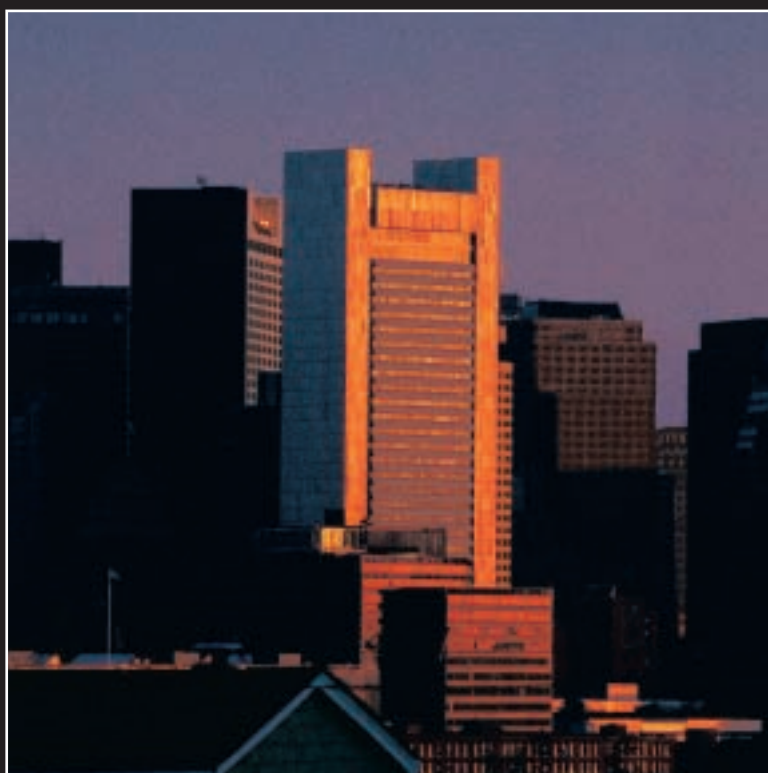


The U.S. Retail Payments System...



Dawn of a New Era

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 to the federal government. The Federal Reserve Bank of Boston is one of 12 regional Reserve Banks in the United States that, together with the Board of Governors in Washington, D.C., comprise the Federal Reserve System. The Federal Reserve Bank of Boston serves the First Federal Reserve District. The First District includes all of New England except Fairfield County, Connecticut.

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Paul M. Connolly, First Vice President, with Cathy E. Minehan, President

In each of the past six years since becoming President of the Federal Reserve Bank of Boston, I have had the good fortune to be reporting robust economic growth and extraordinary economic conditions. As this report goes to press, however, we find ourselves challenged by a sudden and marked slowdown in the longest running economic expansion in U.S. history.

We can look at the economy in 2000 as experiencing a long-expected “correction” or swing in the economic pendulum, albeit one that demonstrated the abruptness and speed with which circumstances can change. In 2000, the national economy grew at a rate of 3.4 percent. But this rather strong showing belies considerable variance as the year progressed. The year began with first quarter growth of over 5 percent, continuing the rapid upward trajectory of the several prior years. What most of us remember, however, is the shock of the final two quarters of 2000, when growth dropped to about a quarter of its earlier pace. In the fullness of time, this slowdown may or may not be recorded as a recession, but the speed and depth of the drop certainly is painful, especially for manufacturing where the problems began.

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Fortunately, this slowdown has been less pronounced to date in New England than it has been nationally. One important reason may be that New England has a broader industry mix than most other regions in the country. For example, New England's manufacturing base has become increasingly diversified in the '90s, and is less dependent on autos and steel, to date the hardest hit sectors nationally. Another possible factor in New England's comparative resilience so far may be that the region's labor markets have been so tight that many believed growth was constrained; as job losses occur here, they may make resources available for continued expansion in some areas and moderate the effects of retraction in others.

Looking forward, uncertainty abounds. While consumer spending remains relatively resilient, even in the face of stock market losses and notices of job retrenchment, business spending on capital goods has slowed considerably in the wake of profit pressures and negative earnings announcements. How this process of capital retrenchment plays out will be significant — a quick turnaround will be good both for the national economy and for New England, with its mix of high-tech goods and financial services businesses. A longer, slower rise to better levels of growth may well mean that both the nation's and New England's experience is less positive. Whatever happens, our focus here at the Bank will continue to be on contributing as effectively as possible to the goal of monetary policy of supporting solid rates of sustainable growth.

Over the years, the Federal Reserve Bank of Boston has played a leadership role in guiding U.S. payment system development through good management of local payments services to depository institutions, and through research and development efforts, expertise in technology, and involvement with national payment system policy-setting and administration. Our role — and the role of our sister Reserve Banks — is in many ways unique. No other central bank in a developed economy plays such a hands-on role in the daily flow of payments that underpin the U.S. economy — for example, transferring \$2 trillion in electronic funds and securities transfers, and clearing 17 billion checks. It can be argued that some of these functions could better be handled in the private sector, and, indeed, for most retail payment services private sector competitors abound. But Reserve Banks have been required and have learned to compete as well, bringing a higher level of efficiency to the payments system.

Moreover, the Reserve Banks have in the past been and continue now to be forces for change and improvement. This year's Annual Report essay focuses on the ongoing commitment of Reserve Banks to be effective, efficient, and innovative payments system providers and catalysts for change that will ultimately benefit everyone. It is based, in part, on the leadership efforts of this Bank in its role in directing the efforts of the Reserve Banks' Financial Services Policy Committee.

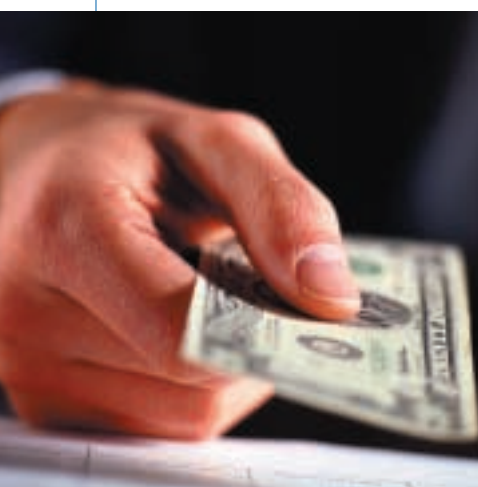
This Report also includes highlights of several of the Bank's major programs and initiatives in 2000. One in particular that I want to mention is a conference held in memory of former Bank President Frank Morris, who passed away last year. Frank presided over this Bank with distinction for 20 years. The conference gathered policy makers and academics from around the country to discuss developments in monetary policy and the Federal Reserve System during and after the Morris years. The Morris family and Federal Reserve Chairman Alan Greenspan joined us for this tribute to Frank, which concluded with the dedication and naming of the Bank's auditorium in Frank's honor.

As in the past, this Report also includes the Bank's financial statements and management's assertion of the effectiveness of our internal controls over financial reporting. In addition, the Financial section contains a report by our outside auditor, PricewaterhouseCoopers, LLP, concerning management's assertion.

In closing, I want to extend my appreciation to our dedicated officers and staff, who are so vital to the success of the Bank. They continually bring enthusiasm, innovative ideas, and a broad array of talent to their work. I am grateful to many others as well, especially our directors and advisors, who enrich the Bank with their thoughtful and diverse contributions. I want to give special thanks to Ed Clift, Ed Dugger, and Paul Ferguson, all of whom completed service on our Board of Directors last year. They have left us with legacies of distinguished service that will be long remembered. As the Bank moves forward in this rapidly changing environment, I am confident that the talented resources that we are so fortunate to have will enable the Bank to successfully address the challenges that lie ahead.



ACH



This essay describes the retail payments system in the U.S., and initiatives to improve it.

High speed sorters



By Cathy E. Minehan, Paul M. Connolly, Sally G. Green, Krista M. Shields, and Chandler Perine.*

Many people are unaware that there is something called a “payments system”. They only know that they can go anywhere in the United States or the world, pay for an item with something other than cash, have that payment accepted, and have the amount deducted from their account or added to their credit balance with ease. The payments system that makes this complicated process seem easy is a network of institutions, law, and technology that combine to enable consumers and businesses to exchange monetary value. Payments range from the small and simple — fifty cents at a newsstand for the morning paper — to the large and complex — a bank transfers \$500 million electronically to multiple banks in the U.S. and overseas.

In many respects the U.S. payments system is the envy of the world. It is reliable; it is safe; it works so well that it is almost invisible to its users. However, some aspects of the system leave room for substantial improvement, particularly with respect to smaller-value, or “retail,” payments. This essay describes the status of the retail payments system in the United States, and initiatives in the public and private sectors to improve that system.

Most of the dollars transferred through the U.S. payments system move through electronic networks. The Federal Reserve Banks operate funds and securities transfer systems which move large-value, or “wholesale,” payments between banks, primarily to meet the domestic needs of corporations, mutual funds, and other financial and non-financial institutions. Similarly, the New York Clearing House operates the Clearing House Interbank Payments System, or CHIPS, which moves large wholesale payments among banks, largely related to foreign exchange transactions. Reserve Banks either transfer directly or settle (in the case of CHIPS and other

smaller payment transfer systems) payments in excess of \$2 trillion each day.

While electronic wholesale payments comprise most of the dollars moving through the payments system, smaller-value retail payments account for most of the transactions. Checks, credit cards, debit cards, and direct deposits and payments through the Automated Clearing House, or ACH, account for more than 95 percent of the non-cash transactions on an average day.

U.S. consumers and those of most other nations use cash extensively. When cash is excluded, though, the U.S. has a more paper-based retail payments system than any other major country. In fact, the majority of all the paper checks written in the world are written in the U.S.

Most U.S. consumers and businesses are comfortable using checks. They are convenient; the check collection system operates within a well-developed context of laws and regulations; and checks are supported by a large, complex operational infrastructure. Check users may never think about how a check makes the round trip from the check-writer, to the person or organization being paid, back to the check-writer’s bank, and then to the check-writer in a monthly account statement. The Reserve Banks, private correspondent banks, and “clearinghouses,” or associations of banks, have developed large-scale operations and networks to support this complex process.

About 30 percent of the checks written in the U.S. are collected through the Reserve Banks. Every night institutions deposit 75 million checks at 45 Federal Reserve Banks, branches and regional processing centers where 5,000 employees process the checks, using high speed sorters, but doing a lot of required manual handling as well. Fleets of private air and ground couriers then transport the checks among the

Reserve Offices and on to nearly 20,000 commercial banks, thrift institutions, and credit unions. By the time a check has been returned to its issuer, it has been handled on average 12 times.

While the check collection system works remarkably well, it is labor-intensive, error-prone, and fraught with potential problems. Snowstorms and other “acts of God,” equipment and power failures, illegible information handwritten on the checks, and numerous other mishaps can combine to delay collection. Also, check fraud has become an increasing concern, with the retail industry estimating check fraud losses at \$10 to \$15 billion annually.

