

Testimony of Governor Edward W. Kelley, Jr.

Year 2000 progress of the banking and financial services sector

Before the Committee on Banking and Financial Services, U.S. House of Representatives

September 17, 1998

Thank you for again inviting me to appear before this Committee to discuss the Year 2000 issue. This problem poses a major challenge to public policy: the stakes are enormous, nothing less than the preservation of a safe and sound financial system that can continue to operate in an orderly manner when the clock rolls over at midnight on New Year's Eve and the millennium arrives. The Year 2000 problem will touch much more than just our financial systems and could temporarily have adverse effects on the performance of the overall U.S. economy as well as the economies of many, or all, nations if not corrected. As I said last April in testimony before the Senate Committee on Commerce, Science, and Transportation, some of the more adverse scenarios are not without a certain plausibility, if this challenge were being ignored. But it is not being ignored. While it is impossible today to precisely forecast the impact of this event, and the range of possibilities runs from minimal to extremely serious, an enormous amount of work is being done in anticipation of the rollover of the millennium, and I am optimistic that this work will pay off.

In that spirit, let me update you on what the Federal Reserve has done to address the Year 2000 issue. Since I last testified here in November 1997, the Federal Reserve has met the goals that we set for ourselves. We have:

- renovated our mission-critical applications and nearly completed our internal testing;
- opened our mission-critical systems to customers for testing;
- progressed significantly in our contingency planning efforts;
- implemented a policy concerning changes to our information systems; and
- concluded our initial review of all banks subject to our supervisory authority.

While these accomplishments are indicative of our significant progress in addressing the Year 2000 issue, much work remains. In the testing area, we are finalizing plans for concurrent testing of multiple mission-critical applications by customers. We are coordinating with the Clearing House for Interbank Payment Systems (CHIPS) and the Society for Worldwide Interbank Financial Telecommunications (SWIFT) to provide a common test day for customers of Fedwire and these two systems. We have a System-wide project underway to enhance our contingency plans to address failures external to the Federal Reserve. We are conducting a second round of supervisory reviews of banks subject to our supervisory authority and also actively coordinating with various domestic and international Year 2000 organizations. This morning I would like to discuss these

achievements and the important aspects of the job that remain ahead of us.

FEDERAL RESERVE READINESS

The Federal Reserve has completed the renovation of its mission-critical systems, and we are nearing the conclusion of our internal Year 2000 testing efforts. Internal testing includes both individual applications and application interfaces, such as the exchange of data between Fedwire and our Integrated Accounting System. Testing is conducted through a combination of two elements: one is future-dating our computer systems to verify the readiness of our information technology, and the other is testing critical future date processing within our business applications. Communications network components are also being tested and certified in special test lab environments at the Federal Reserve Automation Services and the Board of Governors. The Reserve Banks and the Board have implemented test century date change (CDC) local area networks to verify the readiness of vendor provided products and internal applications that operate in network-based computing environments. With the exception of a few systems that will be replaced by March 1999, we will complete the testing activities and implement our mission-critical applications in production by year-end 1998.

On June 29, 1998, we made our future-dated test environment available to customers for Year 2000 testing; the crucial testing period will extend through 1999. Depository institutions which are Federal Reserve customers, and thus rely on our payment applications such as Fedwire, Fed ACH, and check processing systems, can test century rollover and leap year transactions six days a week. On six weekends this fall, depository institutions will be able to test Year 2000 test dates with several applications simultaneously. We are providing assistance to our customers who test with us, and have provided them, through a series of Century Date Change bulletins, with technical information and guidelines concerning the testing activity.

By the end of August, almost 400 customers, including the U.S. Treasury, had conducted CDC testing with the Federal Reserve, and the number scheduling tests is increasing rapidly. These tests encompass ten of our mission-critical applications. To ensure that the nation's larger banks are taking advantage of this testing opportunity, we intend to contact any that have not availed themselves of this service. Several foreign banking organizations have begun to test large dollar payment systems with the Federal Reserve and CHIPS. Most large foreign banks will participate in the September 26, 1998, coordinated test in which Fedwire, CHIPS, and SWIFT are participating.

Like most information technology environments, ours are composed primarily of vendor hardware and software products. To assess the Year 2000 readiness of these environments, as well as our building systems such as vault and climate control systems, we have created an automated inventory of the vendor products that we use and are tracking the Year 2000 compliance status of those products. Although the Federal Reserve has made progress in independently testing vendor products, we will continue these efforts.

