ANNUAL REPORT 2007

FEDERAL RESERVE BANK
of CLEVELAND

The Federal Reserve System is responsible for formulating and implementing U.S. monetary policy. It also supervises banks and bank holding companies and provides financial services to depository institutions and the federal government.

The Federal Reserve Bank of Cleveland is one of 12 regional Reserve Banks in the United States that, together with the Board of Governors in Washington DC, comprise the Federal Reserve System.

The Federal Reserve Bank of Cleveland, including its branch offices in Cincinnati and Pittsburgh, serves the Fourth Federal Reserve District (Ohio, western Pennsylvania, the northern panhandle of West Virginia, and eastern Kentucky).

It is the policy of the Federal Reserve Bank of Cleveland to provide equal employment opportunity for all employees and applicants without regard to race, color, religion, sex, national origin, age, or disability.

www.clevelandfed.org

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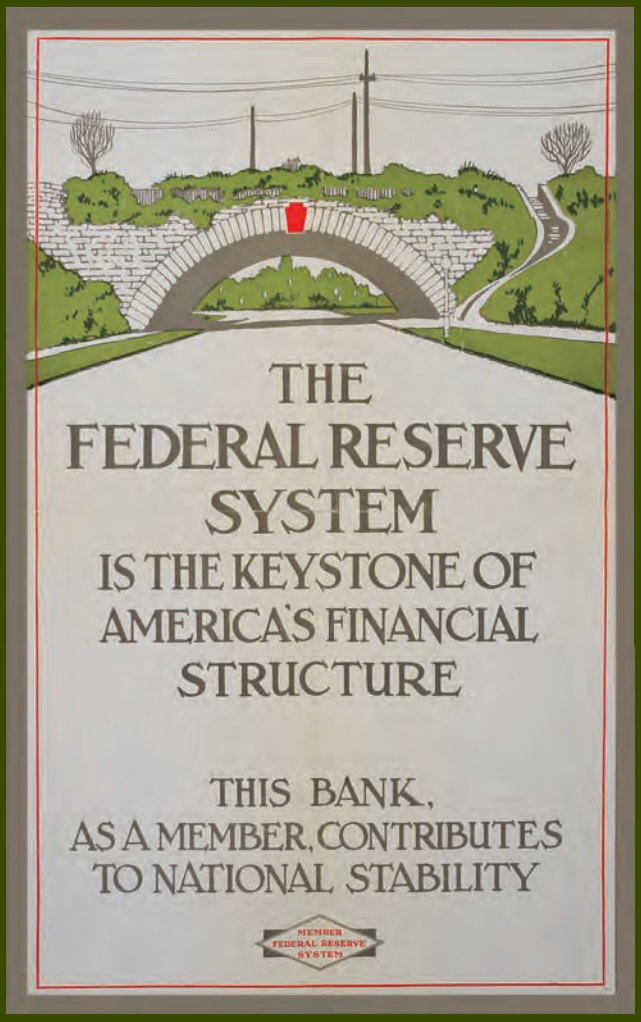

The five posters in this report date from the mid-1920s and were intended for display by member banks. The 12 regional Reserve Banks supervise member banks as part of the Federal Reserve System's mandate to promote strength and stability in the nation's domestic markets and banking system.

President's Foreword

The U.S. economy rolled on in the early months of 2007, continuing its solid performance of the past several years. Still, some observers detected imbalances in the U.S. economy that posed risks to its continued expansion—imbalances that had been building for several years.

By late summer, it became clear that upbeat economic projections for 2007 would be sorely tested by a housing downturn, and that some financial companies closely tied to the housing sector would suffer losses. Then, as fall turned to winter, signs of a more serious credit crunch began to take shape. Ongoing stresses in the housing and mortgage markets began to affect liquidity not just in the domestic financial sector, but across the globe, as winter progressed into 2008.

The Federal Reserve System has responded to this turmoil with a series of timely actions. The Federal Open Market Committee has sharply lowered its federal funds rate target and has taken steps to make its large holdings of Treasury securities available to financial market participants. In related actions, the Board of Governors has initiated several changes in the discount window operations of the Reserve Banks. Some of these actions are unprecedented in Federal Reserve history.

A financial crisis provides perhaps the most tangible opportunity for a central bank to fulfill its role in fostering financial stability. The proper response, however, depends on the reasons behind the crisis and on the costs and benefits of resolving any related market failure. Central bankers must also keep in mind the intended and unintended consequences of their response to the crisis at hand.

This year's *Annual Report* essay, advanced by three of our Research economists, offers some lessons from the past that may be useful in placing current events in perspective. More important, these lessons may help guide policymakers in planning ahead to manage future financial crises. The particular mechanisms that the authors propose are less important than the principle of preplanning, to the extent possible, for the inevitable dislocations in financial markets. A good crisis prevention environment also requires aligning policies and practices among all agencies involved in the chartering, regulating, supervising, and insuring of financial institutions.

The Operational Highlights section of this report, beginning on page 22, complements the main essay with a more detailed analysis of the discount window and the Federal Reserve Bank of Cleveland's role in supporting the central bank's monetary policy activities.

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While critically important, monetary policy support is just one of many functions that helped the Federal Reserve Bank of Cleveland advance its strategic objectives and achieve solid performance in 2007.

The Bank advanced its thought leadership objective in the areas of policy analysis, research, banking supervision, payments, and support to the U.S. Treasury. Beyond our work in financial stability, highlights include initiating a research study to improve survey-based measurement of inflation expectations; managing significant growth in the electronification of check services as a result of Check 21 legislation; and serving as a national business leader for eGovernment and Treasury Retail Securities.

R. Chris Moore, first vice president and chief operating officer;
Sandra Pianalto, president and chief executive officer;
Tanny B. Crane, chairwoman; and
Alfred M. Rankin Jr., deputy chairman.

In 2007, the Bank also strengthened its external focus objective, designed to foster public understanding of the Federal Reserve System's mission and to inform our contributions to monetary policy. The Bank provided information and analysis on regional and national economic issues through academic research, speeches, and a strong community presence. The Community Affairs function hosted its fifth annual Policy Summit, which focused on foreclosures, vacant and abandoned properties, and new sources of community development. Also, the Bank's Learning Center and Money Museum welcomed more than 10,000 visitors, hosted two special exhibits, and provided educational outreach.

The Bank also continued to advance its strategic objective of operational excellence. Cleveland was named one of four regional check-processing sites in the Federal Reserve System, while the Retail Payments Office continues to manage the ongoing consolidation of check operations across the nation. In addition, the Bank was selected to develop and administer four key operations for the U.S. Treasury and earned high marks for customer service and support. The Cash function also consistently met aggressive operational and financial targets.

The Bank's boards of directors and advisory councils in Cleveland, Pittsburgh, and Cincinnati were instrumental in guiding our success in 2007.

I extend a deep measure of thanks to Henry L. Meyer III, chairman and CEO of KeyCorp, who is stepping down from our Cleveland Board of Directors after three years. Henry has brought energy and commitment to his term of office, including participation on two board committees. I am delighted that he has agreed to serve as the Bank's Federal Advisory Council representative in 2008.

I also thank Edwin J. Rigaud, president and CEO of Enova Partners in Cincinnati, who served on our Cleveland Board of Directors as well as two board committees. We greatly valued his insights and counsel.

Thanks also go to two retiring members of our Pittsburgh Board of Directors: Robert O. Agbede, president and CEO of Chester Engineers in Pittsburgh, served for six years and was chairman of the Pittsburgh board in 2007. Michael J. Hagan, president and CEO of Iron and Glass Bank in Pittsburgh, also served for two three-year terms. We thank Bob and Mike for their dedicated service and leadership.

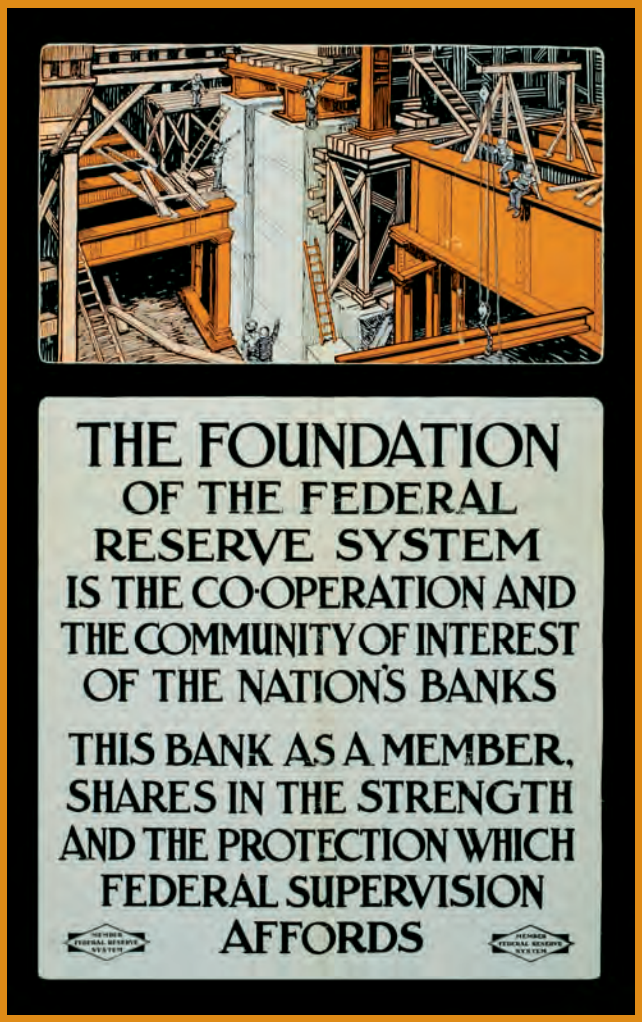
From our Cincinnati board, we say farewell to two directors who have also provided six years of service each: Herbert R. Brown, senior vice president for Western & Southern Financial Group in Cincinnati, and James H. Booth, president of Czar Coal Company in Lovely, Kentucky. Herb and Jim have brought unique insights to our Bank, and we greatly appreciate their contributions.

Finally, I thank George W. Schaefer Jr., chairman of Fifth Third Bancorp in Cincinnati, who has served as our Bank's representative on the Federal Advisory Council for the past two years. George's leadership has been outstanding.

At the Federal Reserve Bank of Cleveland, we continue to advance our strategic objectives of leadership in thought and deed, external focus, and operational excellence. In this effort, we are driven by the diversity, talent, and dedication of more than 1,500 employees in our Cleveland, Cincinnati, and Pittsburgh offices. I am indebted to the Bank's officers and staff for all of their contributions to our success.

I know that no matter what the challenges we face, the Federal Reserve Bank of Cleveland has a wealth of human capital—in terms of innovative and engaged directors and employees—to sustain and strengthen us.

Sandra Pianalto
President and Chief Executive Officer



The 1913 Federal Reserve Act requires all nationally chartered banks to become members of the Federal Reserve System. State-chartered banks have the option of becoming members. The Depository Institutions Deregulation and Monetary Control Act of 1980 opened up the benefits of Federal Reserve membership to a broader range of financial institutions.

Central Banks & Crisis Management

by Joseph Haubrich, James Thomson, and O. Emre Ergungor

As 2007 began, historians prepared to reflect on several anniversaries of financial turmoil. It had been 10 years since the East Asian crisis, 20 years since the Black Monday stock market crash, 100 years since the Panic of 1907, and 150 years since the Hamburg financial crisis of 1857. Not many, however, could have predicted that 2007 would write its own chapter in history with the subprime mortgage meltdown.

The historical perspective may reveal the deeper issues behind recent events. The fundamental causes and full consequences of previous crises did not become apparent until after they had passed. Reflecting on historical analogies may serve us better than adopting too narrow a focus on day-to-day market changes and results.

Certainly, there are some critical differences in today's events from those in previous episodes. For example, since the savings and loan crisis and bank problems of the 1980s, regulation has emphasized solvency issues, such as ensuring adequate capital and proper measures of bank risk. But it was liquidity problems that first garnered widespread attention in the current crisis—a seizing up of markets for securitized credit and asset-backed commercial paper, which placed considerable balance sheet and liquidity pressures on many large U.S. and European banks and securities firms.

The financial market events of 2007 (which have continued into 2008) provide yet another opportunity to consider financial crisis management, and in particular the problems confronting central banks. In this essay, we identify two long-standing issues that central banks must confront during periods of financial market stress. The first is moral hazard, a situation in which people do not take adequate care because they do not fully bear the costs of their decisions. The second is dynamic inconsistency, an environment in which policymakers take actions that make short-term sense, but that do not necessarily lead to the best long-term outcome.

We begin by asking why a central bank's mission includes responsibility for financial stability. Next we consider the central bank's response to crisis and its intended and unintended consequences. Because many issues faced by the central bank depend on the broader crisis-management environment, we conclude by addressing how a central bank fits into the broader context of advance planning and the design of institutions that should be in place before the turmoil begins.

WHY WE CARE: THE BASICS OF A HEALTHY FINANCIAL SYSTEM

The Federal Reserve System was created in 1913, after a long series of banking panics from 1857 to 1907. The initial motivation was to stem financial crises originating from shortages of money in the banking system. Thus, the preamble to the Federal Reserve Act announced the intention "to furnish an elastic currency, to afford means of rediscounting commercial paper, [and] to establish a more effective supervision of banking in the United States." Over time, it has become evident that healthy economies require healthy financial systems, and central banks such as the Federal Reserve can operate on a number of fronts to foster financial stability.

The Federal Reserve Act has been amended at various times to provide the System with the means for accomplishing this objective. For example, the Banking Act of 1935 amended the Federal Reserve Act "to provide for the sound, effective, and uninterrupted operation of the banking system" and afforded the System greater regulatory and supervisory authority over banking organizations. Also, the Federal Reserve has long had a strong operating presence in the nation's wholesale and retail payments systems, which it has used to promote reliability in clearing and settling of financial obligations.

Although many people identify price stability as the most important objective of a central bank, economists know that price stability, financial stability, and sustainable economic growth go hand in hand. Congress amended the Federal Reserve Act in 1977, instructing the System to control the long-run growth of money and credit "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."[1]

Why is financial stability so integral to the healthy functioning of the economy? The role of the financial system is to allocate capital—to move funds to their best possible uses. A company, hoping to expand and build a new factory, raises the money by selling stocks or bonds to investors or by securing a bank loan. In either case, many individuals pool their savings to make the investment possible. Of course, allocating funds is part of the process. If people cannot see a profit in the firm's expansion, they will not buy the company's securities and the factory will not get built. If the bank thinks the project is too risky, it will not lend the money—it will decide to invest elsewhere.

The financial system, then, matches savings and investment, fostering economic growth. Indeed, international studies have shown that a major difference between developed and less-developed countries is the ability to pool investment capital.

An impressive amount of money flows through the financial system. In 2007, net borrowing by U.S. household and business sectors totaled $1.9 trillion, or 14 percent of GDP.[2] Outstanding debt for the same sectors totaled $23.9 trillion. It makes sense, then, that problems in the financial markets will cause problems in the labor, capital, and product markets. A serious disruption in the flow of funds through financial institutions can shrink investment, delaying the start-up and expansion of businesses or pushing them into bankruptcy. It can depress consumption if household access to credit markets becomes curtailed. Weaknesses in economic activity can then further impair the condition of financial institutions, once again decreasing income and spending. The entire process can be amplified by uncertainty and caution.

To fully understand the roles a central bank can play in mitigating the worst effects of financial crises, we must take a closer look at the various ways in which banking panics and market crashes can disrupt the real economy, leading to higher unemployment and loss of income. Let's begin with the period prior to the founding of the Federal Reserve System in 1913. A major concern at the time was that the money supply was inelastic—that is, it could not expand and contract along with the needs of trade. When a crisis threatened, each bank would hoard its funds, reduce loans, and refuse to convert deposits into currency. The result was predictable: reduced lending, a smaller money supply, and financial stringency.

