

Mr. Kelley's testimony to the US House of Representatives Committee on Banking and Financial Services Testimony by Mr. Edward W. Kelley Jr., a member of the Board of Governors of the US Federal Reserve System, before the Committee on Banking and Financial Services of the US House of Representatives, in Washington DC, on 4/11/97.

I am pleased to appear before the Committee today to discuss the Federal Reserve's efforts to address the Year 2000 computer systems issue. The Federal Reserve System has developed and is executing a comprehensive plan to ensure its own Year 2000 readiness and the bank supervision function is well along in a cooperative, interagency effort, to promote timely remediation and testing by the banking industry. This afternoon I will focus on actions being taken by the Federal Reserve System to address our internal systems, coordination with the industry, and contingency planning.

Background

The Federal Reserve operates several payments applications that process and settle payments and securities transactions between depository institutions in the United States. Three of these applications are the Fedwire funds transfer, Fedwire securities transfer, and Automated Clearing House (ACH) applications. The first two applications are large-value payments mechanisms for U.S. dollar interbank funds transfers and U.S. government securities transfers. Users of the applications are primarily depository institutions and government agencies.

The Fedwire funds transfer system is a real-time credit transfer system used primarily for payments related to interbank funds transfers such as Fed funds transactions, interbank settlement transactions, and "third-party" payments between the customers of depository institutions. Funds transferred over Fedwire are immediately final; they cannot be revoked after they have been accepted and processed by the Federal Reserve. About 10,000 depository institutions use the Fedwire funds transfer system to transfer each year approximately 86 million payments valued at over \$280 trillion. The current average total daily value of Fedwire funds transfers is approximately \$1.1 trillion.

The Fedwire securities transfer system supports the safekeeping, clearing, and settlement of U.S. government securities in both the primary and secondary markets. It provides custody of U.S. government securities in book-entry form, as well as the transfer of securities ownership among market participants. On the custody side, the system calculates and credits interest and principal payments to the holders of securities, reconciles outstanding securities balances with issuers, and performs other record keeping and collateral safekeeping functions. On the transfer side, the system delivers book-entry securities against a simultaneous payment, called delivery-versus-payment, thus reducing the settlement risks of market participants. About 8,000 depository institutions use the Fedwire securities transfer service to transfer each year approximately 13 million securities valued at over \$160 trillion. The average total daily value of Fedwire securities transfers is about \$650 billion.

The ACH is an electronic payment service that supports both credit and debit transactions and is used by approximately 14,000 financial institutions, 400,000 companies, and an estimated 50 million consumers. Typical credit transactions include direct deposit of payroll and corporate payments to suppliers. Typical debit transactions include the collection of mortgage and loan payments and corporate cash concentration transactions. The ACH processes transactions in batches one or two days before they are scheduled to settle. ACH transactions are settled through depository institutions' accounts at the Federal Reserve Banks. Approximately 4 billion ACH transactions were processed in 1996 with a total value of approximately \$12 trillion. About 3.3 billion of these payments were commercial transactions; 625 million payments were originated by the Federal government.

The Reserve Banks' critical applications, such as Fedwire funds and securities transfer, ACH, and supporting accounting systems, run on mainframe computer systems operated by Federal Reserve Automation Services (FRAS), the internal organizational unit that processes applications on behalf of the Federal Reserve Banks and operates the Federal Reserve's national network. These critical applications are "centralized", that is, one copy of the application is used by all twelve Reserve Banks. In addition to centralized applications on the mainframe, the Federal Reserve Banks operate a range of applications in a distributed computing environment, supporting business functions such as cash distribution, banking supervision and regulation, research, public information, and human resources. The Reserve Banks also operate check processing systems that provide check services to depository institutions and the U.S. government. A national communications network, called FEDNET, supports the exchange of information among the Reserve Banks, FRAS, and external organizations. The scope of the Federal Reserve's Year 2000 activities includes all of these processing environments and the supporting telecommunications network.

