing, the need for a steady rate of growth in the money supply dictates that there be far more adding than draining operations. Consequently, because of their relative rarity, when they are undertaken, draining operations tend to be (mistakenly) interpreted as an indication that the Fed is displeased with the current state of affairs and has taken action to fix it. However, a statistical analysis indicates that there is little or no correlation between the ratio of the number of adding to draining operations and changes in monetary policy.

Perception 2: Permanent operations are less significant than temporary operations. As a corollary to this belief, it is also believed that temporary operations of shorter duration, such as an overnight repurchase agreement (RP), are more significant than temporary operations of longer duration, such as a three- or four-day RP. The reasoning is that a permanent (or "long temporary") operation indicates major bank reserve difficulties that require prompt resolution; whereas no bank reserve difficulty that lasts for only one day could be so important that it could not simply be ignored. Thus, a temporary, one-day operation is more a signal of a policy change than a corrective action.

There is a limited degree of truth in these perceptions. The Fed occasionally sends a signal to the market that the current level of interest rates is not what it considers the desired equilibrium.

However, failure to correct a reserve flow problem that lasts for only a single day could be interpreted just as easily as a policy change in the other direction; thus, the Fed tries to correct all reserve problems, regardless of their duration. The best example of this is a surge in float, due to weather-related disruptions in the nation's check-clearing mechanisms.

Typically, the Fed needs to respond in the morning to a problem that will not manifest itself until later in the day. Although it is possible to see where interest rates go, it is better simply to ignore the stories generated about a change in Fed policy as the result of a short-term temporary open market operation.

Perception 3: An early, or unexpected, operation is more significant than an operation that is on time or expected. The Fed knows, through its daily meeting with representative primary dealers, which operation the primary dealers are expecting that day. The Fed is also aware that the commonly accepted time for an open market operation to take place is between 11:40 A.M. and 11:45 A.M. eastern standard time. Thus, the reasoning goes, if the Fed performs an unexpected operation at an unexpected time, it is sending a deliberate signal to the market. Again, there is some truth behind the accepted wisdom. The Fed does occasionally perform an unexpected operation deliberately; however, when it does, it is usually to signal its resolve in dealing with a major reserve difficulty, not to signal a change in policy.

Perception 4: A System RP is more indicative of an easing by the Fed than is a customer RP. Although on rare occasions the Fed has chosen a System rather than a customer RP as a means of signaling its resolve, this perception is inaccurate. More often, a customer RP or a System RP is chosen simply because it is more appropriate. What makes a customer RP more appropriate? Generally, a customer RP is smaller in dollar value than a System RP, so it is better suited to the need for small reserve additions that arise during the year. System RPs, like draining operations, because of their relative rarity, have gained a certain notoriety. Further, the mechanism of a customer RP is related to the Fed's activities with foreign central banks. A customer RP is sometimes the easiest way of "letting off the steam" that results from international currency intervention.

The moral of this story is simple: do not look at the Fed's transactions with the primary dealers in trying to read the Fed's open market operations. The Fed itself, in several of its publications, explains that more than 90 percent of its open market operations are defensive, i.e., simply designed to stay the course of current monetary policy. Consider this: the Fed changes monetary policy only about four or five times each year. However, if you read the *Wall Street Journal's* "Credit Markets" column each day, you will find at least one reputable market pundit insisting that today's open market activity (or lack thereof) by the Fed is *the* indicator that the Fed has changed direction. Only a handful of Fed-watchers in this country do a thorough job of tracking all the myriad of factors that motivate the Fed's open market operations; and even they are more often wrong than right.

The Fed and the Treasury

The U.S. Federal Reserve System is commonly referred to as the fiscal agent for the U.S. Treasury. Being fiscal agent involves two major duties. First, the Fed carries out the auction of

all U.S. Treasury securities. The Fed accepts the bids, handles the money, notifies successful bidders, and, in general, sees to all the paperwork and bookkeeping involved.

The Fed's second major duty as fiscal agent is to act as the U.S. Treasury's banker. Simply put, when the Treasury writes a check or deposits funds, the transaction is cleared through an account at the Fed. Few market players are aware of the subtle yet powerful impact the Fed, in this role, has on the market and on interest rates in general. Before considering this impact, however, let us examine the mechanics of the Fed as fiscal agent.

The Treasury's Account at the Fed

The U.S. Treasury receives revenues and makes expenditures. Just like an individual, the Treasury maintains the equivalent of a checking account and a savings account. The Treasury's checking account is commonly referred to as the Treasury account (or balances) at the Fed or sometimes just "Treasury balances." The Treasury's account at the Fed is the final holding point for government revenues before they are spent. Anyone who receives a check from the government (government employees, defense contractors, welfare recipients, etc.) receives a check drawn on the Treasury's account at the Fed. The Fed does not pay interest on this account. As a general rule (and for reasons we will soon discuss), the Treasury tries to keep an average level of \$3 billion dollars in its Fed account. Higher balances are maintained when extraordinary expenditures are anticipated.

The Treasury's savings account is more complicated in its description and its use. In fact, the Treasury's savings account is not one account, but many accounts, referred to collectively as the "Treasury Tax and Loan Accounts" (TT&L accounts). These accounts are held at the nation's private banks, which pay interest on them at the Fed funds rate plus 25 basis points. Generally, the funds must be available within a day's notice. The TT&L accounts act as a buffer for the Treasury's account at the Fed. Whenever the Treasury's account at the Fed exceeds \$3 billion, the excess is transferred to the TT&L accounts. The reverse occurs when the account at the Fed falls below \$3 billion.

Three important points to know about these transfers of funds between the TT&L accounts and the Treasury account at the Fed are:

1. The transfers are not automatic; they must be authorized by the Treasury.
2. The Fed simply acts as a bank and is not in charge of either the TT&Ls or the Treasury's account.
3. The TT&L accounts have a limit, while the Treasury's account at the Fed does not. The TT&L limit is the sum of the numerous separate limits that the Treasury agrees to, with each bank holding one of the Treasury's savings accounts. The aggregate limit varies according to the number of banks participating in the TT&L program, but it is estimated to be between \$25 billion and \$30 billion.

The combination of the funds available in the TT&L accounts and the funds available in the Treasury's account at the Fed is commonly referred to as the Treasury's cash balances. (This

term, which refers to the combined funds of the TT&Ls and the Treasury account at the Fed, should not be confused with the term Treasury balances, which commonly, although not universally, refers solely to the funds at the Treasury account at the Fed.) To appreciate the market impact of the relationship between the Treasury and the Fed, we must understand the relationship between the TT&L accounts and the Treasury's account at the Fed.

TT&L Accounts and the Treasury's Account at the Fed

Let us consider how money comes in to the U.S. government. There are two major sources of government money (all other sources are insignificant): (1) the government receives tax revenues from individuals and corporations; and (2) the government receives money from auctions of government securities.

The government knows in advance when it will receive these funds: there are six major tax prepayment dates during the year (January 15, March 15, April 15, June 15, September 15, December 15); and the dates of the auctions are set well in advance. Advance knowledge of the dates that revenues will be received does not, however, aid in the proper management of these funds once they are collected. Consider these facts:

1. Hundreds of billions of dollars in revenues must turn into hundreds of billions of dollars of expenditures each year through the Treasury's account at the Fed.
2. The Treasury tries to keep only \$3 billion in its account at the Fed at any given time.
3. The TT&L accounts can hold a maximum of \$30 billion.

Something has to give. Shortly after each of the six tax dates, the Treasury's account at the Fed begins to swell. The excess funds are quickly transferred to the TT&L accounts, but soon the TT&Ls reach their combined limit. Overflows in the TT&L accounts are kicked back to the Treasury's account in the Fed, which must accept all the excess. In other words, when the TT&Ls reach their limit, any new revenues must go into the Treasury's account at the Fed.

Is there any reason for the average market player to be concerned about how the Treasury splits its operating cash balance between the TT&Ls and its account at the Fed? Definitely. Earlier, we said that the TT&L accounts act as a buffer; what we mean is that the TT&Ls are a buffer against major fluctuations in short-term interest rates. If the TT&L accounts are zero, if they are at their limit, or if they are anywhere in between, short-term interest rates are unaffected, so long as the Treasury account at the Fed remains constant. On the other hand, no matter what is going on in the TT&L accounts, if the Treasury's account at the Fed is volatile, then the markets will more than likely witness volatility in short-term interest rates.

Why is this? Structurally, the TT&L accounts are no different than private bank deposits, either individual or corporate. That is, if I deposit a check from a friend in my account, the transfer of funds from his account to mine does not affect the total level of bank reserves. Likewise, if the balance in TT&L accounts rises because the balance in individual and corporate checking accounts falls (due to the payment of taxes), no net impact on bank reserves occurs *because TT&L levels count as bank reserves*. The Treasury's account at the Fed, however, is more like a

"black hole" for bank reserves. When TT&L funds are transferred into the Treasury's account at the Fed, the total level of bank reserves is decreased, just as if the Fed had tightened monetary policy. Since most short-term money markets key off of the availability of bank reserves, such a decrease of reserves usually leads to a rise in interest rates, unless the Fed takes steps to offset the move with defensive open market operations. (See also the discussion of the Fed's use of the Treasury balance as a tool of monetary policy in Appendix A.)

Market Disruptions and Market Perceptions

If the Fed is on top of things, we would expect that the surges in the Treasury's account at the Fed would be anticipated and offset immediately. Certainly the tax dates are known, and certainly the Fed keeps in constant contact with the Treasury for daily forecasts of expected revenues. Neither the Fed nor the Treasury is perfect, though. Market disruptions do occur, and the disruptions do change market perceptions of Fed policy.

What happens? First, although both the Treasury and the Fed know the tax dates, there is no reliable way to determine on precisely which day after the tax date the revenue surge will start, how long it will last, or how high it will go. Second, as mentioned earlier, the Fed restricts itself to one operation per day, arranged in the morning. If the Fed fails to foresee a surge later in the day, it is restricted by its own policy from taking offsetting steps. The usual outcome is that, for about a week, the Fed attempts to manage the surge but typically underestimates the amount of reserves needed.

It may seem farfetched that the market's perception can change based on such a short-lived (and regularly recurring) phenomenon. However, it does happen. Many market players view the Fed as omnipotent. They cannot accept that the Fed makes mistakes, either in its forecasts or in its open market operations, especially in regard to something like the Treasury's balances, about which the Fed has so much information and with which it has so much experience. Thus, many players conclude that whatever happens to short-term interest rates must have been deliberately engineered by the Fed. As mentioned previously, there is always someone of repute willing to be quoted as saying that the Fed has changed policy. When these quotations take the same position for four, five, or maybe six days in a row, a new market perception definitely results.

