

Chapter 4

The Federal Reserve's Response to the Year 2000 Problem

Until recently, the costs of computer processing, memory, and data storage were significant challenges to developers of software and designers of embedded chip systems. Consequently, these resources were treated as scarce and needed to be conserved; one obvious way of doing so was to designate years with two digits in date fields. So long as date calculations involved only one century, four-digit year fields were unnecessary. These calculations, however, produce inaccurate results when dates span centuries because both 1900 and 2000 are represented as "00" in the two-digit system.

This year 2000 problem is a challenge that affects all industries and systems that depend on computers, telecommunications, or embedded chip controls. If not corrected or replaced by the time the clock rolls over to the next century, these systems and chips—and the myriad activities that depend on them—will be crippled by errors and malfunctions.

Although most computer programs and systems developed over the last several years have been designed to be year 2000 ready, a large number of older systems remain to be renovated. In addition to correcting internally developed applications, organizations must coordinate with third-party providers of software, hardware, or services to ensure that these products are also year 2000 ready.

The Federal Reserve System considers the year 2000 problem to be the single greatest risk currently facing the U.S. financial system. The Federal Reserve has given its highest priority to

ensuring that the depository institutions and other financial firms the Federal Reserve supervises and serves are devoting all necessary resources to meet their public responsibility to be fully compliant and prepared to continue normal operations on the arrival of the new millennium.

First, however, the Federal Reserve's own computer systems, including its payment system applications, must be ready. Readiness, however, applies to more than technical computer issues; the degree of readiness determines the degree of continuity with which the Federal Reserve System will be able to conduct its business. As such, the System's year 2000 efforts—correction as well as contingency planning—must go beyond the information technology (IT) areas to encompass all operational areas. Toward that end, the Federal Reserve in 1995 initiated the Systemwide Century Date Change (CDC) project to coordinate the year 2000 efforts of the Reserve Banks, Federal Reserve Automation Services (FRAS), and the Board of Governors, and in turn to coordinate all their work with related programs of the industry.

Early Efforts at the Federal Reserve

The Federal Reserve recognized the scope of the year 2000 problem when, in 1992, it began consolidating mainframe data processing operations of the Reserve Banks under the new FRAS organization. The consolidation required the

creation of new centralized applications, such as Fedwire funds transfer, Fedwire securities transfer, and automated clearinghouse systems. These applications were designed to recognize the century date change.

The consolidation also required a comprehensive inventory of other mainframe applications with a view to standardizing them, and this cataloging was also a necessary first step in the discovery and correction of two-digit year fields. The assessment of these applications required the review of approximately 90 million lines of computer code.

Current Efforts

In 1998 the Federal Reserve will more than double the resources it commits to the year 2000 problem, from \$13 million and 105 person-years during 1997 to \$32 million (see chapter 3, table 3.3) and 226 person-years.

Testing

The Federal Reserve is allocating significant resources to internal testing as well as to the testing needs of depository institutions and the rest of the financial services industry. Under the CDC project, all remaining year 2000 changes in essential (mission-critical) Federal Reserve software, along with testing by internal and external users, is scheduled for completion by the end of 1998. Furthermore, mission-critical computer programs that work in tandem with systems at depository institutions, will be ready by mid-1998, allowing eighteen months of testing before the arrival of the century date change.

The Federal Reserve is communicating its CDC plans to depository insti-

tutions through a series of newsletters. In October 1997 the Federal Reserve described its methodology for testing mission-critical applications using the date rollover between the last business day of 1999 and the first business day of 2000 as well as the three-day leap-year sequence between February 28 and March 1, 2000. Depository institutions will have the opportunity to test the same date change scenarios between single Federal Reserve applications or to test multiple applications on "shared test days" on six weekends in 1998.

Institutions will also be able to test funds transfers, securities transfers, and automated clearinghouse transactions with other institutions. In March 1998 the Federal Reserve is releasing a newsletter that describes specific testing opportunities, testing schedules, and the CDC readiness of software for Federal Reserve transactions and file transfers.