Without a central bank to increase the quantity of money that anyone would accept as payment for an obligation, each individual's attempt to protect himself made the problem worse. Banks could be solvent but not liquid enough to meet their current obligations without having to sell valuable assets at a steep discount to raise cash. J.P. Morgan mobilized private funds to end the banking panic of 1907, but the federal government decided that going forward, the nation should rely on a central bank.

1. Section 2a of the Federal Reserve Act:12 USC 225a as added by act of November 16, 1977 (91 Stat. 1387).

2. Data from the Flow of Funds, table F.1, for the nonfinancial, nongovernment sector.

Why place this responsibility with the central bank? Part of the reason stemmed from dissatisfaction with how crises had been resolved in the past, but perhaps a greater reason was that financial innovations were already pointing to the benefits of a centralized response. In the nineteenth century, groups of banks formed clearing house associations, which in the panics of 1873, 1893, and 1907 issued "clearing house loan certificates" in exchange for deposits of legal currency.

This early form of elastic currency helped mitigate the effects of the panic. The Federal Reserve Act essentially cast the Federal Reserve System into the role of the nation's most powerful clearing house. The Act provided another means for making the nation's money supply more elastic: "rediscounting," the process by which banks pledge collateral and borrow from the Federal Reserve (see box on page 10).

Clearing House Loan Certificates

The clearing house originated as a single location to provide clearing and settlement services for its member banks. Thus, a single bank did not have to deal with all other banks, but only with the clearing house. Clearing houses originally arose to settle and clear banknotes, but as checks became more important in the U.S. economy, clearing house volumes increasingly shifted to checks and the clearing house associations expanded.

In times of panic, however, the clearing house took on additional roles beyond clearing checks. Starting in 1857, the clearing house, on approval of its policy committee, would issue clearing house loan certificates, a currency substitute that was the liability of the clearing house association, not of any specific bank. Banks could use the certificates in clearing checks with other banks, freeing up currency to pay depositors. Later, after 1873, the certificates were issued directly to depositors. These certificates were thus an early form of elastic currency and — because the certificates represented a claim on the entire group of banks — an early form of the lender of last resort. Clearing houses also pioneered a variety of other central bank activities, such as capital requirements, reserve requirements, interest rate caps, and regular audits and reports.

Sources: Gorton (1985); Gorton and Huang (2006).

Central banks provide nations with some tools for dealing with financial crises, but having a central bank does not immunize nations from experiencing severe financial disturbances and poor economic performance. Consider the evidence from several historical episodes. The most famous, of course, is the Great Depression. Although bank failures featured prominently in the Depression, at first they appeared to have little direct impact on the economy. The failures seemed either to reflect the deteriorating economy or to have resulted in a drastic decrease in the money supply, which in fact did the damage.[3] More recent work, however, suggests that the banking crisis did have real effects above and beyond monetary policy. With nearly one-third of U.S. banks failing, financial services dried up and credit became much more difficult to obtain.[4]

In a well-functioning system, other means of financing could have offset at least part of reduced lending and bank services. However, pronounced deflation (prices fell by 25 percent from 1929 to 1937) substantially reduced the wealth of debtors, as the real value of principal and interest rose as prices fell. With less wealth and less collateral to stand behind borrowings, funding became difficult. In addition, consumers cut back on purchases in the hope of retaining some liquidity.[5] The commercial paper market also dried up. With both businesses and consumers hurting, and alternative funding unavailable, the stage was set for a serious depression.

The Discount Window

Discount window lending is used when depository institutions borrow directly from their local Federal Reserve Bank. They may borrow under several programs (including primary credit, seasonal credit, and most recently, the Term Auction Facility), provided they have the appropriate collateral and meet several other requirements. This lending expands the bank's reserves, increasing its liquidity. A discount window loan also expands the reserves of the banking system, increasing overall liquidity. When a loan is paid off, reserves and liquidity decrease. Today, the overall change is usually offset by open market operations, leaving the stance of monetary policy unchanged.

This practice was known as rediscounting. The original discount was when the merchant sold the paper to the bank. Interest was paid because the bank advanced less money than the merchant would eventually pay back, and the Federal Reserve advanced less than what the bank paid. Today the process for extending credit to depository institutions is known as discount window lending. See the Operational Highlights section of this report on page 22 for more information on this function.

3. Temin (1976); Friedman and Schwartz (1963).

4. Bernanke (1983).

5. Mishkin (1978).

Financial disruptions affected the overall economy in later episodes as well. Before 1981, Federal Reserve Regulation Q put a cap on the interest rate that banks and thrifts could pay on deposits. Rising interest rates would often lead to disintermediation, where depositors withdrew money from the regulated institutions and moved it into higher-yielding financial instruments from unregulated institutions. In response, the regulated institutions, particularly savings and loans (S&Ls), cut back lending, in turn reducing house construction, which depended heavily on mortgages from S&Ls. Even moderately restrictive monetary policy could have large effects. For example, in 1966, residential construction fell by 23 percent in just one year.[6]

A further lesson on the lingering effects of financial problems comes from Japan. In the 1970s and 1980s, Japan experienced a real estate and stock market boom. The real estate bubble reached a point at which the land beneath the emperor's palace in Tokyo had a market value equal to all of the real estate in California.[7] The stock market peaked in 1989 and real estate prices peaked in 1990, after which both lost more than half their value. Loans collateralized by land (or stock) did not seem as safe as they once did. The severity of the collapse proved the truth of the old adage, "If you owe the bank $100 and can't pay, that's your problem. If you owe $100 million, that's the bank's problem."

Faced with numerous problem loans, Japanese banks resorted to "evergreening," extending new loans to troubled borrowers so these firms could continue to make interest payments, enabling the banks to avoid reporting losses.

But by propping up problem loans, the banks had less capital to fund growing, profitable firms. This became a classic illustration of opportunity cost. The problem was not that lending decreased—in fact, bank loans increased until the mid-1990s—but that capital was misallocated as loans went to the wrong firms.[8] Failure to resolve the financial problems led to years of disappointing growth.

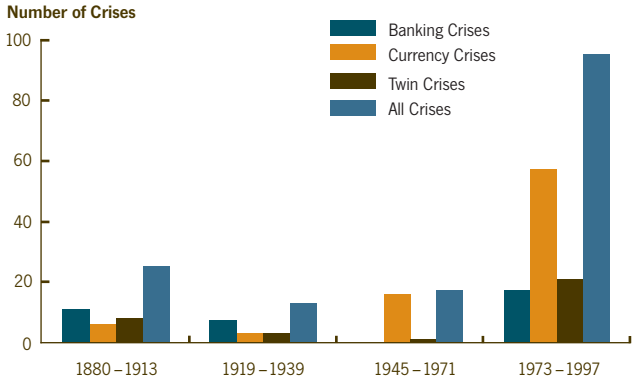
CRISIS AND RESPONSE

A financial crisis provides perhaps the most concrete opportunity for a central bank to assert its role in achieving financial stability. But what role should the central bank play in a crisis? Much depends on the cause of the crisis, the market failure behind it, and the costs and benefits of resolving the market failure.

The historical record provides many examples of crises and panics of different sorts in various countries (see figures 1 and 2). For example, the past century has seen classic banking panics, when people run on banks, as well as broader crises when funding markets collapse. We have also seen currency crises, when people rush to get out of a nation's money, and twin crises, consisting of a simultaneous run on a country's banks and currency.

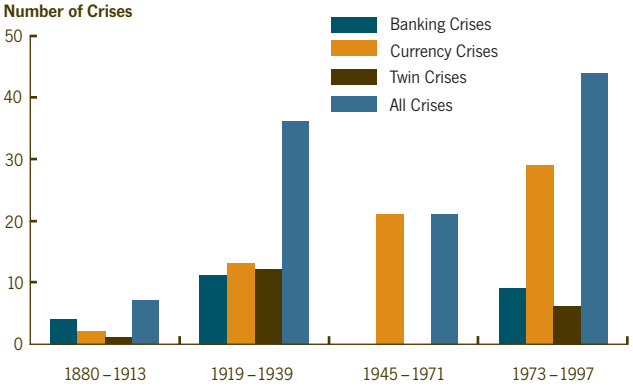
Sometimes a small shock will be responsible for the crisis, as a seemingly insignificant incident—a fraud, scandal, or rumor—sets off a panic. At other times, a large shock, such as a war or an abrupt change in government policy, will set off a crisis.

Figure 1: Emerging Markets



Source: Bordo and Eichengreen (2002).

Figure 2: Industrial Countries



Source: Bordo and Eichengreen (2002).

6. Bernanke (2007).
7. Allen (2001).
8. Peek and Rosengren (2005).

Still, most crises do share a resemblance. Uncertain about economic conditions, people rush to convert their illiquid assets to cash, sometimes in dramatic fashion. When depositors rush to convert bank deposits into cash, we have the classic bank run dramatized in the movie *It's a Wonderful Life*. When investors rush to exchange the Thai baht for dollars, we have a currency run. When institutional investors refuse to roll over asset-backed commercial paper, we have the financial turmoil of 2007–08 (see box on page 13). In many cases, this desire to convert assets takes the form of a demand for liquidity.

A liquidity crisis can cause otherwise solvent firms to fail, disrupting the financial system, reducing investment, and slowing economic growth. Banks must reduce lending or even call in loans. Businesses that rely on short-term funding, such as commercial paper, find it impossible to keep issuing that paper and must restrict investment and let profitable projects languish. Furthermore, most commercial paper is backed by bank lines of credit, meaning that disruptions in the commercial paper market can place increasing liquidity pressures on commercial banks.

Central banks are assigned different roles, responsibilities, and policy tools in their home countries. Their ability to promote and maintain a healthy financial system depends on their specific policy tools and their capability to perform during periods of stress. Nevertheless, by definition, central banks control the supply of base money in their countries, and thus can supply their financial systems with a highly liquid financial asset during times when markets hunger for it.

This, then, is where the central bank plays its most powerful role. As the monetary authority, it can create fiat money—the essence of liquidity.[9] By creating liquidity, the central bank can forestall liquidation or fire sales of productive assets, preserving the "going concern value" of firms.

A good example is the Penn Central Crisis of 1970. The railroad went bankrupt, defaulting on its commercial paper. With credit markets already tight, investors became reluctant to invest in commercial paper, jeopardizing the funding of many corporations. The Federal Reserve stepped in, providing liquidity. As one observer put it:

> What the Fed did was to provide assurance to the financial markets that the liquidity essential to their operation would be preserved. If panicky investors refused to renew their holdings of commercial paper, preferring Treasury bills … instead, their extreme preference for safety would not be allowed to contribute to widespread insolvency. Once everyone understood that, there was little reason for panic.[10]

Liquidity problems, though, are not the only reason a firm may have trouble borrowing, and this makes the central bank's decision more difficult. The classic distinction is between liquidity and solvency: A firm is insolvent if the total value of its liabilities exceeds the total value of its assets—in other words, if it owes more than it is worth. A firm is illiquid if it cannot pay on its liabilities due right now. The classic notion of a solvent but illiquid firm is a company with valuable assets and good prospects of future sales, but whose cash flows lie in the future, so it must borrow money to keep going.

The distinction between liquidity and solvency problems means that central bank actions—or inaction—appropriate in one situation may be exactly the wrong prescription in another. Furthermore, actions taken during a crisis have consequences long after the crisis is resolved.

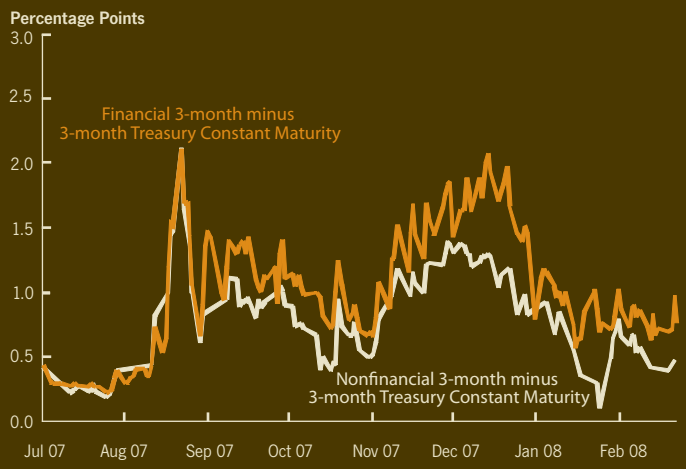
9. Theoretically, at least, it is conceivable that private agents might create money (as was done in the U.S. Free Banking Era from 1838 to 1863), but today it is generally the function, and indeed the defining feature, of the central bank.

10. Melton (1985, 158).

The Current Financial Distress in a Nutshell

Weak underwriting standards for subprime mortgages, combined with falling home prices, led to soaring delinquencies in 2007. Most of these mortgages were bundled together and sold into mortgage-backed securities, then repackaged into collateralized debt obligations. When it became clear that these securities could suffer heavy losses, despite their high ratings (AAA and AA), investors lost faith in the ratings system for complex structured securities and pulled back in a wide range of markets. The outstanding value of asset-backed commercial paper declined by one-third, or about $350 billion, between August and December 2007. For banks, which provided back-up liquidity facilities for the vast majority of asset-backed commercial paper outstanding, difficulties in rolling over commercial paper resulted in significant balance sheet and liquidity pressures. As a result, banks became reluctant to lend to others, particularly in the term funding markets.

Commercial Paper Spread



Source: Federal Reserve Board.

Monoline bond insurers were hit particularly hard, leading to questions about their ability to stand behind municipal bonds. Hedge funds, despite suffering notable losses in August by funds using quantitative trading strategies (quant funds), have mostly survived.

These events were reflected in the rates paid in the commercial paper market, particularly the spread between 90-day commercial paper and three-month Treasury bills. This spread measures the difference between interest rates on a risky security (commercial paper) and a safe security (the Treasury bill) and therefore indicates the financial market's assessment of risk in the economy. The figure shows the course of this yield spread since the subprime meltdown began in summer 2007.

The liquidity problems did not abate as quickly as many in the market had hoped, and the Federal Reserve took a number of steps, beyond reductions in its federal funds rate target, to ease strains in financial markets. The changes during this period of market disruption fall into four broad categories: (1) longer terms of lending, (2) broader types of collateral, (3) a wider class of counterparties, and (4) a tighter spread between the primary credit rate and the target federal funds rate. These initiatives were designed to bolster market liquidity and promote orderly market functioning.

Crisis Response: Intended and Unintended Consequences

While central banking may properly be considered more art than science, the central bank has some time-honored advice for confronting a liquidity crisis. First suggested by Sir Francis Baring in 1797 and Henry Thornton in 1802, the advice is best known in the formulation of Walter Bagehot (founder and first editor of *The Economist* magazine), in his book *Lombard Street*:

> The end is to stay the panic; and the advances should, if possible, stay the panic. And for this purpose there are two rules:—First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it….
>
> Secondly. That at this rate these advances should be made on all good banking securities, and as largely as the public asks for them. The reason is plain. The object is to stay alarm, and nothing therefore should be done to cause alarm.[11]

Bagehot's rules can be summarized as "lend freely at a penalty rate." The central bank must provide enough liquidity to meet the needs of the market, but it must also prevent banks from profiting at the central bank's expense. The penalty rate should allow those firms that need liquidity to survive, but it should discourage those looking only for cheap funding.

The rules distill some hard-won wisdom gleaned by the Bank of England. It is not sufficient merely to resolve the financial crisis. The central bank must ensure that its actions do not set the stage for future crises. Bagehot saw how the wrong lending policy could make financial problems worse. In modern jargon, this problem is known as moral hazard. The term is borrowed from insurance, when people tend to take on more risk simply because they are insured. For example, people build houses near the beach, knowing that insurance will reimburse them for some of their losses after a hurricane hits. The term has taken on a broader meaning of how behavior changes when people do not bear the full costs of their actions.