In prior testimony, I have noted the critical dependence of banks on telecommunication services and the need to ensure the readiness of telecommunication service providers. To foster a better understanding of the importance of information sharing by the telecommunications industry, I wrote to Federal Communications Commissioner Powell about this issue. Commissioner Powell has been responsive and has provided us and others

with information regarding the FCC's oversight and plans. The Federal Reserve is also participating in the Telecommunications Sector Group of the President's Council on Year 2000 Conversion. In addition, the Federal Reserve is monitoring telecommunication carriers to assess whether those used by the Federal Reserve will be Year 2000 compliant. We are pleased with the responsiveness of the telecommunications industry: plans for industry testing are well under way, with participation from the major service providers, as well as their suppliers.

CONTINGENCY PLANNING

As the nation's central bank, the Federal Reserve is actively engaged in contingency planning for both operational disruptions and systemic risks. An internal CDC Council consisting of senior managers is coordinating contingency planning across the Federal Reserve's various functions and is fostering a cohesive approach to internal readiness and interaction with the financial community. In general, the banking industry's focus has also progressed from the renovation of systems to business continuity and contingency planning. Contingency planning for the Federal Reserve includes payments systems, currency availability and distribution, information processing, the discount window, and the supervision function. We will also play an important role in coordinating with the financial community concerning issues such as systemic risk and cross-border payments. \

Operational Contingency

The Federal Reserve's plans for operational continuity build on existing contingency plans. As you know, we have long maintained comprehensive contingency plans that are routinely tested and have been implemented during natural disasters and other disruptions. These plans cover our internal systems, as well as the services we provide to depository institutions. In June 1998, each of the Federal Reserve's business offices completed assessments of the adequacy of existing contingency scenarios to address CDC risks.

Federal Reserve CDC contingency workgroups are identifying problems external to the Federal Reserve that may arise when the date changes to 2000, such as those affecting telecommunications providers, large financial institutions, utility companies, other key financial market participants, and difficulties abroad that affect U.S. markets or institutions. The workgroups are developing corresponding recommendations to mitigate those problems. The Federal Reserve plans to finalize contingency plans reflecting these recommendations by November 30, 1998. We will continue to refine our CDC contingency plans as necessary throughout 1999. In fourth quarter 1998, we will focus our efforts on how to test our contingency plans to ensure their operational effectiveness at the century rollover.

Change Management

As a part of our operational readiness planning, the Federal Reserve is developing procedures to manage the risks posed by changes to information systems in 1999 and the first quarter of 2000. After the scheduled completion of testing and implementation of our critical applications, changes to Federal Reserve policies, rules, regulations, and services that generate changes to critical information systems create the risk that those systems may no longer be CDC compliant. Consequently, we have established guidelines to significantly limit policy and operational changes, as well as internal hardware and software changes, during late 1999 and early 2000 in order to minimize the risks and complexities of problem resolution associated with the introduction of new processing components.

By limiting changes to our systems, we will not only provide a stable internal processing environment entering the Year 2000, but we will also minimize changes that our customers could be required to make to their applications that interface with our software. In addition, we intend to aggressively coordinate with other institutions that typically generate policy and operational changes in the financial industry. We intend to publish our guidelines to assist other organizations facing similar issues and I would urge that Congress, as well as other federal agencies, consider adoption of such change management policies as we move into 1999.

Currency

As I noted earlier, cash availability and processing is an issue we have considered in the contingency planning process. We have regularly met the public's heightened demand for U.S. currency in peak seasons or in extraordinary situations, such as natural disasters. We recently submitted our fiscal year 1999 currency printing order to the Department of the Treasury's Bureau of Engraving and Printing and we increased the size of next year's print order due to Year 2000 considerations. With this order, we will substantially increase the amount of currency either in circulation or in Federal Reserve vaults over current levels by late 1999. We believe this increase in the level of currency should be ample to meet the public's demand for extra cash during the period surrounding the century rollover. This is a precautionary step on our part -- we believe it is prudent to print more currency than we think will be required than to risk not printing enough. While we do not anticipate any extraordinary demand for cash, we believe it is important that the public have complete confidence that sufficient supplies of currency will be available. In effect, the Federal Reserve is accelerating the timing of currency printing; we are planning for a possible short-lived increased demand for cash and will be able to reduce future print orders to lower-than-normal levels.

As we monitor the public's demand for currency, we can introduce other measures to further increase cash levels. First, the recent currency order with the Bureau of Printing and Engraving is for the federal fiscal year 1999, so that there will be time to print additional notes in the last three months of 1999. Second, we can change the print order to increase production of higher denomination notes. Third, we can increase staff in Reserve Bank cash operation functions to improve the turnaround time required to process cash deposits and move currency back into circulation. Finally, as a last resort, we can hold off the destruction of old or worn currency.