Communication

The focus of the CDC effort at the Board goes beyond the immediate need to prepare systems and ensure reliable operation of its payment systems. The CDC project team is promoting awareness and commitment throughout the Federal Reserve and the wider financial services industry. The Federal Reserve continually advises depository institutions of its plans and schedules for making its software compliant and issues periodic bulletins addressing specific technical issues. Internet Web sites with extensive links to official and industry information on year 2000 issues have been deployed by the Federal Reserve Board (<http://www.bog.frb.fed.us/y2k/>) and the Federal Financial Institutions Examination Council (<http://www.ffeic.gov/y2k/>), which also has a toll-free Fax Back service (1-888-882-0982).

Business Continuity

Because smooth and uninterrupted financial flows are obviously of utmost importance, the Federal Reserve has focused on continued system readiness and the avoidance of problems. As a result, computer and telecommunications systems are designed to maintain a high level of availability through use of redundant components and preparation for recovery after a disaster.

Federal Reserve IT and operational areas are working closely to anticipate internal and external year 2000 failures that could disrupt operations and to develop plans for alternative means of service delivery. Experience already gained in responding to liquidity problems in institutions as well as to such diverse events as earthquakes, fires, storms, and power outages is being applied in developing the Federal Reserve's CDC business continuity plans.

Supervisory Issues

The Federal Reserve is also addressing the supervisory issues raised by the year 2000 problem. As a bank supervisor, the Federal Reserve has worked closely with the other agencies of the Federal Financial Institutions Examination Council (FFIEC) to communicate to the industry the complexities and urgency of the issue, to monitor year 2000 preparations, and to identify and address problems as they arise. In May 1997, federal banking agencies developed a questionnaire to collect information on the year 2000 readiness of federally insured institutions. The responses, together with other information, indicate that the banking industry's awareness improved substantially during 1997 and that institutions have intensified their CDC compliance work.

The Federal Reserve plans to examine the year 2000 readiness efforts of all state member banks, U.S. branches and agencies of foreign banks, large bank holding companies, and selected other organizations, such as service providers for banks, subject to its supervision—about 1,800 examinations—by June 30, 1998. The examination program reviews each organization's CDC plans, ensures that senior management and the board of directors are directly involved in overseeing CDC projects, and monitors progress against the plan. Institutions with problems receive intensified supervisory attention and high priority for subsequent examinations. ■

Chapter 4

The Federal Reserve's Response to the Year 2000 Problem

The Year 2000 problem poses a major challenge to the financial system. In meeting that challenge, the Federal Reserve has committed itself to a rigorous program of industry testing and contingency planning. Financial institutions have made significant progress in renovating their systems; through its supervisory initiatives, the Federal Reserve is focusing on those institutions that most need further work on Year 2000 readiness.

The Federal Reserve is completing the work necessary to make its own mission-critical applications Year 2000 ready. To further reduce risk, the Federal Reserve will significantly limit any changes to its computer hardware and software and to related policy and operational areas during late 1999 and early 2000.

Efforts at the Federal Reserve

For 1999 the Federal Reserve has committed \$45.8 million and 353 person-years to the Year 2000 problem, to be used for the continuation of internal testing and certification, customer testing, planning for business resumption and event management to minimize the effect of Year 2000 disruptions, and for outreach to the financial industry.

Internal Testing and Certification

As of year-end 1998, the Federal Reserve had renovated where necessary, tested, and certified as Year 2000 compliant virtually all of its mission-critical appli-

cations. Among the key applications already certified are Fedwire funds and securities transfer—the applications most critical to the nation's payment system; the automated clearinghouse (Fed ACH); and supporting accounting systems. In addition, as of year-end 1998, more than 50 percent of the Federal Reserve's noncritical applications have been certified as compliant.