Year 2000 Readiness

It is crucial that the Federal Reserve provide reliable services to the nation's banking system and financial markets. The Federal Reserve is giving the Year 2000 its highest priority, commensurate with our goal of maintaining the stability of the nation's financial markets and payments systems, preserving public confidence, and supporting reliable government operations.

We are taking a comprehensive approach to our preparedness which includes assessments of readiness, remediation, and testing. The Federal Reserve has completed application assessments and internal test plans, and we are currently renovating and testing software. We are also updating proven plans and techniques used during other times of operational stress in order to be prepared to address potential century date change difficulties. All Federal Reserve computer program changes, as well as system and user-acceptance testing, are scheduled to be completed by year-end 1998. Further, critical financial services systems that interface with the depository institutions will be Year 2000-ready by mid-1998. This schedule will permit approximately 18 months for customer testing, to which we are dedicating considerable support resources.

A large cadre of top personnel in the Federal Reserve System have been assigned to this task. Our staff is putting in many extra hours to prepare for testing with customers, planning for business continuity in the event of any unanticipated problems with internal systems, and enhancing our ability to respond to possible Year 2000-related operating failures of depository institutions. Assuring compliance internally is requiring review of approximately 90 million lines of computer code. While there are challenges and a great deal of work before us, I can report that we expect to be fully prepared for the century date change.

The Federal Reserve recognized the potential problem with two-digit date fields more than five years ago when we began consolidating our mainframe data processing operations. Our new centralized mission-critical applications, such as Fedwire funds transfer, Fedwire securities transfer, and ACH, were designed from inception with Year 2000 compliance in mind. The mainframe consolidation effort also necessitated extensive application standardization, which required us to complete a comprehensive inventory of our mainframe applications, a necessary first step to effective remediation. Like our counterparts in the private sector, the Federal Reserve System still faces substantial challenges in achieving Year 2000 readiness. These challenges include managing a highly complex project involving multiple interfaces with others, ensuring the readiness of vendor components, ensuring the readiness of applications, thorough testing, and establishing contingency plans. We are also faced with labor market pressures that call for creative measures to retain staff who are critical to the success of our Year 2000 activities.

CDC Project Management

According to industry experts, up to one-quarter of an organization's Year 2000 compliance efforts are devoted to project management. Managing preparations for the century date change is particularly resource-intensive given the number of automated systems to be addressed, systems interrelationships and interdependencies, interfaces with external data sources and customers, and testing requirements. In addition, Year 2000 preparations must address many computerized environmental and facilities management systems such as power, heating and cooling, voice communications, elevators, and vaults. Our Year 2000 project is being closely coordinated among the Reserve Banks, the Board of Governors, numerous vendors and service providers, approximately 13,000 customers, and government agencies.

In 1995, a Federal Reserve System-wide project was initiated, referred to as the Century Date Change (CDC) project, to coordinate the efforts of the Reserve Banks, FRAS, and the Board of Governors. Our project team is taking a three-part approach to achieve its objectives, focusing on planning, readiness, communication, and monitoring. Our planning began with a careful inventory of all applications and establishment of schedules and support mechanisms to ensure that readiness objectives are met. The readiness process involves performing risk assessments, modifying automated systems, and testing both internally and with depository institutions, service providers, and government agencies. We are stressing effective, consistent, and timely communication, both internal and external, to promote awareness and commitment at all levels of our own organization and the financial services industry, more generally. Some of our most senior executives are leading the project, and the Board and senior Bank management are now receiving formal, detailed status reports at least every 60 days. Any significant compliance issues will be reported to the Board immediately. The Reserve Banks' internal audit departments and the Board's oversight staff are also closely monitoring progress.

A significant challenge in meeting our Year 2000 readiness objectives is our reliance on commercial hardware and software products and services. Much of our information processing and communications infrastructure is comprised of hardware and software products from third-party vendors. Additionally, the Federal Reserve utilizes commercial application software products and services for certain administrative functions and other operations. As a result, we must coordinate with numerous vendors and manufacturers to ensure that all of our hardware, software, and services are Year 2000-ready. In many cases, compliance will require upgrading, or even replacing, equipment and software. We have a complete inventory of vendor components used in our mainframe and distributed computing environments, and vendor coordination and system change are progressing well. These preparations also include careful attention to the Year 2000 readiness of telecommunications providers.