Liquidity

Another contingency planning issue for the Federal Reserve is liquidity. Despite their best efforts, some depository institutions could encounter problems in the rollover in maintaining reliable computer systems, and these problems may or may not affect their funding positions. To the extent necessary, the Federal Reserve is prepared to lend, in appropriate circumstances and with adequate collateral, to depository institutions when market sources of funding are not reasonably available. The terms and conditions of such lending may depend upon the circumstances causing the liquidity shortfall.

FINANCIAL SECTOR INITIATIVES

The Federal Reserve and private industry have intensified cooperative efforts to address contingency planning. The Year 2000 Contingency Planning Working Group of the New York Clearing House (NYCH), the Securities Industry Association (SIA), and the Federal

Reserve are developing coordinated contingency plans for the Year 2000 and will act as liaison with other industry groups addressing contingency planning on behalf of banks, securities firms, exchanges, clearance and settlement organizations, regulators, and international markets. Among other things, the Working Group is considering plans for the establishment of Year 2000 communications centers throughout the country, and perhaps internationally. Primarily, such centers would facilitate the exchange of up-to-date information on developing problems and issues among participants and enhance the development of consensus, when necessary, to coordinate timely responses to problems.

The Federal Reserve is assisting in the government's coordination of the Year 2000 effort within the financial industry by participating in the Financial Institutions Sector Group of the President's Council on Year 2000 Conversion. A senior Board official who chairs this Sector Group has been working with representatives of government financial organizations, including the federal banking agencies, the Department of the Treasury, the Securities and Exchange Commission, and other agencies responsible for various financial intermediaries, to assess the Year 2000 readiness of the financial industry and formulate strategies for addressing interagency Year 2000 issues.

BANK SUPERVISION

I would now like to turn to our industry oversight activities. The Federal Reserve met its goal, set in May 1997, of conducting a Year 2000 supervisory review of all banks subject to our supervisory authority by June 1998. This public commitment and visible effort did much to stimulate industry action on the Year 2000 issue. We have also established ties and are providing significant support to numerous public and private groups, both domestic and international, that are addressing the Year 2000 readiness of their respective constituencies.

As part of our outreach program, we continually emphasize the critical significance of ensuring that computer systems and applications are Year 2000 compliant and the complexity of the managerial and technological challenges that the required effort presents for all enterprises. For entities such as financial institutions that rely heavily on computers to provide financial services to customers, achieving Year 2000 compliance in mission-critical systems is essential for maintaining the quality and continuity of customer services.

While bank supervisors can provide guidance, encouragement, and strong formal and informal supervisory incentives to the banking industry to address this challenge, it is important to recognize that we cannot be ultimately responsible for ensuring or guaranteeing the Year 2000 readiness and viability of the banking organizations we supervise. Rather, the boards of directors and senior management of banks and other financial institutions must be responsible for ensuring that the institutions they manage are able to provide high quality and continuous services from the first day in January of the Year 2000. As we have emphasized continually during the past sixteen months, this critical obligation must be among the very highest of priorities for bank management and boards of directors.

Policy Guidance and Supervisory Reviews

The Federal Reserve continues to work closely with the other banking agencies that comprise the Federal Financial Institutions Examination Council (FFIEC) to address the banking industry's Year 2000 readiness. A series of seven advisory statements has been issued since I was last here in November 1997, including statements on the nature of Year

2000 business risk, the importance of service provider readiness, the means to address customer risk, the need to respond to customer inquiries, the critical importance of testing, the urgency of effective contingency planning, and the need to address the readiness of fiduciary activities. As a result of these advisory statements, the extent of the industry's Year 2000 efforts has significantly intensified. These statements can be found in their entirety at <http://www.federalreserve.gov/Y2K>.

Compliance with these statements is assessed during the conduct of supervisory reviews. Through June 30, the Federal Reserve had conducted reviews of approximately 1,600 organizations. Information and data collected during these reviews has proven to be reliable, consistent with our overall supervisory experience which is heavily dependent on an extensive on-site examination program. These reviews have resulted in a significant focus of attention on the subject matter within the industry and identified several issues warranting additional attention by the supervisors, particularly the need for the supplemental guidance on testing and contingency planning. It is critical that banks avail themselves of every opportunity to test mission-critical systems internally and with their counterparties, and recurring testing may be warranted as additional systems are renovated to assure that those systems already tested are not adversely affected.

Based on the reviews completed by the Federal Reserve, the vast majority of banking organizations are making satisfactory progress in their Year 2000 planning and readiness efforts. About four percent are rated "needs improvement" and fewer than one percent are rated "unsatisfactory." In these cases, the Federal Reserve has initiated intensive supervisory follow-up. Working closely with state banking departments, the Federal Reserve is making a concerted effort to focus additional attention on those particular banking organizations that are deemed deficient in their Year 2000 planning and progress.