Indeed, moral hazard lay behind one of the more severe recent financial crises: the S&L crisis of the 1980s. When the inflation of the late 1970s rendered many S&Ls economically insolvent by pushing deposit rates above the rates on fixed-rate mortgages, S&Ls responded by taking on increasingly risky investments. If the investments paid off, the S&L returned to health; if they did not, the Federal Savings and Loan Insurance Corporation, which insured their deposits, paid the depositors.

Moral hazard meant that insolvent S&Ls gambled for resurrection because federal deposit insurance insulated new depositors from the risky investments. Many of the gambles famously did not pay off, impoverishing the insurance fund and the taxpayers who stood behind it.[12] The $152 billion direct cost to taxpayers, large as it was, did not measure the full impact on the economy. Those loans went to buildings that remained empty and shopping malls that never saw customers. The total indirect economic costs of the crisis are estimated at $500 billion.[13]

Guarantees can take other forms besides explicit deposit insurance, and they sometimes do. For example, Continental Illinois was labeled "too big to fail" and was rescued in 1984. Expectations of rescue have the same effect as insurance. As economic historian Charles Kindleberger puts it: "…if the market knows it is to be supported by a lender of last resort, it will feel less (little? no?) responsibility for the effective functioning of money and capital markets during the next boom. The public good of the lender of last resort weakens the private responsibility of 'sound' banking."[14]

Of course, crises do not always sort themselves into the "liquidity" type of the classic bank run and the "solvency" type of the S&L crisis. Solvency issues often lay behind the demand for liquidity in the 1800s, and many modern financial crises display attributes of both, particularly the international "twin crises" that combine a banking panic with a run on a nation's currency. The classic example is the East Asian crisis of the past decade.

11. Bagehot (1874, 197).
12. Kane (1989).
13. Stern and Feldman (2004).
14. Kindleberger (2000, 161).

Anatomy of the East Asian Crisis

In the early 1990s, the East Asian "tigers" (Indonesia, Malaysia, Philippines, Thailand) and "dragons" (Hong Kong, Singapore, South Korea, Taiwan) experienced strong economic growth with extensive foreign investment, much of it short-term and denominated in dollars. Thus, these economies were vulnerable if foreigners wanted to withdraw their funds. At the same time, the banking and financial systems in these nations expanded, fueled by both foreign money and deregulation.

In early 1997, exports slowed and bankruptcies increased sharply. Foreign lenders began withdrawing their capital, increasing pressure on exchange rates. The region's central banks started to defend their currencies, but the drain proved too much. In July, Thailand stopped supporting the baht, and the Philippines and Malaysia soon ceased their defense of the peso and ringitt, with Indonesia supporting the rupee until August.

The International Monetary Fund added $100 billion of emergency funds but failed to stem the crisis. The plunging exchange rates and capital withdrawal worsened the domestic financial problems as more firms went bankrupt, further weakening the banking system. Moody's downgraded the debt of Indonesia, Korea, and Thailand to junk-bond status. In early 1998, the Thai government explicitly guaranteed all bank liabilities, including those to foreign creditors.

Sources: Radalet, Sachs, Cooper, and Bosworth (1998); Tirole (2002); Allen and Gale (2007).

The exact causes of the East Asian crisis may never be untangled, but its progression illustrates the extreme pressure for active government intervention beyond liquidity assistance. Even a government that is aware of moral hazard problems can have trouble following through on its promises. This constitutes the second key dilemma in resolving financial crises—dynamic inconsistency.

Recall the beach example. Residents build houses near the beach but cannot get insurance because the chance of hurricanes is too great. The government promises no flood relief, but once a hurricane comes and the damage is done, the government relents and picks up the tab for damages. Homeowners, expecting the government to provide relief, feel confident building near the beach in the first place.

In the analogous case of a financial crisis, even though no explicit insurance exists, a central bank could step in to alleviate liquidity strains on some financial firms or their creditors. The firms and creditors, recognizing this possibility, could take less-than-adequate care of their risk and their liquidity once they believe they will have access to government support. Two episodes illustrate this situation:

- In 1925, more than 500 banks had been borrowing from the Federal Reserve for more than a year, including 80 percent of the more than 200 failing banks.
- In 1974, Franklin National Bank borrowed extensively from the discount window for five months before the bank was closed, with the loans at one point totaling half of its assets. This allowed the uninsured depositors time to exit the bank before it was finally declared insolvent.[15]

In the beach example, if the government kept its promise, then over time fewer people would likely build homes on the beach. In the financial crisis example, if the central bank did not alleviate the liquidity strains on some financial firms or their creditors, financial institutions would likely engage in less risky investment practices. Yet we should not forget that Bagehot suggested that lending in a crisis be done on all good banking collateral, as freely as the public wants. How do we reconcile Bagehot's advice with our concern about dynamic inconsistency?

The solution is to recognize that central-bank lending entails both costs and benefits. The benefits come in the form of stemming the panic, which means preventing negative externalities that private decision-makers have no incentive to take into account. The costs come in the form of introducing moral hazards—incentives for people to anticipate that the central bank will act in the same ways in the future and, accordingly, to take on excessive risk. The existence of these costs does not necessarily mean that a central bank should avoid intervening in private credit markets, but rather that it is important for the central bank to look for the lowest-cost (least-distorting) interventions.

PLANNING AHEAD TO CONFRONT CRISES

Financial crisis management ultimately has two goals: minimizing the depth and duration of the current episode and minimizing the probability of future crises. These goals can sometimes conflict because of the time-inconsistency problem facing policymakers. That is, actions taken to manage a crisis in the short run can lead to market incentives that are inconsistent with financial stability in the long run. Preparation can reduce the conflict between the goals, enhance the credibility of the central bank, and lead to shorter, fewer, and less-severe crises.

The essential problem is how to enhance the central bank's credibility. The central bank should provide market participants with incentives to internalize their cost of risk, even if the central bank faces strong pressures to do otherwise. Credibility involves more than just the central bank, however; it depends on the broader environment needed to prevent moral hazard and dynamic inconsistency. This is particularly true in the United States, where the Federal Reserve is only one of several financial-institution regulators.

This is where planning ahead really matters. When a crisis breaks out, events move quickly. Facing up to financial losses and resolving institutions expeditiously can lower uncertainty and reduce the pressure for more drastic action. Although it seems paradoxical, closing financial institutions quickly

15. Schwartz (1992).

limits creditor losses. Preventing small losses from growing into large losses makes it less likely that the credit problems will spill over into other financial firms or to the broader economy, and it reduces the pressure for using public funds to redress creditors' losses.

"Planning ahead can allow the crisis managers to assemble such vital information as the distressed institution's loans, deposits, and derivatives exposure. A clear view of the size of the problem can reduce the chance of regulatory panic in the face of uncertainty, and real-time knowledge of the situation can enable more nimble responses."

Evidence shows that waiting increases losses. Researchers note that during the S&L crisis, the average time from insolvency to closure was a lengthy 38 months: 345 thrifts recovered, making profits of $1.5 billion, but 1,600 failed, losing $60 billion.[16] Consequently, being prepared to resolve troubled financial institutions expeditiously saves money in the long run.

The planning process might be long and tedious, and its benefits could seem doubtful when markets are calm; nevertheless, the effort could have great benefits in times of distress. For example, advance planning can reduce pressures for inappropriate guarantees. Uncertainty about the extent of a crisis, and the chance that it will devolve into a major economic catastrophe as in the 1930s, may induce regulators to err on the side of safety. Planning ahead can allow the crisis managers to assemble such vital information as the distressed institution's loans, deposits, and derivatives exposure. A clear view of the size of the problem can reduce the chance of regulatory panic in the face of uncertainty, and real-time knowledge of the situation can enable more nimble responses.

Even knowing who to call or where to find information—a nontrivial exercise in itself—is not enough. In the United States, a crisis involving several large financial institutions could easily involve the Office of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Federal Reserve, the Securities and Exchange Commission, the Commodity Futures Trading Commission, and state bank and insurance regulators. With multiple actors, planning ahead to define roles and responsibilities adds clarity to the process and makes coordination between the actors (and the public) more likely. International regulators took a step in this direction in 1974 with the formation of the Basel Committee on Banking Supervision, created to encourage cooperation in the supervision of banks operating across national borders.

Planning is also important because actions taken today constrain the range of choices later on. Crisis resolution has three distinct stages: containment, restructuring, and recovery. These stages are interdependent, as early decisions made in the containment phase restrict the possible options in future stages, and the options available at future stages help determine the most appropriate response early on.

Early in the containment phase of a crisis, the heightened uncertainty and the pressure to do something as conditions rapidly deteriorate combine to increase the likelihood of clumsy (time-inconsistent) actions to bring the situation under control. The immediacy of the situation can produce pressures to stop the crisis at any cost. However, well-conceived contingency plans increase the likelihood that crisis managers can respond quickly and forcefully to emerging problems without setting the stage for future crises.

A case can be made that such advance planning is particularly important now. Through its Primary Dealer Credit Facility, the Federal Reserve is providing emergency liquidity assistance to some of the primary securities dealers that serve as its counterparties in open market operations. In addition, the Federal Reserve facilitated the resolution of a large securities firm that served as a primary dealer. For bank failures, experience and institutional memory may substitute for the lack of a publicly articulated plan (although we have argued that this has its downside as well), but for nonbank failures, more basic requirements such as fact-finding mechanisms and resolution procedures need to be developed.

16. Santomero and Hoffman (1999); DeGennaro and Thomson (1996).

Planning also includes practice. A crisis management team cannot just exist on paper. Preparedness for a financial crisis involves conducting crisis simulations where different scenarios are rehearsed and responses are mapped out. Understanding what decisions must be made, what information is required, and who needs to be informed—whether it be talking to the Secretary of the Treasury or writing a press release for the public—takes practice.

This approach to planning has been adopted in several areas. The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) took a broad-based approach to changing the regulatory environment, reforming the bank regulatory system with the aim of minimizing taxpayer losses. It issued new guidelines for bank examinations, capital requirements, and deposit insurance. Of key importance, it mandated a set of prompt corrective action guidelines intended to assist bank supervisors in handling troubled depository institutions as they slide toward insolvency. Prompt corrective action provides for a wide degree of discretion to ensure that short-term regulatory actions are consistent with long-run incentives for regulated banks and thrifts.

FDICIA's systemic risk exemption allows for public funds to be paid to unsecured creditors of large or systemically important insured depository institutions, but it does so in a politically accountable manner. Invoking the exemption requires votes by the Board of Governors of the Federal Reserve System, the Board of the Federal Deposit Insurance Corporation, and the Secretary of the Treasury. The idea is that these public rescues should be viewed as an extraordinary response and not the default response to the economic failure of a large institution. Hence, the spirit of this legislative remedy for too-big-to-fail policies is that such policies should be used as a last resort.

What Sort of Plan?

A formal plan can keep a broader range of options on the table—be they emergency loans, private restructurings, or haircuts—lowering the odds of simply relying on a familiar but perhaps flawed response used in the last crisis. Addressing some questions beforehand, such as when to impose creditor timeouts, can lead to a more careful assessment of the costs and benefits. For other cases, such as expediting depositor payoffs, a plan can assess—and perhaps remedy—feasibility concerns. Making the plan public in advance should also enhance its credibility, increasing the likelihood that principles such as prompt loss recognition or central bank support for illiquid, but not insolvent, firms will be followed. Private-market participants would know what principles will drive the decisions of government entities during a time of crisis.

Agreeing to a public plan builds consensus among all parties to follow through on their obligations when it is time to put the plan to use. Publishing a plan in advance could help government entities resist undue influence from various interest groups in a time of crisis. Potential vehicles for developing such a plan might be the President's Working Group on Financial Markets, the Financial Stability Forum, the Basel Committee on Banking Supervision, or another similar group.

Beyond the general suggestions of contingency planning, publicizing plans, and designating a crisis team, what more specific features could a financial crisis plan include, when a primary consideration is to avoid moral hazard and dynamic inconsistency? Another key step is to determine what additional authority and powers might be needed in an emergency—in other words, a crisis management infrastructure.

As discussed above, experience from Japan, the S&L crisis, and other banking episodes illustrates that delaying failure usually increases costs both to the government and to the overall economy. Because a critical element of the restructuring stage of a crisis is to recognize the losses as quickly as possible so that private investment can return and credit flows can be restored, a potentially useful component of the crisis management infrastructure might be a publicly chartered asset disposition company modeled after the Reconstruction Finance Corporation (chartered in 1932) or the Resolution Trust Corporation (chartered in 1989). For the purposes of this essay, let's call the proposed entity the Resolution Management Corporation (RMC). The RMC would be an independent federal corporation chartered by Congress and charged with asset recovery and disposition. It would remain dormant until activated as part of the response to a financial crisis and stay active only as long as needed. It is critically important that the RMC be separate from the Federal Reserve to ensure that the central bank's role as liquidity provider of last resort is insulated from the solvency and asset disposition activities of the RMC.

The RMC would be most useful in what we have termed the restructuring and recovery phases of the crisis. First, by helping to segregate bad assets from good ones, it would speed the return of productive assets to their best use in the private sector. Second, with asset salvage and disposal fully audited, the RMC would increase the transparency of embedded losses. This, in turn, would improve price discovery—that is, the revelation of the true value of the assets—increasing the speed at which distressed assets are returned to the private sector and the ability of financial firms to recapitalize. Finally, by explicitly committing public funds to resolve the crisis, the RMC would improve the accountability of crisis managers and subject the resolution process to congressional oversight.

"With multiple entities potentially involved in resolving financial institution problems, a good crisis prevention environment requires a consistent alignment of policies and practices among all parties, both to minimize moral hazard among the private-sector participants and to achieve dynamic consistency among the policymakers."

The creation of a standby RMC is not without its drawbacks, however, so institutional design issues would need to be carefully studied. For instance, routine activation of the RMC charter during even mild periods of financial distress could socialize losses, increase moral hazard, and reduce market discipline. Moreover, some might be tempted to use an RMC-like entity to delay loss recognition and thereby reduce transparency. In other words, the RMC could have unintended consequences if it is poorly designed, including increasing the likelihood or severity of a financial crisis. This brief example illustrates how difficult it can be to both plan ahead and avoid distorting the incentives of private-market participants and policymakers. Nevertheless, the potential difficulties should not deter an examination of the pros and cons.

Another element to consider in building a better crisis management infrastructure is publishing timely and objective information about financial rescues that involve public funds or guarantees. In the United States, a number of federal (and sometimes state) agencies may be involved in the chartering, regulating, supervising, and insuring of financial institutions. With multiple entities potentially involved in resolving financial institution problems, a good crisis prevention environment requires a consistent alignment of policies and practices among all parties, both to minimize moral hazard among the private-sector participants and to achieve dynamic consistency among the policymakers. Discussions of regulatory reform in the financial services industry could be expanded to include provisions for a government agency that would conduct forensic analysis of financial market failures, increasing the information available to the public about the underlying causes of these failures. More information about the causes of failures, and more ex post analysis of policy choices, could lead to more effective market discipline on the private-sector participants and to improved policy choices by public-sector officials.[17] These benefits should be relevant regardless of the design of the broader regulatory structure.

The Silberzug and Beyond

The Panic of 1857 began with the New York office of an Ohio bank and, after sweeping through Europe, ended when a loan of silver came to Hamburg via a special train—the Silberzug—from Vienna. Of course, we are unlikely to see those exact circumstances occur again. But financial crises and the need to manage them are likely to be with us for some time. How we deal with these crises depends on our choices. The ubiquity of crises and their impact on the economy demand some action, but too great a concern over losses only encourages greater risk-taking. Once the risks are taken and the losses occur, the political pressures for action increase exponentially.

Planning ahead can provide credibility to the promise of limited intervention. With a broad menu of options, current information, and a public plan in place, the central bank is positioned to contain the current financial crisis without contributing to a new one in the future.

