

Year 2000 Readiness
of the Financial Industry in Japan:

Entering the Final Phase of Year 2000 Preparations

Bank of Japan
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Introduction

Financial institutions and operators of private-sector payment and settlement systems in Japan have given Year 2000 preparations top priority and have been working diligently for a smooth transition to the year 2000. They have renovated and tested their computer systems, and have been making Year 2000 contingency plans to be prepared for possible Year 2000-related disruptions.

The Bank of Japan has been working on its computer systems and basic facilities, including the BOJ-NET (an on-line settlement system for funds and JGBs), to make them Year 2000 compliant. At the same time, the Bank has been promoting the Year 2000 preparations of financial institutions by issuing guidance papers, monitoring their Year 2000 readiness and giving advice to support their preparations through on-site targeted examinations and off-site monitoring. As for payment and settlement systems, the Bank has conducted six external tests of the BOJ-NET with private-sector payment and settlement systems since last December.

This report provides information on the Year 2000 readiness of both individual financial institutions and payment and settlement systems as of mid-1999.¹ It describes (i) the results of the Year 2000 readiness survey of financial institutions with current accounts at the Bank of Japan in July this year, (ii) the Year 2000 readiness of key payment and settlement systems in Japan, and (iii) the results of external tests the Bank carried out jointly with payment and settlement systems.

As explained in the report, the Year 2000 preparations of the financial industry in Japan are on track overall. With less than four months before the year 2000, the focus of the financial industry's preparations is shifting from system-related preparations, such as renovation and testing, to non-system-related preparations for the transition period. These include drawing up and refining contingency plans and conducting drills to test

¹ The Bank of Japan published a report *Year 2000 Readiness in the Financial Industry in Japan* in August 1998, which describes the Year 2000 readiness of financial institutions as of mid-1998. The Bank has released various other publications on the Year 2000 readiness of the financial industry in Japan and the Bank's own preparations. These are available on the Bank's Web site (<http://www.boj.or.jp/>). Please refer to Annex 2 for a list of these publications.

them, as well as making staffing arrangements for the year 2000 transition and building mechanisms for information exchange between the relevant parties. The Bank of Japan is making sure that it is thoroughly prepared for the transition to the year 2000 by closely cooperating with market participants, the government, government agencies and various industry associations.

I. Results of the Survey of the Year 2000 Readiness of Financial Institutions

To collect information on the Year 2000 readiness of financial institutions with current accounts at the Bank of Japan (referred to as “financial institutions” in this Chapter) and to encourage them to forge ahead with their preparations, the Bank has been monitoring their Year 2000 preparations since May 1997 and conducting targeted examinations focusing on Year 2000 readiness since October 1998.

The Bank conducted its second comprehensive survey of Year 2000 preparations of 674 financial institutions as of the end of June 1999, following the previous survey as of the end of June 1998, to find out the level of preparedness of financial institutions. The results of the survey were as follows. (The data are for as of the end of June, unless otherwise stated. See Annex 1 for detailed tables.)

A. Overview: Steady Progress Made in Year 2000 Preparations, Most in Final Stages

Financial institutions have made steady progress in their preparations. Most of them have completed renovation of main accounting systems and contingency planning.