For many years pundits have been predicting the “checkless society.” One forecast from the 1960’s said that before the end of the 1980’s the check would be as obsolete as the barter system. Now, few dare to make such predictions. By recent estimates, annual volume has grown to about 68 billion checks, though the rate of growth in check issuance may have slowed considerably.

Efforts to encourage businesses and consumers to reduce their reliance on paper checks have been hampered by a number of factors. The users of checks often do not bear the full costs of the check system, at least not explicitly. Even today, banks sometimes compete for new customers by advertising “free checking”. In addition, some businesses and consumers attach value to “float,” or the time between the issuance of a check and the actual deduction of value from the check-writer’s account. Moreover, until recently check users have not had an adequate array of attractive electronic alternatives for making their payments.

Is the environment finally conducive to making fundamental changes to improve the retail payments system in the United States, particularly with electronics?

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Ever wonder about those funny-looking black numbers along the bottom of your checks? They are printed in magnetic ink, and follow the format of the Magnetic Ink Character Recognition (MICR) standard developed by the banking industry during the 1950's. This standard, and the collaborative efforts of the industry and the Federal Reserve, brought automation to the U.S. check collection process.

Until the middle of the twentieth century, check-writing was the prerogative of high-income people. After World War II, however, the steady rise in per capita income enabled an increasing number of people to afford the convenience of paying bills with checks. The result was a steady and rapid growth in the numbers of checks being processed. Nevertheless, checks continued to be sorted by hand, even when supported by mechanical equipment. As a result, the Federal Reserve and various banking organizations joined together to work to standardize and automate the check collection process.

In 1954, the American Bankers Association established a subcommittee to work with all parties, including the Federal Reserve, large and small banks, check printers, and business and consumer interests, to find a way to make checks machine-readable. After studying all the available technologies, with the assistance of the Stanford Research Institute, in 1956 the subcommittee chose MICR for preprinting routing numbers and account numbers on all checks and for subsequently encoding the dollar amount on checks sent for collection. This was the preferred technology, based on such criteria as consumer acceptance, the ability of clerks to verify information, and the cost to printers and the banking industry. The next task was to develop equipment that could automate check sorting and processing of checks with this type of imprinting.

When the ABA Technical Subcommittee talked to possible manufacturers of check automation equipment, it determined that 13 firms might have the potential for building and servicing this specialized type of equipment. To provide operational and financial support for this key initiative, the Federal Reserve worked with and partially subsidized five firms that submitted acceptable proposals: the Burroughs Corporation, IBM, National Data Processing Corporation, the National Cash Register Company, and Ferranti-Packard. The latter two firms assembled systems using their own computers and check sorters made by Pitney Bowes. Five Reserve Banks — Boston, New York, Philadelphia, Chicago, and San Francisco — participated.

Each experimented with the equipment from one of these companies, and each worked with its local banks to encourage their use of the new MICR standard on the new checks they issued to their customers, so that the equipment could be tested with actual checks.

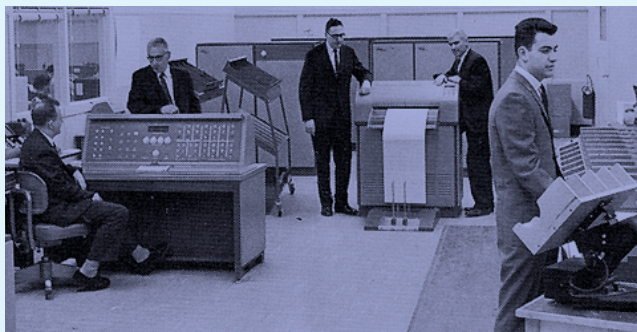
The Reserve Banks paid the full lease cost for the equipment they tested, even though the equipment was constantly being adjusted and modified. Thus, the Federal Reserve provided a financial incentive for the five manufacturers to participate. In addition, the Reserve Banks devoted staff time and used portions of their daily incoming check volumes to help the manufacturers to test their new equipment. The Banks hoped that, in the long run,

multiple firms would succeed. This would encourage competition among manufacturers and help create a network with common standards, benefiting all banks.

The Reserve Banks started this testing in 1960, and experienced the sorts of growing pains that often accompany the introduction of new technology. The Federal Reserve Bank of Boston's original building, opened in 1922, did not have elevators or stairways wide enough to accommodate a computer or a check-sorter, so the Bank took out windows on the third floor and lifted them in with a crane. Sometimes the checks passed through the sorter faster than the sorter could catch them, and flew around the room. Bank and vendor staff alike spent more than a few unplanned nights in the Bank nursing the computer-age technology along.

From these struggles came success. By 1965, most Reserve Banks and branches were running high-speed check sorting equipment supplied by Burroughs and IBM. Other manufacturers that participated in the Reserve Bank tests developed lower-speed equipment that many smaller commercial banks adopted. And as the technology progressed, most banks adopted the MICR standard and used it on their checks. In 1967, the Reserve Banks supported the banking industry further by announcing that checks without MICR would not be accepted for normal collection. This measure helped to put the critical standard "over the top".

One of the first automated check processing systems installed by the Federal Reserve Bank of Boston in the early 1960's.



Today U.S. consumers and businesses have several electronic payment choices available, with more on the horizon. Nevertheless, the paper check still dominates retail payments. As we try to accelerate the growth of electronics, it is useful to look back at the development of America's first electronic retail payment mechanism: the Automated Clearing House, or ACH. The banking industry and the Federal Reserve collaborated over a lengthy period to establish and expand the ACH.

In response to rapidly growing check volumes during the 1960's, and emerging computer technology, banking industry leaders sought to develop an electronic system to displace some of these paper checks. The ACH was conceived of as "the electronic check." Essentially, an electronic ACH record would carry the same payment information carried by the paper check document, and banks would send and receive these electronic records in much the same way as they exchanged checks among themselves.

As bankers developed the concept in more detail, they identified the need for regional entities to serve as clearing houses, or "switches," to enable the efficient interchange of electronic ACH records among large numbers of banking entities. Another need was a means to deliver these payments, mostly on magnetic tapes, since banks did not have systems to originate or receive these transactions electronically.

In this era U.S. businesses and consumers had little experience with electronic payments and little

incentive to change their ways of originating payments. Commercial ACH volumes during the 1970's were very low and did not justify significant investments.

The New York Clearing House provided ACH services in its region, and continues to do so today. The Chicago Clearing House provided these services for a time. In many areas of the country, the bankers who had organized regional ACH associations began to ask their local Reserve Banks for support. At the national level, the Federal Reserve Board, and Governor George Mitchell in particular, saw that the Reserve Banks, with their network for presenting checks to all U.S. banks, might be particularly well positioned to help this nascent electronic payments mechanism to develop. Federal Reserve support for the ACH also was fostered by the United States Treasury, which, earlier than most businesses, embraced the electronic ACH as a potentially more efficient mechanism for many of the government's payments.

The Reserve Banks helped the banking industry to implement its idea for an electronic retail payment system. This support included computer processing and delivery of these "electronic" payments on tapes over the road, often on the same trucks used to deliver paper checks. Some of the payments destined for smaller banks actually had to be printed onto paper by Federal Reserve offices and delivered in paper form! During the first decade or more of life for the ACH, it might not have survived without the support of the Federal Reserve,

which had a mission to act in the public interest and support an innovation such as the ACH, with a poor short-term business case but the potential to improve the overall payments system in the longer run.

When the Monetary Control Act of 1980 (MCA) required that the Federal Reserve price its payments services, volumes still had not grown to a level at which full-cost pricing might not stunt the growth of the ACH. Accordingly, the Board of Governors determined, as allowed by the MCA, that it would serve the public interest for the Federal Reserve to subsidize its ACH services and phase in pricing over a multiyear period, which ended in 1985.

During the late 1980's and the 1990's, ACH volumes grew at impressive rates, frequently 20 percent or more annually, and they have continued to increase at double-digit rates. Banks now send and receive ACH payments via electronic transmission, with even the smallest institutions participating electronically, either directly or through correspondent banks or service bureaus.

Additional private-sector service providers have entered the ACH processing business and compete with the Reserve Banks. About one-half of U.S. workers now receive their wages and salaries through ACH "direct deposit." Only a small percentage of consumer and business bill payments are made via ACH, but many businesses and utilities just began to offer this service during the past five years or so. And the ACH may provide the "infrastructure" to support emerging Internet payment services.



The New England Automated Clearing House Association (NEACH) and the Federal Reserve Bank of Boston work together to promote greater use of electronic payments. Shown here are, left to right, Steve Whitney, Senior Vice President, Paul Connolly, First Vice President, Michael Lenihan, Senior Vice President of State Street Bank, Harry Carlsson, President and CEO of NEACH, and Sally Green, Executive Vice President.

1913

- collaboration
- efficiency
- innovation
- development



*funds
availability
act of 1987*

From its earliest days, the Federal Reserve System has had improvement of the payments system as part of its mission.

FRB



The Reserve Banks believe so and are undertaking aggressive initiatives consistent with their mission in the payments system. **To foster the integrity, efficiency, and accessibility of the U.S. dollar payments and settlement systems in support of U.S. financial stability and economic growth in a global context.** The Reserve Banks' plans focus on four areas:

- extensive collaboration with the various stakeholders in the payments system to move towards a more electronic system;
- aggressive pursuit of efficiency improvements;
- innovative application of new technologies to provide easy, secure access to new payments products and services; and
- development of plans for the next generation of payments services.

The initiatives underway and planned by Reserve Banks over the next several years are described below in each of these four areas. First, it is useful to look briefly at why and how the Federal Reserve is involved in the retail payments system.

RESERVE BANKS AND PAYMENTS SYSTEM CHANGE

Why should the Federal Reserve System, the nation's central bank, play a role in the collection of small-value payments? Clearly it has a role, as do most other central banks, in regulating the payments system and in facilitating in one way or another the large-value payments through which the vast majority of the nation's daily financial values are transferred. However, few other central banks in developed countries play any "hands-on" role in retail payments — and certainly none is as centrally involved as the Federal Reserve. Part of the answer lies in the background to the formation of the Federal Reserve System.

When the Congress created the System in 1913, more than 25,000 independently chartered banks were operating in the United States, with each bank's operations essentially confined to a single state. About 40 percent of these banks were "non-par" institutions, which meant that they imposed an "exchange charge" on the payment for each check submitted to them for collection by banks outside their local trading area, effectively making the check worth less than its face value.

To avoid these charges, collecting banks generally tried to send each non-par check to a correspondent bank that had a reciprocal check-clearing arrangement with the institution on which the check was drawn. The practical result, unfortunately, was substantial circuitous routing of checks, which added time and confusion to the check collection process.