So what should you do during these periods? Be aware, but be skeptical. Do not try to second-guess whether or not the Fed has made a mistake. The best course of action is to observe the tax dates, and then follow the Treasury's cash balances, both at the account at the Fed and in the TT&L accounts. After the balances have surged and returned to normal (usually about two weeks, at most), it is safe to get back in the market. Until then, listen to the "expert" advice of many bond salespeople with a very large grain of salt.

The Fed's International Role

Although it was nowhere in its original charter or in its expanded charter under the Glass-Steagall Act, over the years, the Fed has taken an increasingly active role in international financial matters. This role was particularly expanded under Chairman Paul Volker, to whom

the world began to turn for the solution to such problems as the Latin American debt crisis, the large U.S. trade deficit, and the high volatility of the U.S. dollar.

It may come as a shock to casual Fed watchers, but the fact is the Fed has very little power in the foreign currencies market. True, the Fed maintains its own foreign exchange desk. Also, it has a substantial Exchange Stabilization Fund. The Fed also has "swap line" arrangements with all the major central banks of the world. However, the Fed does not control these entities; any official U.S. foreign currency intervention is under the jurisdiction of the U.S. Treasury. In international issues, the Fed serves only in an advisory capacity.

With this, as with many other divisions of duty within the Federal government, however, there is "what the law says" and "what the personalities dictate." During the Reagan administration, Paul Volker played a major role in the handling of international financial issues. Indeed, Volker probably would have had final and exclusive authority on these issues had it not been for the equally strong personality of Treasury Secretary James Baker. Together, Baker and Volker made a formidable pair at the Group of 5 (G-5) and Group of 7 (G-7) meetings of world financial ministers that were called throughout the late 1980s to deal with trade imbalances and the volatile dollar.

Currently, under Fed Chairman Alan Greenspan and the Bush administration, there is far less tinkering with the U.S. dollar, for two reasons. First, Alan Greenspan is probably as respected as was Volker, both in the White House and in the markets. Given Greenspan's belief in free markets, dollar intervention has been curtailed. A second, and more foreboding reason, is that many market watchers agree that an important cause of the 1987 stock market crash was the threat of then Treasury Secretary Baker to permit the free fall of the dollar/mark. White House officials under both Reagan and Bush have avoided any unnecessary dollar intervention since then.

Reading the Fed

No meaningful discussion of the market's direction can fail to include at least some discussion about the future course of Fed policy. Consequently, every market decision must include, implicitly or explicitly, a judgment about the future course of monetary policy. How do you make this judgment?

In this section, we have observed that events from the past are not in themselves keys to the future. We have also observed that the numerous pundits and salespeople who argue that they have crucial insight usually know no more than you do. To make a sound judgment, we must examine underlying motivations of the Fed that transcend specific situations and personalities.

What motivates the Fed? Obviously, the Fed has many motivations for its actions. However, there is one motivation that underlies all the others: the Fed is made up of human beings who crave the respect and support of the public.

Although the Fed is insulated from official pressure from the White House, and to some extent from Congress, it is not insulated from the glare of public scrutiny. With today's expanded

financial press, rising number of Fed-watchers, and generally higher level of understanding of monetary policy by those in the market, the Fed is even more sensitive to the reaction to its policies than it was 20 years ago. The simple fact that the Fed wants to be accepted by the markets as effective explains several important aspects of the Fed's behavior.

The Fed needs to be very secretive. To be accepted as effective, the Fed cannot appear to favor any particular person or organization in the private sector. Consequently, you can immediately discount any claim to credibility based on "inside connections."

The Fed rarely changes policy. Contrary to popular belief, the Fed seldom changes policy. According to the reports released (with a one-year lag) by the New York Fed, the Fed changes its open market strategy, on average, about four or five times per year. This statement is supported by the easily observed fact that the discount rate is changed infrequently.

Why does the Fed so seldom change policy? If we accept that the members of the FOMC prefer to avoid criticism, we will readily see that it is easier for the Fed to pass off the blame for negative events if they haven't made any recent policy changes. How can you tell which operations represent a change in policy and which are simply defensive? You can't. It is best not to let your decisions be influenced by common misperceptions of Fed activity.

Coordinated rate moves are the exception rather than the rule. When the major central banks of the world came together in September 1985 to coordinate domestic interest rates in an effort to lower the dollar, it seemed as though Paul Volcker had ushered in a new era of international cooperation. In fact, this was very much an illusion. Although the central banks did coordinate three or four interest rate moves, the moves were coincidentally appropriate in the different economies at the time. Developments since have shown that when international coordination of rates is not in each nation's individual interest, coordination rapidly breaks down. It is unlikely that we will see any further coordination between the Fed and other foreign central banks.

In sum, the Fed is an intricate and secretive organization, motivated as much by political reality as by economic theory. The resources and expertise needed to read the Fed properly are beyond all but a few of the largest firms, and it is doubtful that even these select few have a batting average better than .500. However, there are many firms and individuals willing to tell you that they can divine the inner workings of the Fed, and their "analyses" are chock-full of very reasonable-sounding facts and conclusions. I recommend that you ignore their blandishments and derive your view of interest rates from a long-term economic outlook.

THE TREASURY

Debts and Deficits

Despite the rapid growth in personal and corporate income during the 1980s, and the concomitant growth in individual and corporate income tax revenues, the growth rate in spending has substantially outpaced revenues. The problem cannot all be blamed on the U.S. debt, which doubled under President Reagan. The U.S. has run a deficit in 23 of the past 24 years.

The most important news with regard to the deficit in the past few years can be summarized in two words: Gramm-Rudman, as in the Gramm-Rudman Deficit Reduction Act. In 1987 and 1988, declines were observed in the annual on-budget deficit. Many politicians and analysts attribute these declines to the restrictions mandated by the Gramm-Rudman law. Others claim the decline is artificial, generated by higher than expected tax revenues, asset sales, and creative accounting. What exactly is the Gramm-Rudman Amendment? Does it mandate a balanced budget? Will it eliminate the national debt? These issues need further investigation.

The National Debt Limit

A discussion of the Gramm-Rudman Amendment cannot proceed without an understanding of the national debt limit. The national debt limit was passed by Congress in the late 1960s in a vain attempt to slow or stop the growth of the national debt. (Little did Congress dream at the time how high the debt would actually go!) When one considers how Congress functions, the futility of the debt limit becomes immediately apparent. Congress cannot pass a law that restricts a future Congress, because the future Congress can always repeal (or amend) the law.

Just about every year, near the end of the government's fiscal year (August or September), after much chest-thumping and bellowing about the disgrace of the national debt, Congress raises the debt limit. Occasionally, a significant piece of social legislation is attached as a rider to the debt limit, but ultimately the debt limit is passed "clean."

Why has Congress never recognized the futility of the debt limit and repealed it? First, the debt limits provides a forum for bipartisan railing against the national debt. Second, it provides a valuable opportunity for playing "chicken." That is, if the debt limit is not raised, the federal government, unable to raise money to pay its bills, will come to a screeching halt. The political party that adds a rider to the debt limit walks a fine line: it pressures the other party to give in under the threat of a government shutdown; at the same time, however, it risks public blame should such a shutdown actually occur.

The Gramm-Rudman Amendment — the Deficit Reduction Effort

In September 1985, it looked like just another typical debt limit showdown was shaping up. A few congressmen wanted to attach an antiapartheid rider, while others were attempting to affix a ban on abortions. Both failed, but three congressmen, Phil Gramm, Warren Rudman, and Ernest Hollings, hit on an idea that caught fire: the Gramm-Rudman-Hollings Deficit Reduction Amendment. The idea was simple. Congress would bind itself to a fixed schedule of deficit reduction targets until, in 1991, the deficit disappears. Each year, if Congress could not develop, by a given date, a budget that met the target, the President would be authorized to make across-the-board cuts. The percentage size of the cuts was agreed to in advance. Cuts were to be roughly equal across defense and social programs, although a number of social programs were exempted.

Passing the Gramm-Rudman Amendment was easy. Making it work is hard. The first major obstacle was a Supreme Court decision in June 1986, only six months after the amendment had been passed, that rendered unconstitutional one of the amendment's major provisions. The

offending provision was patched up later in 1987, and the decision proved to be only a minor setback. The real obstacle to the success of the Gramm-Rudman law was much more insidious: Congress did not have the gumption to stick to its targets.

By September 1987, it was painfully obvious that the budget deficit was not reaching the target levels set by Gramm-Rudman, despite the fact that Congress had passed budgets that nominally kept to the letter of the law. How could Congress stick to the letter of the law, cutting the budget by the mandated amounts, yet not achieve the deficit reduction targets? The answer revolves around the complicated mechanism for determining the amounts to be cut. Stated simply, Gramm-Rudman is a failure because it targets deficits, not expenditures. Overly optimistic revenue estimates are inherent in the Gramm-Rudman procedure; therefore, deficit targets usually call for smaller spending cuts than are necessary. In late 1987, realizing that the deficit reduction was well behind schedule, Congress, rather than modify the procedure that resulted in overly optimistic projections of tax receipts, chose to spread the cuts over a longer period of time. The new target date for the elimination of the U.S. budget deficit is 1993, two years later than the original deadline.

The passage of the savings and loan bailout bill continues the recent tradition of undermining the Deficit Reduction Act. This time, rather than acknowledge that the targets are not being met and therefore revising them to be higher and extend further into the future, Congress simply chose to exempt most of the bailout cost and place it "off-budget." This fools no one except the members of Congress who voted for it.

What will be the impact of the deficit reduction effort on the bond markets as we enter the 1990s? A successful deficit reduction package would radically alter both the primary and secondary markets for U.S. government securities by virtually eliminating all new supply. However, the chances that Gramm-Rudman will do its job are slim to none. The apparent decline in the U.S. deficit is really a fluke of extraordinarily strong tax receipts, coupled with asset sales and creative accounting. It is unlikely before this century is over that we will see another budget deficit below \$75 billion. Once the economic expansion of the mid- to late-1980s starts to slow, tax receipts will fall and entitlement expenditures will automatically rise, and the deficit reduction efforts will be revealed for what they truly are: smoke and mirrors. True deficit reduction will occur only when Congress stops trying to target deficits, and starts to target spending levels. Until then, count on the combined self-interests of the 535 men and women who represent us to continue adding to the national debt.

Treasury Debt Management

Once we accept that the deficit is here to stay, it is important that we develop an understanding of how it is managed. Debt management is the specific task of the U.S. Treasury Department. In this section, we will examine how the Treasury decides which tools to use to finance the deficits. In particular, we will focus on a key element of Treasury debt management: "regularization" — what it means, how it restricts the Treasury's operations, and how those restrictions affect the bond market.