Testing

As we continue to assess our systems for Year 2000 readiness, we are well along in preparing a special central environment for testing our payment system applications. We are establishing isolated mainframe data processing environments to be used for internal testing of all system components as well as for testing with depository institutions and other government agencies. These environments will enable testing for high-risk dates, such as the rollover to the year 2000 and leap year processing. Testing will be conducted through a combination of future-dating our computer systems to verify the readiness of our infrastructure, and testing critical future dates within interfaces to other institutions. Our test environments will be configured to provide flexible and nearly continuous access by customers. Network communications components are also being tested and certified in a special test lab environment at FRAS.

The testing effort for Year 2000 readiness within the Federal Reserve will be extensive and complex. Industry experts estimate that testing for readiness will consume more than half of total Year 2000 project resources. To leverage existing resources and processes, we are modelling our Year 2000 testing on proven testing methods and processes. Our customers are already familiar with these processes and the testing environment. We shared our testing strategy with depository institutions in October of this year, and we are currently developing a coordinated test schedule. As I noted earlier, the Reserve Banks are targeting June 1998 to commence testing with their depository institution customers, which allows an 18-month time period for depository institutions to test their systems with the Federal Reserve.

All of these activities require that we retain highly skilled staff critical to the success of the project. As I mentioned earlier, we have placed the highest priority on our CDC project, and, as such, have allocated many of the best managers and technical staff in the Federal Reserve System to work on the project. The information technology industry is already experiencing market pressures due to the increased demand for technical talent. As the millennium draws closer, the global market requirements for qualified personnel will intensify even further. We are responding as necessary to these market-induced pressures by implementing programs to retain staff members in critical, high-demand positions.

Our focus at the Board goes beyond the immediate need to prepare our systems and ensure reliable operation of the payments infrastructure. We are also working hard to address the supervisory issues raised by Year 2000 and are developing contingency plans which I will discuss later.

Bank Supervision

As a bank supervisor, the Federal Reserve has worked closely with the other supervisory agencies that are part of the Federal Financial Institutions Examination Council (FFIEC) to alert the industry to our concerns and to monitor Year 2000 preparations of the institutions we supervise so that we can identify early and address problems that arise. Comptroller of the Currency Ludwig is testifying today as Chairman of the FFIEC to describe the interagency Year 2000 supervisory initiatives of all of the five member agencies (Federal Reserve, OCC, FDIC, OTS and NCUA), so I will limit my comments on the Federal Reserve's supervisory efforts.

In May of this year, the Federal Reserve and the other regulatory agencies developed a uniform Year 2000 assessment questionnaire to collect information on a national basis. Based on the responses and other information, we believe the banking industry's awareness level improved substantially during 1997 and is reflected in the intensified project management, planning, budgeting, and renovation efforts that have been initiated.

Generally speaking, the nation's largest banking organizations have done much to address the issues and have devoted significant financial and human resources to preparing for the century date change. Many larger banks are already renovating their operating systems and have commenced testing of their critical applications. Large organizations seem generally capable of renovating their critical operating systems by year-end 1998, and will have their testing well underway by then.

Smaller banks, including the U.S. offices of foreign banks and those dependent on a third party to provide their computer services, are generally aware of the issues and are working on the problem; however, their progress is less measurable and is being carefully monitored. We are directing significant attention to ensure that these banks intensify their efforts to prepare for the Year 2000.

Major third-party service providers and software vendors serving the banking industry are acutely aware of the issue and are working diligently to address it. Most of these suppliers consider their Year 2000 capability to be a business survival issue, as it is of critical importance to their ability to remain competitive in an aggressive industry.

By mid-year 1998 we will have conducted a thorough Year 2000 preparedness examination of every bank, U.S. branch and agency of a foreign bank, and service provider that we supervise. Our examination program includes a review of each organization's Year 2000 project management plans in order to evaluate their sufficiency, to ensure the direct involvement of senior management and the board of directors, and to monitor their progress against the plan. As we proceed through the examination process, we are identifying any institutions that require intensified supervisory attention and establishing our priorities for subsequent examinations.