Congress was aware of the banking industry's failed check collection system and this was one of the reasons for the Federal Reserve Act. The Act, among other things, authorized the Reserve Banks to establish a national check collection operation, in effect making the Federal Reserve System — the nation's central bank — its first interstate banking network. From its earliest days, therefore, the Federal Reserve has had improvement of the payments system as part of its mission.

The Board of Governors of the Federal Reserve System has regulatory authority, delegated by Congress, to protect and enhance the payments system through regulations which have the effect of law. The Board also oversees the activities of the 12 Federal Reserve Banks which provide payment services to depository institutions.

In the 88 years since the Federal Reserve System was formed, commercial banks and other depository institutions developed their own networks to

collect checks. Still, the Reserve Banks collectively remain the largest processor of checks and retail electronic ACH transfers. It can be argued that this involvement ought to be transferred to the private sector; that it is not inherently a central bank role, nor should it be. Despite the logic of such an argument, private sector payments system participants, and Congress, have several times demonstrated their desire to have Reserve Banks retain their key role. The reasons for this are several.

- The U.S. banking system is far more fragmented than that of other developed countries. Thousands of small and medium-sized local and regional banks and depository institutions compete with each other, and with very large interstate banks. Both big and small banks choose to use Reserve Bank services; Reserve Banks are seen as "trusted intermediaries" for such purposes. Indeed, when asked by a Committee formed in the 1990's to look at Reserve Bank involvement in the retail payments system (The "Rivlin Committee"), even the Reserve Banks' biggest competitors in the check business did not want to see the Banks exit that business.
- Under the terms of the Monetary Control Act of 1980, Reserve Banks must price their payment services to cover the cost of those services, including mark-ups to recover imputed private sector costs and profits. This requirement assures other payment service providers and Congress that Reserve Banks are not using their central bank powers for competitive advantage. Fair competition drives efficiency, and the Reserve Banks have sought continued improvements in efficiency, both in a processing sense, and in the sense of improving the public's quick access to final funds. Congress made quick

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It may seem unusual for the nation's central bank to have a major role in the operation of the national check collection system, but this has been a Reserve Bank function since Congress created the Federal Reserve System in 1913. It is even more unusual for the central bank to compete with commercial banks in the provision of payment services. Here again, Congress enacted the Monetary Control Act of 1980 (MCA) with the intention of stimulating this competition and fostering efficiencies and innovations engendered by competition.

The MCA required the Reserve Banks to charge fees for the payment services it had been providing at no charge to banks that were members of the Reserve System. The Act also required that these services be offered to all banks, thrift institutions, and credit unions, most of which had been the customers of the large correspondent banks that were Reserve System members. Suddenly the Federal Reserve was sending bills to its members and competing with its own largest customers.

The MCA required the Reserve Banks to learn how to be effective service providers in a competitive marketplace. They had much to

learn about how to price payment services. In addition, they had to broaden their focus from a purely operational one to that of a market player needing to attract and retain customers.

Despite almost 70 years of experience in collecting checks nationwide, the Federal Reserve knew relatively little about the nuances of the check business. When pricing of check collection services began in the fall of 1981, the Reserve Banks adopted a relatively simple approach, with per-item, average-cost pricing. This approach lent itself to "skimming," whereby banks deposited with the Reserve Banks only checks that were costly to collect, using newly emerged, private clearing alternatives for the rest. The Reserve Banks' check volumes declined, and with the considerable fixed costs the Reserve Banks incurred handling checks, revenues proved inadequate to recover all costs.

Within their first year of experience with check pricing, the Reserve Banks moved to a more flexible pricing system. They introduced a more complex array of fixed and variable fees that reflected not just the overall costs of check collection but also the relative demand for particular check services. The Reserve Banks have tried to strike a balance

between precision and simplicity in their prices but over time they have brought more complexity, as well as more choices for their customers, into their pricing approaches, to reflect real economic differences and to maintain competitiveness.

Regarding depository institutions as "customers" was new for the Federal Reserve in the early 1980s. Prior to the MCA, the Reserve Banks felt little pressure to respond to market preferences. Internal efficiency and cost control generally were higher priorities than product innovation and responsiveness to market demand. However, the need to compete fostered a new culture of "customer focus" and a greater service orientation.

The Federal Reserve not only survived as a provider but exceeded the full-cost-recovery requirement in 1984, the first full year in which it sought to recover all costs related to its check service. Since then, the Federal Reserve has recovered its costs with revenues, developed many new check products, implemented more efficient operations, and used its role in check collection to promote a more electronic system.

In the years since the enactment of the MCA, the Federal Reserve Banks have learned how to focus on the marketplace and become responsive service providers, using the internet and other innovations to do so.



Maybe you have noticed on the reverse side of each check that you write some lines that divide the space into sections; or some instructions to the recipient to endorse the check in a particular area; or even a reference to “Federal Reserve Regulation CC.” These features of your checks support the “endorsement standard” that helps to return “bounced” checks as quickly as possible to those who need to know that checks they accepted have bounced.

In 1987, Congress responded to years of complaints from consumers about the “hold times” applied to the checks they deposited by passing the Expedited Funds Availability Act, or EFA. This Act had three major provisions. First, it specified the maximum hold periods that depository institutions could impose on most checks deposited by consumers. Second, it prescribed specific requirements for disclosure of check hold policies and notice to customers about hold periods under a variety of circumstances. Third, the Act granted new regulatory authority to the Federal Reserve, extending that authority to the collection process for all checks, not just those collected through the Reserve Banks, as had been the case prior to the EFA. Now the Board of Governors had authority, for instance, to require a bank to return a dishonored check to the depositor’s institution, known as the “bank of first deposit,” within specified times, to accelerate the return process; this requirement

reduced the exposure of the bank of first deposit to loss when that bank made funds available as required by the EFA without knowing whether or when the check might be returned.

The Board also used its new regulatory authority to propose and adopt an essential new standard that had proven difficult for the banking industry to achieve through other means. To accelerate the check return process, all participants in the check system needed a ready means to identify the bank of first deposit. To support this requirement, all depository institutions needed to follow standard practices in applying their endorsements on the reverse side of checks. As a bank of first deposit, each institution needed to identify itself clearly and conspicuously. A bank handling a check received from a bank of first deposit — for instance, a correspondent bank collecting the check on behalf of the bank of first deposit — would have to apply its endorsement in a different format and in a different area of the check, so as not to obscure the endorsement of any other bank. Even the consumer depositing the check for collection would have to endorse the check within a specified space.

The endorsement standard in place prior to the enactment of the EFA had proved inadequate to support the clear identification of each bank involved in the collection of a check. The banking industry, through the American National Standards Institute, or ANSI, had been at work during

the 1980’s on a more comprehensive standard. While the banks, equipment manufacturers, and check printers had made progress, they had not been able to agree on an adequate new standard, in part because of the competitive concerns of particular firms. To support the EFA, the Federal Reserve took all that had been accomplished with ANSI and added the features needed for an effective standard. After public comment, the new endorsement standard, promulgated by the Board, was widely adopted and has contributed significantly to the acceleration of the check return process.

Another very important Federal Reserve response to the EFA was the introduction of new Reserve Bank services to accelerate the return of checks. In effect, the Reserve Banks offered a “safe harbor” for institutions seeking a means to comply with the new requirements. As with the collection of checks, no U.S. depository institution was required to use Reserve Bank services. They could choose to do so, or to use other means. Since the implementation of the EFA, new private check return services and clearing arrangements have evolved. During the first few years after EFA, however, and to an appreciable extent even today, the readiness of the Federal Reserve to complement its regulatory requirements with enabling services has been essential to the successful implementation of the intentions of the Congress.



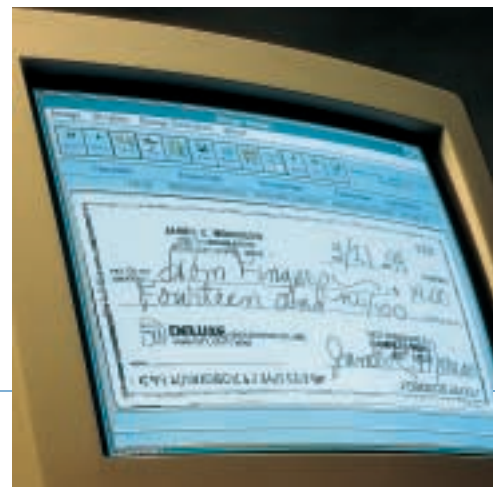
While only about 1 out of every 100 checks bounces, the check return process is slow and costly.

point of sale



**Important innovations
in retail payments
have been brought
about with Reserve
Bank and private
sector collaboration.**

ATM Networks



access a role of the Federal Reserve under the Expedited Funds Availability Act of 1987.

- Finally, because they play such a large role in the retail payments system, Reserve Banks have often been involved in improving that system in collaboration with other key stakeholders. Automated check clearing, the development of the ACH, digitized check image processing, just to name a few important innovations, all were brought about with Reserve Bank and private sector collaboration. The “sidebar stories” accompanying this essay describe some of these important past payments system improvements, and illustrate that the Federal Reserve has played a variety of leadership roles.

Thus, the Federal Reserve through the Reserve Banks provides the benefits of trusted intermediation, competitive focus, and collaborative enhancement to a large and fragmented U.S. retail payment process. Arguably, this is a “public good” and appropriate as a central bank function. Certainly, Reserve Banks play an accepted and valued role in the retail payments system — a role that now must be focused on the changes needed in the future.

COLLABORATION TO MOVE TO A MORE ELECTRONIC PAYMENTS SYSTEM

For what variety of purposes do consumers and corporations use checks, and what electronic substitutes might serve those purposes as effectively or more effectively?

The Federal Reserve is undertaking a research effort to develop more information to help the banking industry and others to address these questions. Research that the Reserve Banks completed in 1998, focused more specifically on consumer, corporate, and financial institution perceptions about electronic ACH direct deposit and direct payment alternatives, clearly indicates that broad-based education about electronic payments is needed.

The ACH has grown, with essential Federal Reserve support, into an important electronic alternative to the check (see “America’s First Electronic Retail Payment Choice”). About 50 percent of U.S. workers are paid through electronic deposit into their bank accounts. However, some employers still do not even offer direct deposit as an option. Also, many consumers perceive electronic payments to be less convenient and more risky than check payments, whereas often the opposite is true. To address these issues, the Reserve Banks, working with the National Automated Clearinghouse Association (NACHA), are pursuing education and marketing campaigns to engage corporations and financial institutions in the promotion of electronic payments, particularly for payroll deposit and for recurring household payments such as utility bills. Consumers can gain the convenience of automatic receipt of their pay and automatic bill payments, and the utilities and other corporations can save the costs associated with handling the paper checks.