The Federal Reserve must also address the readiness of its telecommunications network, called Fednet

and special-purpose computers at Reserve Banks. The Federal Reserve has independently tested approximately 79 percent of Fednet's hardware and software components and certified them as Year 2000 compliant. The Federal Reserve is conducting independent testing to verify the Year 2000 readiness of products from vendors of the remaining 21 percent of Fednet's components. The Federal Reserve conducted independent testing of the hardware and software at the data centers to certify the mainframe environment as Year 2000 compliant, and it is continuing to test product upgrades. The Federal Reserve continues to upgrade or replace special-purpose computers.

Customer Testing

As of June 29, 1998, the Federal Reserve began offering its customers the opportunity to test future-dated transactions for Fedwire funds and securities transfer, Fed ACH, the integrated

accounting system, Treasury tax and loan accounts, checks, and other services involving electronic data exchanges.

All Federal Reserve customers with electronic access to Fedwire funds transfer are required to test that service, and large-volume customers of other Federal Reserve services are strongly encouraged to test those services. As of the end of February 1999, more than 7,000 institutions, as well as the U.S. Treasury and other government agencies, had tested transactions with the Federal Reserve. In July and August 1998, the Federal Reserve and Treasury's Financial Management Service jointly tested social security payments, and such testing for international social security payments was begun in the first quarter of 1999. None of the tests has revealed significant problems.

The Federal Reserve will continue to schedule testing dates through year-end 1999. In the second half of 1999, testing schedules will include opportunities for the revalidation of application readiness and the testing of contingency procedures.

Business Resumption Planning

The Federal Reserve continues to consider its own Year 2000 business resumption preparations to be among its highest priorities. A team of Federal Reserve senior managers from the technical and business areas oversees plans and efforts to support internal business resumption. The Federal Reserve's Year 2000 business resumption plans build on existing contingency plans that have proved successful through testing and actual experience. The new plans address three areas: (1) disruptions to the Federal Reserve's internal operations, (2) disruptions that reduce the ability of Federal Reserve customers to conduct business with the Federal

Reserve, and (3) problems that threaten to hamper the payment system or the safety and soundness of the financial services industry. In addition, the Federal Reserve and Treasury are working together to ensure that the Year 2000 contingency plans of each agency are aligned.

With regard to the private sector, the Federal Reserve recognizes and emphasizes that each financial institution is responsible for implementing sound Year 2000 contingency measures. Nonetheless, as part of its responsibilities in maintaining the integrity of the payment system, the Federal Reserve is reviewing options for assisting depository institutions to prepare and implement contingency measures. Steps taken thus far include providing opportunities for contingency testing, planning for adequate supplies of currency, and providing guidance to customers on the Federal Reserve's planning for Year 2000 operational contingencies. Throughout 1999 the Federal Reserve will continue to refine its business resumption plans in response to lessons learned through testing and changes in its internal and external environments.

Year 2000 Event Management

The Federal Reserve is organizing the resources needed to address unforeseen problems during the most critical period of vulnerability, that is, the several days centered on the century rollover and the several days centered on February 29 (2000 is a leap year). The Federal Reserve has established a team to coordinate the planning of responses to defined but unexpected problems as well as to as-yet undefined problems that may arise during the critical period and to coordinate the documentation of actions taken during the date-change period.

Change Management

The Federal Reserve has established guidelines to significantly limit changes to its internal policies and operations and to its hardware and software during late 1999 and early 2000. This “change management” approach addresses an important potential source of risk and complexity in managing the century date change. The imposition of limits on changes will provide a stable internal processing environment during the transition to the Year 2000 and will also minimize changes that Federal Reserve customers and other affected parties could be required to make to their own applications. The Federal Reserve is emphasizing to other organizations that typically generate policy and operational changes in the financial industry that requiring implementation of such changes during late 1999 and early 2000 may introduce significant Year 2000 risks.