Regularization — Does It Work?

As the 1970s drew to a close, the Treasury became aware that the budget deficits were not going to go away. Indeed, they were going to grow. Given the fact that there was going to be an increasing need for funds to finance the deficits, it was decided that the haphazard approach of announcing securities auctions whenever the need for funds became apparent provided insufficient lead time to the underwriters, i.e., the primary dealers. A decision was made to "regularize" the issuance of government debt. The Treasury began issuing debt on a regular schedule, with certain securities issued weekly, monthly, and quarterly. Auction sizes were kept roughly the same, or increased only slightly.

Regularization of the issuance of public debt has its pluses and minuses. On the positive side, knowledge of when debt will be issued builds market confidence. Another plus is that the Treasury knows exactly what funds it will be receiving and when. On the negative side, the Treasury is obligated to hold auctions at regular intervals, regardless of recent market trends, and regardless of whether or not funds are needed immediately. The obvious worst-case scenario is a situation in which the Treasury is obligated to issue long-term securities under bearish conditions to raise money for which it has no immediate use.

Possibly the major drawback to regularization is that it ties the Treasury's hands in making decisions about the average maturity of the national debt. With regularization, it would take years for the Treasury to lengthen or shorten the average outstanding obligation. However, in 1987 and 1988, as the deficit fell, the Treasury broke its commitment to regularization, decreasing certain auctions sharply, perhaps in a hope of signaling the markets that it anticipates the Gramm-Rudman law will work. The Treasury also took this opportunity to lengthen the average maturity of the outstanding debt.

To Lengthen or to Shorten the Average Debt Maturity?

What motivates the Treasury to lengthen or shorten the average maturity of its debt? The typical private corporation or financial institution seeks to lengthen its average debt maturity when interest rates are near their trough (thus locking itself into paying low rates for long periods of time). Conversely, these institutions try to shorten average maturity when rates are near their peak. But the Treasury is not the typical corporation or financial institution, and it differs from private debt issuers in several ways:

1. *The Treasury is privy to the Fed's intentions.* In a sense, it seems "unfair" for the Treasury to have inside knowledge that is not available to purchasers of its securities. Of course, more astute Treasury watchers can interpret the lengthening or shortening of U.S. debt maturities as a signal of the Fed's intentions.
2. *Treasury actions affect interest rates.* The Treasury is such a large provider of debt instruments that it affects the direction of interest rates simply by the size of the auctions it announces. For example, if the Treasury wanted to take advantage of what it considered exceptionally low levels of interest rates by significantly increasing its long-bond issuance, the very announcement of such a move would send interest rates up before the long bonds could even be auctioned.

3. *The Treasury is responsible for fiscal policy.* The Treasury is not in the markets to make a profit; in fact, it might be willing to accept a fair-sized loss if such a loss served a worthy national cause. Some people in government have argued that the Treasury should use its ability to lengthen or shorten its average debt maturity as a tool of fiscal policy. For example, when the slope of the Treasury yield curve is steep, indicating an overheated economy that could ignite inflation, the Treasury should increase short-term and decrease long-term issuance (i.e., shorten the debt) to flatten the yield curve. If, on the other hand, the yield curve is flat, indicating a weakening economy, lengthening the debt would be justified.

Let's look at the records. Between 1947 and 1975, the Treasury almost steadily reduced the average maturity of its debt, from an average of about 10½ years to about 2½ years. (The only exception was between 1960 to 1964.) From 1975 to early 1988, the Treasury steadily increased maturity to an average of almost six years. Since 1988, the average maturity appears to have been falling slightly. What policy has the Treasury followed? Apparently, during the period of relatively slow accumulation of national debt after World War II, the Treasury chose to shorten the average maturity. When it became clear that the national debt was beginning to balloon, the Treasury chose to lengthen the average debt.

What can we expect the Treasury to do in the future? Clearly, the Treasury follows a policy of shortening the debt when the budget deficit is small and lengthening the debt when it is high. Recently, the Treasury has become convinced that the deficit is coming down and has shortened average maturity. Whether the Treasury lengthens or shortens the debt in the future depends on whether current deficit reduction efforts work.

The Treasury seems committed to the notion that the Gramm-Rudman Amendment will work, and as long as it takes this position, debt maturity will probably be shortened. When, probably around 1990, the Treasury recognizes that Gramm-Rudman will fail, the maturity will stabilize or lengthen.

Day-to-Day Cash Management

Focusing on dramatic issues like the U.S. budget deficit, the debt limit, and the Gramm-Rudman Amendment can cloud the fact that the most important issues are often the most mundane. The headline-grabbing stories about the annual debt limit battle are interesting, but they disrupt the markets for perhaps a week or two each year, in some years not at all. On the other hand, the Treasury's daily struggle with cash flows can send the markets reeling without warning, and can last for weeks, and occur repeatedly during the year.

As mentioned in the discussion of the Fed, cash inflows to the Treasury are concentrated on six tax prepayment dates throughout the year. Accumulations in the Treasury's account at the Fed force the Fed to add sharply to bank reserves. What was not mentioned, however, was the possibility of a pattern in the outflow of funds from the Treasury's account. In other words, are there times when the Treasury spends significant sums of money? Or are the expenditures spread out evenly? By and large, expenditures are spread out evenly. Some exceptions include

meeting the government payroll, paying farm subsidies, or attempting to spend the remainders of budgets toward the end of the fiscal year.

Expenditures Effect on the Treasury Account at the Fed

By far the largest single recurring government expenditure is the monthly payment of Social Security benefits. Ranging as high as \$16 billion, these payments are officially sent out on the third of every month (or the Friday before the third, if it is a weekend). Roughly 40 percent of the payments are made by electronic transfer directly to the recipients' banks; the other 60 percent are mailed. If the Treasury account at the Fed does not already contain sufficient funds to cover such a huge amount, funds are transferred out of the TT&L accounts and into the Treasury account at the Fed on the first and second of the month. The Treasury account at the Fed falls sharply on the third and continues to fall back toward its equilibrium target of \$3 billion as the elderly receive and cash their checks. Typically, by the sixth or seventh of each month, the Treasury account at the Fed is back to equilibrium.

In sum, the Treasury's account at the Fed begins to rise at the end of a month, continues rising until the third, and falls back to equilibrium by the seventh. If the previous month contained a tax prepayment date, the buildup in the Treasury account at the Fed could occur as early as the twentieth of the previous month and last through the end of that month, finally coming to an end with Social Security payments.

The Treasury Account at the Fed and the Marketplace

In order to understand the impact fluctuations in the account at the Fed have on the markets, consider what would happen to the short-term money markets if the Fed stood back and did nothing. As the balance in the Treasury account at the Fed rose, bank reserves would fall, short-term credit would tighten, and short-term interest rates would rise. As Social Security payments are made, the funds in the Treasury account would be transferred to the elderly's bank balances. Bank reserves would rise, short-term credit would loosen, and short-term interest rates would fall. Thus, if the Fed sat back and did nothing, rates would rise at the end of the month, peak at the very beginning of the month, and fall back to normal by the end of the month.

The Fed does not, of course, sit back and do nothing. The prescription is obvious. When the balance at the Treasury account at the Fed rises, the Fed needs to replenish the falling bank reserves to push down and stabilize interest rates. Likewise, when the Treasury account at the Fed falls with Social Security payments at the beginning of the month, the Fed needs to drain reserves to push interest rates back up.

However, nothing is ever as easy as it seems. First, neither the Treasury nor the Fed can predict accurately when the tax payments will arrive, how large or small they will be, or whether they will be sufficient to cover the Social Security payments. Second, although there are, at most, only five business days from the third to the seventh of every month, there is no accurate way of predicting how much the Treasury account at the Fed will fall on any particular day.

Considering these two points, we can conclude that the Fed is very likely to make a mistake in attempting to stabilize the underlying pressures on rates during the relevant five-day period.

In which direction does the Fed typically err? During the period of rising Treasury balances (at most, only six months of the year), when the need is to add funds, the Fed typically over-adds. As the Treasury balances start to fall with the payment of Social Security, the Fed typically is reluctant to drain reserves, since such an action is viewed negatively by the market, especially if it turns out to be premature. The bottom line: Fed errors allow rates to firm in the first two or three days of the month; rates fall back to equilibrium during the next three or four days of the month. Since Social Security payments are made every month, this pattern is more reliable than the pattern described in the discussion on the Fed for the post-tax-date period.

We might be tempted to dismiss this pattern as a minor consequence if it were not for one significant fact: this pattern of rate movements (or, more accurately, this pattern of market misperceptions about Fed intentions) coincides with the critical period of the four major Treasury refundings each year. To understand this, let us consider the Treasury's procedure for the major refundings.

The Treasury Refunding

Each quarter toward the end of the first month of the quarter, the refunding details (issues, sizes, auction dates) are announced. The auctions (typically a 3-, 10-, and 30-year auction) are usually held the first consecutive Tuesday, Wednesday, and Thursday that fall in the middle month of the quarter (February, May, August, November). Settlement is made a week or so later, on the fifteenth of the month.

The crucial detail is the timing of the auctions: on the first consecutive Tuesday, Wednesday, and Thursday that fall in the second month of each quarter. Given the vagaries of the calendar, this three-day combination can start on any day from the first of the month through the seventh of the month. In other words, the auctions can start prior to the Social Security payments (when the markets have the misperception that the Fed is tightening) or after the Social Security payments (when the markets have the misperception that the Fed is easing).

Using the standard indicators of whether an auction has gone well (cover, tail, range, non-comp ratio), we analyzed all the refunding auctions from their institutions in 1977 through 1987. The results clearly indicate "early" auctions fare worse than "late" auctions. (The sample threw out auctions that were reduced or delayed by debt limit battles; almost universally, these delayed auctions did poorly.) The results also indicated that, although there was a strong correlation between the success of the auction and the date it took place, the response was short-lived, a matter of days, if not less.

Reading the Treasury

In this section, we have demonstrated a safe bet that the deficit will not go away. Another safe bet is that with the 1988 presidential election behind us we will see a reemergence of debt limit battles, probably even more bitter than before, in Congress. The inevitable failure of Gramm-Rudman will see to that.

The Treasury — unlike the Fed, which gives away nothing — tips its hand before playing its cards in response to these situations. If we watch carefully, we can gain several important insights into the future of the markets:

1. Debt maturity will lengthen. As the Treasury recognizes that John Q. Public already knows the annual deficit is not on a long-term downward trend, it will reverse its recent moves to shorten the average maturity of the national debt.
2. The delicate manipulations required to manage day-to-day cash flows create an intra-monthly pattern in the rise and fall of short-term interest rates. Although it is evident all 12 months of the year, the pattern is most pronounced when tax prepayment dates precede major refundings. All in all, however, a conservative investor would not try to exploit this monthly pattern. It is more valuable to recognize the periods when the Fed has the most difficulty maintaining the status quo and to avoid getting caught up in the swirling misperceptions of Fed policy.