While paper checks dominate U.S. retail payments, the U.S. Treasury has led a highly successful program to use electronics for the government’s payments. The Treasury has succeeded in converting more than 97 percent of government salary and allotment payments to direct deposit, while approximately 73 percent of all disbursements are made by electronic means. Furthermore, the Social Security Administration, working with the U.S. Treasury and the Reserve Banks, has advocated the use of ACH direct deposit for social security payments, and about three quarters of recipients now are paid that way. This success belies arguments that only the younger generations will accept electronic payments as substitutes for checks.

At the Federal Reserve Bank of Boston, 92 percent of employees receive their pay through direct

deposit. Over 95 percent of the Bank’s bills are paid electronically through the ACH. These experiences demonstrate that with education and focused campaigns, payroll checks and vendor payments can be replaced with electronic payments.

Substitutes also are beginning to appear for checks written for purchases at retail stores. A number of pilot programs allow a consumer’s check to be “swiped” through a device at the point of sale which reads the information on the check and then initiates an electronic payment, through the ACH or ATM networks, with authorization by the consumer. In collaboration with the U.S. Treasury, the Reserve Banks are providing for a similar type of conversion of paper to electronics for payments made to certain government agencies.

This concept of stopping the flow of paper at some point in the collection process and forwarding the information from the check electronically to complete the payment also can be applied to checks that have entered the bank collection stream. This is called “electronic check presentment,” or ECP. In June, 2000, the Federal Reserve Bank of Boston hosted a symposium with banking industry and Federal Reserve participants to identify collaborative actions they could take to move ECP forward. The participants agreed to work together on potential legal changes to reduce barriers to ECP; develop needed technical standards; explore opportunities to test ECP concepts, costs, and benefits; and prepare educational materials to provide more information about ECP to depository institutions and the public.

AGGRESSIVE PURSUIT OF EFFICIENCY IMPROVEMENTS

In their operations to support electronic and check payment processing, the Reserve Banks have launched major initiatives to increase efficiency. The Banks will

ECP



Technological changes will affect consumer, business, and bank expectations about payment product and service delivery.

smart card

eft



reduce internal costs and contribute to greater efficiencies in the overall payments system. It may seem contradictory to be advocating a more electronic retail payments system and at the same time be making check collection more efficient. However, by any reasonable expectation the U.S. will have tens of billions of checks to collect for years to come, and reducing the resources needed to collect them will save money for consumers and businesses. By contrast, a less efficient check system, with slower collection and return times and higher levels of float, could provide more incentive for some users of checks to resist more efficient electronic alternatives, and even increase opportunities for check fraud.

The Reserve Banks have achieved significant scale economies through consolidation of processing of electronic payments. Over the past five years, centralized software and consolidated processing have resulted in reductions in the price of ACH transactions from 1.6¢ to as low as 0.045¢.

The Reserve Banks now are undertaking one of the most ambitious ventures in their history, the standardization of check processing platforms across 45 offices nationwide. This program will require significant capital investment and retraining of 5,000 check staff. However, this important effort will improve operational efficiency and bring new efficiencies to the payments system by enabling Reserve Banks to bring innovations to market more quickly and reduce the costs of delivering check services nationwide.

In another major check processing improvement, the Reserve Banks will leverage the knowledge acquired from lengthy research and testing of the application of digitized image capture technology to check processing (see "Development of Check Image Technology"). Today,

images, or "electronic pictures" of all government checks are captured at Reserve Banks, and the U.S. Treasury handles the accounting and research related to these checks electronically. Building on this experience, the Reserve Banks will implement a national check image archive during the next two years to support commercial check services. Use of Reserve Bank image services will allow commercial banks to provide corporate customers with more information faster, facilitating daily investment decisions and check fraud detection. Growing consumer acceptance of image or other forms of "checkless" account statements, coupled with increasing corporate reliance on check images, will enhance the industry's ability to stop the flow of the paper earlier in the collection process. Image services also can help many smaller banks to re-engineer their operations and reduce their paper processing.

Taken together, standardization initiatives and investments in new technological "infrastructure" will support banking industry efforts to reduce the costly infrastructure required to support current retail payment processes.

INNOVATIVE APPLICATION OF NEW TECHNOLOGIES TO MEET THE NEEDS OF A CHANGING MARKETPLACE

Recent technological changes — advances in networking technologies, the Internet, more rapid application development tools, and the ability to provide simpler user interfaces — are affecting consumer, business, and bank expectations about product and service delivery. Banks initiate and receive electronic payments and information and perform a variety of other transactions through more than 12,000 electronic connections with the Reserve Banks. During the next few years, all of these connections will be replaced with new forms of connections that rely on state-

of-the-art technologies. The largest commercial banks will use a new network that will meet their needs for increased speed and capacity. For the medium-sized and smaller financial institutions, the Reserve Banks will provide two new platforms that will offer more flexibility, value-added information, and easier access to Reserve Bank services. One platform will use a Windows operating system and the other will be based on web technology.

Eventually, the Reserve Banks plan to provide access to all payments services over the Internet. However, today's technology does not provide for secure delivery of billions of dollars of payments using the Internet. A challenge for the Banks will be to work with the industry and technology providers to develop and implement new security methods that will ensure the safety and security of the payments made by consumers and businesses.

Chip technology will offer new forms of payment choices for the public. In support of the U.S. Treasury and the Department of Defense, the Reserve Banks have provided military personnel in Bosnia with stored-value cards, or "smart cards". These cards are used as a substitute for cash and checks. Value can be added to the balances stored on the cards electronically, at an ATM-type terminal, and the value can then be transferred to merchants for the purchase of goods and services. Use of these cards has allowed the Department of Defense to reduce the amount of cash and check handling at the six military bases in Bosnia and at one base in the U.S., with expanded use of the cards planned. The Reserve Banks will seek to apply experience from this project to collaborative efforts on the broader payments system.

The Federal Reserve is pursuing multiple paths to ensure that the benefits of check image technology will be realized. The Board

of Governors staff is working with financial institutions, consumers, and other payments system stakeholders to draft legislation that could provide a legal framework for the use of images of checks in lieu of the paper checks. If adopted by Congress, this legislation could facilitate the growth of electronic check presentment. Simultaneously, the Reserve Banks are pursuing pilots, such as a project in the State of Montana, to test and determine the costs and benefits of a fully image-enabled electronic check collection system.

The use of check images also could improve the process for returning “bounced” checks. This “return item” process always has been the slowest, costliest, and most risky dimension of the check collection system. While the process has been improved in recent years (see “Making Bad Checks Bounce Back Faster”), the time required to collect and then return a check still delays the availability of funds to consumers and increases check fraud losses for retailers. The Reserve Banks have been working with large and small banks to improve the check return process through innovative application of digital image technology. Collaborative tests of this new check return system will be another critical step in the evolution towards a more electronic payments process that will provide significant benefits to consumers and businesses.

DEVELOPMENT OF THE NEXT GENERATION OF PAYMENTS SERVICES

The technological advances noted above are changing the payments landscape. More payment options will be available to consumers, as evidenced by the proliferation of bill presentment and payment alternatives on the Internet. Electronic commerce alternatives for corporations also are burgeoning, with the development of on-line auctions and various

forms of marketplaces on the web. However, behind these new alternatives reside the traditional ACH, and even check payment processes. Roughly half of the payments initiated through bill presentment and payment services on the Internet actually are completed by forwarding a check to the biller. The ACH often is used as a reliable, low-cost means to collect and settle the payments once the instructions for payment are provided through various forms of on-line consumer and corporate services. A key question is whether it is preferable to enhance the ACH and other established mechanisms to support such new ways of making payments, or whether new mechanisms could bring even greater levels of efficiency, integrity and accessibility.

Simultaneously, the Reserve Banks will be addressing with others the critical success factors to accelerate the migration toward electronic payments. One example is standards. With rapid and widespread innovation comes fragmentation. The development of payments system standards to allow diverse systems to interface seamlessly with each other will be critical. For instance, consumers may not want to have to go to multiple sites on the Internet to pay their bills because the bills from different corporations cannot be presented in a standard format with standard options for payment in one location. Providing support for the development and adoption of standards that can improve the retail payments system is a leadership role the Reserve Banks have played in the past and can play in the future to facilitate progress toward a more electronic system.

Standards also must take into account the increasingly global nature of the payments environment. As a provider of payments services, the Reserve Banks are developing products, such as cross-border ACH services, to

meet consumer, corporate, and governmental needs to send and receive payments internationally. Emphasis also will be placed on the development and implementation of systems and standards that will mitigate risks in the collection and settlement of international payments.

CONCLUSION

The U.S. retail payments system will become decidedly different during the next several years. Research and pilot initiatives will have identified and begun to resolve consumer, corporate, and financial industry barriers to the use of existing and emerging forms of electronic payments. Product development and promotional efforts will increase awareness and acceptance of electronic means of payment. Although cash and checks will continue to be the primary methods of payment for smaller value transactions, more users of the payments system will make use of electronic payment methods. For payments initiated by checks, the collection process will be largely electronic, and users will be accepting of alternatives to the return of paper checks. While this may seem evolutionary, the impact will be revolutionary for payments system infrastructure, among the Reserve Banks and in the private sector.

Perhaps the most daunting challenge in the midst of all of this change will be the successful integration of the constant advances in technology to meet the changing demands of consumers, businesses, financial institutions, and the Treasury. Responding to this challenge will require the concerted attention of the Federal Reserve System, the banking industry, and other stakeholders, working together to achieve significant gains in payments system efficiency, integrity and accessibility, and to lay the groundwork for the U.S. retail payments system of the future.

Some consumers receive from their banks “image statements”, or pictures of the checks they have written, instead of an envelope full of cancelled checks. This is one example of how image technology can help to make the U.S. check collection system more electronic. The Federal Reserve Bank of Boston has played a major role in the development of this technology since 1984.

Digitized images are electronic pictures. Essentially, image technology converts paper documents into computer-readable form — into bits — so that users can handle the documents electronically, look at them on computer monitors, transmit them electronically from place to place, and handle them as they handle all other electronic data. Even in the early 1980’s, the technology was not new. Conceptually it offered promise to improve efficiency in the check collection system, which depended entirely upon the repetitive handling, processing, and transportation of the physical paper document for the transfer of value between check-writer and recipient. However, while the concept had been discussed for some time, actual application of image technology to check processing was quite limited in 1984. Technology to capture high-quality images of checks, both front and back sides, at high speeds, and to store and retrieve those images, had not been developed. Therefore, most of the potential for the application of this technology to the check system had not been explored.

Virtually all banks and many corporations relied upon microfilm to keep permanent records of

the checks paid against their accounts or the accounts of their customers. The U.S. Treasury’s Financial Management Service (FMS) maintained microfilm records of U.S. government checks, which accumulated at a rate of more than 600 million annually. When these government checks entered the banking system for payment, banks deposited them with their local Reserve Banks, which paid the checks, produced microfilm copies, and sent the microfilm to the FMS. The delays in the microfilming process, the persistent quality problems with microfilm images of checks, which passed through high-speed sorters at rates of 30 to 40 per second, and the labor-intensive processes needed whenever the FMS had to retrieve a microfilm copy on behalf of a federal agency or a member of the public, all gave the FMS impetus to seek a “better mousetrap” — specifically, to find out whether digital image technology could improve upon this microfilm-based system.