17. See Getmansky, Lo, and Mei (2004) and Kane (2001) for some suggestions along these lines.

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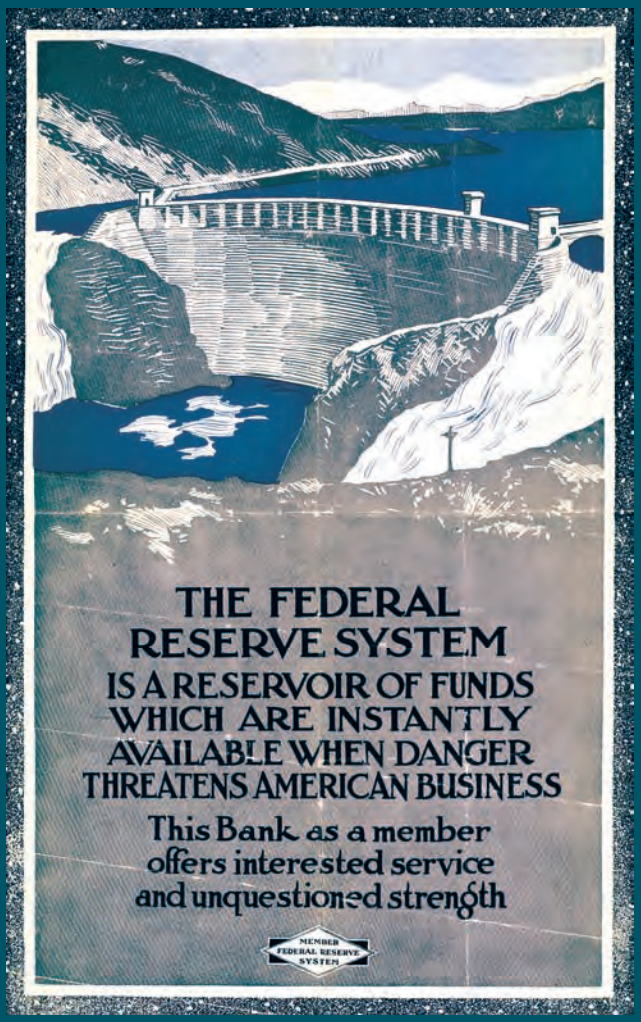


Federal Reserve System member banks have the right to elect six of the nine directors of their local Reserve Bank. Member bank constituents are also eligible for service as a director. If elected to serve as a Reserve Bank director, a member bank representative has the opportunity to participate in monetary policy formulation.

2007 Operational Highlights

The Discount Window: A Flexible and Strong Financial Resource

Analyst: This is Jack Hodgkiss, Credit Risk Management. How can I help you?

Bidder: This is Jane Smith, XYZ Bank and Trust. May I put in a bid today for your TAF product?

Analyst: Sure, anytime before one o'clock. The first thing I need is your bank's ABA number.

Bidder: 1234-5678-9.

Analyst: All right, Jane, got it. Let's start with your bid, in terms of the bid rate.

Bidder: Um, bid rate...five-twenty-five.

Analyst: That's five point two five percent, correct?

Bidder: Right.

Analyst: OK, and now the amount.

Bidder: Seven-hundred fifty million...even.

Analyst: Seven-hundred fifty, even. OK, and your phone number?

Bidder: 555-555-1234.

Analyst: Got it. Again, that's five point two five zero for seven-hundred fifty million dollars.

Bidder: Yep, that's it.

Analyst: Thanks. I'll transfer you to another member of our staff who will verify your request and then we'll be all set.

This transcript details one of the many phone calls received in 2007 from Fourth Federal Reserve District depository institutions seeking funds from the discount window.[1] It was one of the first bids received from such an institution seeking credit under the Federal Reserve Board's new Term Auction Facility, or TAF.

discount window: *n.* the Federal Reserve instrument of monetary policy that allows eligible financial institutions to borrow money from the central bank

DID YOU KNOW? The discount window, now a figurative expression, once referred to a real physical location. In the early years of the Federal Reserve System, bankers came to a Federal Reserve Bank teller window to obtain credit. The Federal Reserve Bank of Cleveland's Discount Window Department was located in the Bank's first-floor lobby. You can see these windows on a Bank tour or by visiting the Bank's Learning Center and Money Museum.

1. The bidder's identification has been changed to preserve anonymity.

The 2007 discount window bears little resemblance to its 1914 ancestor, which was one of the Federal Reserve's key activities when it opened for business that year. It may seem that the story of the "window" lacks vibrancy and interest. But when examined in light of its recent revitalization—including the introduction of the TAF—the window's history reveals a timeline of events that parallels the exciting ebb and flow of financial markets and the U.S. economy. These events have tested the relevancy of Federal Reserve lending activity and confirmed the important role the discount window has played—and continues to play—in supporting the Federal Reserve's monetary policy activities.[2]

Key Dates in Discount Window History

1914 – 1933
The Early Years

1951 – 1955
A Recalibration

2001 – 2007
Re-engaged, Reinvented

The Early Years - The discount window was intended to be the Federal Reserve's primary means for influencing credit and monetary developments. In the early years, Reserve Banks influenced the availability of credit to financial institutions by altering the discount rate (the interest rate at which the central bank agrees to make funds available to borrowing institutions). Collateral requirements were stringent and limited to high-quality, highly liquid, short-term agricultural, industrial, and commercial obligations.

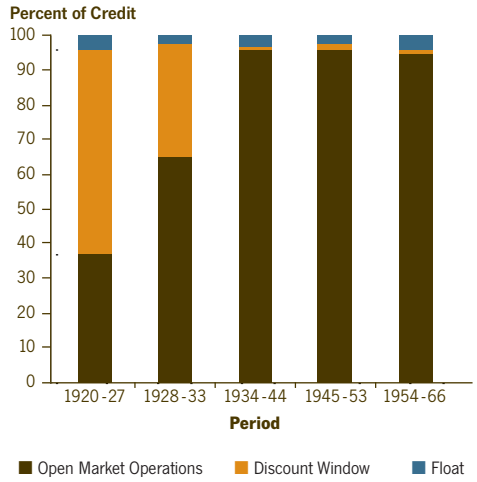
Initially, lending activity for the Federal Reserve System and the Federal Reserve Bank of Cleveland was vigorous. The central philosophy was to grant credit liberally, particularly when emergencies caused by unusual conditions required prompt relief. The Federal Reserve's approach was influenced by the prevailing theory of monetary policy, known as the Real Bills doctrine, which held that the central bank should provide liquidity only in exchange for securities that directly finance commerce.[3] The self-liquidating nature of the discounted paper allowed the quantity of money in circulation to rise and fall with the needs of trade.

As a result, most reserves supplied to the national and local economies were through member bank discounting and direct lending (or advances, using the term of the day).

Discounts and advances in relation to Federal Reserve credit reached a peak of about 82 percent in 1921 and did not fall below 37 percent until 1930 (see figure below). During this period, roughly 60 percent of member banks maintained an active borrowing relationship with their local Reserve Bank. It was not uncommon for hundreds of banks to borrow continuously in excess of their capital and surplus.[4] Similar experiences were reported for Fourth District institutions. Economic times were often quite volatile, characterized by growth and prosperity followed by reversals and recessions.

At the end of the 1920s and into the 1930s, open market operations—purchases and sales of U.S. Treasury and government agency obligations—gradually began to replace the discount window. Part of the reason was the low attractiveness of private obligations for discounting, given the volatile economic period (especially during the Great Depression) and, later, in view of the extensive holdings of government debt as a result of the Roosevelt administration's national recovery efforts.[5] Despite its secondary role, the discount window continued to support member banks as needed, particularly as a source of funds when financial pressures heightened.

Sources of Reserve Bank Credit



In the early years of the Federal Reserve, the discount window played an important role in the implementation of monetary policy. In time, open market operations became the primary mechanism.

Source: Shull (1971).

2. The focus of this essay is the Federal Reserve discount window's primary credit program and its predecessor, the adjustment credit program. The Federal Reserve also offers two other lending programs: the seasonal credit program, designed to assist small depository institutions in managing significant seasonal swings in their loans and deposits, and the emergency credit program, which is authorized by the Board of Governors in unusual and exigent circumstances for individuals, partnerships, and corporations that are not depository institutions.
3. Marshall (2002).
4. Shull (1971).
5. Marshall (2002).

A Recalibration – From the Depression until the early years after World War II, Reserve Bank discount window lending declined and remained low. This outcome was not unexpected, as banks maintained large holdings of government securities and held excess reserves, thus reducing their need to borrow.[6] Following the Treasury–Federal Reserve Accord in 1951, which released the Federal Reserve from the obligation to support the market for U.S. government debt at pegged prices and allowed the independent conduct of monetary policy, normal monetary policy operations resumed and banks returned to the discount window. Despite a relatively nominal increase in lending activity, discount officers' perceptions reflected a shift in opinion. In contrast to the earlier days, which had generally encouraged lending (perhaps for all but speculative purposes), the new sentiment considered lending an exceptional activity (for appropriate reasons and typically permitted only under the close watch of the responsible discount officer).[7]

In 1953, the Federal Reserve organized a committee to evaluate discount window lending guidance. The committee's findings led to a 1955 revision of Regulation A, the authority governing discount window lending administration. This revision "reflected a choice to restrict activity at the discount window well below even the lowest levels reached in the 1920s and to provide almost all reserves through open market operations."[8] The new rules required discount officers to scrutinize borrowing requests and closely monitor borrowing duration and frequency. In other words, questions were asked about why banks were borrowing money, and appropriate answers were expected. Not surprisingly, lending activity was minimal in the years that followed. Over time, the discount window was regarded as a generally unattractive source, even under what would otherwise be considered reasonable circumstances. "Reluctance to borrow" became a well-established discount window concept for many institutions.

Legislative Changes - Following Regulation A's revision, not much was done publicly to address the window, although the topic was well-studied behind the scenes. Twenty-five years later, in 1980, Congress passed the first of two laws affecting discount window availability. The Depository Institutions Deregulation and Monetary Control Act dramatically expanded the universe of depository institutions eligible to borrow at the discount window. As a result, the Federal Reserve assumed responsibility for meeting the liquidity needs of not only member banks, but any institution subject to reserve requirements. The Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) restricted Federal Reserve lending capabilities to potentially insolvent institutions. This act was designed to address perceived issues in discount window lending in the turbulent 1980s, when the Federal Reserve lent for extended periods to banks that eventually failed. In some cases, this lending helped provide uninsured depositors and other creditors sufficient time to remove their funds from a troubled bank, which increased the losses to the federal deposit insurance fund.[9]

The discount window's ability to support Federal Reserve policy objectives, particularly as the lender of last resort, came into sharp focus in 2001.

PRESS RELEASE: SEPTEMBER 11, 2001

"The Federal Reserve System is open and operating. The discount window is available to meet liquidity needs."

In addition to the more horrible loss of life, the attacks on New York City and Washington DC on September 11, 2001, disrupted domestic and global financial markets. The Federal Reserve moved quickly, cutting interest rates, infusing emergency cash into the financial system, encouraging lenders to loosen repayment terms for distressed borrowers, and coordinating monetary policy easing and payments-system support internationally. System lending activity reached historic proportions, with $46 billion lent on September 12 (more than 200 times the daily average for the previous month). The Federal Reserve Bank of Cleveland experienced similar historic lending activity, reporting the largest single day ($5.3 billion) and week of lending in its history. Among the lessons learned in the event response was the critical importance of the Federal Reserve's "lender of last resort" role in helping to maintain stability within the financial markets.

Sources: Board of Governors of the Federal Reserve System (2001); Schlesinger (2001).

6. Shull (1971).
7. Hakkio and Sellon (2000).
8. Shull (1971).
9. Broaddus (2000).

For the rest of the century, discount window lending activity began to depart from its historical pattern of rising in periods when the spread between the federal funds rate and the discount rate increased, and falling when the spread narrowed.[10] At times, lending activity bore little relationship between the direction of interest rates and the funds/discount rate spread.[11] The federal funds rate displayed increased volatility, particularly on settlement day (when depository institutions must meet their reserve requirements).

Perceptions of stigma were more pronounced, with bankers reporting that the discount window was not an attractive source of funding—despite its favorable rate (generally 50 basis points below the federal funds rate target)—given the high scrutiny and other restrictions assigned to loan requests. For example, interested institutions were required to exhaust all other funding sources before making a loan request. Formal limitations were also placed on borrowing frequency and the use of loan proceeds.

This combination of factors signaled a noticeable decline in the attractiveness of the discount window as a contingency funding source. Simply put, healthy institutions were often unwilling to turn to it—even under appropriate circumstances—for fear of provoking market or regulatory concerns.[12] Over time, these issues raised real concerns regarding the discount window's ability to carry out its role of relieving dislocations in local financial markets.

Re-engaged, Reinvented – The events of September 11, 2001, presented a rare opportunity to reveal the discount window's primary strength—its ability to provide liquidity to institutions in need. Barring this extraordinary event, however, borrower reluctance remained.

The New Primary Credit Lending Program –To address the shortcomings of the window, the Board of Governors introduced the primary credit program in January 2003 as the principal safety valve for ensuring adequate liquidity in the banking system. For institutions not qualifying for primary credit, the newly established secondary credit program would apply.[13]

FEDERAL RESERVE'S PRIMARY CREDIT PROGRAM

Purpose
To help sound depository institutions meet short-term, backup funding needs

Key Terms

- **Term:** Typically overnight; term borrowing permitted up to 90 days
- **Eligibility:** Institutions in generally sound overall condition
- **Collateral:** Pledge of a wide range of eligible assets
- **Rate:** Federal funds rate + 25 basis points (variable)

Administration
Minimal; generally "no questions asked"

The new program was different from its predecessor, the adjustment credit program, in two important ways. First, the discount rate was priced at an above-market rate (initially, the funds rate plus 100 basis points, although the spread was permitted to vary—and has since mid-2007—to facilitate discount window availability in response to financial market developments) in contrast to the below-market rate for the former program. Second, the new program would be administered with substantially reduced oversight.

An important goal of the new program was to reduce borrower reluctance. By rationing credit based on price and the condition of the borrowing institution (including financial condition and capitalization eligibility standards) rather than on discount officer administration and oversight, the new program would more efficiently serve as a safety valve, relieving financial market pressures.

10. The federal funds rate is the interest rate at which depository institutions lend balances at the Federal Reserve to one another.
11. Hakkio and Sellon (2000).
12. Clouse (1994).
13. Secondary credit is extended under the same collateral requirements as primary credit. Extended at a rate 50 basis points higher than the applicable primary credit rate, secondary credit is available to institutions that are unable to meet the financial condition and capitalization standards for primary credit. Given the adverse financial condition of these parties, secondary credit requests are subject to discount officer scrutiny. Borrowers are generally able to obtain funds only on a short-term basis.

Federal Reserve Bank of Cleveland's Credit Risk Management Department in front of the discount window in the Bank's main lobby

Todd Berardinelli, Mark Meder, Jack Hodgkiss, Doug Banks, Jeff Hirsch, Ann Makohon,Toby Trocchio, Eric Polansky, and Stacey Steadman; (not pictured) Jane Chodzin, Kathy Lucic, and Sue Prior

FOURTH DISTRICT CONTRIBUTIONS

The Credit Risk Management Department at the Federal Reserve Bank of Cleveland made significant contributions to the New Primary Credit Lending Program. In 2002, Cleveland staff chaired a national project that developed a standard depository institution risk assessment framework. The framework enabled greater consistency across the Federal Reserve System and helped establish eligibility standards for the primary credit and TAF programs.

In 2003, Cleveland discount window leadership assumed responsibility for regulatory and other outreach, promoting awareness of the new primary credit program. Notable contributions included the creation of an innovative, self-directed web-based training tool, including content for the banking community, regulators, and general public (see **www.frbdiscountwindow.org**); more than 20 presentations on the new lending program to various local and national groups; and several articles promoting awareness of the new program.