THE DEALERS

Structure of a Dealership

A bond dealership can be run as a separate entity, as part of a much larger financial institution (such as a bank), or in combination with a much broader dealership, i.e., one that deals in commodities other than bonds. Typically, the work force of a bond dealership is divided into four functions: trading, sales, research, and operations. Management is not a separate group but consists of the managers of the four functions, organized into some form of hierarchy. To understand the role that dealers play in the market, it is necessary to understand the roles and responsibilities of the four employee groups: what they do separately, and how they come together to function as a single unit.

Traders

Traders are generally the most highly regarded (and highly paid) of the four groups of employees. Traders are authorized to make decisions as to whether to buy or sell, how much, and for how long.

Like the customers of the dealership, traders buy and sell bonds with the express intent of turning a profit. What separates a trader working for a dealer and an investment officer working for a customer firm is usually only the time frame of the typical trade. (Some customer firms also have restrictions on types of securities and positions taken.) A trader follows the practice of day-trading, the purchase and sale of a position during the same trading day.

Sales

It is not the job of the sales force to directly earn a profit for the dealership. However, a good sales force can indirectly contribute greatly to the profit level of a dealership. A dealership develops a sales force for two reasons. First, and most important, a good, large sales force is a source of information. At the very least, if the sales force covers most of the largest customers

in the country, the dealership will be privy to the portfolio holdings and intentions of the "retail base," (also known as "real retail," or "core retail"), i.e., those customers who are making decisions in the market purely for their own profit. At best, a good sales force will also be able to extract from customers "private" information about the activities of competitor dealerships in the markets, as well as all the current rumors, forecasts, expectations, and so on.

The second major reason for cultivating a good sales force is to provide an alternative outlet for trader transactions. Traders usually have three alternatives for arranging a trade:

1. They can arrange the transaction with a trader at a competing dealership.
2. They can arrange the transaction with a broker who specializes in such activities.
3. They can arrange the transaction with a member of the firm's customer base.

Without a doubt, the least desirable alternative is to turn to a competing dealership. Shopping around for a dealership to do a transaction alerts the dealer community, the most sophisticated group in the market, that the trader is anxious to buy or sell. This information will very rapidly move the market against the trader.

The second worst choice is to trade through one of the six or seven specialized brokers. Although the selected broker will offer the trade anonymously, the broker screens will quickly reveal that someone is trying to engage in a large transaction. This is equivalent to letting the dealer community know everything about you except who you are.

The best way to do a major trade (and to keep it secret) is to spread it around in very little pieces among several customers. Customer firms can't rally information fast enough to realize that a dealer is doing a single large transaction until the transaction has been completed. For this reason, a good sales force that cultivates a large customer base is a tremendous asset.

Research

The third employee group in a dealership is the research team. The staffing and effectiveness of the research team varies from dealership to dealership.

Some dealerships have no research team, choosing instead to relegate the duties of research to various members of the sales and trading force. Generally, in this situation the work is shoddy, the information does not get around the dealership and out to the customers quickly enough, and the research duties distract and detract from the primary responsibilities of the (usually junior) members of the sales and trading staffs to whom the tasks are assigned.

At the other end of the spectrum, some dealerships maintain research teams that rival the trading and/or sales departments in size. Researchers on such large teams specialize in one or two areas. Typical specializations include:

- Following and interpreting the actions of the Fed

- Tracking developments in the Treasury in order to predict auction sizes and the impact of governmental cash flows
- Interpreting charts and "technical analyses" of price movements
- Yield spread analysis
- Credit analysis
- Other specialized services necessary for mortgage-backed, municipal, or corporate securities

Research also extends into the areas of financial futures and options and the hedging strategies that can be developed using those instruments.

How does the research team contribute to the bottom line? The most important role of research is to assist the sales force in keeping the customer base informed, happy, and willing to trade. Also, a research team generates value by keeping traders informed. For example, accurate forecasts of economic data are a must for any trader who wants to day-trade on the days of major economic announcements. (For a discussion of the limitations of fundamental economic analysis, see Chapter 8.)

Operations

The fourth and final group in a dealership is the operations department. Generally, this department handles the paperwork that a thriving dealership generates, contributing to the bottom line simply by doing its job with a minimum of mistakes. However, in recent years, as management is faced with needing to make a technological leap into the twenty-first century, operations departments have come out of the back office, so to speak. More and more, operations departments are changing from the clerical sweatshops of the past into sophisticated consultants on complex matters such as information processing and systems analysis. The bond markets are moving rapidly to become a global, 24-hour-a-day centralized trading operation, and for many dealerships the success of the transition will depend almost entirely on their operations departments.

The Role of the Dealer

The key to efficiency in any market is processing large quantities of quality information in a speedy fashion. In that regard, dealers do far more than trade bonds. Dealers are the central clearing house for relevant information about the market. How does the structure of the dealership's work force allow the dealer to play this important role?

As we have seen, the traders cull information from other dealers and brokers, while the research group ponders the hidden signals in publicly available economic information. It is the sales force, however, that adds the greatest value to the processing of relevant information. Despite our fascination with the primary dealer community, the true market is the "real retail." It is the sales force, seeking to make a sale, that keeps the lines of communication with these players open, in much the same way that bees searching for pollen pollinate a garden. Consequently,

what warrants the dealers a separate section in the story of the bond markets is not the fact that they stand ready to deal in bonds; many nondealer firms do that. Neither is it the fact that they stand ready to make markets; unlike the specialists on the New York Stock Exchange, bond dealers have no legal obligation to make markets. Rather, what distinguishes the dealers, and gives them a unique role in the markets, is their decision to develop a sales force to trade and disseminate information.

Primary vs. Secondary

Developing a bond dealership is an expensive and risky proposition. It is expensive because dealing is labor intensive and capital intensive. Talented professionals in all four employee categories command high pay. And since few of these employees' skills are what economists call firm-specific — that is, the employees can switch firms and be up to speed within a few days — dealers must be sure their salaries are competitive. Capital expenditures are equally imposing. Dozens of telephone lines, some direct to major customers, are required, as are broker screens, computers, wire services, and general office equipment.

Any firm can make the investment, hang out a shingle, and start dealing. There are no effective government rules or regulations restricting the trading of bonds, except for the Glass-Steagall restriction that banks cannot trade corporate bonds. However, although any firm can become a dealer without worrying about government consent, no firm can be a primary dealer without the government's sanction. Specifically, a firm wishing to become a primary dealer must gain the approval of the New York Federal Reserve Bank. Any other dealing firm is referred to as a secondary dealer.

A *primary dealer* is defined as a bond dealer acknowledged by the New York Federal Reserve as one with which the Fed will conduct business. No law dictates that there must be primary dealers. The law simply allows that the Fed may choose with whom to do business. The Fed sets no limit on the number of primary dealers, which currently stands at 42, including seven Japanese firms.

Requirements for Primary Dealers

Until recently, the process for selecting primary dealers was quite informal: the New York Fed simply chose the largest and best known dealers and proceeded to do business with them. As the market (and the number of dealers) grew in the 1970s and 1980s, the New York Fed came under pressure to codify the requirements for primary certification. However, even today the process is poorly defined and poorly understood. Although the Fed does release a document that purports to advise aspiring primary dealers, in reality it clarifies very little.

The only rule the Fed clearly enunciates is that a primary dealer must maintain a minimum daily average market share ($\frac{3}{8}$ of 1 percent) for a period the Fed chooses (usually one year). After that, and assuming the award of primary status, a primary dealer must maintain a minimum daily average market share of $\frac{3}{4}$ of 1 percent. To give aspiring primary dealers a goal to aim for, the market is defined as the total of all transactions that the current primary dealers make with customers other than brokers and other primary dealers.

The other requirements the Fed sets for certification as a primary dealer are far less precise: sufficient capitalization, good management, creditworthiness, and a commitment to make markets. The Fed accepts daily volume reports from aspiring dealers and makes spot inspections to verify procedures.

Pros and Cons to Running a Primary Dealership

If running a dealership is risky, running a primary dealership is even more so. Primary dealership status entails numerous duties, the three most significant of which are making a market for customers, making a market for the Fed during open market operations, and participating (proportionate to the dealership's market share) in Treasury auctions. These obligations serve only to expose the primary dealer to increased risk. Why would a firm desire primary dealer status?

Some market observers argue that primary dealers get "inside information" from government sources. Primary dealers meet with top staffers of the New York Fed's trading desk every two weeks and with the senior debt managers of the U.S. Treasury every quarter, just before the major refunding. The primary dealers do little to dispel the notion that they are privy to important Fed/Treasury plans. However, people who have attended these meetings attest that the conversations are decidedly one-sided. The government officials ask the questions, the primary dealers answer them. Any attempt by the dealers to question the officials is met with stony-faced silence.

Another argument frequently put forward to explain the willingness of primary dealers to accept the increased risk is that primary status implies a guarantee by the Fed, a voucher of creditworthiness. The Fed, however, strongly advises against using primary dealer status as a signal of creditworthiness, arguing that it does not perform the audit procedures necessary to warrant such a guarantee. The Fed also steadfastly denies that it would offer preferential treatment to a primary dealer in the event of a crisis.

The one aspect of primary dealer status that is worth every ounce of risk associated with it is the access it provides to restricted broker screens. Brokers in the bond market maintain direct phone lines to all the primary dealers. Dealers call in to the brokers with bids and offers, and the best of these are listed on CRT screens on the primary dealers' trading floors. Other dealers then call in and agree to buy or sell at the price listed on the screens. All but one or two of the brokers restrict screen access to the primary dealer community or to aspiring primary dealers who provide early information to the Fed. Since the prices on the screens represent the valuations of the primary dealers, the most sophisticated traders in the markets, the prices are widely viewed as the "inside market." Because there is no centralized market for bond trading, access to the restricted screens is a tremendous asset. Presumably, at least 42 dealers and one or two dozen aspiring primary dealers consider them worth the price.

Can You Trust a Primary Dealer?

As we have established, a dealer's stock-in-trade is processing information. Does that mean that the information that comes from a dealer is reliable, at least to the best of the dealer's ability?

Or, in terms of this chapter, are dealers *motivated* to disseminate solely accurate (or reasonably accurate) information?

A dealer, especially a primary dealer, lives and dies by its reputation. Any dealer found deliberately passing bad information will be very quickly ostracized by a large number of customers. The difficulty, in most cases, is that information cannot be shown to have been dishonestly disseminated simply because it turns out to be incorrect. Frequently, the best advice is unprofitable, while the silliest and most illogical analysis may be a gold mine.