The perceived high costs of conducting basic research into the applicability of image technology to check processing and the uncertainty about that applicability had discouraged commercial banks and check equipment manufacturers from pursuing the technology. The Federal Reserve saw both the specific business need of the Treasury and the potential of image technology to make the payments system less paper-bound in the long run. Near the end of 1984 the Federal Reserve Bank of Boston, on behalf of all Reserve Banks, reached agreement with the FMS to pursue a research and development program focused on

image technology and the government check application.

The Reserve Banks and the FMS worked through the remainder of the 1980’s and much of the 1990’s on this program, using competitive procurement to engage the best thinking and specific proposals from multiple hardware and software vendors in a multiphased progression from basic research toward the specific application. At one early stage of the research, an equipment manufacturer simulated high-speed check image capture by taping one check to a cylinder, spinning the cylinder so that the check passed a particular point 40 or more times per second, and taking a digital photograph of the check with a freestanding camera. The required research was at that basic a level!

Finally, in 1998, a nationwide government check image capture, storage, and retrieval system went into full production, and it remains in production today. Image has proved to be the better mousetrap to serve the FMS and its constituents. Just as important, as the Federal Reserve’s research program progressed and demonstrated that high-speed, high-quality image capture was feasible, equipment manufacturers and large banks moved ahead with numerous applications for the technology. The Reserve Banks now also deploy image technology to provide a variety of value-added features in their commercial check collection services for U.S. depository institutions. Looking ahead, image technology is expected to play an essential supporting role in the implementation of a substantially more electronic check collection system.



*National Faith-Based
Community Economic
Development Conference*

United Way Road Race



2000 Fed Challenge Regional Champions



2000 College Interns



Massachusetts Coalition for the Homeless Children's Holiday Party



2000 Community Care Day



2000 Community Care Day





Fed Chairman Alan Greenspan addresses Federal Reserve Bank of Boston employees

The Federal Reserve Bank of Boston is an integral part of the Federal Reserve System, our Nation's central bank. The principal responsibilities of this Bank, along with the 11 other regional Reserve Banks, fall into three major categories: economic research and monetary policy, the supervision and regulation of banking organizations, and the provision of financial services to banking institutions. The Bank's undertakings and activities in these areas are carried out with the high degree of public purpose that is the hallmark of the Federal Reserve System. This section describes some of the Bank's achievements in each of these areas in 2000.

ECONOMIC RESEARCH AND MONETARY POLICY

The Bank's economic research and monetary policy area supports the President and board of directors in their monetary policymaking roles. It also produces innovative, policy-oriented economic research and tries to serve as a source of economic expertise to New England and the public more broadly.

For some years, the Bank has emphasized research on the links between financial institutions and economic activity. This orientation dates back to the New England "credit crunch" in the early 1990s, and it has evolved in ways that strongly complement the Bank's supervisory activities. Research projects in 2000 included analyses of the problems of

Japanese banks, an investigation of margin debt, and a review of some well-known failures in risk management. We also sponsored a conference on the progress that countries affected by the 1997-98 financial crises have made in restructuring the legal, accounting and supervisory systems that underpin their financial markets.

Another research thrust has been evaluating and improving models of monetary policy. This work has attracted considerable attention in the academic community and from central bankers in other countries, and in 2000 it generated numerous requests for our senior macro economist to share his insights in high profile settings. Perspectives on monetary policy have changed considerably over time. To honor Frank Morris, who was president of the Bank from 1968 to 1988 and who died last year, the Bank held a second conference at which many of Frank's former colleagues reflected on these changes in monetary policy thinking.

A noteworthy contribution to the New England region in 2000 was the extensive research support provided by one of the Bank's officers and his colleagues to a commission created by the Governor of New Hampshire to examine education funding alternatives. Research economists also participated in several public commissions focused on the quality of education in New England and provided important support to the Bank's economic education initiatives.

The communication of research results and economic information is an important component of the research area's responsibility. The Bank produces a number of publications, which are available on the Bank's website. Citations may also be found for research articles appearing in scholarly journals. Of particular interest to the New England public is the colorful and provocative *Regional Review*, which in 2000 included articles on such timely topics as child labor and how

companies manage their earnings. Economists also gave many presentations on the economy at venues throughout New England.

SUPERVISION AND REGULATION

The Supervision and Regulation Department oversees banks and bank holding companies in the New England area, and contributes to supervisory and regulatory policy formation. Supervisory activities are affected by economic conditions of the regional and national economies, and banks in New England continued to benefit from the strong regional economy. Banks in New England enjoyed record levels of profitability in 2000; banks remain quite well capitalized and non-performing loans remained quite low. Despite the strong performance of the region's banking industry in 2000, some signs of stress were appearing at the end of the year as asset quality showed some signs of deterioration. Bank supervision is watching this trend closely to determine if these emerging problems become more severe or widespread in 2001.

Regulatory policy also provided significant challenges for the department. The adoption of the Gramm-Leach-Bliley Act increased the Federal Reserve's responsibilities as an umbrella regulator. This Reserve Bank serves as the insurance "knowledge center" for the Federal Reserve System. In this capacity, Supervision and Regulation has established strong working relationships with state insurance regulators and members of the National Association of Insurance Commissioners, and is actively serving as a resource for Reserve Bank and Board regulatory staff.

The rapid growth of some of the District's largest and most complex banking organizations has required refocusing the Bank's supervisory efforts. Many large banks are expanding their activities abroad as well as in non-traditional banking products. Examiners need to interact with

foreign counterparts and have a better understanding of securities and equity markets. These new activities require hiring and training examination staff comfortable with a broader range of activities than in the past. Finally, as the year came to a close, revised draft international capital standards — the Basel Accord II — were being released for comment. The Bank expects that 2001 will require considerable focus on these new standards.

FINANCIAL SERVICES

Activities to improve and modernize the nation's payments system intensified at both the national and local levels last year. As a leader in the System's Financial Services Policy Committee (FSPC), the Bank spearheaded a restructuring of the Reserve Banks' national financial services management structure to strengthen support for the evolving needs of customers and the U.S. Treasury, and to establish focal points for e-business strategy and planning. The Financial Services Operations Council, also led by the Boston Bank, worked to advance the deployment of Reserve Bank financial services over open systems and networks.

In June the Bank hosted a one-day workshop on Electronic Check Presentment (ECP). ECP has the potential to bring important efficiencies to the current resource-intensive check collection process. This workshop convened key stakeholders from the financial services industry and the Federal Reserve to discuss existing barriers to ECP and to evaluate proposed action steps. Actions now underway include development of proposed legislation; adoption of standards; and deployment of an education program to encourage the use of check images and electronic presentment.

The Reserve Banks have embarked on a large multi-year project to modernize their check processing infrastructure which will increase efficiency, and to provide more responsive and

consistent services to financial institutions nationwide. The Boston Bank is playing a lead role in the planning, design, and implementation of a centralized commercial check image infrastructure. When completed, the national image archive system will replace incompatible image systems that are currently operating in 39 Reserve offices, and will provide a richer set of check image services that financial institutions can leverage for new services to both consumers and corporate customers. Additionally, the Bank is leading collaborative work with the industry to speed the return process for dishonored checks using check images, thereby reducing fraud and increasing efficiency.

The Bank also maintained a leadership role in the application of new electronic access technologies, committing a senior officer to the development of a high-security service that provides financial institutions with electronic access to Fed services. The pilot installation of this new access service, FedLine for Windows, is scheduled for the first half of 2001, and the national implementation is expected to start shortly thereafter.

The Boston Reserve Bank is proud of its long-standing partnership with the U.S. Treasury. The Treasury is consolidating processing and customer service for a number of services offered to the public, and has chosen the Boston, Dallas and Minneapolis Reserve Banks to provide services related to the sales and processing of Treasury notes, bills and bonds. During 2000 the Bank established a state-of-the-art call center for Treasury Direct services, and took leadership responsibility for the development and deployment of the technology that supports seamless customer service from all three sites for consumers across the U.S.

Locally, volume growth dominated our attention in both check and cash payment services. Check volume increased by 6 percent over the prior year and cash

volume by 13 percent. Quality initiatives and innovations are driving productivity improvements in both check and cash processing operations. In fact, cash services staff developed an innovative method for processing \$1 notes. The new process will maintain strong control, require only a slight modification of existing equipment, and provide significant cost savings for Boston and other Reserve Banks.

A "customer focus" attitude continues to permeate the operating and customer services areas. With the vast array of changes in the market and in our services, frequent and timely communication with our customers becomes ever more critical. The Bank is making use of traditional communication vehicles but increasingly is developing and relying on its financial services web-site for posting announcements and publications, providing interactive calculators and other helpful tools, and soliciting customer questions and comments.

PUBLIC & COMMUNITY AFFAIRS

Community Affairs works to foster better approaches to community development, and to ensure fair and impartial access to credit. Last year, Community Affairs focused on enhancing existing relationships and creating new ones with public and private agencies. A major initiative for the year was the three-day National Faith-Based Community Economic Development Conference, which the Bank co-sponsored. This program was held in Boston, and was attended by representatives of the Bank's 20 collaborative partners, community development specialists, religious leaders, financial institutions, and academics. The plenary and training sessions for this event drew over 600 people from around the country and the world.

Community Affairs also sponsored three community development finance courses, one
continued on page 24

in Boston, one in Manchester, New Hampshire, and one in Cromwell, Connecticut; and it conducted two Microenterprise Tools and Techniques seminars, held in Massachusetts and Maine. These are regular programs intended to advance the work of local development organizations and offer valuable technical assistance to community banks looking to finance affordable multi-family housing and small businesses.

Public Affairs is responsible for economic education and outreach. As part of a team involving other Bank departments, it created a publicly-accessible Internet-based learning tool that uses professional

sports to provide lessons in economics. Entitled *Peanuts & Crackerjacks*, this innovative educational program is aimed at students in grades 8 through 12, and is intended to help students understand basic economic concepts and use economics as a framework for understanding everyday life. The unit also created a pilot program, called ResearchNet, a collection of physical and digital materials on economic history for students and teachers.

Other ongoing economic education projects included the National Consumer Week Conference, where trainers, specialists, and consumer advocates made

presentations on identity fraud. With support from the Consumer Credit Counseling Service, the U.S. Postal Inspector's office, the Secret Service, and Visa, the Bank produced Identity Fraud, a video designed for use in credit counseling courses. The section also continued its annual economics competitions, the Fed Challenge, the Economics Challenge and LifeSmarts. Bank representatives presented programs on money, banking and the Federal Reserve to over 12,000 people in the District and they distributed over 85,000 publications, including three new issues of *The Ledger*, an economic education newsletter.