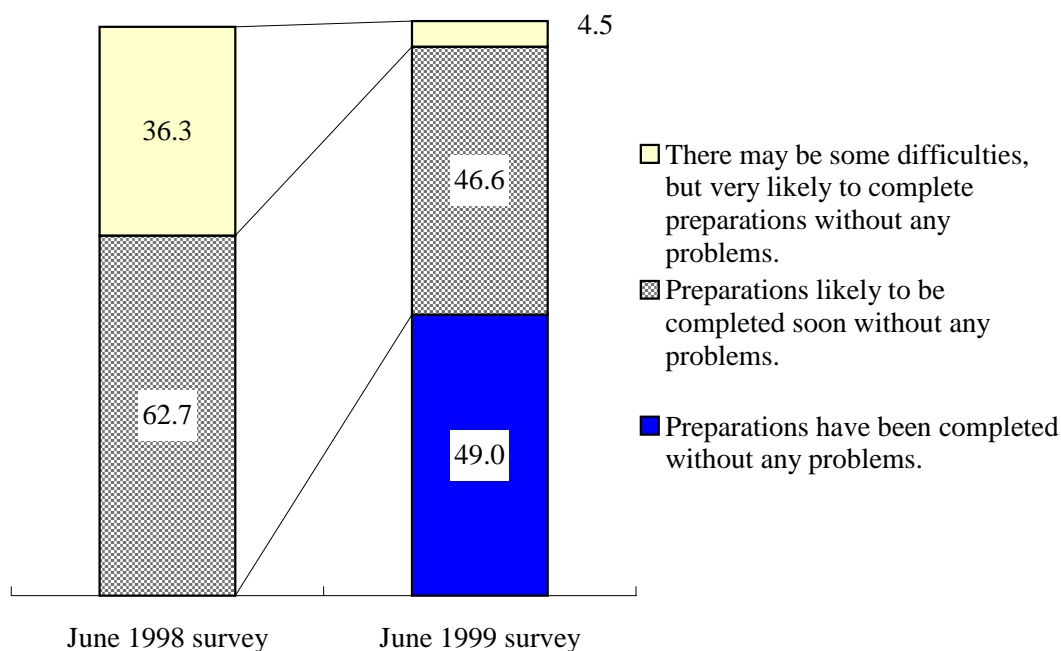
System renovation and tests have almost been completed, with more than 98 percent of the financial institutions reporting they had completed work on main accounting systems, which are mission-critical for financial institutions. Most financial institutions expect to have completed renovation work for all of their systems by the end of September.

Turning to non-system-related issues, many financial institutions are continuing to make efforts to find out the Year 2000 readiness of their counterparties, and almost 98 percent of the financial institutions replied they had finalized the contingency plans, or had drawn up first drafts. By the end of September, all are likely to have completed contingency planning. Furthermore, 95 percent intend to rehearse their contingency plans by the end of this year to confirm their effectiveness, and most intend to refine them based on findings from the rehearsals.

On prospects for completing Year 2000 preparations, 96 percent of the respondents replied they had either completed preparations without any problems, or expect to

complete preparations without any problems. The share of financial institutions that replied they may encounter some difficulties fell sharply from the previous survey (Chart 1).

Chart 1: Prospects for Completing Year 2000 Preparations (%)



A lot of work has been undertaken, but further work needs to be done in risk management, including finding out Year 2000 readiness of client enterprises, devising schemes for handling customer enterprises that are lagging behind in their Year 2000 preparations, and enhancing the effectiveness of contingency plans, by revising and improving the plans through rehearsals. Financial institutions need to take appropriate action by the end of this year.

B. Organizational Awareness

1. Direct Involvement by the Management

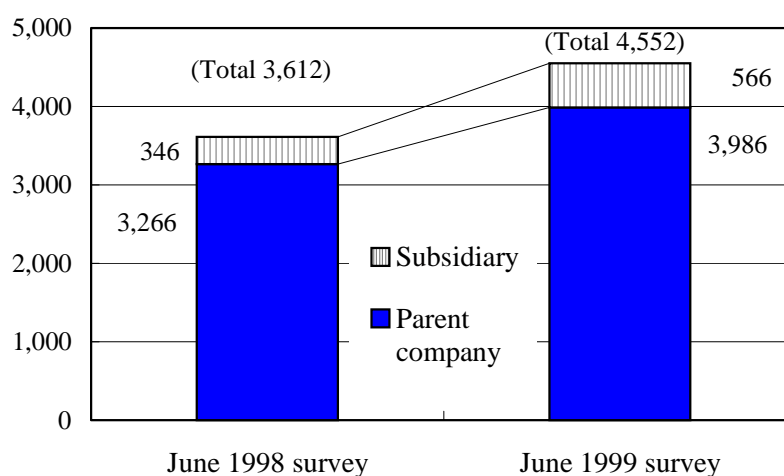
The Year 2000 problem needs to be dealt with by the financial institution as a whole, and the management in particular should be directly involved in all preparations. The survey revealed that the management of almost all financial institutions were involved to some extent in Year 2000 preparations, with 93 percent replying that the management confirmed the status of Year 2000 projects and gave instructions, and seven percent replying that the management roughly checked the progress of the preparations. In particular, the management of city banks, long-term credit banks, and trust banks regard Year 2000 issues as one of their top priorities and nearly 90 percent of these banks said

that their management carefully checked progress in Year 2000 preparations at internal meetings. In total, about 40 percent of all financial institutions replied that this was the case.