Deficient organizations have been informed of their status through supervisory review comments, meetings with senior management or the board of directors, and deficiency notification letters calling for submission of detailed plans and formal responses to the deficiencies noted. Such organizations are then subject to increased monitoring and supervisory follow-up including more frequent reviews. Restrictions on expansionary activities by Year 2000 deficient organizations have also been put into place. As a result of these letters, organizations once deemed deficient have taken significant steps to enhance their Year 2000 programs and over half have been upgraded to satisfactory.

The Federal Reserve has commenced Phase II of its supervision program which covers the nine months from July 1998 through March 1999. During this second phase, we will conduct another round of supervisory reviews focused on Year 2000 testing and contingency planning. In addition, we have committed to conducting another review of the information systems service providers and will distribute the results to the serviced banks.

Assessment of Review Results

Based on these reviews and other interactions with the industry, it appears that financial institution progress in renovating mission-critical systems has advanced notably since the Federal Reserve and the other banking agencies escalated efforts to focus the industry's attention on ensuring Year 2000 readiness. Banking organizations are making substantial headway toward Year 2000 readiness and, with some exceptions, are on track to meet FFIEC guidelines.

Specifically, the FFIEC guidelines call for the completion of internal testing of mission critical systems by year-end 1998. Most large organizations are nearing completion of the renovation of their mission-critical systems and are vigorously testing those that have been renovated. Smaller organizations are working closely with their service providers in an effort to confirm that the efforts under way will assure the readiness and reliability of the services and products on which they depend.

Information Systems Service Providers

The banking agencies are examining the Year 2000 readiness of certain information systems service providers and software vendors that provide services and products to a large number of banking organizations. These examinations are often conducted on an interagency basis. The Federal Reserve has participated in reviews of sixteen national service providers and twelve national software vendors. In addition, the banking agencies are examining selected regional service providers and software vendors.

These examinations assess the overall Year 2000 program management of the firms and confirm their plans to support products for Year 2000 readiness. To help banking organizations assess the Year 2000 readiness and dependability of their service providers and to encourage examined service providers to cooperate fully with the industry's efforts, the banking agencies are distributing the results of Year 2000 reviews of service providers and software vendors to the serviced banks. The information in the reports is not a certification of the readiness of the service provider, and it is still incumbent on each bank to work closely with its service providers to prepare for the century date change. Service providers and software vendors serving the banking industry are keenly aware of the industry's reliance on their products and services, and most consider their Year 2000 readiness to be their highest priority in order for them to remain competitive in an aggressive industry.

Credit Quality

FFIEC guidelines call for banks to have a plan to assess customer Year 2000 readiness by June 30, 1998, and to complete an assessment of their customers' Year 2000 readiness by September 30, 1998, in order to better understand the risks faced by the bank if customers are unable to meet their obligations on a timely basis. Even though our Phase I Year 2000 examinations were conducted before the June 30, 1998, milestone, our examiners noted that most organizations either had begun planning or had initiated their customer assessment programs.

We have seen no signs that credit quality has deteriorated as a result of Year 2000 readiness considerations, although it is still early. Results from a Federal Reserve Senior Loan Officer Opinion Survey on Bank Lending Practices (May 1998) indicated that respondents generally include Year 2000 preparedness in their underwriting and loan review standards. Another survey of Senior Loan Officers is to be conducted in November in order to obtain a more timely picture of any deterioration in credit quality related to the Year 2000.

Efforts have also been made to prompt the nation's largest banks that syndicate large loans to address the Year 2000 readiness of their borrowers. Through the Shared National Credit Program, banks that syndicate credits over \$20 million are asked to provide the banking agencies with information pertaining to the banks' efforts to assess the readiness of the borrowers. This initiative has helped large lenders understand that they need to consider their customers' readiness in their risk management programs.

Additional Outreach Initiatives

The Federal Reserve is participating in numerous outreach initiatives with the banking industry, trade associations, regulatory authorities, and other groups that are hosting conferences, seminars, and training opportunities focusing on the Year 2000 and helping participants understand better the issues that need to be addressed. Partly in response to the requirements of the Examination Parity and Year 2000 Readiness for Financial Institutions Act, which calls for the banking agencies to conduct seminars for bankers on the Year 2000, the federal banking agencies have been working with state banking departments as well as national and local bankers' associations to develop coordinated and comprehensive efforts at improving the local and regional programs intended to focus attention on the Year 2000. In the first six months of 1998, the Federal Reserve has participated in over 230 outreach initiatives reaching over 14,000 bankers. Another 100 outreach initiatives are scheduled for the third quarter of 1998. In addition, our public web site provides extensive information on our Year 2000 supervision program and on other resources available to the industry to help prepare for the millennium.