International Awareness

With regard to the international aspects of the Year 2000 issue, U.S. offices of foreign banks pose a unique set of challenges. We are concerned about the possibility that some offices may not have an adequate appreciation of the magnitude and ramifications of the problem, and may not as yet have committed the resources necessary to address the issues effectively. This is a particular concern for foreign bank offices that are dependent on their foreign parent bank for information processing systems. In addition, we are increasingly concerned that the foreign branches of U.S. banks may be adversely affected if counterparties in foreign markets are not ready for the Year 2000.

Therefore, we are working through the Bank for International Settlements' (BIS) Committee on Banking Supervision, composed of many of the international supervisory agencies responsible for the foreign banks that operate in the United States. Through formal and informal discussions, the distribution of several interagency statements and advisories, and the Federal Reserve's Year 2000 video (see below) to the BIS supervisors committee, we have sought to elevate foreign bank supervisors' awareness of the risks posed by the century date change.

The G-10 governors issued an advisory in September that included a paper by the bank supervisors committee on the Year 2000 challenge to banks and bank supervisors around the world to ensure a higher level of awareness and activity on their part. The BIS supervisors committee has developed a survey sent to about 40 countries to collect better information on the state of readiness of banks in those countries and the extent of the efforts of the bank supervisors to address the issues locally and internationally. The surveys will be evaluated and the findings distributed early next year. Also on the international front, William McDonough, President of the Federal Reserve Bank of New York, in a keynote address to the annual meeting of the Institute of International Finance in Hong Kong, emphasized the importance of planning for the century date change on an international basis and the significant risk to financial markets posed by the Year 2000.

We also participated in the BIS meeting sponsored by the Committee on Payments and Settlement Systems and the Group of Computer Experts for G-10 and major non-G-10 central banks in September which provided a forum to share views on and approaches to dealing with Year 2000 issues, and we have been active in various private sector forums. The majority of foreign central banks are confident that payment and settlement applications under their management will be Year 2000-ready. Like the Federal Reserve, however, the operation of foreign central bank payment systems is dependent on compliant products from hardware and software suppliers and the readiness of telecommunication service providers. The approach of foreign central banks toward raising bank industry awareness varies widely. Information garnered from this meeting and similar meetings planned for the future will assist the BIS Committee on Payment and Settlement Systems, as well as the Federal Reserve, in understanding the state of preparedness of payment systems on a global level.

Public Awareness

We are mindful that extensive communication with the industry and the public is crucial to the success of century date change efforts. Our public awareness program concentrates on communications with the financial services industry related to our testing efforts and our overall concerns about the industry's readiness. We continue to advise our bank customers of the Federal Reserve's plans and time frames for making our software Year 2000-ready. We have inaugurated a Year 2000 industry newsletter and have just published our first bulletin addressing specific technical issues. We would be glad to provide you with copies of our recent newsletter and the bulletin. We have also established an Internet Web site to provide depository institutions with information regarding the Federal Reserve System's CDC project. This site can be accessed at the following Internet address: <http://www.frbsf.org/fiservices/cdc>.

On behalf of the FFIEC, the Federal Reserve has developed a Year 2000 information distribution system, including an Internet Web site and a toll free Fax Back service (888-882-0982). The Web site provides easy access to policy statements, guidance to examiners, and paths to other Year 2000 Web sites available from numerous other sources. The FFIEC Year 2000 Web site can be accessed at the following Internet address: <http://www.ffiec.gov/y2k>.

The Federal Reserve has also produced a ten-minute video entitled "Year 2000 Executive Awareness" intended for viewing by a bank's board of directors and senior management. The video presents a summary of the Year 2000 five-phase project management plan outlined in the interagency policy statement. In my introductory remarks on the video, I note that senior bank officials should be directly involved in managing the Year 2000 project to ensure that it is given the appropriate level of attention and sufficient resources to address the issue on a timely basis. The video can be ordered through the Board's Web site.