Summary of Operations

	2000		1999	
	Daily Average Volume Transactions	Daily Dollar Value of	Daily Average Volume Transactions	Daily Dollar Value of
Services to Depository Institutions				
Funds Transfer ¹	61,231 transfers	\$ 230.7 B	57,250 transfers	\$ 178.7 B
Automated Clearing House				
Commercial ACH Items Originated	896,556 items	\$ 1.6 B	813,671 items	\$ 1.5 B
Government ACH Items Originated	1,877 items	\$ 6.8 M	1,706 items	\$ 6.2 M
Cash Operations				
Total Notes Paid	8.2 M notes	\$123.6 M	8.4 M notes	\$122.6 M
Total Notes Received	9.6 M notes	\$132.1 M	10.2 M notes	\$155.7 M
High Speed Notes Processed	7.9 M notes	N/A	7.7M notes	N/A
Services to the U.S. Treasury 1				
Electronic Book Entry Securities	11,093 transfers	\$ 120.3 B	9,995 transfers	\$ 112.9 B
Commercial Check Processing				
Total Volume	4.3 M checks	\$ 3.8 B	4.0 M checks	\$ 3.4 B
Processed Volume	3.9 M checks	\$ 3.5 B	3.6 M checks	\$ 3.1 B
Fine Sort Volume	0.3 M checks	\$208.4 M	0.4 M checks	\$240.4 M
Processed Returns	42,176 checks	\$ 52.3 M	41,235 checks	\$ 48.3 M

¹ Includes work performed as a System consolidation site for processing off-site wholesale payments.

² In 2000 decreases in notes paid and received from other Reserve Banks and the Bureau of Engraving and Printing (BEP) offset volume growth in notes paid and received from depository institutions. The volume of notes received from the BEP in 1999 was extraordinarily large due to preparations for Y2K.



Edwin N. Clift



*Seated: Cathy E. Minehan, William C. Brainard.
Standing: William O. Taylor, Paul M. Connolly.*



Edward M. Dugger III



Orit Gadiesh



Robert R. Glauber



Terrence Murray



James J. Norton

William C. Brainard
(Chairman)
Professor of Economics
Yale University

William O. Taylor (Deputy
Chairman)
Chairman Emeritus
The Boston Globe

Edwin N. Clift
President and
Chief Executive Officer
Merrill Merchants Bank

Edward M. Dugger III
President and
Chief Executive Officer
UNC Partners, Inc.

Paul M. Ferguson
not pictured

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National Association of
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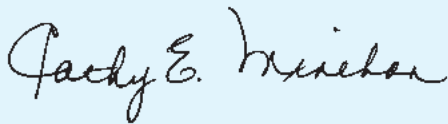
To: Board of Directors

The management of the Federal Reserve Bank of Boston (FRBB) is responsible for the preparation and fair presentation of the Statement of Financial Condition, Statement of Income, and Statement of Changes in Capital as of December 31, 2000 (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, and as such, include amounts, some of which are based on judgments and estimates of management.

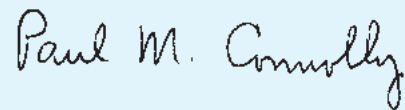
The management of the FRBB is responsible for maintaining an effective process of internal controls over financial reporting including the safeguarding of assets as they relate to the Financial Statements. Such internal controls are designed to provide reasonable assurance to management and to the Board of Directors regarding the preparation of reliable Financial Statements. This process of internal controls contains self-monitoring mechanisms, including, but not limited to, divisions of responsibility and a code of conduct. Once identified, any material deficiencies in the process of internal controls are reported to management, and appropriate corrective measures are implemented.

Even an effective process of internal controls, 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.

The management of the FRBB assessed its process of internal controls over financial reporting including the safeguarding of assets 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 (COSO). Based on this assessment, the management of the FRBB believes that the FRBB maintained an effective process of internal controls over financial reporting including the safeguarding of assets as they relate to the Financial Statements.



Cathy E. Minehan, President
February 26, 2001



Paul M. Connolly, First Vice President



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

We have examined management's assertion that the Federal Reserve Bank of Boston ("FRB of Boston") maintained effective internal control over financial reporting and the safeguarding of assets as they relate to the Financial Statements as of December 31, 2000, included in the accompanying Management's Assertion.

Our examination was made in accordance with standards established by the American Institute of Certified Public Accountants, and accordingly, included obtaining an understanding of the internal control over financial reporting, testing, and evaluating the design and operating effectiveness of the internal control, and such other procedures as we considered necessary in the circumstances. We believe that our examination provides a reasonable basis for our opinion.

Because of inherent limitations in any internal control, misstatements due to error or fraud may occur and not be detected. Also, projections of any evaluation of the internal control over financial reporting to future periods are subject to the risk that the internal control may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, management's assertion that the FRB of Boston maintained effective internal control over financial reporting and over the safeguarding of assets as they relate to the Financial Statements as of December 31, 2000, is fairly stated, in all material respects, based upon criteria described in "Internal Control – Integrated Framework" issued by the Committee of Sponsoring Organizations of the Treadway Commission.

A handwritten signature in black ink that reads "PricewaterhouseCoopers LLP".

March 2, 2001
Boston, Massachusetts



**To the Board of Governors of The Federal Reserve System and the
Board of Directors of The Federal Reserve Bank of Boston:**

We have audited the accompanying statements of condition of The Federal Reserve Bank of Boston (the "Bank") as of December 31, 2000 and 1999, and the related statements of income and changes in capital for the years then ended. These financial statements are the responsibility of the Bank's management. Our responsibility is to express an opinion on the financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. 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. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As discussed in Note 3, the 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" and constitute 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, 2000 and 1999, and results of its operations for the years then ended, on the basis of accounting described in Note 3.

A handwritten signature in black ink that reads "PricewaterhouseCoopers LLP". The signature is written in a cursive, flowing style.

March 2, 2001
Boston, Massachusetts

Statements of Condition

December 31, 2000 and 1999 <i>(In Millions)</i>	2000	1999
Assets		
Gold certificates	\$ 535	\$ 533
Special drawing rights certificates	115	307
Coin	46	4
Items in process of collection	473	383
Loans to depository institutions	1	91
U.S. government and federal agency securities, net	29,766	25,024
Investments denominated in foreign currencies	703	725
Accrued interest receivable	347	252
Interdistrict settlement account	2,782	9,921
Bank premises and equipment, net	117	118
Other assets	26	31
Total assets	\$34,911	\$37,389
 Liabilities and Capital		
Liabilities:		
Federal Reserve notes outstanding, net	\$31,891	\$34,765
Deposits:		
Depository institutions	1,645	1,545
Other deposits	2	3
Deferred credit items	522	400
Surplus transfer due U.S. Treasury	63	32
Accrued benefit cost	59	56
Other liabilities	13	12
Total liabilities	34,195	36,813
 Capital:		
Capital paid-in	358	288
Surplus	358	288
Total capital	716	576
Total liabilities and capital	\$34,911	\$37,389

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

Statements of Income

For the Years Ended December 31, 2000 and 1999 <i>(In Millions)</i>	2000	1999
Interest income:		
Interest on U.S. government and federal agency securities	\$1,757	\$1,436
Interest on foreign currencies	12	10
Interest on loans to depository institutions	1	1
Total interest income	1,770	1,447
Other operating income (loss):		
Income from services	47	44
Reimbursable services to government agencies	19	16
Foreign currency gains (losses), net	(63)	(22)
U.S. government securities gains (losses), net	(5)	(1)
Other income	12	11
Total other operating income	10	48
Operating expenses:		
Salaries and other benefits	86	81
Occupancy expense	13	13
Equipment expense	13	12
Assessments by Board of Governors	34	36
Other expenses	46	39
Total operating expenses	192	181
Net income prior to distribution	\$1,588	\$1,314
Distribution of net income:		
Dividends paid to member banks	\$ 19	\$ 17
Transferred to surplus	238	21
Payments to U.S. Treasury as interest on Federal Reserve notes	1,331	1,276
Total distribution	\$1,588	\$1,314

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

Statements of Changes in Capital

For the Years Ended December 31, 2000 and 1999 <i>(In Millions)</i>	Capital paid-in	Surplus	Total Capital
Balance at January 1, 1999 (5.3 million shares)	\$267	\$267	\$534
Net income transferred to (from) surplus		21	21
Net change in capital stock issued (0.4 million shares)	<u>21</u>	<u>—</u>	<u>21</u>
Balance at December 31, 1999 (5.7 million shares)	288	288	576
Net income transferred to (from) surplus		238	238
Surplus transfer to the U.S. Treasury		(168)	(168)
Net change in capital stock issued (1.4 million shares)	<u>70</u>	<u>—</u>	<u>70</u>
Balance at December 31, 2000 (7.1 million shares)	<u>\$358</u>	<u>\$358</u>	<u>\$716</u>

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

1. ORGANIZATION

The Federal Reserve Bank of Boston (“Bank”) is part of the Federal Reserve System (“System”) created by Congress under the Federal Reserve Act of 1913 (“Federal Reserve Act”) which established the central bank of the United States. The System consists of the Board of Governors of the Federal Reserve System (“Board of Governors”) and twelve Federal Reserve Banks (“Reserve Banks”). The Reserve Banks are chartered by the federal government and possess a unique set of governmental, corporate, and central bank characteristics. Other major elements of the System are the Federal Open Market Committee (“FOMC”) and the Federal Advisory Council. 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.

Structure

The Bank serves the First Federal Reserve District, which includes Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and a portion of Connecticut. In accordance with the Federal Reserve Act, supervision and control of the Bank is exercised by a Board of Directors. Banks that are members of the System include all national banks and any state chartered bank that applies and is approved for membership in the System.

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, and six directors are elected by member banks. Of the six elected by member banks, three represent the public and three represent member banks. 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.

2. OPERATIONS AND SERVICES

The System performs a variety of services and operations. Functions include: formulating and conducting monetary policy; participating actively in the payments mechanism, including large-dollar transfers of funds, automated clearinghouse operations and check processing; distribution of coin and currency; fiscal agency functions for the U.S. Treasury and certain federal agencies; serving as the federal government’s bank; providing short-term loans to depository institutions; serving the consumer and the community by providing educational materials and information regarding consumer laws; supervising bank holding companies, and state member banks; and administering other regulations of the Board of Governors. The Board of Governors’ operating costs are funded through assessments on the Reserve Banks.

The FOMC establishes policy regarding open market operations, oversees these operations, and issues authorizations and directives to the FRBNY for its execution of transactions. Authorized transaction types include direct purchase and sale of securities, matched sale-purchase transactions, the purchase of securities under agreements to resell, and the lending of U.S. government securities. The FRBNY is also authorized by the FOMC to hold balances of and to execute spot and forward foreign exchange and securities contracts in nine foreign currencies, maintain reciprocal currency arrangements (“F/X swaps”) with various central banks, and “warehouse” foreign currencies for the U.S. Treasury and Exchange Stabilization Fund (“ESF”) through the Reserve Banks.