INTERNATIONAL COORDINATION

International cooperation on Year 2000 has intensified over the past several months because of the efforts of the public sector Joint Year 2000 Council (Joint Council) and the private sector Global 2000 Coordinating Group (G-2000). As you recall from your hearings on international issues in June, Mr. Ernest Patrikas, then Chairman of the Joint Council and a senior official of the Federal Reserve Bank of New York, testified on the global efforts of the Joint Council to enhance international initiatives by financial regulators. His successor as Chairman of the Joint Council, Federal Reserve Governor Roger Ferguson, is continuing those efforts and is working closely with an external consultative committee composed of representatives from international financial services providers, international financial market associations, financial rating agencies, and a number of other international industry associations. The Joint Council is working to foster better awareness and understanding of Year 2000 issues on the part of regulators around the world; for example, the Joint Council is sponsoring a series of regional seminars for banking, insurance, and securities supervisors.

The G-2000 includes more than forty financial institutions from over twenty countries that are addressing country assessments, testing, and contingency planning, as well as other issues. The group has developed a standard framework for assessing individual country preparations for the century date change and also will address the Year 2000 readiness of financial institutions, service providers, and the countries' infrastructures. This framework is being used to collect information and assess the readiness of about twenty major countries by the end of this year, with others scheduled for in-depth reviews in 1999.

The Basle Committee on Banking Supervision continues to be active on Year 2000 issues, both within the Joint Council and separately, as part of its normal supervisory activities. Year 2000 will be a major issue to be discussed at the International Conference of Bank Supervisors in October. The Basle Committee is also planning a follow-up survey on Year 2000 progress.

CLOSING REMARKS

Financial institutions have made significant progress in renovating their systems to prepare

for the Year 2000 and much has been accomplished to ensure the continuation of reliable services to the banking public at the century rollover. We are committed to a rigorous program of industry testing and contingency planning and, through our supervisory initiatives, to identifying those organizations that most need to apply additional attention to Year 2000 readiness. The Federal Reserve has renovated its mission-critical applications, and we are nearing the completion of our internal testing activities. To manage the risks posed by subsequent changes to these systems, the Federal Reserve has instituted guidelines to significantly limit policy, operational, hardware, and software changes during late 1999 and early 2000. Going forward, we will continue our industry and international coordination efforts, including participation in the President's Council on Year 2000 Conversion, the Joint Year 2000 Council, and trade associations, to assist the industry in preparing for the Year 2000.

In closing, I would like to thank the Committee for its extensive efforts to focus the industry's attention on this significant matter. Awareness of the extent and importance of this challenge is a critical first step in meeting it, and the Committee's participation has been most helpful.

For your convenience, I have attached a [summary](#) of the answers to the questions posed by the House and Senate Banking Committees.

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Attachment to the Testimony of Governor Edward W. Kelley, Jr.

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The Federal Reserve System and the Year 2000 Status Report and Summary of Activities

The Year 2000 computer problem is commonly known as the "century date change" or "Y2K" problem. The problem has arisen because many business application programs written over the past thirty years use only two-digit date fields to specify the year, e.g., "97" to represent "1997." On January 1, 2000, unless business applications, operating systems software, hardware, and embedded technologies, found for example in building control systems, are corrected, many computers with date-sensitive programs will recognize the year as "00" and may assume the year to be 1900 rather than 2000. Because dates are used in dollar-value transactions, calculations, and records maintained by the Federal Reserve and the financial services industry, the problem affects virtually every business area and application.

The Federal Reserve System, consisting of the Board of Governors and twelve Reserve Banks, established a Year 2000 project office in 1995 and designated the program as the Century Date Change (CDC) project. The Federal Reserve's project addresses CDC readiness for all information technology in the Federal Reserve System. Our greatest focus, however, has been on our mission-critical systems, those that support the delivery of financial services, the regulation of depository institutions, and the conduct of monetary policy. While the Federal Reserve's primary focus is on its own readiness, a large part of our project is devoted to communicating with customers and our business partners, such as vendors and utilities. The Federal Reserve's CDC program employs three main efforts: compliance, communication, and administration.

- The compliance effort includes identifying problem areas, correcting deficiencies, testing, and implementing CDC-ready software and hardware into production. In addition, the project provides an internal clearinghouse for CDC information on the building-related systems, embedded in, for example, elevators, air-conditioning systems, and vaults. Individual Reserve Bank offices have implemented their own programs to ensure that software, hardware, and physical facilities will be ready long before the year 2000. Readiness includes the development of CDC contingency and business resumption plans.
- The communication effort focuses on CDC awareness in the financial services community, customer notification of the compliance status of Federal Reserve products, such as FedLine, any necessary file or message format changes that may be required, and the information our customers need in order to test their systems with us. External communication includes interaction with other agencies, such as the U.S. Treasury.