Certain pieces of information disseminated by the primary dealers have a tendency toward exaggeration simply because only the primary dealers can verify them. For example, as we said before, the private meetings between the primary dealers and the Fed (or the Treasury) almost never result in the dealers garnering useful information. However, the primary dealers, eager to promote their appearance as insiders, will never let on that this is so.

Another example involves "pre-refunding chatter." Prior to each major refunding, the markets are starved for any information about which firms plan to bid, on how much, and at what prices. The single group around which the most chatter swirls is the Japanese. The primary dealers try desperately to convince their customers that they know what percentage of the auctions will be bought (or at least bid for) by the Japanese. However, no statistics exist, either from the Japanese government or the American government, that even begin to break down the purchase of individual auctions. Thus, no statistic exists to confirm or deny the level of Japanese activity in U.S. Treasury auctions.

Granted, the largest primary dealers receive orders from the Japanese to bid in the auctions. However, even if these small, firm-by-firm samples were representative of the overall percentage participation of the Japanese, the largest primary dealers have an incentive to mislead the market as to that information.

Consider the following: the primary dealers are obligated to take down a proportion of the auction at least equal to their market share. If they can convince the market that the Japanese will buy a large percentage of the auction, they can make others bid high for the auction, while they get their share at a more reasonable price. Indeed, scuttlebutt frequently puts Japanese participation at unbelievable proportions: often as high as 40 percent or 50 percent! Since total foreign ownership (not just Japanese) of U.S. Treasury securities is no more than 15 percent (according to official U.S. government statistics), and since a Japanese investor can always buy a security immediately in the secondary market, without having to risk the three-hour wait demanded by auction participation, it is doubtful that Japanese participation is, in fact, very high at all.

There is not sufficient room here to discuss every topic about which the primary dealers are likely to exaggerate. In fact, the scarcity of topics that can be confirmed absolutely at a later point makes the list of "safe" topics short and the list of "unsafe" topics very long. The best advice is *caveat emptor*: let the buyer beware. Always bear in mind that the salesperson recommending a transaction represents a firm whose vested interest may be diametrically opposed to yours.

Looking toward the future, it is a good bet that the entire structure of primary dealership will be abandoned in the 1990s. It will happen not because the Fed will suddenly be willing to do business with anyone, but because the primary dealers will lose their *raison d'être*: the broker screens. More specifically, the broker screens either will be opened to all firms or simply will go out of existence due to companies such as Bloomberg.

FOREIGN INVESTORS

The Importance of the Dollar

During the 1980s, two institutions grew in importance beyond all bounds. These institutions were foreign central banks and foreign investors. While the Fed still plays the dominant role in the bond markets, foreign central banks, particularly the Bank of Japan (BOJ) and the Bundesbank, have become increasingly influential. Likewise, foreign investors (almost exclusively, this means the Japanese) have come to dominate the concerns of U.S. financial market participants. In this section, we will examine the role these institutions have played and whether the market's perception of them has been justified.

Before we begin, however, a quick primer on the dollar is in order. After all, the major difference between the Japanese investor in U.S. government securities and his U.S. counterpart is that the Japanese investor must take into account the changing value of the dollar/yen.

There are several competing theories as to what determines the exchange rate between any two countries:

Theory 1. The exchange rate is the differential in prices between two countries, after accounting for transportation costs.

Theory 2. The exchange rate is the differential between the rates of inflation in two countries.

Theory 3. The exchange rate is the differential in interest rates between two economies.

It is the third theory, known as the interest rate parity theory, that we will concentrate on, because of its close relationship to the workings of an international bond market.

The interest rate parity theory rests on the reasonable assumption that different countries experience different rates of economic expansion at different times. Thus, at any given point, one economy may be strong while the other is weak. On average, the strong economy will pay a higher rate of return to investors than the weak economy. This higher rate of return will encourage investment in the strong economy. However, the demand for the currency of the strong economy will drive the strong economy's currency value up; by the same token, the weak economy's currency value will be driven down. Thanks to the falling foreign currency, consumers in the strong economy will be encouraged to purchase the goods and services of the weak economy. Thus, the interest rate disparity eventually helps to equalize the two economies.

The interest rate parity theory goes a long way toward explaining the U.S. trade deficit and the movement of the dollar in the 1980s. With the growth of the U.S. deficit, the Treasury had to issue a significant amount of debt. This debt issuance competed with other existing debt, causing a rapid run-up in U.S. interest rates. In 1982, the U.S. was just emerging from a recession, and inflationary pressures were low. Consequently, the real rate of interest (the market rate minus the inflation rate) rose sharply, especially relative to the fiscally more prudent Japanese economy. According to the arguments of the interest rate parity theory, the higher U.S. interest rates made the U.S. dollar strong relative to the Japanese yen. Japanese investors found our interest rates relatively attractive, compared to their own. The falling value of the yen encouraged U.S. consumers to buy Japanese, creating a widening trade gap.

In summary, a high U.S. budget deficit spurred high U.S. interest rates; high U.S. interest rates attracted Japanese investors; competition for U.S. dollars to purchase U.S. securities pushed the dollar up; a rising dollar necessarily implied a falling yen; a falling yen made Japanese goods relatively more attractive to U.S. consumers; U.S. consumers imported more Japanese goods, driving up the U.S. trade deficit with Japan. Thus, our trade deficit is a direct result of our own choice to run a huge budget deficit. This is no "chicken-and-egg" argument: the budget deficit comes first, causing the trade deficit.

Intervention by the Foreign Central Banks

In mid-1984, interest rates peaked and began a long-term downward trend. Unfortunately, the budget deficit, the trade deficit, and the value of the dollar did not do the same. The major central banks hoped for the interest rate parity theory to work, but by the fall of 1985 the dollar and the trade deficit were still at record levels. In September, the major central banks began a concerted effort to "help along" the interest rate parity theory by pushing the dollar down. To understand these efforts, we need to study the workings of the major foreign central banks. We also need to analyze the impact of trying to help along the interest rate parity theory by pushing the dollar down: the so-called J-curve effect.

Aside from the Federal Reserve, the two most important central banks in the free world are the Bank of Japan and the Bundesbank (Germany); we will limit our analysis to these two institutions. In keeping with the theme of this chapter, we will focus on the primary motivations of both major central banks. The current operating policies of both the BOJ and the Bundesbank have their roots in World War II. Yet, the views these banks brought from this experience are diametrically opposed. Striving to rebuild from the near total devastation during the closing months of the war, the BOJ has focused on sustaining a high pace of economic growth, i.e., low employment. The Bundesbank, on the other hand, mindful that after both world wars Germany experienced rates of inflation that strain the limits of the imagination — rates of 10,000 percent or 20,000 percent *per day* were sustained for almost a year — strives almost fanatically to keep inflation virtually at zero.

By the fall of 1985, the major central banks were coming under strong political pressure. In the U.S., the trade deficit was not going away, and the dollar was still climbing, despite the fall in U.S. interest rates. There was concern that Congress might erect protectionist barriers, bringing recession to every country involved. Also, in foreign economies such as Germany and Japan,

resentment was beginning to surface about the rapid drops in the home currencies. Also, for reasons that will be clearer when we discuss the J-curve effect, the falling yen and deutsche mark created inflationary pressures in Japan and, particularly distressing, in Germany.

In a swift and decisive move in September 1985, the Group of Five (G-5) decided to push the dollar down sharply to help eliminate the worldwide trade imbalance. (The G-5 was made up of the finance ministers and central bankers of the U.S., Japan, Germany, England, and France. Later, the group expanded to include Canada and Italy and was known as G-7.) The plan of attack was two-pronged. First, dump a large amount of U.S. dollars into the foreign exchange markets in order to pressure the dollar down. Second, encourage non-U.S. economies to take action to spur their growth so their consumers would buy U.S. goods and, hopefully, reduce the U.S. trade deficit.

Such a program of coordinated intervention to drive down the dollar is not without problems. First, the effort will fail unless it remains "unsterilized." In simple terms, this means that if the U.S. wants to dump dollars on the foreign exchange market to lower the exchange value of the dollar, it must not turn around and mop up the dollars through open market operations in the course of trying to keep current monetary policy on track. Thus, U.S. monetary policy becomes a slave to the needs of international dollar coordination. However, the Fed has been known to ignore this simple economic idea and has tried to keep monetary policy on track while pushing the dollar down. When this happens, the forces of supply and demand eventually take over, and the dollar intervention is reversed, or sterilized.

The second problem of coordinated dollar decline is the J-curve effect. The J-curve rests on a simple premise: financial markets react more quickly than "real" markets (i.e., prices can change faster than production and consumption). Thus, if we have an excess of imports over exports (a trade deficit) and we push the dollar down, we do so in the hopes that a lower dollar will discourage importing by raising the prices of imports to U.S. consumers. However, the dollar decline (a price change) occurs almost instantly, while the reduction in importing (consumption) takes time. Americans continue buying foreign goods for a few months, until the higher prices begin to register; then they begin to cut back. Until that happens the trade deficit, in nominal terms, rises because Americans are continuing to buy roughly the same amount of imports, except that the imports are now more expensive. Eventually, the greater expense turns Americans off from the imports. The term *J-curve* refers to the fact that as the dollar is pushed down, the trade deficit will first worsen, then recover. Graphically, if we were to plot the trade deficit versus the value of the dollar, the result would be a *J* shape. Note also that until the J-curve runs its course, a temporary bout of inflation occurs.

Many economists believe the trade deficit would have fallen without the intervention of the major central banks. Others argue the intervention was successful, even if differing agencies in each country eventually caused it to fall apart. The key lesson is not understanding how the dollar was pushed down, although that was indeed crucial. Now that the dollar has reached postwar lows and the trade deficit appears to be on its way down, developing an expertise on how to eliminate a trade deficit may not be of much use for the 1990s. Indeed, history shows us that trade imbalances go through cycles. What has made this discussion useful is that it provides

The interest rate parity theory goes a long way toward explaining the U.S. trade deficit and the movement of the dollar in the 1980s. With the growth of the U.S. deficit, the Treasury had to issue a significant amount of debt. This debt issuance competed with other existing debt, causing a rapid run-up in U.S. interest rates. In 1982, the U.S. was just emerging from a recession, and inflationary pressures were low. Consequently, the real rate of interest (the market rate minus the inflation rate) rose sharply, especially relative to the fiscally more prudent Japanese economy. According to the arguments of the interest rate parity theory, the higher U.S. interest rates made the U.S. dollar strong relative to the Japanese yen. Japanese investors found our interest rates relatively attractive, compared to their own. The falling value of the yen encouraged U.S. consumers to buy Japanese, creating a widening trade gap.