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 the Financial Accounting Standards Board. The Board of Governors has developed specialized accounting principles and practices that it believes are appropriate for the significantly different nature and function of a central bank as compared to 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 Reserve Banks are required to adopt and apply accounting policies and practices that are consistent with the Financial Accounting Manual.

The financial statements have been prepared in accordance with the Financial Accounting Manual. Differences exist between the accounting principles and practices of the System and generally accepted accounting principles (“GAAP”). The primary differences are the presentation of all security holdings at amortized cost, rather than at the fair value presentation requirements of GAAP, and the accounting for matched sale-purchase transactions as separate sales and purchases, rather than secured borrowings with pledged collateral, as is generally required by GAAP. In addition, the Bank has elected not to present a Statement of Cash Flows. The Statement of Cash Flows has not been included as the liquidity and cash position of the Bank are not of primary concern to the users of these financial statements. Other information regarding the Bank’s activities is provided in, or may be derived from, the Statements of Condition, Income, and Changes in Capital. Therefore, a Statement of Cash Flows would not provide any additional useful information. 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 and 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.

Gold Certificates

The Secretary of the Treasury is authorized to issue gold certificates to the Reserve Banks to monetize gold held by the U.S. Treasury. 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. These 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 lowered. 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 upon Federal Reserve notes outstanding in each District at the end of the preceding year.

Special Drawing Rights Certificates

Special drawing rights (“SDRs”) 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. SDRs 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. At such time, 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 SDRs, at the direction of the U.S. Treasury, for the purpose of financing SDR certificate acquisitions or for financing exchange stabilization operations. The Board of Governors allocates each SDR transaction among Reserve Banks based upon Federal Reserve notes outstanding in each District at the end of the preceding year.

Loans to Depository Institutions

The Depository Institutions Deregulation and Monetary Control Act of 1980 provides that all depository institutions that maintain reservable transaction accounts or nonpersonal time deposits, as defined in Regulation D issued by the Board of Governors, have borrowing privileges at the discretion of the Reserve Banks. Borrowers execute certain lending agreements and deposit sufficient collateral before credit is extended. Loans are evaluated for collectibility, and currently all are considered collectible and fully collateralized. If any loans were deemed to be uncollectible, an appropriate reserve would be established. Interest is recorded on the accrual basis and is charged at the applicable discount rate established at least every fourteen days by the Board of Directors of the Reserve Banks, subject to review by the Board of Governors. However, Reserve Banks retain the option to impose a surcharge above the basic rate in certain circumstances.

U.S. Government and Federal Agency Securities and Investments Denominated in Foreign Currencies

The FOMC has designated the FRBNY to execute open market transactions on its behalf and to hold the resulting securities 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 other needs specified by the FOMC in carrying out the System's central bank responsibilities.

Purchases of securities under agreements to resell and matched sale-purchase transactions are accounted for as separate sale and purchase transactions. Purchases under agreements to resell are transactions in which the FRBNY purchases a security and sells it back at the rate specified at the commencement of the transaction. Matched sale-purchase transactions are transactions in which the FRBNY sells a security and buys it back at the rate specified at the commencement of the transaction.

Effective April 26, 1999 FRBNY was given the sole authorization by the FOMC to lend U.S. government securities held in the SOMA to U.S. government securities dealers and to banks participating in U.S. government securities clearing arrangements, in order to facilitate the effective functioning of the domestic securities market. These securities-lending transactions are fully collateralized by other U.S. government securities. FOMC policy requires FRBNY to take possession of collateral in excess of the market values of the securities loaned. The market values of the collateral and the securities loaned are monitored by FRBNY on a daily basis, with additional collateral obtained as necessary. The securities loaned continue to be accounted for in the SOMA. Prior to April 26, 1999 all Reserve Banks were authorized to engage in such lending activity.

Foreign exchange contracts are contractual agreements between two parties to exchange specified currencies, at a specified price, on a specified date. Spot foreign contracts normally settle two days after the trade date, whereas the settlement date on forward contracts is negotiated between the contracting parties, but will extend beyond two days from the trade date. The FRBNY generally enters into spot contracts, with any forward contracts generally limited to the second leg of a swap/warehousing transaction.

The FRBNY, on behalf of the Reserve Banks, maintains renewable, short-term F/X swap arrangements with two authorized foreign central banks. The parties agree to exchange their currencies up to a pre-arranged 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 foreign currencies that it may need for intervention operations to support the dollar and give the partner foreign central bank temporary access to dollars it may need to support its own currency. Drawings under the F/X swap arrangements can be initiated by either the FRBNY or the partner foreign central bank, and must be agreed to by the drawee. The F/X swaps are structured so that the party initiating the transaction (the drawer) bears the exchange rate risk upon maturity. The FRBNY will generally invest the foreign currency received under an F/X swap in interest-bearing instruments.

Warehousing is an arrangement under which the FOMC agrees to exchange, at the request of the Treasury, U.S. dollars for foreign currencies held by the 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 Treasury and ESF for financing purchases of foreign currencies and related international operations.

In connection with its foreign currency activities, the FRBNY, on behalf of the Reserve Banks, may enter into contracts which contain varying degrees of off-balance sheet market risk, because they represent contractual commitments involving future settlement, and counter-party credit risk. The FRBNY controls credit risk by obtaining credit approvals, establishing transaction limits, and performing daily monitoring procedures.

While the application of current market prices to the securities currently held in the SOMA portfolio and investments denominated in foreign currencies 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 Reserve Bank earnings or capital. Both the domestic and foreign components of the SOMA portfolio from time to time involve transactions that can result in gains or losses when holdings are sold prior to maturity. However, decisions regarding the securities and foreign currencies transactions, including their purchase and sale, are motivated by monetary policy objectives rather than profit. Accordingly, earnings and any gains or losses resulting from the sale of such currencies and securities are incidental to the open market operations and do not motivate its activities or policy decisions.

U.S. government and federal agency 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. Interest income is accrued on a straight-line basis and is reported as "Interest on U.S. government and federal agency securities" or "Interest on investments denominated in foreign currencies," as appropriate. Income earned on securities lending transactions is reported as a component of "Other income." Gains and losses resulting from sales of securities are determined by specific issues based on average cost. Gains and losses on the sales of U.S. government and federal agency securities are reported as "U.S. government securities (losses), net." Foreign currency denominated assets are revalued monthly at current 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 (losses), net." Foreign currencies held through F/X swaps, when initiated by the counter-party, and warehousing arrangements are revalued monthly, with the unrealized gain or loss reported by the FRBNY as a component of "Other assets" or "Other liabilities," as appropriate.

Balances of U.S. government and federal agency securities bought outright, investments denominated in foreign currency, interest income, amortization of premiums and discounts on securities bought outright, gains and losses on sales of securities, and realized and unrealized gains and losses on investments denominated in foreign currencies, excluding those held under an F/X swap arrangement, are allocated to each Reserve Bank. Effective April 26, 1999 income from securities lending transactions undertaken by FRBNY was also allocated to each Reserve Bank. Securities purchased under agreements to resell and unrealized gains and losses on the revaluation of foreign currency holdings under F/X swaps and warehousing arrangements are allocated to the FRBNY and not to other Reserve Banks.

Bank Premises and Equipment

Bank premises and equipment are stated at cost less accumulated depreciation. Depreciation is calculated on a straight-line basis over estimated useful lives of assets ranging from 2 to 50 years. New assets, major alterations, renovations and improvements are capitalized at cost as additions to the asset accounts. Maintenance, repairs and minor replacements are charged to operations in the year incurred. Internally developed software is capitalized based on the cost of direct materials and services and those indirect costs associated with developing, implementing, or testing software.

Interdistrict Settlement Account

At the close of business each day, all Reserve Banks and branches assemble the payments due to or from other Reserve Banks and branches as a result of transactions involving accounts residing in other Districts that occurred during the day's operations. Such transactions may include funds settlement, check clearing and automated clearinghouse operations, and allocations of shared expenses. The cumulative net amount due to or from other Reserve Banks is reported as the "Interdistrict settlement account."

Federal Reserve Notes

Federal Reserve notes are the circulating currency of the United States. These notes are issued through the various Federal Reserve agents to the Reserve Banks upon deposit with such Agents of certain 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 equal to the sum of the notes applied for by such Reserve Bank. In accordance with the Federal Reserve Act, gold certificates, special drawing rights certificates, U.S. government and federal agency securities, triparty agreements, loans to depository institutions, and investments denominated in foreign currencies are pledged as collateral for net Federal Reserve notes outstanding. The collateral value is equal to the book value of the collateral tendered, with the exception of securities, whose collateral value is equal to the par value of the securities tendered. The Board of Governors may, at any time, call upon a Reserve Bank for additional security to adequately collateralize the Federal Reserve notes. The Reserve Banks have entered into an agreement which provides for certain assets of the Reserve Banks to be jointly pledged as collateral for the Federal Reserve notes of all Reserve Banks in order to satisfy their obligation of providing sufficient collateral for outstanding Federal Reserve notes. 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, as obligations of the United States, Federal Reserve notes are backed by the full faith and credit of the United States government.

The “Federal Reserve notes outstanding, net” account represents Federal Reserve notes reduced by currency held in the vaults of the Bank of \$4,816 million, and \$8,034 million at December 31, 2000 and 1999, respectively.

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. As a member bank’s capital and surplus changes, its holdings of the Reserve Bank’s stock must be adjusted. Member banks are those state-chartered banks that apply and are approved for membership in the System and all national banks. Currently, only one-half of the subscription is paid-in and the remainder is subject to call. These shares are nonvoting with a par value of \$100. They may not be transferred or hypothecated. By law, each member bank is entitled to receive an annual dividend of 6 percent on the paid-in capital stock. This cumulative dividend is paid semi-annually. A member bank is liable for Reserve Bank liabilities up to twice the par value of stock subscribed by it.

Surplus

The Board of Governors requires Reserve Banks to maintain a surplus equal to the amount of capital paid-in as of December 31. 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. Reserve Banks are required by the Board of Governors to transfer to the U.S. Treasury excess earnings, after providing for the costs of operations, payment of dividends, and reservation of an amount necessary to equate surplus with capital paid-in.

The Consolidated Appropriations Act of 2000 (Public Law 106-113, Section 302) directed the Reserve Banks to transfer to the U.S. Treasury additional surplus funds of \$3,752 million during the Federal Government’s 2000 fiscal year. Federal Reserve Bank of Boston transferred \$168 million to the U.S. Treasury during the year ended December 31, 2000. Reserve Banks were not permitted to replenish the surplus for these amounts during fiscal year 2000 which ended September 30, 2000; however, the surplus was replenished by December 31, 2000.