- The administration effort consists of coordinating and tracking project activities so that all areas of the project are operating according to plans.

A member of the Board of Governors is directing the Federal Reserve's Year 2000 efforts. A team of senior Federal Reserve managers provides overall direction and coordination of project implementation with Federal Reserve product offices, business areas, operations, and information technology functions. A CDC Council, including selected members and staff of the Board of Governors, the Reserve Banks, and the central business product offices, has been established to ensure communication and coordination of project implementation. The Board of Governor's Public Affairs office has been working with the Reserve Banks' public information staffs to provide information and address issues of concern to the public.

The Federal Reserve's program to manage the risks posed by the Year 2000 was evaluated by OMB in conjunction with their review of the plans and status of independent agencies. In the May 15, 1998, report, "Progress on Year 2000 Conversions," OMB described the Federal Reserve as having made "excellent progress on all phases" and having conducted "excellent outreach."

The following table summarizes the status as of June 1998 of systems being repaired.

Agency-wide Status of the Total Number of Mission-critical Systems

	Total # of Mission-Critical*	Number Compliant	Number to be Replaced	Number to be Repaired	Number to be Retired
Federal Reserve	105	99	6**	0	0

* The Federal Reserve tracks the progress of businesses or entities as System-level "components." Generally, there are two types of components: (1) applications shared or centralized, and (2) organizational units - specifically the Reserve Banks, the Board, and Federal Reserve Automation Services (FRAS).

** These systems are on schedule to be replaced by March 1999.

Status of Data Exchanges

One hundred and twenty-four incoming and outgoing data exchanges within eight mission-critical systems have been identified. Data exchanges between Federal Reserve applications and external organizations (depository institutions and government agencies) occur primarily through standard message formats and computer interface protocols. These standard message format and protocol specifications are developed, maintained, and controlled by the Federal Reserve. All organizations have been contacted and agreements have been reached on the data formats.

Testing

The Federal Reserve's testing activities for mission-critical components have been successful and are on schedule. With the exception of a few systems that will be replaced by March 1999, testing and implementation of mission-critical applications will be complete by year-end 1998.

The Federal Reserve has prepared special central environments for testing high-risk dates, such as the rollover to the Year 2000 and leap year processing. Testing is conducted through

a combination of future-dating systems to verify the readiness of our information technology infrastructure, and testing critical future date processing within our applications and in the interfaces to other institutions. Network communications components are also being tested and certified in special test lab environments. We have implemented test local-area networks to verify the CDC readiness of vendor-provided products and internal applications that operate in network-based computing environments.

Testing with external customers began on June 29, 1998, and will continue throughout 1999. Depository institutions may test the century rollover (12/31/1999 through 01/03/2000) and leap year (02/28/2000 through 03/01/2000) periods with individual applications Monday through Friday, 8:00 a.m. to 8:00 p.m. ET and 8:00 a.m. to 5:00 p.m. ET on Saturday. The Federal Reserve will offer six "shared testing day" weekends in 1998 during which depository institutions may test Year 2000 dates with multiple applications. As part of this effort, the Federal Reserve is coordinating with the Clearing House for Interbank Payments Systems (CHIPS) and the Society for Worldwide Interbank Financial Telecommunication (SWIFT) to provide a common test day for customers of Fedwire and these two systems.

Federal Reserve applications that are renovated to remedy Year 2000 problems undergo unit and integration testing by the information technology staffs, as well as acceptance testing by the business users. At the completion of the user acceptance testing process, the business owner reviews the renovation process and the unit, integration, and acceptance test results to validate the application as CDC compliant. Applications and systems, as well as environmental software and interfaces that are modified following CDC certification will be retested to ensure that they remain CDC compliant.

Local Reserve Bank internal audit departments perform reviews of test processes. Moreover, Board of Governors staff, with the assistance of an outside consultant, is providing external oversight of testing activities. In the first half of 1998, Board of Governors staff conducted focused reviews of the progress toward CDC compliance of over sixty-five Federal Reserve applications. The review teams found no significant areas of concern and identified numerous best practices. Both the Reserve Bank audit departments and the Board of Governors staff provide independent verification of application readiness and reporting.

Costs

In 1997, the Federal Reserve's expenditures that related to Year 2000 renovation and testing of our applications and systems were \$23.7 million. We estimate that these expenditures will increase to \$37.1 million in 1998, totaling \$60.8 million.