One study concluded that while the primary credit program did not significantly affect overnight borrowing activity (the higher direct costs of borrowing under the new program effectively countered the attractive, reduced credit administration), its utility in relieving funding market pressures was evident. The study noted a significant reduction in the spread between the target and effective federal funds rates, suggesting that the new primary credit program was acting appropriately to relieve overnight borrowing rate volatility. In essence, depository institutions were turning to the discount window when rates spiked rather than paying higher rates in the overnight markets.[14]

The Term Auction Facility - The most recent chapter in the rebirth of the discount window occurred in December 2007 with implementation of the new temporary Term Auction Facility (TAF). Beginning in late summer 2007, the financial markets were rocked by adverse developments in the subprime mortgage and other markets. On August 17, 2007, the Federal Reserve responded by reducing the primary credit rate by 50 basis points (in turn, narrowing the spread between the primary credit rate and the federal funds rate from 100 basis points to 50 basis points) and by providing term financing for up to 30 days, renewable by the borrower. These changes were designed to reassure depository institutions about the cost and availability of funding. Subsequently, on December 12, 2007, the Federal Reserve introduced the TAF as an additional measure to address the elevated short-term pressures in funding markets. To further bolster market liquidity and promote orderly market functioning, on March 16, 2008, the authorized term for primary credit was extended from 30 days to 90 days, and the spread on primary credit to the federal funds rate was narrowed to 25 basis points.

The TAF allows banks to borrow from the Federal Reserve at relatively attractive rates against a wide range of their assets. TAF credit is a fixed-rate term advance (generally one-month maturity) determined through an auction process. Under this program, the Board sets the auction parameters, including the offering amount, the minimum and maximum bid amounts, the minimum bid rate, bid submission date, and opening and closing times. Participants must be eligible for primary credit.

At the time of this writing, the Board has successfully completed 12 auctions, yielding $510 billion in funds advanced.

THE TERM AUCTION FACILITY

HOW DOES IT WORK?

- Eligible bidding depository institutions contact their local Reserve Bank discount window to submit their TAF bid.
- Once the bid submission period is closed, the Reserve Bank forwards all eligible bids to the TAF auction agent.
- The TAF auction agent orders the bids from the highest to lowest rate.
  - Bids are accepted starting with the highest rate submitted, working down to successively lower rates, until the offering amount for the auction is fully allocated or the minimum bid rate is reached (whichever is first).
  - The lowest accepted interest rate is the "stop-out rate." Bids at interest rates above the stop-out rate will be allocated the full bid amount. Bids at the stop-out rate may be prorated.
- All participants awarded a TAF advance will pay the stop-out rate, regardless of the interest rate at which they bid.

14. Artuç and Demiralp (2007).

Conclusion – Jack Hodgkiss, the analyst in the TAF phone transcript at the beginning of this essay, is a member of the Federal Reserve Bank of Cleveland's Credit Risk Management (CRM) Department. Jack and his colleagues have played key roles in helping to shape U.S. central bank discount window lending and collateral policies and procedures. CRM staff administer Fourth District discount window lending (specifically, the primary, secondary, seasonal, and emergency credit programs) and collateral activities; oversee depository institution access to daylight and overnight credit; and administer reserve requirements. With the assistance of the Banking Supervision and Regulation Department, CRM monitors the financial condition of the 1,152 institutions in the Fourth District to determine their eligibility for participation in the discount window primary credit and TAF programs and to administer daylight credit.

The Fourth District discount window and its related programs are in good hands. But what does the future hold? Will the TAF continue to complement the window as a permanent fixture of monetary policy? Early reports suggest that the TAF has been successful, but time will provide the true test. For now, we in the Fourth District financial community look to the discount window to be our financial bridge, to remain flexible and strong, to offer support during times of transition, and to present an alternative route when disruptions block our way.

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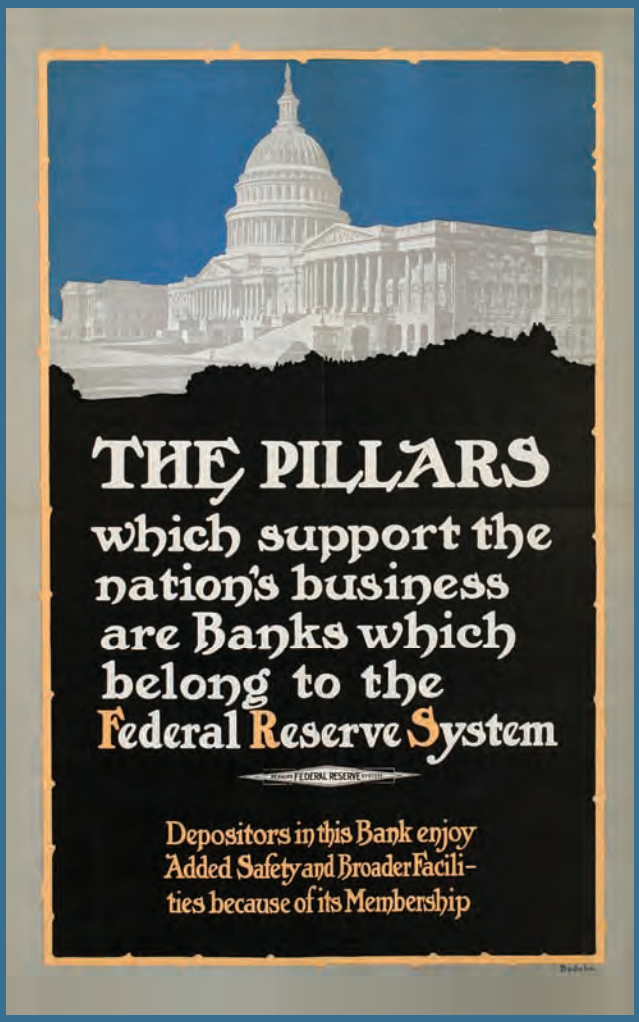


Each member bank is required to hold stock in its regional Federal Reserve Bank. The stock cannot be sold, traded, or pledged as collateral for loans. As specified by law, member banks receive a 6 percent annual dividend on their Federal Reserve Bank stock.

Auditor Independence

The firm engaged by the Board of Governors for the audits of the individual and combined financial statements of the Reserve Banks for 2007 was Deloitte & Touche LLP (D&T). Fees for these services totaled $4.7 million. To ensure auditor independence, the Board of Governors requires that D&T be independent in all matters relating to the audit. Specifically, D&T may not perform services for the Reserve Banks or others that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2007, the Bank did not engage D&T for any material advisory services.

Management's Report on Internal Control over Financial Reporting

To the Board of Directors of the Federal Reserve Bank of Cleveland:

The management of the Federal Reserve Bank of Cleveland ("FRB Cleveland") is responsible for the preparation and fair presentation of the Statement of Financial Condition, Statement of Income and Comprehensive Income, and Statement of Changes in Capital as of December 31, 2007 (the "Financial Statements"). The Financial Statements have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System and as set forth in the Financial Accounting Manual for the Federal Reserve Banks ("Manual"), and as such, include amounts, some of which are based on management judgments and estimates. To our knowledge, the Financial Statements are, in all material respects, fairly presented in conformity with the accounting principles, policies, and practices documented in the Manual and include all disclosures necessary for such fair presentation.

The management of the FRB Cleveland is responsible for establishing and maintaining effective internal control over financial reporting as it relates to the Financial Statements. Such internal control is designed to provide reasonable assurance to management and to the Board of Directors regarding the preparation of the Financial Statements in accordance with the Manual. Internal control contains self-monitoring mechanisms, including, but not limited to, divisions of responsibility and a code of conduct. Once identified, any material deficiencies in internal control are reported to management and appropriate corrective measures are implemented.

Even effective internal control, no matter how well designed, has inherent limitations, including the possibility of human error, and therefore can provide only reasonable assurance with respect to the preparation of reliable financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

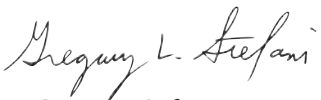
The management of the FRB Cleveland assessed its internal control over financial reporting reflected in the Financial Statements, based upon the criteria established in the "Internal Control - Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, we believe that the FRB Cleveland maintained effective internal control over financial reporting as it relates to the Financial Statements.

Federal Reserve Bank of Cleveland

March 20, 2008

Sandra Pianalto
President & Chief Executive Officer

R. Chris Moore
First Vice President &
Chief Operating Officer



Gregory L. Stefani
Senior Vice President &
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Report of Independent Auditors

To the Board of Governors of the Federal Reserve System
and the Board of Directors of the Federal Reserve Bank of Cleveland:

We have audited the accompanying statement of condition of the Federal Reserve Bank of Cleveland ("FRB Cleveland") as of December 31, 2007 and the related statements of income and comprehensive income and changes in capital for the year then ended, which have been prepared in conformity with accounting principles established by the Board of Governors of the Federal Reserve System. We also have audited the internal control over financial reporting of the FRB Cleveland as of December 31, 2007, based on criteria established in *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. The FRB Cleveland's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on these financial statements and an opinion on the FRB Cleveland's internal control over financial reporting based on our audit. The financial statements of the FRB Cleveland for the year ended December 31, 2006 were audited by other auditors whose report, dated March 12, 2007, expressed an unqualified opinion on those statements.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinions.

The FRB Cleveland's internal control over financial reporting is a process designed by, or under the supervision of, the FRB Cleveland's principal executive and principal financial officers, or persons performing similar functions, and effected by the FRB Cleveland's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the accounting principles established by the Board of Governors of the Federal Reserve System. The FRB Cleveland's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the FRB Cleveland; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with the accounting principles established by the Board of Governors of the Federal Reserve System, and that receipts and expenditures of the FRB Cleveland are being made only in accordance with authorizations of management and directors of the FRB Cleveland; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the FRB Cleveland's assets that could have a material effect on the financial statements.

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As described in Note 3 to the financial statements, the FRB Cleveland has prepared these financial statements in conformity with accounting principles established by the Board of Governors of the Federal Reserve System, as set forth in the *Financial Accounting Manual for Federal Reserve Banks*, which is a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America. The effects on such financial statements of the differences between the accounting principles established by the Board of Governors of the Federal Reserve System and accounting principles generally accepted in the United States of America are also described in Note 3.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the FRB Cleveland as of December 31, 2007, and the results of its operations for the year then ended, on the basis of accounting described in Note 3. Also, in our opinion, the FRB Cleveland maintained, in all material respects, effective internal control over financial reporting as of December 31, 2007, based on the criteria established in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Deloitte & Touche LLP

March 20, 2008

PricewaterhouseCoopers LLP
PricewaterhouseCoopers Center
300 Madison Avenue
New York NY 10017
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Facsimile (813) 286 6000

Report of Independent Auditors

To the Board of Governors of the Federal Reserve System
and the Board of Directors of the Federal Reserve Bank of Cleveland:

We have audited the accompanying statement of condition of the Federal Reserve Bank of Cleveland (the "Bank") as of December 31, 2006, and the related statement of income and comprehensive income and statement of changes in capital for the year then ended, which have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System. These financial statements are the responsibility of the Bank's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards as established by the Auditing Standards Board (United States) and in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As described in Note 3, these financial statements were prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System. These principles, policies, and practices, which were designed to meet the specialized accounting and reporting needs of the Federal Reserve System, are set forth in the *Financial Accounting Manual for Federal Reserve Banks* which is a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Bank as of December 31, 2006, and the results of its operations for the year then ended, on the basis of accounting described in Note 3.

PricewaterhouseCoopers LLP

March 12, 2007

Comparative Financial Statements

Statements of Condition

(*in millions*)

	December 31, 2007	December 31, 2006
ASSETS		
Gold certificates	$ 428	$ 446
Special drawing rights certificates	104	104
Coin	113	73
Items in process of collection	268	451
Loans to depository institutions	853	—
Securities purchased under agreements to resell	1,903	—
U.S. government securities, net	30,514	33,836
Investments denominated in foreign currencies	3,354	1,570
Accrued interest receivable	260	290
Bank premises and equipment, net	176	186
Interest on Federal Reserve notes due from U.S. Treasury	69	—
Other assets	59	62
Total assets	**$ 38,101**	**$ 37,018**
LIABILITIES AND CAPITAL		
Liabilities:		
Federal Reserve notes outstanding, net	$ 32,223	$ 29,807
Securities sold under agreements to repurchase	1,800	1,279
Deposits:		
Depository institutions	446	954
Other deposits	3	4
Deferred credit items	200	405
Interest on Federal Reserve notes due to U.S. Treasury	—	29
Interdistrict settlement account	741	2,264
Accrued benefit costs	90	88
Other liabilities	16	14
Total liabilities	**35,519**	**34,844**
Capital:		
Capital paid-in	1,291	1,087
Surplus (including accumulated other comprehensive loss of $17 million and $22 million at December 31, 2007 and 2006, respectively)	1,291	1,087
Total capital	**2,582**	**2,174**
Total liabilities and capital	**$ 38,101**	**$ 37,018**

The accompanying notes are an integral part of these financial statements.

Statements of Income and Comprehensive Income

(*in millions*)

	For the year ended December 31, 2007	For the year ended December 31, 2006
Interest income:		
Interest on U.S. government securities	$ 1,609	$ 1,512
Interest on securities purchased under agreements to resell	59	—
Interest on investments denominated in foreign currencies	41	29
Interest on loans to depository institutions	1	—
Total interest income	**1,710**	**1,541**
Interest expense:		
Interest expense on securities sold under agreements to repurchase	70	58
Net interest income	**1,640**	**1,483**
Other operating income:		
Compensation received for services provided	80	68
Reimbursable services to government agencies	62	60
Foreign currency gains, net	132	91
Other income	6	4
Total other operating income	**280**	**223**
Operating expenses:		
Salaries and other benefits	128	112
Occupancy expense	17	16
Equipment expense	13	14
Assessments by the Board of Governors	47	46
Other expenses	79	80
Total operating expenses	**284**	**268**
Net income prior to distribution	**1,636**	**1,438**
Change in funded status of benefit plans	5	—
Comprehensive income prior to distribution	**$ 1,641**	**$ 1,438**
Distribution of comprehensive income:		
Dividends paid to member banks	$ 66	$ 63
Transferred to surplus and change in accumulated other comprehensive loss	204	95
Payments to U.S. Treasury as interest on Federal Reserve notes	1,371	1,280
Total distribution	**$ 1,641**	**$ 1,438**

The accompanying notes are an integral part of these financial statements.

Statements of Changes in Capital

(*in millions*)

For the years ended December 31, 2007 and December 31, 2006

		Surplus			
	Capital Paid-In	Net Income Retained	Accumulated Other Comprehensive Loss	Total Surplus	Total Capital
Balance at January 1, 2006 (20.3 million shares)	$ 1,014	$ 1,014	$ —	$ 1,014	$ 2,028
Net change in capital stock issued (1.4 million shares)	73	—	—	—	73
Transferred to surplus	—	95	—	95	95
Adjustment to initially apply SFAS No. 158	—	—	(22)	(22)	(22)
Balance at December 31, 2006 (21.7 million shares)	$ 1,087	$ 1,109	$ (22)	$ 1,087	$ 2,174
Net change in capital stock issued (4.1 million shares)	204	—	—	—	204
Transferred to surplus and change in accumulated other comprehensive loss	—	199	5	204	204
Balance at December 31, 2007 (25.8 million shares)	$ 1,291	$ 1,308	$ (17)	$ 1,291	$ 2,582

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

1. STRUCTURE

The Federal Reserve Bank of Cleveland ("Bank") is part of the Federal Reserve System ("System") and one of the twelve Reserve Banks ("Reserve Banks") created by Congress under the Federal Reserve Act of 1913 ("Federal Reserve Act"), which established the central bank of the United States. The Reserve Banks are chartered by the federal government and possess a unique set of governmental, corporate, and central bank characteristics. The Bank and its branches in Cincinnati and Pittsburgh serve the Fourth Federal Reserve District, which includes Ohio and portions of Kentucky, Pennsylvania, and West Virginia.