In summary, a high U.S. budget deficit spurred high U.S. interest rates; high U.S. interest rates attracted Japanese investors; competition for U.S. dollars to purchase U.S. securities pushed the dollar up; a rising dollar necessarily implied a falling yen; a falling yen made Japanese goods relatively more attractive to U.S. consumers; U.S. consumers imported more Japanese goods, driving up the U.S. trade deficit with Japan. Thus, our trade deficit is a direct result of our own choice to run a huge budget deficit. This is no "chicken-and-egg" argument: the budget deficit comes first, causing the trade deficit.

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illumination not only for the next bout with a U.S. trade deficit, but it also provides the tools for understanding what will happen when the U.S. inevitably starts to run a trade surplus.

Inevitably, our allies will find themselves in the same predicament the U.S. experienced in the 1980s. The same rules and motivations will still apply; only the roles of the players will be reversed. Efforts will be made to support the dollar rather than push it down, to encourage U.S. imports rather than exports, and to prevent sterilization of the removal, rather than the dumping, of dollars from the marketplace. An astute investor will recognize that coordinated international agreements are sterilized when they contradict internal political needs, and that the J-curve works in reverse, aggravating a trade surplus despite efforts to support the dollar.

Foreign Investors

For all intents and purposes, the only foreign investors of interest in the 1980s have been the Japanese. As we discussed earlier in this chapter, the role of the Japanese in influencing market expectations has been substantial, perhaps much more than it deserves to be. In this subsection, we will discuss the motivations of the Japanese investors. In what ways are they similar and in what ways are they different from their U.S. counterparts? Do they have a greater sense of "oneness" than our market players do? Most notably, do they simply follow the same factors in their decision making as we do, or do they have unique considerations?

Perhaps the most striking fact about Japanese investors is the way the American dealer community misperceives them. Our market players tend to believe that there is some inscrutable factor at work in Japanese decisions to invest in U.S. securities. Something drives Japanese demand for "foreign" securities that is both unknown to and has no influence on American investors in the United States.

Certainly, the value of the dollar/yen is seen as such a separate consideration for the Japanese. If a Japanese investor buys a U.S. Treasury security, he receives payments in U.S. dollars. If the dollar rises, the Japanese investor receives more yen for his dollar, and thus his return exceeds his U.S. counterpart's return on the same instrument. Conversely, if the dollar falls, the Japanese investor earns a smaller return than his U.S. counterpart.

However, the fact of whether the dollar/yen rate has risen or fallen is not always the deciding factor for the Japanese investor. In the six-month period following the G-5 agreement in September 1985, the dollar/yen rate fell almost 30 percent. Yet, net purchases of U.S. Treasury securities by the Japanese were stronger during that period than in any other period in the 1980s. The logic behind this is simple, but commonly ignored: a Japanese investor will not lose money because of a dollar that has already fallen; he will only lose money if the dollar falls again in the future. Expectations, not past history, decide whether the Japanese investor will make a purchase in the U.S. markets. Thus, moves in the dollar are not necessarily the overwhelming consideration for the Japanese investor.

In reality, Japanese investors are simply reflections of us. They respond to the same facts, analyses, rumors, etc., that American investors chase. The ultimate irony is that the Japanese do overreact sharply and negatively to a drop in the dollar, but not because they fear a loss on the

dollar. They are simply mirroring the reactions of U.S. investors, who fear a dollar reaction from the Japanese, who fear the American reaction to the dollar, and so on. Ultimately, though, it is an overreaction, a "speculative bubble," on the part of both American and Japanese investors.

Is the Tail Wagging the Dog?

As we mentioned earlier, total foreign ownership of U.S. Treasury securities amounts to not more than 15 percent. And although there are no definitive figures, it is likely that the average daily Japanese volume in U.S. Treasury securities is smaller than the average daily volume of any of the five largest U.S. primary dealers. Additionally, the Japanese volume is spread over many firms, each of which may have a different dollar (or bond) outlook. There is probably no better example of the "tail wagging the dog" than all the fuss about the Japanese investor, both public and private. The typical American investor is probably more concerned about the movement of the dollar than his Japanese counterpart.

How can you protect yourself from the overreaction to foreign events? Once again, it is important to bear in mind the motivations of the major players. Foreign central banks must answer first and foremost to their home constituencies. They rarely go along with any intentionally coordinated venture that does not serve their own interests. In Japan, that interest is typically maintaining growth. In Germany, it is stopping inflation. If the Japanese or Germans are asked to do something counter to those goals, they will refuse. If they prefer not to refuse publicly, they can simply go along with the venture and take steps to sterilize its impact. The safest bet for the conservative investor is to doubt the seriousness of any international agreement that does not serve the interests of all involved.

To draw an analogy, we all know that the OPEC members cheat on production quotas to the degree that the price of oil frequently collapses. Nonetheless, each member will solemnly swear that the agreement is in full force. As to the motivations of the private foreign investors, it is clear that the Japanese investor in U.S. government securities is far more concerned with the issues that *do* concern American investors than those that *should* concern Japanese investors. The astute investor should ignore any appeals based on the argument that the "Japanese will do this or that." The Japanese investors simply reflect the issues already helping to determine prices in the U.S. bond market. Their presence simply amplifies these issues; it does not redirect them.

CONCLUSION

The purpose of this chapter has been to describe the major players in the bond market and to identify the motivating forces behind their actions. To this end, we have examined the Federal Reserve, the U.S. Treasury, the dealer community, foreign central banks, and foreign investors. The aim has been twofold — to give the reader sufficient background in the institutional detail to understand the rudimentary workings of these major players, and to provide an understanding of what motivates these players to be in the debt markets. Knowing the motivation is more helpful than knowing the history of the events and crises that brought the major players to the forefront: the events may not repeat, but the motivations stay intact forever.

What should a careful investor do with this enhanced understanding of how and why the major players operate in the bond market? Although this chapter has offered a few tips that are potentially exploitable on a regular basis, we do not recommend it. In the language of economists, these "exploitable events" are accompanied by too much "noise" to be reliable. Equally unreliable are the stories spun about these and other events relating to the major players in the market.

Our overall recommendation: every investor has investment needs that are separate from trading considerations. Satisfy these cash management needs without regard to transient considerations of the possible recent change of intentions on the part of a given major player or institution. In particular, avoid those times of high uncertainty, such as when the Fed is struggling with a volatile dollar. As for the longer term, we recommend using a reputable, independent, quarterly economic forecast, or prepare your own as discussed in Chapter 8, "Using Economics in Interest-Rate Forecasts."

Appendix A

The Fed's Tool Kit

The material already presented in this chapter regarding the Fed is more than sufficient for some readers. It is not necessary to understand the intricacies of a customer RP or a bill pass in order to use the information in this chapter. However, many market participants are not content to simply learn how they should react to the Fed's operations; they want to know about the mechanics of those operations as well. This appendix is devoted to that end.

This appendix is divided into three sections. The first section reviews the basic macroeconomic role of a central bank such as the Fed and how the Fed attempts to direct its enormous impact on the economy and the markets. For those who dreaded their college economics classes, rest assured: Only enough of a bare bones discussion of macroeconomics is in the first section to make the second section understandable. The second section goes into considerably greater detail about the implementation of Fed policy, analyzing each of the various tools in the Fed's "tool kit." The second section also defines and describes such operations as the system RP, the customer RP, and the bill pass. The third section reviews the agenda of a typical morning on the New York Fed's trading desk, looking at those people and pieces of information that interact during the morning "go-around" that determines which tool of Fed policy will be employed that day.

The information presented in this appendix is expository; no recommendations or analyses are presented as to how to interpret the details given. The main body of this chapter already covered how to interpret Fed actions. This appendix is designed to provide the reader with a certain level of comfort with the interpretations that comes from a full understanding of the behind-the-scenes action. The reader is advised, however, that a prior thorough reading of the main body of this chapter will make the reading of this more detailed appendix easier.

OVERVIEW OF THE MONETARY TRANSMISSION PROCESS

Macroeconomists refer to the Fed's impact on the economy as the "monetary transmission process." The phrase literally means the way in which the Fed transmits its intentions for the economy through the use of monetary policy and the money supply. This section will review a simple, three-step model of the monetary transmission process.

Unfortunately, the monetary transmission process is best understood by analyzing it *in reverse of the way it actually takes place*. In a sense, it is as if we are reading the end of a mystery novel first to avoid the inevitable confusion and misunderstanding of the intentions of the players that comes from simply starting at the beginning.

Each February, the FOMC of the Federal Reserve convenes the most important of its eight meetings of the year. What makes this meeting so important is that the FOMC sets targets for economic growth (usually measured by real GNP) and inflation (usually measured by the GNP deflator) for the upcoming year. The remaining seven meetings deal with keeping the economy

on the track set in February. In setting these growth/inflation targets, each member of the FOMC must decide what the most desirable trade-off will be between these two targets. Obviously, if there were no trade-off, each member would want zero (or less) inflation and an unlimited amount of growth. Although no member finds inflation acceptable, there are differing views as to how much growth is possible without adverse inflationary consequences. Throughout the 1980s, the compromise has almost invariably been that the FOMC members set targets of roughly 3 percent annual real GNP growth, with not more than 3 percent inflation.

The debate over the economic trade-off between inflation and real growth is complicated and still very much unresolved among economists. It is also not very important to our understanding of the details of Fed policy. Suffice it to say that the growth and inflation that eventually results represents the third and final stage of our three-step monetary transmission process. In order to hit these targets, the Fed counts on a fundamental relationship between the nation's stock of money and economic growth, known as *velocity*.

Velocity is defined as the average number of times a typical dollar is used in a transaction in a year. Each time a given dollar is used, it represents new business and consequently new growth. The Fed relies on velocity to be stable (or, in a more complicated model, at least to be a function of interest rates, which the Fed also influences), and if the Fed can control the money stock, it can create a given amount of economic growth with a calculable growth rate in the money supply. Thus, we have the second stage of our monetary transmission process, the growth rate of the money supply.

The Fed influences the growth of the money stock through its provision of *bank reserves*. Bank reserves are to a bank what cash on hand is to a nonfinancial corporation — a measure of the firm's immediate liquidity. The traditional notion that the Fed "creates money in the economy" is more accurately replaced with the statement that "the Fed creates bank reserves, which are ultimately used by the economy to create money." Thus, the Fed *influences*, but does not necessarily *control* the money supply. The rate at which the economy (consumers, businesses, banks) converts bank reserves into money is known as the *money multiplier*. Once again, as in the case of velocity, the Fed hopes that the money multiplier is stable (or, at most, influenced by interest rates, which the Fed in turn can influence). The greater the stability of the money multiplier, the greater the Fed's control over the money supply. The notion of reserves turning into money is the first stage of our monetary transmission process.