Outreach Initiatives

Federal Reserve officials speak frequently to banks, financial service bureaus, vendors, and other financial firms on the Year 2000 issue. During 1998 the Federal Reserve has sponsored or participated in more than 265 programs for more than 17,000 bankers and other attendees. In December 1998, the Federal Reserve sponsored an interactive videoconference with its depository institution customers to discuss its contingency planning for the Year 2000.

The Federal Reserve also provides forums, such as the March 1998 meetings on Year 2000 testing of wholesale payments, to direct industry attention to key aspects of Year 2000 preparedness. In addition, the Federal Reserve participates in numerous work groups addressing Year 2000 issues, such as those sponsored by the Securities Industry

Association, the New York Clearing House, and sector groups of the President’s Council on Year 2000 Conversion. A Board official chairs the council’s Financial Institutions Sector Group, a broad-based task force that has been instrumental in advancing the Year 2000 readiness of financial institutions.

The Federal Reserve has issued six bulletins, the latest in February 1999, to inform customers of its internal readiness activities and of the process and schedule for testing with the Federal Reserve. These bulletins, along with a public web site (<http://www.federalreserve.gov/y2k/>) and newsletter, have been the Federal Reserve’s key means of communicating detailed Year 2000 information to its customers.

A major element of the Federal Reserve’s outreach activities in 1999 will concern planning for responses to potential Year 2000 problems. The Federal Reserve will continue to inform the public of its Year 2000 plans and readiness activities throughout 1999.

Supervisory Program and Results

The Year 2000 supervisory program of the member agencies of the Federal Financial Institutions Examination Council (FFIEC) has three phases.¹ The first phase, Awareness and Assessment, ended June 30, 1998. It focused on evaluating the ability of institutions to understand the myriad Year 2000 issues and their progress in identifying required changes to their computer programs; work in this phase also emphasized to institutions the importance of Year 2000 readiness

1. The member agencies are the Board, the Federal Deposit Insurance Corporation, the National Credit Union Administration, the Office of the Comptroller of the Currency, and the Office of Thrift Supervision.

among their service providers and software vendors.

The second phase, Renovation and Validation, began on July 1, 1998, and continued through March 31, 1999. During this phase, examiners assessed the progress of institutions toward making and testing the required changes identified in phase 1.

The third phase, Implementation, is under development for the period beginning April 1, 1999, and running into 2000. It will be devoted to assessing the adequacy of the institutions' final testing and contingency planning.

During 1998 the Reserve Banks assigned Year 2000 issues to about 225 examiners, who worked about 115 person-years to review the Year 2000 readiness of financial institutions. The volume of such work is expected to rise in 1999.

To assist institutions in their understanding of the various Year 2000 regulatory guidance statements and the Year 2000 review process, the FFIEC agencies have conducted hundreds of outreach programs throughout the country. These programs focused on supervisory expectations and also served to convey a consistent message from the regulatory agencies.

International Initiatives

The Federal Reserve has continued its active role in international Year 2000

efforts through several venues: the Joint Year 2000 Council, chaired by Federal Reserve Board member Roger W. Ferguson, Jr.;² the Year 2000 task force of the Basle Committee on Banking Supervision; international conferences; and discussions with foreign bank supervisors.

Among the initiatives of the Joint Year 2000 Council have been the publication of bulletins and guidance papers and the hosting of regional meetings to raise the awareness of financial market regulators throughout the world of the risks posed by the Year 2000 problem.

The Federal Reserve met with representatives of foreign central banks to provide information on programs to prepare for the Year 2000. In addition, the Federal Reserve has briefed a number of foreign delegations on the Year 2000 strategies and programs it has employed, and it has made such information available to supervisory authorities throughout the world. ■

2. The council consists of representatives from the Basle Committee on Banking Supervision, the Committee on Payment and Settlement Systems of the central banks of the Group of Ten, the International Association of Insurance Supervisors, and the International Organization of Securities Commissions. The Bank for International Settlements, in Basle, Switzerland, is the council's secretariat. The Group of Ten consists of Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.