In accordance with the Federal Reserve Act, supervision and control of the Bank is exercised by a board of directors. The Federal Reserve Act specifies the composition of the board of directors for each of the Reserve Banks. Each board is composed of nine members serving three-year terms: three directors, including those designated as chairman and deputy chairman, are appointed by the Board of Governors of the Federal Reserve System ("Board of Governors") to represent the public, and six directors are elected by member banks. Banks that are members of the System include all national banks and any state-chartered banks that apply and are approved for membership in the System. Member banks are divided into three classes according to size. Member banks in each class elect one director representing member banks and one representing the public. In any election of directors, each member bank receives one vote, regardless of the number of shares of Reserve Bank stock it holds.

The System also consists, in part, of the Board of Governors and the Federal Open Market Committee ("FOMC"). The Board of Governors, an independent federal agency, is charged by the Federal Reserve Act with a number of specific duties, including general supervision over the Reserve Banks. The FOMC is composed of members of the Board of Governors, the president of the Federal Reserve Bank of New York ("FRBNY"), and on a rotating basis four other Reserve Bank presidents.

2. OPERATIONS AND SERVICES

The Reserve Banks perform a variety of services and operations. Functions include participation in formulating and conducting monetary policy; participation in the payments system, including large-dollar transfers of funds, automated clearinghouse ("ACH") operations, and check collection; distribution of coin and currency; performance of fiscal agency functions for the U.S. Treasury, certain federal agencies, and other entities; serving as the federal government's bank; provision of short-term loans to depository institutions; service to the consumer and the community by providing educational materials and information regarding consumer laws; and supervision of bank holding companies, state member banks, and U.S. offices of foreign banking organizations. Certain services are provided to foreign and international monetary authorities, primarily by the FRBNY.

The FOMC, in the conduct of monetary policy, establishes policy regarding domestic open market operations, oversees these operations, and annually issues authorizations and directives to the FRBNY for its execution of transactions. The FRBNY is authorized and directed by the FOMC to conduct operations in domestic markets, including the direct purchase and sale of U.S. government securities, the purchase of securities under agreements to resell, the sale of securities under agreements to repurchase, and the lending of U.S. government securities. The FRBNY executes these open market transactions at the direction of the FOMC and holds the resulting securities and agreements in the portfolio known as the System Open Market Account ("SOMA").

In addition to authorizing and directing operations in the domestic securities market, the FOMC authorizes and directs the FRBNY to execute operations in foreign markets for major currencies in order to counter disorderly conditions in exchange markets or to meet other needs specified by the FOMC in carrying out the System's central bank responsibilities. The FRBNY is authorized by the FOMC to hold balances of, and to execute spot and forward foreign exchange ("FX") and securities contracts for, nine foreign currencies and to invest such foreign currency holdings ensuring adequate liquidity is maintained. The FRBNY is authorized and directed by the FOMC to maintain reciprocal currency arrangements ("FX swaps") with four central banks and "warehouse" foreign currencies for the U.S. Treasury and Exchange Stabilization Fund ("ESF") through the Reserve Banks. In connection with its foreign currency activities, the FRBNY may enter into transactions that contain varying degrees of off-balance-sheet market risk that results from their future settlement and counter-party credit risk. The FRBNY controls credit risk by obtaining credit approvals, establishing transaction limits, and performing daily monitoring procedures.

Although the Reserve Banks are separate legal entities, in the interests of greater efficiency and effectiveness they collaborate in the delivery of certain operations and services. The collaboration takes the form of centralized operations and product or function offices that have responsibility for the delivery of certain services on behalf of the Reserve Banks. Various operational and management models are used and are supported by service agreements between the Reserve Bank providing the service and the other eleven Reserve Banks. In some cases, costs incurred by a Reserve Bank for services provided to other Reserve Banks are not shared; in other cases, the Reserve Banks are billed for services provided to them by another Reserve Bank.

Major services provided on behalf of the System by the Bank, for which the costs were not redistributed to the other Reserve Banks, include National Check Adjustments, Check Restructuring Projects, Retail Payments Office, National Check Automation Services, Treasury Retail Services Technology, Check 21 Technology, Cash Technology, National Billing Operations, and Audit Application Competency Center Services.

3. SIGNIFICANT ACCOUNTING POLICIES

Accounting principles for entities with the unique powers and responsibilities of the nation's central bank have not been formulated by accounting standard-setting bodies. The Board of Governors has developed specialized accounting principles and practices that it considers to be appropriate for the nature and function of a central bank, which differ significantly from those of the private sector. These accounting principles and practices are documented in the *Financial Accounting Manual for Federal Reserve Banks* ("Financial Accounting Manual"), which is issued by the Board of Governors. All of the Reserve Banks are required to adopt and apply accounting policies and practices that are consistent with the Financial Accounting Manual and the financial statements have been prepared in accordance with the Financial Accounting Manual.

Differences exist between the accounting principles and practices in the Financial Accounting Manual and generally accepted accounting principles in the United States ("GAAP"), primarily due to the unique nature of the Bank's powers and responsibilities as part of the nation's central bank. The primary difference is the presentation of all securities holdings at amortized cost, rather than using the fair value presentation required by GAAP. U.S. government securities and investments denominated in foreign currencies comprising the SOMA are recorded at cost, on a settlement-date basis, and adjusted for amortization of premiums or accretion of discounts on a straight-line basis. Amortized cost more appropriately reflects the Bank's securities holdings given the System's unique responsibility to conduct monetary policy. While the application of current market prices to the securities holdings may result in values substantially above or below their carrying values, these unrealized changes in value would have no direct effect on the quantity of reserves available to the banking system or on the prospects for future Bank earnings or capital. Both the domestic and foreign components of the SOMA portfolio may involve transactions that result in gains or losses when holdings are sold prior to maturity. Decisions regarding securities and foreign currency transactions, including their purchase and sale, are motivated by monetary policy objectives rather than profit. Accordingly, market values, earnings, and any gains or losses resulting from the sale of such securities and currencies are incidental to the open market operations and do not motivate decisions related to policy or open market activities.

In addition, the Bank has elected not to present a Statement of Cash Flows because the liquidity and cash position of the Bank are not a primary concern given the Reserve Banks' unique powers and responsibilities. A Statement of Cash Flows, therefore, would not provide additional meaningful information. Other information regarding the Bank's activities is provided in, or may be derived from, the Statements of Condition, Income and Comprehensive Income, and Changes in Capital. There are no other significant differences between the policies outlined in the Financial Accounting Manual and GAAP.

The preparation of the financial statements in conformity with the Financial Accounting Manual requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates. Unique accounts and significant accounting policies are explained below.

a. Gold and Special Drawing Rights Certificates

The Secretary of the U.S. Treasury is authorized to issue gold and special drawing rights ("SDR") certificates to the Reserve Banks.

Payment for the gold certificates by the Reserve Banks is made by crediting equivalent amounts in dollars into the account established for the U.S. Treasury. The gold certificates held by the Reserve Banks are required to be backed by the gold of the U.S. Treasury. The U.S. Treasury may reacquire the gold certificates at any time and the Reserve Banks must deliver them to the U.S. Treasury. At such time, the U.S. Treasury's account is charged, and the Reserve Banks' gold certificate accounts are reduced. The value of gold for purposes of backing the gold certificates is set by law at $42 2/9 a fine troy ounce. The Board of Governors allocates the gold certificates among Reserve Banks once a year based on the average Federal Reserve notes outstanding in each Reserve Bank.

SDR certificates are issued by the International Monetary Fund ("Fund") to its members in proportion to each member's quota in the Fund at the time of issuance. SDR certificates serve as a supplement to international monetary reserves and may be transferred from one national monetary authority to another. Under the law providing for United States participation in the SDR system, the Secretary of the U.S. Treasury is authorized to issue SDR certificates somewhat like gold certificates to the Reserve Banks. When SDR certificates are issued to the Reserve Banks, equivalent amounts in dollars are credited to the account established for the U.S. Treasury, and the Reserve Banks' SDR certificate accounts are increased. The Reserve Banks are required to purchase SDR certificates, at the direction of the U.S. Treasury, for the purpose of financing SDR acquisitions or for financing exchange stabilization operations. At the time SDR transactions occur, the Board of Governors allocates SDR certificate transactions among Reserve Banks based upon each Reserve Bank's Federal Reserve notes outstanding at the end of the preceding year. There were no SDR transactions in 2007 or 2006.

b. Loans to Depository Institutions

Depository institutions that maintain reservable transaction accounts or nonpersonal time deposits, as defined in regulations issued by the Board of Governors, have borrowing privileges at the discretion of the Reserve Bank. Borrowers execute certain lending agreements and deposit sufficient collateral before credit is extended. The Bank offers three discount window programs to depository institutions: primary credit, secondary credit, and seasonal credit, each with its own interest rate. Interest is accrued using the applicable discount rate established at least every fourteen days by the board of directors of the Reserve Bank, subject to review and determination by the Board of Governors.

In addition, depository institutions that are eligible to borrow under the Reserve Bank's primary credit program are also eligible to participate in the temporary Term Auction Facility ("TAF") program. Under the TAF program, the Reserve Banks conduct auctions for a fixed amount of funds, with the interest rate determined by the auction process, subject to a minimum bid rate. All advances under the TAF must be fully collateralized.

Outstanding loans are evaluated for collectibility, and currently all are considered collectible and fully collateralized. If loans were ever deemed to be uncollectible, an appropriate reserve would be established.

c. U.S. Government Securities and Investments Denominated in Foreign Currencies

Interest income on U.S. government securities and investments denominated in foreign currencies comprising the SOMA is accrued on a straight-line basis. Gains and losses resulting from sales of securities are determined by specific issues based on average cost. Foreign-currency-denominated assets are revalued daily at current foreign currency market exchange rates in order to report these assets in U.S. dollars. Realized and unrealized gains and losses on investments denominated in foreign currencies are reported as "Foreign currency gains, net" in the Statements of Income and Comprehensive Income.

Activity related to U.S. government securities, including the premiums, discounts, and realized and unrealized gains and losses, is allocated to each Reserve Bank on a percentage basis derived from an annual settlement of the interdistrict settlement account that occurs in April of each year. The settlement also equalizes Reserve Bank gold certificate holdings to Federal Reserve notes outstanding in each District. Activity related to investments denominated in foreign currencies is allocated to each Reserve Bank based on the ratio of each Reserve Bank's capital and surplus to aggregate capital and surplus at the preceding December 31.

d. Securities Purchased Under Agreements to Resell, Securities Sold Under Agreements to Repurchase, and Securities Lending

The FRBNY may engage in tri-party purchases of securities under agreements to resell ("tri-party agreements"). Tri-party agreements are conducted with two commercial custodial banks that manage the clearing and settlement of collateral. Collateral is held in excess of the contract amount. Acceptable collateral under tri-party agreements primarily includes U.S. government securities, pass-through mortgage securities of the Government National Mortgage Association, Federal Home Loan Mortgage Corporation, and Federal National Mortgage Association, STRIP securities of the U.S. Government, and "stripped" securities of other government agencies. The tri-party agreements are accounted for as financing transactions, with the associated interest income accrued over the life of the agreement.

Securities sold under agreements to repurchase are accounted for as financing transactions and the associated interest expense is recognized over the life of the transaction. These transactions are reported in the Statements of Condition at their contractual amounts and the related accrued interest payable is reported as a component of "Other liabilities."

U.S. government securities held in the SOMA are lent to U.S. government securities dealers in order to facilitate the effective functioning of the domestic securities market. Securities-lending transactions are fully collateralized by other U.S. government securities and the collateral taken is in excess of the market value of the securities loaned. The FRBNY charges the dealer a fee for borrowing securities and the fees are reported as a component of "Other income."

Activity related to securities sold under agreements to repurchase and securities lending is allocated to each of the Reserve Banks on a percentage basis derived from an annual settlement of the interdistrict settlement account. On February 15, 2007, the FRBNY began allocating to the other Reserve Banks the activity related to securities purchased under agreements to resell.

e. FX Swap Arrangements and Warehousing Agreements

FX swap arrangements are contractual agreements between two parties, the FRBNY and an authorized foreign central bank, whereby the parties agree to exchange their currencies up to a prearranged maximum amount and for an agreed-upon period of time (up to twelve months), at an agreed-upon interest rate. These arrangements give the FOMC temporary access to the foreign currencies it may need to support its international operations and give the authorized foreign central bank temporary access to dollars. Drawings under the FX swap arrangements can be initiated by either party and must be agreed to by the other party. The FX swap arrangements are structured so that the party initiating the transaction bears the exchange rate risk upon maturity. Foreign currencies received pursuant to these agreements are reported as a component of "Investments denominated in foreign currencies" in the Statements of Condition.

Warehousing is an arrangement under which the FOMC agrees to exchange, at the request of the U.S. Treasury, U.S. dollars for foreign currencies held by the U.S. Treasury or ESF over a limited period of time. The purpose of the warehousing facility is to supplement the U.S. dollar resources of the U.S. Treasury and ESF for financing purchases of foreign currencies and related international operations.

FX swap arrangements and warehousing agreements are revalued daily at current market exchange rates. Activity related to these agreements, with the exception of the unrealized gains and losses resulting from the daily revaluation, is allocated to each Reserve Bank based on the ratio of each Reserve Bank's capital and surplus to aggregate capital and surplus at the preceding December 31. Unrealized gains and losses resulting from the daily revaluation are recorded by FRBNY and not allocated to the other Reserve Banks.

f. Bank Premises, Equipment, and Software

Bank premises and equipment are stated at cost less accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, which range from two to fifty years. Major alterations, renovations, and improvements are capitalized at cost as additions to the asset accounts and are depreciated over the remaining useful life of the asset or, if appropriate, over the unique useful life of the alteration, renovation, or improvement. Maintenance, repairs, and minor replacements are charged to operating expense in the year incurred.

Costs incurred for software during the application development stage, either developed internally or acquired for internal use, are capitalized based on the cost of direct services and materials associated with designing, coding, installing, or testing software. Capitalized software costs are amortized on a straight-line basis over the estimated useful lives of the software applications, which range from two to five years. Maintenance costs related to software are charged to expense in the year incurred.

Capitalized assets including software, buildings, leasehold improvements, furniture, and equipment are impaired when events or changes in circumstances indicate that the carrying amount of assets or asset groups is not recoverable and significantly exceeds their fair value.

g. Interdistrict Settlement Account

At the close of business each day, each Reserve Bank assembles the payments due to or from other Reserve Banks. These payments result from transactions between Reserve Banks and transactions that involve depository institution accounts held by other Reserve Banks, such as Fedwire funds and securities transfers, and check and ACH transactions. The cumulative net amount due to or from the other Reserve Banks is reflected in the "Interdistrict settlement account" in the Statements of Condition.

h. Federal Reserve Notes

Federal Reserve notes are the circulating currency of the United States. These notes are issued through the various Federal Reserve agents (the chairman of the board of directors of each Reserve Bank and their designees) to the Reserve Banks upon deposit with such agents of specified classes of collateral security, typically U.S. government securities. These notes are identified as issued to a specific Reserve Bank. The Federal Reserve Act provides that the collateral security tendered by the Reserve Bank to the Federal Reserve agent must be at least equal to the sum of the notes applied for by such Reserve Bank.

Assets eligible to be pledged as collateral security include all of the Bank's assets. The collateral value is equal to the book value of the collateral tendered, with the exception of securities, for which the collateral value is equal to the par value of the securities tendered. The par value of securities pledged for securities sold under agreements to repurchase is deducted.

The Board of Governors may, at any time, call upon a Reserve Bank for additional security to adequately collateralize the Federal Reserve notes. To satisfy the obligation to provide sufficient collateral for outstanding Federal Reserve notes, the Reserve Banks have entered into an agreement that provides for certain assets of the Reserve Banks to be jointly pledged as collateral for the Federal Reserve notes issued to all Reserve Banks. In the event that this collateral is insufficient, the Federal Reserve Act provides that Federal Reserve notes become a first and paramount lien on all the assets of the Reserve Banks. Finally, Federal Reserve notes are obligations of the United States government. At December 31, 2007, all Federal Reserve notes issued to the Reserve Banks were fully collateralized.