To sum up the three-stage monetary transmission process (in correct order):

1. The Fed provides a given amount of bank reserves to the banking system.
2. The economy converts these bank reserves, via a process known as the money multiplier into the nation's stock of money.
3. The economy converts this stock of money into real growth, by spending it at the rate specified by velocity.

For the sake of simplicity, many important factors have been withheld from this explanation. For example, where does inflation come from? What about the Fed's massive impact on interest

rates? How about the value of the dollar? What are the specific definitions of the terms bantered about, such as bank reserves, money stock, real GNP, and the deflator? Suffice it to say that economists have dealt with all these issues, and many more, *ad nauseam*. This simple, three-step analysis of the implementation of monetary policy was designed not to enlighten the reader about specific definitions or economic theories, but to bring us to the most important aspect for the analysis of Fed operations: the Fed's original need to provide bank reserves to the banking system. This subject is pursued further in the next section.

THE FED'S TOOLS IN CONDUCTING RESERVE OPERATIONS

The typical college economics textbook only broadly addresses the Fed's need to add and drain bank reserves. Typically, the textbook will say that if the Fed wants to add bank reserves to the banking system, it *buys* U.S. government securities for its own portfolio *from* individual banks. Conversely, if the Fed wants to drain bank reserves from the banking system, it *sells* U.S. government securities *to* individual banks.

How does buying and selling government securities affect the level of bank reserves? First, note that *bank reserves* are defined as money that banks have in their vaults and balances that banks hold at the Federal Reserve. When the Fed buys a security from a bank, it pays the bank by increasing the balance of the account that bank maintains with the Fed. Conversely, the Fed decreases the bank's balances when the Fed sells securities to the bank. Thus, the Fed can effectively increase or decrease the amount of bank reserves in the banking system by trading government securities with individual banks.

College students who graduate and take jobs in the financial markets are often surprised to learn that what seems straightforward in the textbook is rarely so straightforward in the real world. Somehow the terms *system RP*, *customer RP*, *matched sales*, *coupon pass*, and *bill sale* do not readily lend themselves to the textbook definition of reserve adding and draining. This is because the basic college textbook does not deal with the complexities faced by the Fed in trying to implement policy on a day-to-day basis. For example, what should the Fed do if it forecasts a need to add reserves virtually every day for the next two weeks versus if it forecasts alternating needs to add and drain every other day? This is a question of *timing*, which is important to the Fed (and those who need to follow the Fed as part of their job), but it is not important for an introductory economics class.

In addition to worrying about the timing of reserve needs, the Fed varies its procedures to allow for size and secrecy. *Size* simply means that sometimes the Fed needs to add (or drain) a large amount of reserves, and sometimes only a small amount. For reasons of operational efficiency, the Fed maintains different tools to accomplish different sizes. Finally, the Fed has a need for *secrecy*. That is, sometimes the Fed wants to add (or drain) without the markets taking note, while at other times the Fed wants the markets to be well aware of its intentions. Secrecy may be needed for a period of a few hours, a day, a week, or forever. Many books and articles have been written by economists about the economic advantages or disadvantages of secrecy in central bank policy. We do not dwell on those issues here, but simply acknowledge when the Fed tries to hide its actions.

In the descriptions that follow, we discuss each of the Fed's seven tools for reserve operations, show how they work, and examine each as to how it meets the goals of timing, size, and secrecy. If you work in the markets and regularly hear about Fed operations, reread the appropriate description each time you hear the term used, until familiarity with the term becomes almost second nature. From experience with market participants, if you come to understand these tools of the Fed, you will gain insights not shared by at least 95 percent of your colleagues in the market. The Fed's seven tools are as follows:

1. System RP

A system RP is a repurchase agreement arranged between the Fed and the primary dealers. Specifically, the Fed borrows securities from the primary dealers, usually on an overnight basis, while simultaneously lending the primary dealers an amount roughly equivalent to the dollar value of the securities borrowed. System RPs add bank reserves to the banking system. A system RP typically is large; between \$3 and \$6 billion dollars are lent out to the primary dealers. A system RP is classified as temporary; most system RPs are arranged on an overnight (or over the weekend) basis, but two-day, four-day, and seven-day system RPs are not uncommon. The Fed has the legal authority to arrange a system RP for up to 15 days. (Note that it is not the brevity of the system RP that designates it as a temporary operation; it is the self-reversing nature of a repurchase agreement that motivates the Fed to consider it temporary.) Finally, a system RP is no secret. Indeed, it is probably the single most ballyhooed (by the market) of the Fed's seven tools. The system RP is reserved for use against temporary but substantial natural drains, such as those that can occur on "settlement Wednesdays," or when tax payments overwhelm the Treasury's account at the Fed.

2. Matched Sales

Also known as reverses or reverse RPs, these actions are literally the reverse of a system RP. The Fed lends securities, usually on an overnight basis, directly from its own massive portfolio to primary dealers, in turn borrowing an amount roughly equivalent to the dollar value of the securities lent. Matched sales drain reserves from the banking system. As an aside, the term *matched sale* is used because technically the Fed is not allowed to borrow money from anyone (why should a central bank ever have to borrow?). Consequently, instead of arranging the reverse of a system RP, the Fed technically keeps track of matched sales on its books by arranging a simultaneous sale and later purchase of the securities. Thus, the Fed is able to conduct reverses with the market, while satisfying a congressional restriction against borrowing. Of the Fed's reserve-draining tools, matched sales are the largest (as measured in dollars), usually ranging between \$2 and \$5 billion. They are slightly smaller, on average, than their cousins, system RPs, reflecting the overall nature of the economy to need a net growth in reserves year after year. Matched sales are temporary, for the same reason that system RPs are temporary (their self-reversing nature). Matched sales more often occur on an overnight rather than a multiday basis, if only because the forces in the economy that call for large temporary drains, such as excesses in float, tend to be shorter than the equivalent forces that call for large temporary additions. Finally, matched sales are quite obvious the moment they occur.

3. Bill (or Coupon) Pass (or Sale)

This category most closely fits the traditional textbook notion of the Fed adding or draining reserves. A *pass* refers to the outright purchase of securities (Treasury bills or Treasury coupons) from the primary dealers for permanent inclusion in the Fed's own portfolio. The term *pass* comes from the figurative notion of the Fed "passing" through the market, buying everything of value. In reality, the Fed has a preset amount that it wants to purchase, although the phrase *pass* still stands. Conversely, a *sale* is just what the name implies: an outright sale of securities (Treasury bills or Treasury coupons) from the Fed's portfolio to the primary dealers. Passes are usually for about \$2 to \$4 billion, while sales are for about \$1 to \$3 billion. Although these dollar amounts are lower than their temporary counterparts (system RPs and matched sales), passes and sales technically have a stronger impact on the economy than the larger temporary operations because temporary operations add (or drain) reserves for only a day (or slightly longer). Permanent operations, albeit smaller in dollar size, stay in the banking system longer and thus have a greater impact on the money supply and the economy. Passes and sales are also quite obvious the moment they occur.

A special note is necessary here to dispel the confusion that often arises over the presumed reasons why passes or sales are conducted, and why bills over coupons (or vice versa) are chosen. Passes and sales are relatively rare operations. Outright security sales typically only occur once or twice in January for the purpose of "mopping up" the excess cash that is injected into the banking system in November and December to accommodate the holiday spending binge. In some years, outright securities sales do not occur at all; the Fed chooses to do term matched sales, temporarily sopping up reserves until the passage of time (and concomitant growing need for reserves) takes care of the job. Outright security purchases, on the other hand, are slightly more frequent, but are still uncommon. The Fed arranges outright purchases during two major times in the year: just before the major tax inflows of April, and just before the major holiday spending in December. In any typical year, there might be a need to arrange between four and eight outright purchases.

The decision by the Fed to arrange an outright purchase or sale of securities is determined solely by very predictable seasonal patterns, as mentioned above. The decision as to whether the outright transaction should be arranged using Treasury bills or Treasury coupons is not determined by economic need, however. The decision is usually a judgment call, made by the manager of the New York Fed's trading desk, as to whether a given sector of the Treasury market needs "support." Reducing the supply of off-the-run coupon securities, for example, can help support the on-the-run security in that sector. (Note that the Fed always dislikes depressing the market; consequently, the one or two securities sales performed in January are almost always arranged in a very liquid sector of the Treasury bill market.) The Fed's secondary consideration of the market's condition when arranging a pass has led to a pervasive and highly incorrect market belief: that the Fed stands ready to support the bond market with a pass if the market needs it. Unfortunately, the Fed's once-in-a-lifetime emergency purchases of securities after the 1987 stock market crash did little to assuage this myth. Be absolutely sure that you understand this point: *the Fed does not come to the rescue of an ailing bond market with an outright purchase of securities.* The need for a pass is first determined based on the growth/inflation target plans set out in February, and various seasonal disruptions that may occur. Only

secondarily, and conditional upon an initial economic need for a pass, will the Fed consider the "tone" of the market in its decision to purchase along the yield curve.

4. Customer RP

No other Fed operation is as misunderstood as the customer RP. During a customer RP, the Fed is actually brokering a repo transaction between two private-sector customers, an act which, on its face, does not affect the Fed's portfolio and should not therefore have an impact on the total amount of bank reserves. Most market players, however, believe (correctly) that a customer RP adds bank reserves to the banking system. To understand the customer RP, we must understand who the "customer" is and why the Fed provides this specialized brokerage service.

The Fed's customers are foreign central banks. These are not the major foreign central banks, such as the Bank of Japan or the Bundesbank, but rather the multitude of smaller central banks, such as those of Belgium and Spain. These smaller central banks have dollars on account with the U.S. Fed as part of their normal foreign currency reserves. These central banks need to keep these funds as liquid as possible in order to pay the ongoing dollar-denominated debts of their respective countries. On the other hand, like any smart investor, these foreign central banks would like to earn a rate of return on these funds. The Fed does not pay interest on any accounts held with them (remember: the Fed is not allowed to borrow money, and paying interest on funds held is a form of borrowing). To accommodate these smaller central banks, which prefer not to have to wire their funds in and out of the Fed each day to private banks in order to earn overnight interest, the Fed arranges the equivalent of matched sales. Thus, the customers earn interest and stay liquid, while the Fed skirts the congressional restrictions on borrowing. Unlike the matched sales the Fed arranges with the primary dealers, the matched sales arranged with this pool of foreign central bank money (known by the informal name *customer pool*) are not considered part of monetary policy. Instead, they are arranged in the interests of good international relations.