Contingency Planning

The Federal Reserve's CDC contingency planning is well underway and builds on existing contingency plans. Alternate readiness plans for mission-critical components that had not completed code renovation for Year 2000 compliance were submitted to the CDC project office on January 31, 1998. Business resumption assessments were completed on June 30, 1998, and contingency plans are scheduled for completion by November 30, 1998.

The Federal Reserve is also identifying external supplier and business partner failures that would pose potential systemic risk or might cause widespread disruption to the payment system applications or the support infrastructure. We are currently focusing on contingency planning for Year 2000-related disruptions, such as those which could affect telecommunications providers, large banks, utility companies and difficulties abroad that affect U.S. markets or institutions. The Federal Reserve is working closely with the Securities Industry Association (SIA) and the New York Clearing House (NYCH), which operates the CHIPS large dollar payments system, on the issue of domestic and international contingency planning.

Cash availability and processing is an issue the Federal Reserve has considered in the contingency planning process. The Federal Reserve has regularly met the public's heightened demand for U.S. currency in peak seasons or in extraordinary situations, such as natural disasters. The fiscal year 1999 currency printing order was recently submitted to the Department of the Treasury's Bureau of Engraving and Printing, and the order was increased due to Year 2000 considerations. With this order, we will increase the amount of currency either in circulation or in Federal Reserve vaults substantially over current levels by late 1999. This increase in the level of currency should be ample to meet the public's demand for extra cash during the period surrounding the century rollover. This is a precautionary step -- we believe it is prudent to print more currency than we think will be required than to risk not printing enough. While the Federal Reserve does not anticipate any extraordinary demand for cash, it is important that the public have complete confidence that sufficient supplies of currency will be available. In effect, the Federal Reserve is accelerating the timing of currency printing by planning for a possible short-lived increased demand for cash and will be able to reduce future print orders to lower-than-normal levels.

If the public's demand for currency increases, other measures can be introduced to further increase cash levels. First, the recent currency order with the Bureau of Printing and Engraving is for fiscal year 1999, so that there will be time to print additional notes in the last 3 months of 1999. Second, the print order can be changed to increase production of higher denomination notes. Third, an increase of staff in Reserve Bank cash operation functions would improve the turnaround time required to process cash deposits and move currency back into circulation. Finally, as a last resort, the destruction of old or worn currency can be slowed.

Despite their best efforts, some depository institutions may experience operating difficulties, either as a result of their own computer problems or those of their customers, counterparties, or others. The Federal Reserve plans to be prepared to provide institutions with information on the balances in their accounts throughout the day. We will be prepared to lend, in appropriate circumstances and with adequate collateral, to depository institutions if market sources of funding are not reasonably available.

Federal Reserve Oversight of the Banking Industry

During the twelve months ending June 30, 1998, the Federal Reserve completed the Year 2000 review of all state member banks and selected other U.S. offices of foreign banks, bank holding companies, and other organizations. In all, 1,618 institutions were evaluated: 1,552 (96%) were rated "satisfactory," 58 (4%) were rated "needs improvement" and eight were rated "unsatisfactory." No state or area of the country has a disproportionate number of organizations rated less than satisfactory. Of the 58 institutions rated "needs improvement," nine had assets in excess of \$1 billion. Of the eight institutions rated "unsatisfactory," only one had assets in excess of \$1 billion. During the second quarter 1998, more than sixty institutions that had previously been rated less than satisfactory were reviewed again and upgraded to satisfactory after implementing corrective actions.

The Federal Reserve issued approximately 130 deficiency notification letters in the 1997-1998 period to organizations rated less than satisfactory in their Year 2000 progress and planning. These letters required corrective action plans, monthly monitoring of progress, and restrictions on expansionary activities. The Federal Reserve considers an applicant's Year 2000 rating and project management, as well as those of the target organization when evaluating the merits of merger and acquisition proposals.

Phase II of the Year 2000 Supervision Program, extending from July 1, 1998, through March 31, 1999, includes a second round of Year 2000 supervisory reviews of all state member banks and selected other organizations, including U.S. branches and agencies of

foreign banks, bank holding companies, service providers, and software vendors. The program will focus on an evaluation of progress on Year 2000 testing and contingency planning as well as on compliance with guidance statements issued to date.

Examiner resources involved in Year 2000 efforts have increased steadily over the last twelve months and at present more than 225 examiners support Year 2000 supervisory activities. All Year 2000 examination findings and ratings assigned by the banking agencies are strictly confidential and are not made available to the public in accordance with long-established statutory prohibitions on disclosure of confidential examination information.