"Federal Reserve notes outstanding, net" in the Statements of Condition represents the Bank's Federal Reserve notes outstanding, reduced by the Bank's currency holdings of $7,130 million and $6,709 million at December 31, 2007 and 2006, respectively.

i. Items in Process of Collection and Deferred Credit Items

Items in process of collection in the Statements of Condition primarily represents amounts attributable to checks that have been deposited for collection and that, as of the balance sheet date, have not yet been presented to the paying bank. Deferred credit items are the counterpart liability to items in process of collection, and the amounts in this account arise from deferring credit for deposited items until the amounts are collected. The balances in both accounts can vary significantly.

j. Capital Paid-in

The Federal Reserve Act requires that each member bank subscribe to the capital stock of the Reserve Bank in an amount equal to 6 percent of the capital and surplus of the member bank. These shares are nonvoting with a par value of $100 and may not be transferred or hypothecated. As a member bank's capital and surplus changes, its holdings of Reserve Bank stock must be adjusted. Currently, only one-half of the subscription is paid-in and the remainder is subject to call. A member bank is liable for Reserve Bank liabilities up to twice the par value of stock subscribed by it.

By law, each Reserve Bank is required to pay each member bank an annual dividend of 6 percent on the paid-in capital stock. This cumulative dividend is paid semiannually. To reflect the Federal Reserve Act requirement that annual dividends are deducted from net earnings, dividends are presented as a distribution of comprehensive income in the Statements of Income and Comprehensive Income.

k. Surplus

The Board of Governors requires the Reserve Banks to maintain a surplus equal to the amount of capital paid-in as of December 31 of each year. This amount is intended to provide additional capital and reduce the possibility that the Reserve Banks would be required to call on member banks for additional capital.

Accumulated other comprehensive income is reported as a component of surplus in the Statements of Condition and the Statements of Changes in Capital. The balance of accumulated other comprehensive income is comprised of expenses, gains, and losses related to defined benefit pension plans and other postretirement benefit plans that, under accounting standards, are included in other comprehensive income but excluded from net income. Additional information regarding the classifications of accumulated other comprehensive income is provided in Notes 9 and 10.

The Bank initially applied the provisions of SFAS No. 158, Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans, at December 31, 2006. This accounting standard requires recognition of the overfunded or underfunded status of a defined benefit postretirement plan in the Statements of Condition, and recognition of changes in the funded status in the years in which the changes occur through comprehensive income. The transition rules for implementing the standard required applying the provisions as of the end of the year of initial implementation, and the effect as of December 31, 2006, is recorded as "Adjustment to initially apply SFAS No. 158" in the Statements of Changes in Capital.

l. Interest on Federal Reserve Notes

The Board of Governors requires the Reserve Banks to transfer excess earnings to the U.S. Treasury as interest on Federal Reserve notes, after providing for the costs of operations, payment of dividends, and reservation of an amount necessary to equate surplus with capital paid-in. This amount is reported as "Payments to U.S. Treasury as interest on Federal Reserve notes" in the Statements of Income and Comprehensive Income and is reported as a liability, or as an asset if overpaid during the year, in the Statements of Condition. Weekly payments to the U.S. Treasury may vary significantly.

In the event of losses or an increase in capital paid-in at a Reserve Bank, payments to the U.S. Treasury are suspended and earnings are retained until the surplus is equal to the capital paid-in.

In the event of a decrease in capital paid-in, the excess surplus, after equating capital paid-in and surplus at December 31, is distributed to the U.S. Treasury in the following year.

m. Income and Costs Related to U.S. Treasury Services

The Bank is required by the Federal Reserve Act to serve as fiscal agent and depository of the United States. By statute, the Department of the Treasury is permitted, but not required, to pay for these services. During the years ended December 31, 2006 and 2007, the Bank was reimbursed for all services provided to the Department of the Treasury.

n. Compensation Received for Services Provided

The Federal Reserve Bank of Atlanta ("FRBA") has overall responsibility for managing the Reserve Banks' provision of check and ACH services to depository institutions, and, as a result, recognizes total System revenue for these services on its Statements of Income and Comprehensive Income. Similarly, the FRBNY manages the Reserve Banks' provision of Fedwire funds and securities transfer services, and recognizes total System revenue for these services on its Statements of Income and Comprehensive Income. The FRBA and FRBNY compensate the other Reserve Banks for the costs incurred to provide these services. The Bank reports this compensation as "Compensation received for services provided" in the Statements of Income and Comprehensive Income.

o. Assessments by the Board of Governors

The Board of Governors assesses the Reserve Banks to fund its operations based on each Reserve Bank's capital and surplus balances as of December 31 of the prior year. The Board of Governors also assesses each Reserve Bank for the expenses incurred for the U.S. Treasury to prepare and retire Federal Reserve notes based on each Reserve Bank's share of the number of notes comprising the System's net liability for Federal Reserve notes on December 31 of the prior year.

p. Taxes

The Reserve Banks are exempt from federal, state, and local taxes, except for taxes on real property. The Bank's real property taxes were $2 million for each of the years ended December 31, 2007 and 2006, and are reported as a component of "Occupancy expense."

q. Restructuring Charges

The Reserve Banks recognize restructuring charges for exit or disposal costs incurred as part of the closure of business activities in a particular location, the relocation of business activities from one location to another, or a fundamental reorganization that affects the nature of operations. Restructuring charges may include costs associated with employee separations, contract terminations, and asset impairments. Expenses are recognized in the period in which the Bank commits to a formalized restructuring plan or executes the specific actions contemplated in the plan and all criteria for financial statement recognition have been met.

Note 11 describes the Bank's restructuring initiatives and provides information about the costs and liabilities associated with employee separations and contract terminations. The costs associated with the impairment of certain of the Bank's assets are discussed in Note 6. Costs and liabilities associated with enhanced pension benefits in connection with the restructuring activities for all of the Reserve Banks are recorded on the books of the FRBNY.

r. Recently Issued Accounting Standards

In September, 2006, the FASB issued SFAS No. 157, Fair Value Measurements ("SFAS No. 157"). SFAS No. 157 establishes a single authoritative definition of fair value, sets out a framework for measuring fair value, and expands on required disclosures about fair value measurement. SFAS No. 157 is generally effective for the Bank on January 1, 2008, though the effective date of some provisions is January 1, 2009. The provisions of SFAS No. 157 will be applied prospectively and are not expected to have a material effect on the Bank's financial statements.

4. U.S. GOVERNMENT SECURITIES, SECURITIES PURCHASED UNDER AGREEMENTS TO RESELL, SECURITIES SOLD UNDER AGREEMENTS TO REPURCHASE, AND SECURITIES LENDING

The FRBNY, on behalf of the Reserve Banks, holds securities bought outright in the SOMA. The Bank's allocated share of SOMA balances was approximately 4.092 percent and 4.318 percent at December 31, 2007 and 2006, respectively.

The Bank's allocated share of U.S. government securities, net, held in the SOMA at December 31, was as follows (*in millions*):

	2007	2006
Par value:		
U.S. government:		
Bills	$ 9,324	$ 11,961
Notes	16,442	17,374
Bonds	4,542	4,298
Total par value	30,308	33,633
Unamortized premiums	327	376
Unaccreted discounts	(121)	(173)
Total allocated to the Bank	$ 30,514	$ 33,836

At December 31, 2007 and 2006, the fair value of the U.S. government securities allocated to the Bank, excluding accrued interest, was $31,803 million and $34,367 million, respectively, as determined by reference to quoted prices for identical securities.

The total of the U.S. government securities, net, held in the SOMA was $745,629 million and $783,619 million at December 31, 2007 and 2006, respectively. At December 31, 2007 and 2006, the fair value of the U.S. government securities held in the SOMA, excluding accrued interest, was $777,141 million and $795,900 million, respectively, as determined by reference to quoted prices for identical securities.

Although the fair value of security holdings can be substantially greater or less than the recorded value at any point in time, these unrealized gains or losses have no effect on the ability of the Reserve Banks, as central bank, to meet their financial obligations and responsibilities, and should not be misunderstood as representing a risk to the Reserve Banks, their shareholders, or the public. The fair value is presented solely for informational purposes.

Financial information related to securities purchased under agreements to resell and securities sold under agreements to repurchase for the year ended December 31, 2007, was as follows (*in millions*):

	Securities Purchased Under Agreements to Resell	Securities Sold Under Agreements to Repurchase
Allocated to the Bank:		
Contract amount outstanding, end of year	$ 1,903	$ 1,800
Weighted average amount outstanding, during the year	1,435	1,426
Maximum month-end balance outstanding, during the year	2,108	1,800
Securities pledged, end of year	—	1,803
System total:		
Contract amount outstanding, end of year	$ 46,500	$ 43,985
Weighted average amount outstanding, during the year	35,073	34,846
Maximum month-end balance outstanding, during the year	51,500	43,985
Securities pledged, end of year	—	44,048

At December 31, 2006, the total contract amount of securities sold under agreements to repurchase was $29,615 million, of which $1,279 million was allocated to the Bank. The total par value of SOMA securities that were pledged for securities sold under agreements to repurchase at December 31, 2006, was $29,676 million, of which $1,281 million was allocated to the Bank.

The contract amounts for securities purchased under agreements to resell and securities sold under agreements to repurchase approximate fair value.

The maturity distribution of U.S. government securities bought outright, securities purchased under agreements to resell, and securities sold under agreements to repurchase that were allocated to the Bank at December 31, 2007, was as follows (*in millions*):

	U.S. Government Securities (Par value)	Securities Purchased Under Agreements to Resell (Contract amount)	Securities Sold Under Agreements to Repurchase (Contract amount)
Within 15 days	$ 1,117	$ 1,903	$ 1,800
16 days to 90 days	6,127	—	—
91 days to 1 year	6,231	—	—
Over 1 year to 5 years	9,845	—	—
Over 5 years to 10 years	3,353	—	—
Over 10 years	3,635	—	—
Total allocated to the Bank	$ 30,308	$ 1,903	$ 1,800

At December 31, 2007 and 2006, U.S. government securities with par values of $16,649 million and $6,855 million, respectively, were loaned from the SOMA, of which $681 million and $296 million, respectively, were allocated to the Bank.

5. INVESTMENTS DENOMINATED IN FOREIGN CURRENCIES

The FRBNY, on behalf of the Reserve Banks, holds foreign currency deposits with foreign central banks and with the Bank for International Settlements and invests in foreign government debt instruments. Foreign government debt instruments held include both securities bought outright and securities purchased under agreements to resell. These investments are guaranteed as to principal and interest by the issuing foreign governments.

The Bank's allocated share of investments denominated in foreign currencies was approximately 7.091 percent and 7.663 percent at December 31, 2007 and 2006, respectively.

The Bank's allocated share of investments denominated in foreign currencies, including accrued interest, valued at foreign currency market exchange rates at December 31, was as follows (*in millions*):

	2007	2006
European Euro:		
Foreign currency deposits	$ 1,949	$ 478
Securities purchased under agreements to resell	181	170
Government debt instruments	331	312
Japanese Yen:		
Foreign currency deposits	199	200
Government debt instruments	405	410
Swiss Franc:		
Foreign currency deposits	289	—
Total allocated to the Bank	$ 3,354	$ 1,570

At December 31, 2007, the total amount of foreign currency deposits held under FX contracts was $24,381 million, of which $1,729 million was allocated to the Bank. At December 31, 2006, there were no open foreign exchange contracts.

At December 31, 2007 and 2006, the fair value of investments denominated in foreign currencies, including accrued interest, allocated to the Bank was $3,352 million and $1,566 million, respectively. The fair value of government debt instruments was determined by reference to quoted prices for identical securities. The cost basis of foreign currency deposits and securities purchased under agreements to resell, adjusted for accrued interest, approximates fair value. Similar to the U.S. government securities discussed in Note 4, unrealized gains or losses have no effect on the ability of a Reserve Bank, as central bank, to meet its financial obligations and responsibilities.

Total System investments denominated in foreign currencies were $47,295 million and $20,482 million at December 31, 2007 and 2006, respectively. At December 31, 2007 and 2006, the fair value of the total System investments denominated in foreign currencies, including accrued interest, was $47,274 million and $20,434 million, respectively.

The maturity distribution of investments denominated in foreign currencies that were allocated to the Bank at December 31, 2007, was as follows (*in millions*):

	European Euro	Japanese Yen	Swiss Franc	Total
Within 15 days	$ 355	$ 212	$ —	$ 567
16 days to 90 days	1,638	29	289	1,956
91 days to 1 year	195	142	—	337
Over 1 year to 5 years	273	221	—	494
Total allocated to the Bank	$ 2,461	$ 604	$ 289	$ 3,354

At December 31, 2007 and 2006, the authorized warehousing facility was $5,000 million, with no balance outstanding.

6. BANK PREMISES, EQUIPMENT, AND SOFTWARE

Bank premises and equipment at December 31 was as follows (*in millions*):

	2007	2006
Bank premises and equipment:		
Land	$ 9	$ 9
Buildings	172	172
Building machinery and equipment	57	51
Construction in progress	—	5
Furniture and equipment	71	71
Subtotal	309	308
Accumulated depreciation	(133)	(122)
Bank premises and equipment, net	$ 176	$ 186
Depreciation expense, for the years ended December 31	$ 14	$ 13

The Bank leases space to outside tenants with remaining lease terms ranging from one to seven years. Rental income from such leases was $1 million for each of the years ended December 31, 2007 and 2006, and is reported as a component of "Other income." Future minimum lease payments that the Bank will receive under noncancelable lease agreements in existence at December 31, 2007, are as follows (*in millions*):

2008	$	1
2009		1
2010		1
2011		1
2012		1
Thereafter		1
Total	$	6

The Bank has capitalized software assets, net of amortization, of $26 million and $34 million at December 31, 2007 and 2006, respectively. Amortization expense was $15 million and $18 million for the years ended December 31, 2007 and 2006, respectively. Capitalized software assets are reported as a component of "Other assets" and the related amortization is reported as a component of "Other expenses."

Assets impaired as a result of the Bank's restructuring plan, as discussed in Note 11, include assets associated with legacy check processing. Asset impairment losses of $3 million for the period ending December 31, 2007, were determined using fair values based on quoted market values or other valuation techniques and are reported as a component of "Other expenses." Impairment losses for the period ending December 31, 2006, were immaterial.

7. COMMITMENTS AND CONTINGENCIES

At December 31, 2007, the Bank was obligated under noncancelable leases for premises and equipment with remaining terms of approximately two years. These leases provide for increased rental payments based upon increases in real estate taxes, operating costs, or selected price indices.

Rental expense under operating leases for certain operating facilities, warehouses, and data processing and office equipment (including taxes, insurance and maintenance when included in rent), net of sublease rentals, was $349 thousand and $1 million for the years ended December 31, 2007 and 2006, respectively.

Future minimum rental payments under noncancelable operating leases, net of sublease rentals, with terms of one year or more, at December 31, 2007, were not material.

At December 31, 2007, the Bank, acting on its own behalf, had unrecorded unconditional purchase commitments and long-term obligations extending through the year 2008 with a remaining fixed commitment of $1 million. Purchases of $8 million and $11 million were made against these commitments during 2007 and 2006, respectively. These commitments represent Electronic Treasury Financial Services and facilities-related expenditures, and have only fixed components. The fixed payments for the next five years under these commitments are as follows (*in millions*):

		Fixed Commitment
2008	$	1
2009		—
2010		—
2011		—
2012		—

At December 31, 2007, the Bank, acting on behalf of the Reserve Banks, had unrecorded unconditional purchase commitments extending through the year 2012 with a remaining fixed commitment of $41 million. Purchases of $27 million were made against these commitments during 2007 and 2006, respectively. These commitments represent Check software and hardware, including license and maintenance fees, and have only fixed components. The fixed payments for the next five years under these commitments are as follows (*in millions*):

		Fixed Commitment
2008	$	19
2009		16
2010		2
2011		2
2012		2

Under the Insurance Agreement of the Federal Reserve Banks, each of the Reserve Banks has agreed to bear, on a per incident basis, a pro rata share of losses in excess of one percent of the capital paid-in of the claiming Reserve Bank, up to 50 percent of the total capital paid-in of all Reserve Banks. Losses are borne in the ratio of a Reserve Bank's capital paid-in to the total capital paid-in of all Reserve Banks at the beginning of the calendar year in which the loss is shared. No claims were outstanding under the agreement at December 31, 2007 or 2006.