In the event of losses or a substantial increase in capital, payments to the U.S. Treasury are suspended until such losses or increases in capital are recovered through subsequent earnings. Weekly payments to the U.S. Treasury may vary significantly.

Income and Costs related to 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. The costs of providing fiscal agency and depository services to the Treasury Department that have been billed but will not be paid are immaterial and included in “Other Expenses.”

Taxes

The Reserve Banks are exempt from federal, state, and local taxes, except for taxes on real property, which are reported as a component of “Occupancy expense.”

4. U.S. GOVERNMENT AND FEDERAL AGENCY SECURITIES

Securities bought outright are held in the SOMA at the FRBNY. An undivided interest in SOMA activity, with the exception of securities held under agreements to resell and the related premiums, discounts and income, is allocated to each Reserve Bank on a percentage basis derived from an annual settlement of interdistrict clearings. The settlement, performed in April of each year, equalizes Reserve Bank gold certificate holdings to Federal Reserve notes outstanding. The Bank's allocated share of SOMA balances was 5.741 percent and 5.171 percent at December 31, 2000 and 1999, respectively.

The Bank's allocated share of securities held in the SOMA at December 31, that were bought outright, were as follows (*in millions*):

	2000	1999
Par value:		
Federal agency	\$ 7	\$ 9
U.S. government:		
Bills	10,261	9,128
Notes	13,788	11,298
Bonds	5,327	4,291
Total par value	29,383	24,726
Unamortized premiums	559	471
Unaccreted discounts	(176)	(173)
Total allocated to Bank	<u>\$29,766</u>	<u>\$25,024</u>

Total SOMA securities bought outright were \$518,501 million and \$483,902 million at December 31, 2000 and 1999, respectively.

The maturity distribution of U.S. government and federal agency securities bought outright, which were allocated to the Bank at December 31, 2000, were as follows (*in millions*):

Maturities of securities held	Par Value		
	U.S. Government Securities	Federal Agency Obligations	Total
Within 15 days	\$ 1,036	\$—	\$ 1,036
16 days to 90 days	6,255	—	6,255
91 days to 1 year	7,207	—	7,207
Over 1 year to 5 years	7,624	7	7,631
Over 5 years to 10 years	3,184	—	3,184
Over 10 years	4,070	—	4,070
	<u>\$29,376</u>	<u>\$7</u>	<u>\$29,383</u>

At December 31, 2000 and 1999, matched sale-purchase transactions involving U.S. government securities with par values of \$21,112 million and \$39,182 million, respectively, were outstanding, of which \$1,212 million and \$2,026 million were allocated to the Bank. Matched sale-purchase transactions are generally overnight arrangements.

5. INVESTMENTS DENOMINATED IN FOREIGN CURRENCIES

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

Each Reserve Bank is allocated a share of foreign-currency-denominated assets, the related interest income, and realized and unrealized foreign currency gains and losses, with the exception of unrealized gains and losses on F/X swaps and warehousing transactions. This allocation is based on the ratio of each Reserve Bank's capital and surplus to aggregate capital and surplus at the preceding December 31. The Bank's allocated share of investments denominated in foreign currencies was approximately 4.488 percent and 4.493 percent at December 31, 2000 and 1999, respectively.

The Bank's allocated share of investments denominated in foreign currencies, valued at current exchange rates at December 31, were as follows (*in millions*):

	2000	1999
European Union Euro:		
Foreign currency deposits	\$208	\$195
Government debt instruments including agreements to resell	123	114
Japanese Yen:		
Foreign currency deposits	123	14
Government debt instruments including agreements to resell	247	400
Accrued interest	2	2
Total	<u>\$703</u>	<u>\$725</u>

Total investments denominated in foreign currencies were \$15,670 million and \$16,140 million at December 31, 2000 and 1999, respectively.

The maturity distribution of investments denominated in foreign currencies which were allocated to the Bank at December 31, 2000, were as follows (*in millions*):

Maturities of Investments Denominated in Foreign Currencies

Within 1 year	\$660
Over 1 year to 5 years	19
Over 5 years to 10 years	19
Over 10 years	5
Total	<u>\$703</u>

At December 31, 2000 and 1999, there were no open foreign exchange contracts or outstanding F/X swaps.

At December 31, 2000 and 1999, the warehousing facility was \$5,000 million, with no balance outstanding.

6. BANK PREMISES AND EQUIPMENT

A summary of bank premises and equipment at December 31 is as follows (*in millions*):

	2000	1999
Bank premises and equipment:		
Land	\$ 22	\$ 22
Buildings	97	94
Building machinery and equipment	15	15
Construction in progress	2	2
Furniture and equipment	66	63
	<u>202</u>	<u>196</u>
Accumulated depreciation	(85)	(78)
Bank premises and equipment, net	<u>\$117</u>	<u>\$118</u>

Depreciation expense was \$11 million for each of the years ended December 31, 2000 and 1999, respectively.

The Bank leases unused space to outside tenants. Those leases have terms ranging from 1 to 10 years. Rental income from such leases was \$10 million and \$9 million for the years ended December 31, 2000 and 1999, respectively. Future minimum lease payments under noncancellable agreements in existence at December 31, 2000, were (*in millions*):

2001	\$ 9
2002	8
2003	7
2004	6
2005	5
Thereafter	10
	<u>\$45</u>

7. COMMITMENTS AND CONTINGENCIES

At December 31, 2000, the Bank was obligated under noncancelable leases for premises and equipment with terms ranging from 1 to approximately 2 years. These leases provide for increased rentals 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 \$1 million for each of the years ended December 31, 2000 and 1999, respectively. Certain of the Bank's leases have options to renew.

Future minimum rental payments under noncancelable operating leases and capital leases, net of sublease rentals, with terms of one year or more, at December 31, 2000, were not material.

At December 31, 2000, other commitments and long-term obligations in excess of one year were \$13.5 million.

Under the Insurance Agreement of the Federal Reserve Banks dated as of March 2, 1999, each of the Reserve Banks has agreed to bear, on a per incident basis, a pro rata share of losses in excess of 1 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 that a Reserve Bank’s capital paid-in bears 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 such agreement at December 31, 2000 or 1999.

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 two 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”) and the Benefit Equalization Retirement Plan (“BEP”). The System Plan is a multi-employer plan with contributions fully funded by participating employers. No separate accounting is maintained of assets contributed by the participating employers. The Bank’s projected benefit obligation and net pension costs for the BEP at December 31, 2000 and 1999, and for the years then ended, are 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 \$3 million for years ended December 31, 2000 and 1999, respectively, and are reported as a component of “Salaries and other benefits.”

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. Net postretirement benefit costs are actuarially determined using a January 1 measurement date.

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

	2000	1999
Accumulated postretirement benefit obligation at January 1	\$48.5	\$50.9
Service cost-benefits earned during the period	1.2	1.4
Interest cost of accumulated benefit obligation	3.3	3.0
Actuarial loss /(gain)	(2.4)	(5.8)
Contributions by plan participants	0.3	0.3
Benefits paid	(1.4)	(1.3)
Accumulated postretirement benefit obligation at December 31	<u>\$49.5</u>	<u>\$48.5</u>

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*):

	2000	1999
Fair value of plan assets at January 1	\$ -	\$ -
Actual return on plan assets	-	-
Contributions by the employer	1.1	1.0
Contributions by plan participants	0.3	0.3
Benefits paid	(1.4)	(1.3)
Fair value of plan assets at December 31	<u>\$ -</u>	<u>\$ -</u>
Unfunded postretirement benefit obligation	\$49.5	\$48.5
Unrecognized initial net transition asset (obligation)	-	-
Unrecognized prior service cost	4.9	5.5
Unrecognized net actuarial (loss)	0.4	(2.0)
Accrued postretirement benefit cost	<u>\$54.8</u>	<u>\$52.0</u>

Accrued postretirement benefit costs are reported as a component of "Accrued benefit costs."

At December 31, 2000 and 1999, the weighted-average assumption used in developing the postretirement benefit obligation was 7.5 percent.

For measurement purposes, an 8.75 percent annual rate of increase in the cost of covered health care benefits was assumed for 2001. Ultimately, the health care cost trend rate is expected to decrease gradually to 5.5 percent by 2008, and remain at that level thereafter.

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, 2000 (*in millions*):

	1 Percentage point increase	1 Percentage point decrease
Effect on aggregate of service and interest cost components of net periodic postretirement benefit cost	\$1.0	(\$0.7)
Effect on accumulated postretirement benefit obligation	8.7	(7.2)

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

	2000	1999
Service cost-benefits earned during the period	\$1.2	\$1.4
Interest cost of accumulated benefit obligation	3.2	3.0
Amortization of prior service cost	(0.6)	(0.6)
Recognized net actuarial loss	-	0.1
Net periodic postretirement benefit cost	<u>\$3.8</u>	<u>\$3.9</u>

Net periodic postretirement benefit costs are reported as a component of "Salaries and other benefits."

Postemployment benefits

The Bank offers benefits to former or inactive employees. Postemployment benefit costs are actuarially determined and include the cost of medical and dental insurance, survivor income, and disability benefits. Costs were projected using the same discount rate and health care trend rates as were used for projecting postretirement costs. The accrued postemployment benefit costs recognized by the Bank at December 31, 2000 and 1999, were \$5 million and \$4 million, respectively. This cost is included as a component of "Accrued benefit costs." Net periodic postemployment benefit costs included in 2000 and 1999 operating expenses were \$1 million in each year.

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**Source Material
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Paul M. Connolly and Robert W. Eisenmenger, "The Role of the Federal Reserve in the Payments System," in *The Evolution of Monetary Policy and the Federal Reserve System Over the Past Thirty Years: A Conference in Honor of Frank E. Morris*, Federal Reserve Bank of Boston Conference Series No. 45, 2001, Lynn E. Browne and Richard W. Kopcke, eds.

Alice M. Rivlin, Edward W. Kelley, Jr., William J. McDonough, Thomas C. Melzer, and Sandra Pianalto, *The Federal Reserve in the Payments Mechanism*, Committee on the Federal Reserve in the Payments Mechanism (Rivlin Committee), Board of Governors of the Federal Reserve System, January, 1998. <http://www.federalreserve.gov/boarddocs/press/general/1998/19980105/19980105.pdf>

Federal Reserve Bank of St. Louis, *A Survey of Consumer and Business Attitudes on Direct Deposit and Direct Payment: A National Market Research Study*, Federal Reserve Bank of St. Louis, 1988.

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As part of the nation's central bank, the Federal Reserve Bank of Boston promotes sound growth and financial stability in New England and the nation. The Bank contributes to local communities, the region, and the nation through its high-quality research, regulatory oversight, and financial services, and through its commitment to leadership and to innovation.

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