If this pool of foreign central bank money earning interest via internal matched sales is not part of open market operations, then what does it have to do with the so-called customer RPs, which are in fact a part of monetary policy? Simply this: The internal overnight matched sales performed each day for the Fed's customers are a fairly predictable drain on bank reserves. It is a *drain* because matched sales conducted with the Fed's own portfolio always drain reserves; in this case, they just do not happen to be a part of the intentional scheme of monetary policy. They are simply an uncontrollable commitment that the Fed has made. If the Fed has, say, \$5 billion in customer pool money to arrange into internal matched sales today, the Fed views that \$5 billion as equivalent to \$5 billion in excess float (for example) that needs to be absorbed. In other words, the customer pool is simply factored directly into the day's add/drain calculation. Unlike float, however, the Fed has some degree of discretion over the customer pool. The Fed cannot refuse to invest the money since this is bad for international relations. The Fed can, however, broker the transaction away to the primary dealers.

When the Fed does choose to allow, say, \$3 billion of the customer pool money to be brokered to the primary dealer community, it reduces what would have been a \$5 billion drain on bank reserves down to only a \$2 billion drain (the \$2 billion in customer pool money that the Fed will

take care of through its own internal portfolio). Since the brokering of these customers' RP orders through to Wall Street effectively adds reserves to the banking system, it is considered a tool of monetary policy and is referred to as a customer RP. The adding effect is a bit convoluted (since the Fed adds by avoiding regularly planned internal actions that would otherwise have drained reserves), but nonetheless a dollar of reserves added is still a dollar of reserves added.

Customer RPs are small by the standards of system RPs: usually only \$1 to \$3 billion. Customer RPs are public knowledge to the extent that the Fed not only announces that they are being arranged, but also (unlike any other open market operation) announces the size of the operation at the same time. Customer RPs are temporary, with terms ranging from overnight to 15 days.

5. Rolloff at Auction

Given the enormous size of the Fed's portfolio of government securities, it is a safe bet that at any auction of new government securities, the Fed will need to replace some existing securities that mature on the auction settlement date. In most cases, the Fed simply rolls over its current holdings of securities, not buying any more, not buying any less. In fact, the Fed is prohibited from buying more U.S. Treasury securities directly at the auction. However, the Fed is not prohibited from *reducing* its current holding of Treasuries at an auction, or at any other time.

If the Fed does reduce its holdings of a security at an auction, the net size of the portfolio will decrease, all other things being equal. Since the Fed's rolloff of securities is identical to a sale of the securities, it has the identical impact that a bill (or coupon) sale would have: a permanent reduction in bank reserves. As a rule, the Fed uses this tool sparingly, and only in small amounts (\$1 billion or less at any auction). Also, given the impact a rolloff might have on an otherwise risky auction, the Fed limits its use of the rolloff technique to the weekly Treasury bill auctions, when it uses this technique at all. Finally, note that the Fed does not use the rolloff technique to restructure its portfolio. The Fed does not attempt to make a profit from its portfolio and does not restructure according to its interest rate outlook or any other criterion. Indeed, the conflict of interest would be enormous.

Whether the bill rolloff is a secretive technique is debatable. Although the question as to whether the Fed has rolled off bills at an auction can be answered almost immediately upon release of the general auction details (three hours after the actual auction takes place), most market participants are unaware as to whether the Fed has rolled off bills. Those who do know of its occurrence do not know what it means. This is curious, given the fact that if a procedure of equivalent size took place in the form of a bill sale or a multiday matched sale, the financial markets would be abuzz with concerned chatter that the Fed was tightening monetary policy. Consequently, the Fed uses the bill rolloff as a behind-the-scenes technique of disguising a reserve drain.

6. Outright Purchase/Sale with Customer

Similar to the money in the customer pool, billions of dollars worth of U.S. Treasury securities at the Fed are held by foreign banks. On any given day, each foreign central bank may want to buy or sell some of its Treasury securities for its own purposes. The Fed accommodates these orders in the following manner. First, the Fed attempts to net out the transactions — canceling out one customer's buy order with another customer's sell order. If that does not serve to net the orders perfectly (and it rarely does), the Fed then tries to accommodate the net of the orders with the Fed's own internal portfolio. However, changing the size of the Fed's portfolio of securities changes the level of bank reserves in the economy, just as it would in a pass/sale or a bill rolloff. If the net of the customers' orders is not in keeping with the open market operations planned for that day, the Fed does not accommodate the orders via the Fed's internal portfolio. Rather, the Fed will farm out the bids and offers to various primary dealers.

There is a significant difference between the Fed's brokering the orders for matched sales from the money in the customer pool, versus the Fed's brokering the orders for securities transactions. In the case of securities transactions, when you hear that the Fed is looking for buyers (or sellers) to trade with foreign central banks (in which case the news wire will read "Fed is buying (selling) \$XXXX amount for account of customer"), this indicates that the Fed *did not* intend to use these orders to perform a change in bank reserves. By farming out the business to the primary dealers, the Fed avoids a change in bank reserves. In fact, it is the transactions with customers that you do not hear about that make an impact on bank reserves. Thus, securities transactions with customers are permanent, reserve-affecting operations only when they are secretive. Typically, however, the daily transactions are small: less than \$500 million. The securities transactions that you do hear about (those that are brokered through to the markets) do *not* have an impact on bank reserves.

7. The Treasury's Account at the Fed

Discussed more fully in the main body of this chapter is the reserve account that the Treasury maintains at the Fed, as well as the accounts that the Treasury maintains at individual banks, known as the TT&L accounts. As noted previously, the TT&L accounts can accommodate between \$22 to \$24 billion, based on the sum of the contractual agreements between the banks and the Treasury. The Treasury's account at the Fed, while it has no limit, is usually maintained at \$3 billion dollars by frequent transfers of funds back and forth between the TT&L accounts and the Treasury's account at the Fed.

The slavish adherence to a level of \$3 billion in the Treasury's account at the Fed at the expense of frequent transfers to and from the TT&L accounts is for one very good reason: the Treasury's balance at the Fed has an impact on bank reserves, whereas the sum of the TT&L balances can fluctuate sharply without having any impact on bank reserves. Specifically, if the Treasury's account at the Fed rises above its usual \$3 billion level, it is at the expense of reserves held at banks, and therefore bank reserves decline. Although it is somewhat rare, the Fed will sometimes ask the Treasury to hold more (or less) than \$3 billion at the Fed, thus tightening (or expanding) bank reserves without the market's general knowledge. However, this is not done on a regular basis, or in large amounts, for a variety of reasons. For example, the

Treasury's account at the Fed serves to clear all of the checks drawn on the federal government. If the account goes too low, the government check bounces. Thus, the Treasury can accommodate Fed policy only when Fed policy is not in direct conflict with Treasury's cash management needs. A second reason that the Fed does not use this approach frequently is that the Treasury's daily balance at the Fed is reported with a two-day lag. Thus, if the account is manipulated, it soon becomes apparent.

These seven tools comprise the wide variety of ways that the Fed can add or drain bank reserves. Many of the dollar figures alluded to (size of a bill pass, current level of the TT&L accounts) can be found in government publications or the newspaper. Fed watchers study these data (and many other bits and pieces of the Fed's balance sheet not mentioned here) to predict which of these seven tools the New York Fed's trading desk will employ in meeting the goals set by the FOMC on any given day. Analyzing and predicting the Fed's actions is no easy task.

THE DAILY GO-AROUND

To get an understanding of how the Fed chooses to use its available tools, we examine a typical morning on the New York Fed's trading desk. Each morning is highly structured as to who does what; only the numbers change.

- 9:00 A.M. *Dealer Meetings.* Each day at about 9:00 A.M., two or three senior officers from the New York Fed's trading desk meet either face-to-face or by telephone with two or three senior dealers and analysts from one of the primary dealers. Although the conversation can touch on many different subjects, eventually the Fed staff will want to know what the dealer community expects to see from the Fed that day in the form of an open market operation.
- 10:00 A.M. *The Treasury Call.* At about 10:00 A.M., the manager of the Fed's trading desk concludes the dealer meeting, returns to the trading desk, and receives a briefing as to the current and projected daily levels of bank reserves and the money supply. At about 10:15 A.M., the assistant secretary of the Treasury for monetary policy calls the manager of the Fed's trading desk to discuss the current and projected levels for the TT&L accounts and the Treasury's account at the Fed. This is the point, mentioned previously, where the assistant Treasury secretary might be asked to temper the cash management needs of the Treasury with the bank reserve management needs of the Fed.
- 10:45 A.M. *Formulating the Daily Plan.* Once the Treasury call is finished at about 10:45 A.M., the senior staff of the trading desk plans a tentative course of action for the day. The staff reviews customer orders for buying and selling securities, as well as the size of the customer pool orders for matched sales. More detailed forecasts are received from the reserve projectionists and compared to the forecasts of reserve projectionists in the Washington, D.C., office. In the meantime, traders on the New York Fed's trading desk have spent the morning keeping an eye on prices in the market, calling dealers, and watching the news wires. All this is reported to the

senior staff of the trading desk. By 11:00 A.M., a tentative plan for that day's open market operation is formulated.

11:15 A.M. *The Conference Call.* At 11:15 A.M., a conference call is initiated, which includes the manager and senior staff of the New York Fed's trading desk, the staff director for monetary policy and his staff in Washington, and one of the four Fed district bank presidents who is currently serving on the FOMC. Notes are compared, and the New York staff updates the Washington staff with new developments in the marketplace that day. Generally, there is agreement as to the plan, although occasionally the Fed district president, who has been relatively outside of the information loop, asks for a more detailed explanation of the reasoning behind the decision. The call normally ends at about 11:30 A.M.

11:40 A.M. *Executing the Daily Program.* Assuming that the Fed decides to perform some type of activity that day, the market operation begins at about 11:40 A.M. with six to eight of the Fed's traders picking up direct telephone lines to traders at the primary dealerships, asking for bids or offers on specific securities, or asking for repo rates of a given term. Once all the dealers have been surveyed (which usually takes only a matter of minutes), the prices (or rates) received are arranged from best to worst, forming a sort of demand curve for securities. The manager of the trading desk will accept all the best prices (or rates) up to the point where they have completed the size of the operation that they intended. This point is known as the *stop-out rate*. Once the acceptable prices (or rates) have been determined, the Fed's traders call back the primary dealers, inform them of what business, if any, they will do with them, and start the operations moving for the transfer of securities. For the rest of the day, the Fed's trading desk is less structured, as it sits back and views whether its operation is having the predicted impact on the level of interest rates. The impact on bank reserves and the money supply will not be known for days or weeks thereafter.