Service Providers

During the twelve months ending June 30, 1998, the Federal Reserve participated in the interagency review of many national and regional service providers and software vendors. All of these reviews focused on the organizations' program management to prepare for the Year 2000 and to provide reliable products and services to their financial institution customers. However, these reviews are not a "certification" or "warranty" of the Year 2000 readiness of the service providers or software vendors or of particular products or services. Banks are obligated to test the products and services on which they rely to ensure they are Year 2000 ready in the bank's own operating environment. As of June 30, 1998, all of the organizations reviewed were rated satisfactory. One software vendor had previously been rated "needs improvement," but was upgraded to "satisfactory" based on information made available at a subsequent review. Although the organizations were rated satisfactory, in many cases recommendations were made to enhance their efforts to provide customers with better and more frequent information on their planning and progress toward achieving Year 2000 readiness.

Additional Activities

To foster a better understanding of the importance of information sharing, the Federal Reserve and Federal Communications Commission are addressing risks posed by the Year 2000 to the telecommunications industry. The Federal Reserve is a member of the Telecommunications Sector Group of the President's Year 2000 Conversion Council. Federal Reserve offices also have active programs to identify the risks associated with utilities such as electrical services. In conjunction with contingency planning, offices will review plans for addressing failures of utility providers.

The Federal Reserve is assisting in the government's coordination of the Year 2000 effort within the financial industry by participating in the Financial Institutions Sector Group of the President's Council on Year 2000 Conversion. A senior Board official who chairs this Sector Group has been working with representatives of government financial organizations, including the federal banking agencies, the Department of the Treasury, the Securities and Exchange Commission, and other agencies responsible for various financial intermediaries, to assess the Year 2000 readiness of the financial industry and formulate interagency strategies for addressing Year 2000 issues. The systemic risk posed by a disruption in operations at any one of the nation's largest banking organizations, securities exchanges, clearing houses, or payment systems has been of concern to the Federal Reserve and the other banking agencies since the initial development of the FFIEC Year 2000 supervision program. Concerted efforts by the Federal Reserve, together with the SIA and NYCH, have been initiated to work closely with selected exchanges, clearing houses, and payment systems on matters pertaining to Year 2000 readiness. To assess the risk to the FDIC insurance fund and to plan for the orderly resolution of possible bank failures resulting from Year 2000-related disruptions, Federal Reserve staff has been working closely with the FDIC and other agencies to address the issues associated with closing a troubled bank before the century change.

With respect to testing between banks and other parties, cooperative efforts by many of the largest banks in the New York market, together with the SIA and the NYCH, have included commencement of transaction testing between counterparties. The testing involved the electronic trading of securities and the flow of information between and through all parties to the transaction. Additional testing of a comparable nature is scheduled for the future as well.

The level of international cooperation concerning Year 2000 has increased significantly over the past several months, primarily due to the efforts of the public sector Joint Year 2000 Council (Joint Council) and the private-sector Global 2000 Coordinating Group (G-2000). The Joint Council is pursuing a range of initiatives to help ensure a high level of attention is given to the Year 2000 challenge within the global financial supervisory community. Initiatives include sharing information on regulatory and supervisory strategies and approaches, discussion of possible contingency measures, and serving as a point-of-contact for national and international private-sector initiatives. Federal Reserve Governor Roger Ferguson chairs the Joint Council. A series of regional meetings with supervisory authorities will be conducted this year during the fourth quarter.

The Basle Committee on Banking Supervision continues to be active on Year 2000 issues, both within the Joint Council and separately as part of its normal supervisory activities. Year 2000 is featured prominently on the agenda for the upcoming International Conference of Bank Supervisors to be held in Australia in October. The Federal Reserve has had extensive communications with foreign bank supervisors regarding the Year 2000 readiness of banks operating in the U.S. and in their respective countries.

The Federal Reserve Board has forwarded to Congress a proposal for an amendment to the Federal Reserve Act to make certain types of discount window loans to banks eligible as collateral to back Federal Reserve notes. The amendment is regarded as a technical correction to the Act to ensure that collateral requirements for currency are maintained in the event of certain types of discount window lending. This amendment was passed unanimously by the House Banking Committee and is attached to the President's Working Group's bill, the Financial Contract Netting Improvement Act of 1998. No other legislative proposals are expected at this time.

Additional Information

Additional information on the Federal Reserve's Year 2000 programs can be found in the Board's quarterly report to Congress, its June 30 report to the Office of Management and Budget, various guidance and letters provided to bank officials, technical bulletins provided to customers, and in testimony and speeches by Federal Reserve officials. These and other documents are available on the Federal Reserve's Year 2000 Web site at <http://www.federalreserve.gov/Y2K>.

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