The Bank is involved in certain legal actions and claims arising in the ordinary course of business. Although it is difficult to predict the ultimate outcome of these actions, in management's opinion, based on discussions with counsel, the aforementioned litigation and claims will be resolved without material adverse effect on the financial position or results of operations of the Bank.

8. RETIREMENT AND THRIFT PLANS

Retirement Plans

The Bank currently offers three defined benefit retirement plans to its employees, based on length of service and level of compensation. Substantially all of the Bank's employees participate in the Retirement Plan for Employees of the Federal Reserve System ("System Plan"). Employees at certain compensation levels participate in the Benefit Equalization Retirement Plan ("BEP") and certain Reserve Bank officers participate in the Supplemental Employee Retirement Plan ("SERP").

The System Plan provides retirement benefits to employees of the Federal Reserve Banks, the Board of Governors, and the Office of Employee Benefits of the Federal Reserve Employee Benefits System. The FRBNY, on behalf of the System, recognizes the net asset and costs associated with the System Plan in its financial statements. Costs associated with the System Plan are not redistributed to other participating employers.

The Bank's projected benefit obligation, funded status, and net pension expenses for the BEP and the SERP at December 31, 2007 and 2006, and for the years then ended, were not material.

Thrift Plan

Employees of the Bank may also participate in the defined contribution Thrift Plan for Employees of the Federal Reserve System ("Thrift Plan"). The Bank's Thrift Plan contributions totaled $4 million for each of the years ended December 31, 2007 and 2006, and are reported as a component of "Salaries and other benefits" in the Statements of Income and Comprehensive Income. The Bank matches employee contributions based on a specified formula. For the years ended December 31, 2007 and 2006, the Bank matched 80 percent on the first 6 percent of employee contributions for employees with less than five years of service and 100 percent on the first 6 percent of employee contributions for employees with five or more years of service.

9. POSTRETIREMENT BENEFITS OTHER THAN PENSIONS AND POSTEMPLOYMENT BENEFITS

Postretirement Benefits Other Than Pensions

In addition to the Bank's retirement plans, employees who have met certain age and length-of-service requirements are eligible for both medical benefits and life insurance coverage during retirement.

The Bank funds benefits payable under the medical and life insurance plans as due and, accordingly, has no plan assets.

Following is a reconciliation of the beginning and ending balances of the benefit obligation (*in millions*):

	2007	2006
Accumulated postretirement benefit obligation at January 1	$ 79.2	$ 59.2
Service cost-benefits earned during the period	3.9	2.2
Interest cost on accumulated benefit obligation	5.0	3.5
Net actuarial (gain) loss	(4.0)	17.5
Contributions by plan participants	0.5	0.4
Benefits paid	(3.6)	(3.8)
Medicare Part D subsidies	0.2	0.2
Accumulated postretirement benefit obligation at December 31	$ 81.2	$ 79.2

At December 31, 2007 and 2006, the weighted-average discount rate assumptions used in developing the postretirement benefit obligation were 6.25 percent and 5.75 percent, respectively.

Discount rates reflect yields available on high-quality corporate bonds that would generate the cash flows necessary to pay the plan's benefits when due.

Following is a reconciliation of the beginning and ending balance of the plan assets, the unfunded postretirement benefit obligation, and the accrued postretirement benefit costs (*in millions*):

	2007	2006
Fair value of plan assets at January 1	$ —	$ —
Contributions by the employer	2.9	3.2
Contributions by plan participants	0.5	0.4
Benefits paid, net of Medicare Part D subsidies	(3.4)	(3.6)
Fair value of plan assets at December 31	$ —	$ —
Unfunded obligation and accrued postretirement benefit cost	$ 81.2	$ 79.2
Amounts included in accumulated other comprehensive loss are shown below:		
Prior service cost	$ 5.7	$ 8.0
Net actuarial loss	(22.6)	(30.2)
Total accumulated other comprehensive loss	$ (16.9)	$ (22.2)

Accrued postretirement benefit costs are reported as a component of "Accrued benefit costs" in the Statements of Condition.

For measurement purposes, the assumed health care cost trend rates at December 31 are as follows:

	2007	2006
Health care cost trend rate assumed for next year	8.00%	9.00%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	5.00%	5.00%
Year that the rate reaches the ultimate trend rate	2013	2012

Assumed health care cost trend rates have a significant effect on the amounts reported for health care plans. A one percentage point change in assumed health care cost trend rates would have the following effects for the year ended December 31, 2007 (*in millions*):

	One Percentage Point Increase	One Percentage Point Decrease
Effect on aggregate of service and interest cost components of net periodic postretirement benefit costs	$ 1.6	$ (1.3)
Effect on accumulated postretirement benefit obligation	11.4	(9.3)

The following is a summary of the components of net periodic postretirement benefit expense for the years ended December 31 (*in millions*):

	2007	2006
Service cost-benefits earned during the period	$ 3.9	$ 2.2
Interest cost on accumulated benefit obligation	5.0	3.5
Amortization of prior service cost	(2.3)	(2.3)
Amortization of net actuarial loss	3.6	1.0
Net periodic postretirement benefit expense	$ 10.2	$ 4.4

Estimated amounts that will be amortized from accumulated other comprehensive loss into net periodic postretirement benefit expense in 2008 are shown below:	
Prior service cost	$ (2.3)
Net actuarial loss	2.0
Total	$ (0.3)

Net postretirement benefit costs are actuarially determined using a January 1 measurement date. At January 1, 2007 and 2006, the weighted-average discount rate assumptions used to determine net periodic postretirement benefit costs were 5.75 percent and 5.50 percent, respectively.

Net periodic postretirement benefit expense is reported as a component of "Salaries and other benefits" in the Statements of Income and Comprehensive Income.

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 established a prescription drug benefit under Medicare ("Medicare Part D") and a federal subsidy to sponsors of retiree health care benefit plans that provide benefits that are at least actuarially equivalent to Medicare Part D. The benefits provided under the Bank's plan to certain participants are at least actuarially equivalent to the Medicare Part D prescription drug benefit. The estimated effects of the subsidy, retroactive to January 1, 2004, are reflected in actuarial loss in the accumulated postretirement benefit obligation and net periodic postretirement benefit expense.

There were no receipts of federal Medicare Part D subsidies in the year ended December 31, 2006. Receipts in the year ended December 31, 2007, related to benefits paid in the years ended December 31, 2006 and 2007, were $0.3 million and $0.2 million, respectively. Expected receipts in 2008, related to benefits paid in the year ended December 31, 2007, are immaterial.

Following is a summary of expected postretirement benefit payments (*in millions*):

	Without Subsidy	With Subsidy
2008	$ 3.9	$ 3.6
2009	4.3	4.0
2010	4.8	4.4
2011	5.2	4.8
2012	5.6	5.1
2013–2017	34.5	31.4
Total	$ 58.3	$ 53.3

Postemployment Benefits

The Bank offers benefits to former or inactive employees. Postemployment benefit costs are actuarially determined using a December 31 measurement date and include the cost of medical and dental insurance, survivor income, disability benefits, and self-insured workers' compensation expenses. The accrued postemployment benefit costs recognized by the Bank were $7.7 million for each of the years ended December 31, 2007 and 2006. This cost is included as a component of "Accrued benefit costs" in the Statements of Condition. Net periodic postemployment benefit expense included in 2007 and 2006 operating expenses were $1 million and $200 thousand, respectively, and are recorded as a component of "Salaries and other benefits" in the Statements of Income and Comprehensive Income.

10. ACCUMULATED OTHER COMPREHENSIVE INCOME AND OTHER COMPREHENSIVE INCOME

Following is a reconciliation of beginning and ending balances of accumulated other comprehensive loss (*in millions*):

	Amount Related to Postretirement Benefits Other Than Pensions
Balance at January 1, 2006	$ —
Adjustment to initially apply SFAS No. 158	(22)
Balance at December 31, 2006	$ (22)
Change in funded status of benefit plans:	
Net actuarial gain arising during the year	4
Amortization of prior service cost	(2)
Amortization of net actuarial loss	3
Change in funded status of benefit plans - other comprehensive income	5
Balance at December 31, 2007	$ (17)

Additional detail regarding the classification of accumulated other comprehensive loss is included in Note 9.

11. BUSINESS RESTRUCTURING CHARGES

2007 Restructuring Plans

In 2007, the Reserve Banks announced a restructuring initiative to align the check processing infrastructure and operations with declining check processing volumes. The new infrastructure will involve consolidation of operations into four regional Reserve Bank processing sites in Philadelphia, Cleveland, Atlanta, and Dallas. Additional announcements in 2007 included restructuring plans associated with Electronic Treasury Financial Services. This restructure was a result of the U.S. Treasury initiating a Collection and Cash Management Modernization (CCMM) program.

2005 and Prior Restructuring Costs

The Bank incurred various restructuring charges prior to 2006 related to the restructuring of Check Operations.

Following is a summary of financial information related to the restructuring plans (*in millions*):

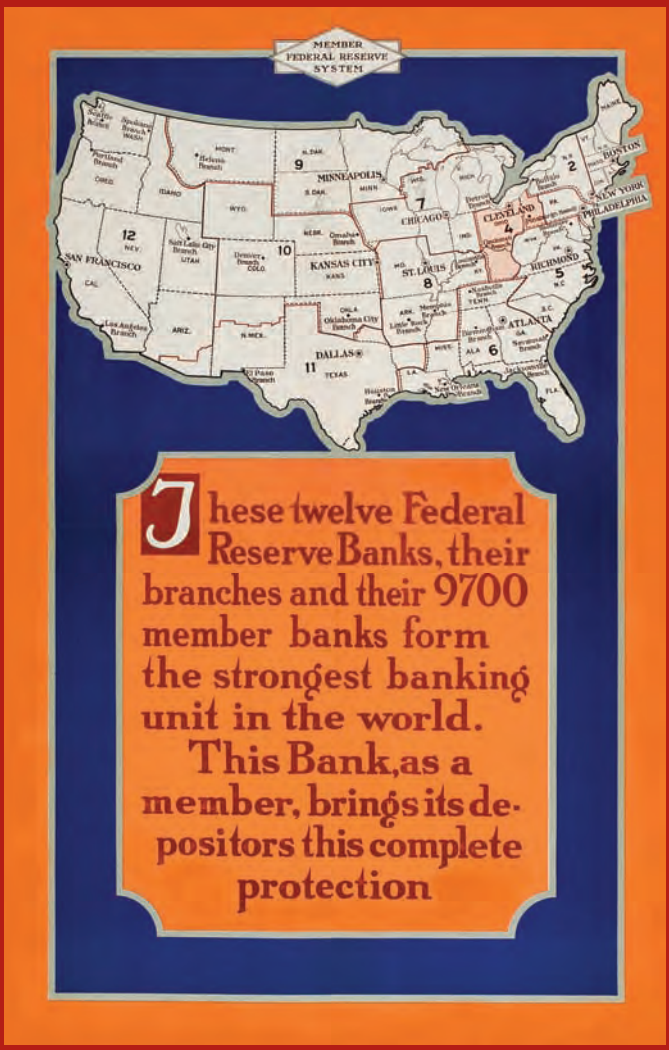
	2005 and Prior Restructuring Plans	2007 Restructuring Plans	Total
Information related to restructuring plans as of December 31, 2007:			
Total expected costs related to restructuring activity	$ 1.2	$ 2.9	$ 4.1
Estimated future costs related to restructuring activity	—	0.1	0.1
Expected completion date	2006	2009	
Reconciliation of liability balances:			
Balance at January 1, 2006	$ 0.9	$ —	$ 0.9
Employee separation costs	(0.1)	—	(0.1)
Other costs	0.4	—	0.4
Payments	(1.0)	—	(1.0)
Balance at December 31, 2006	$ 0.2	$ —	$ 0.2
Employee separation costs	—	2.9	2.9
Payments	(0.2)	—	(0.2)
Balance at December 31, 2007	$ —	$ 2.9	$ 2.9

Employee separation costs are primarily severance costs for identified staff reductions associated with the announced restructuring plans. Separation costs that are provided under terms of ongoing benefit arrangements are recorded based on the accumulated benefit earned by the employee. Separation costs that are provided under the terms of one-time benefit arrangements are generally measured based on the expected benefit as of the termination date and recorded ratably over the period to termination. Restructuring costs related to employee separations are reported as a component of "Salaries and other benefits" in the Statements of Income and Comprehensive Income.

Restructuring costs associated with the impairment of certain Bank assets, including software, buildings, leasehold improvements, furniture, and equipment, are discussed in Note 6. Costs associated with enhanced pension benefits for all Reserve Banks are recorded on the books of the FRBNY as discussed in Note 8.

12. SUBSEQUENT EVENTS

In March 2008, the Board of Governors announced several initiatives to address liquidity pressures in funding markets and promote financial stability, including increasing the Term Auction Facility (see Note 3b) to $100 billion and initiating a series of term repurchase transactions (see Notes 3d and 4) that may cumulate to $100 billion. In addition, the Reserve Banks' securities lending program (see Notes 3d and 4) was expanded to lend up to $200 billion of Treasury securities to primary dealers for a term of 28 days, secured by federal agency debt, federal agency residential mortgage-backed securities, agency collateralized mortgage obligations, non-agency AAA/Aaa-rated private-label residential mortgage-backed securities, and AAA/Aaa-rated commercial mortgage-backed securities. The FOMC also authorized increases in its existing temporary reciprocal currency arrangements (see Notes 3e and 5) with specific foreign central banks. These initiatives will affect 2008 activity related to loans to depository institutions, securities purchased under agreements to resell, U.S. government securities, net, and investments denominated in foreign currencies, as well as income and expenses. The effects of the initiatives do not require adjustment to the amounts recorded as of December 31, 2007.



There are currently 2,479 member banks nationwide (includes both state- and nationally chartered members), with 136 in the Fourth District. Consolidation within the banking industry over the years has led to larger banks and fewer banks altogether. Consolidation and technical innovation in the industry have also transformed Federal Reserve services, in terms of both availability and delivery approaches.

Special thanks to the Federal Reserve Bank of San Francisco,
which graciously provided copies of these posters from its archives.

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Federal Reserve Banks each have a board of nine directors. Directors supervise the Bank's budget and operations, make recommendations on the primary credit rate and, with the Board of Governors' approval, appoint the Bank's president, first vice president, and officers.

Class A directors are elected by and represent the interests of Fourth District member banks. Class B directors also are elected by member banks but represent the public interests of agriculture, commerce, industry, services, labor, and consumers. Class C directors are selected by the Board of Governors and also represent these public interests.

Directors serve for three years. Two Class C directors are designated by the Board of Governors as chairman and deputy chairman of the board. Directorships generally are limited to two successive terms to ensure that the individuals who serve the Federal Reserve System represent a diversity of backgrounds and experience.

The Cincinnati and Pittsburgh Branch offices each have a board of seven directors who serve three-year terms. Board members are appointed by the Federal Reserve Bank of Cleveland or the Board of Governors.

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**Edwin J. Rigaud, president and chief executive officer, Enova Partners, LLC, Cincinnati, Ohio, retired from the Board of Directors in September 2007.*

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As of December 31, 2007

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Business Advisory Councils

As of December 31, 2007

Business Advisory Council members are a diverse group of Fourth District businesspeople who advise the president and senior officers on current business conditions.

Each council — in Cleveland, Cincinnati, and Pittsburgh — meets with senior Bank leaders at least twice yearly. These meetings provide anecdotal information that is useful in the consideration of monetary policy direction and economic research activities.

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We invite your comments and questions. Please email us at editor@clev.frb.org.

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