Contingency Planning

While we will continue our public outreach efforts, our main focus is preparedness. Because smooth and uninterrupted financial flows are obviously of utmost importance, our main focus is on our readiness and the avoidance of problems. But we know from experience that upon occasion, things can go wrong. Given our unique role as the nation's central bank, the Federal Reserve has always stressed contingency planning -- for both systemic risks as well as operational failures.

In this regard, we regularly conduct exhaustive business resumption tests of our major payment systems that include depository institutions. Moreover, as a result of our experience in responding to problems arising from such diverse events as earthquakes, fires, storms, and power outages, as well as liquidity problems in institutions, we expect to be appropriately positioned to deal with similar problems in the financial sector that might arise as a result of CDC. However, CDC presents many unique situations. For example, in the software application arena, the normal contingency of falling back to a prior release of the software is not a viable option. We are, of course, developing specific CDC contingency plans to address various operational scenarios, and our contingency planning includes preparation to address unanticipated problems when we bring our systems into production as Year 2000 begins. Key technical staff will be ready to respond quickly to problems with our computer and network systems. We are establishing procedures with our primary vendors to ensure direct communication and appropriate recourse should their products fail at Federal Reserve installations during Year 2000 date processing. Our existing business resumption plans will be updated to address date-related difficulties that may face the financial industry.

We already have arrangements in place to assist financial institutions in the event they are unable to access their own systems. For example, we are able to provide financial institutions with

access to Federal Reserve computer terminals on a limited basis for the processing of critical funds transfers. This contingency arrangement has proven highly effective when used from time to time by depository institutions experiencing major hardware/software outages or that have had their operations disrupted due to natural disasters such as the Los Angeles earthquake, hurricane Hugo in the Carolinas, and hurricane Andrew in south Florida. In these cases we worked closely with financial institutions to ensure that adequate supplies of cash were available to the community, and we arranged for our operations to function virtually without interruptions for 24 hours a day during the crisis period. We feel the experience gained from such crises will prove very helpful in the event of similar problems triggered by the century date change. We are formulating responses for augmenting certain functions, such as computer help desk services and off-line funds transfers, to respond to short-term needs for these services.

Beyond reliance on a sound plan and effective execution of the plan, the Federal Reserve provides several different payment services, such as Fedwire, ACH, check, and cash; therefore, the banking industry is not totally dependent upon any single system for executing payments. Alternatives are available in the event of a disruption in a segment of the electronic payment system.

We recognize that 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. These problems could be manifested in a number of ways and would not necessarily involve funding shortfalls. Nevertheless, the Federal Reserve is always prepared to provide information to depository institutions on the balances in their accounts with us throughout the day, so that they can identify shortfalls and seek funding in the market. The Federal Reserve will be 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 giving rise to the liquidity shortfall.

Our preparations for possible liquidity difficulties also extend to the foreign bank branches and agencies in the U.S. that may be adversely affected directly by their own computer systems or through difficulties caused by the linkage and dependence on their parent bank. Such circumstances would necessitate coordination with the home country supervisor. Moreover, consistent with current policy, foreign central banks will be expected to provide liquidity support to any of their banking organizations that experience a funding shortfall.

Closing Remarks

As I indicated at the outset, the Federal Reserve views its Year 2000 preparations with great seriousness. As such, we have placed a high priority on the remediation of date problems in our systems and the development of action plans that will ensure business continuity for the critical financial systems we operate. While we have made significant progress and are on schedule in validating our internal systems and preparing for testing with depository institutions and others using Federal Reserve services, we must work to ensure that our efforts remain on schedule and that problems are addressed in a timely fashion. In particular, we will be paying special attention to the testing needs of depository institutions and the financial industry and are prepared to adjust our support for them as required by experience. We believe that we are well-positioned to meet our objectives and will remain vigilant throughout the process.

As a bank supervisor, the Federal Reserve will continue to address the industry's preparedness, monitor progress, and target for special supervisory attention those organizations that are most in need of assistance. Lastly, we will continue to participate in international forums with the expectation that these efforts will help foster an international awareness of Year 2000 issues and provide for the sharing of experiences, ideas, and best practices.