2. Surge in Expenditure on Year 2000 Preparations

With financial institutions strengthening efforts to be ready for the Year 2000, planned total expenditure on Year 2000 preparations, including that for subsidiaries, has soared by about 26 percent compared to the previous survey (Chart 2).

Chart 2: Expenditure for Year 2000 Preparations (100 million yen)



C. System-related Issues

1. Work on Main Accounting Systems Almost Finished

By the end of June, major financial institutions had completed remediation—including internal testing—of main accounting systems, which handle such operations as payment and settlement, the core operations of financial institutions. All of the financial institutions are expected to have completed such work by the end of September (Table 1).

Table 1: Year 2000 Preparations for Main Accounting System by Type of Financial Institution

	Type of financial institution
Completed by the end of June 1999	All city banks, long-term credit banks, trust banks, regional banks, regional banks II, securities companies.
Expect to complete by the end of September 1999	<i>Shinkin</i> banks (99.7%), central organizations (92.9%), financial subsidiaries (91.3%), foreign institutions (92.9%)

2. Delays Observed in Renovation of Some Other Systems

Progress has also been made in other systems, such as information systems used to store data on clients and business performance. Slight delays, however, are evident in the renovation of small and medium-scale systems of the end-user sections within financial institutions (83 percent of the financial institutions had completed remediation by the end of June), systems of overseas branches and subsidiaries (84 percent by the end of June) and systems of subsidiaries (75 percent by the end of June). Even at the end of September, four percent of the financial institutions are unlikely to have completed renovation of the systems of subsidiaries.

3. Final Validation Testing

Having completed remediation work, many of the financial institutions have conducted thorough final validation tests of their systems in a production environment or similar environment. By the end of June, 85 percent of the financial institutions had conducted such tests, and 12 percent planned to conduct such tests in the near future.

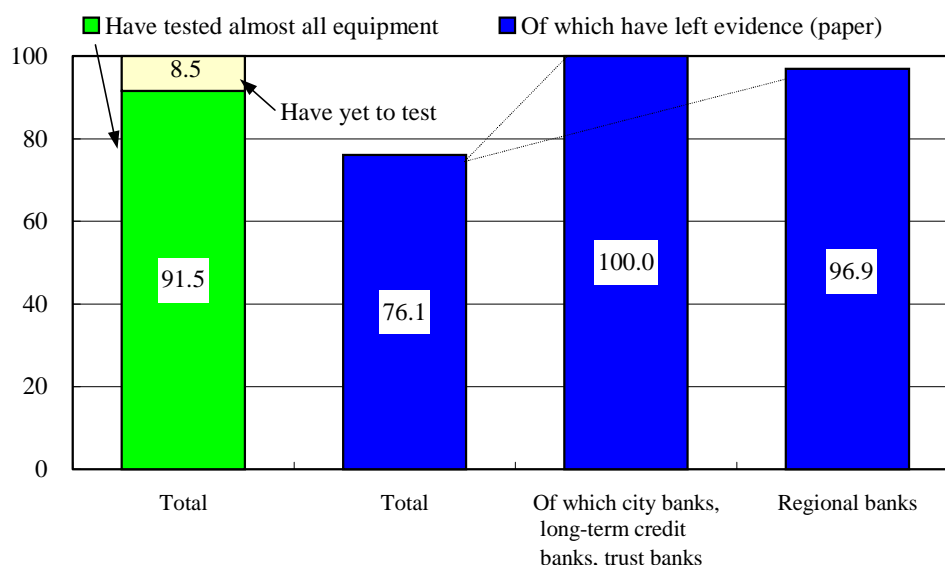
4. Confirmation of Year 2000 Compliance of Equipment with Vendors

With regard to confirmation of Year 2000 compliance of equipment with vendors, 96 percent of the financial institutions reported they had confirmed, or planned to confirm, the compliance of embedded microchips. Most major banks planned to include measures related to this issue in their contingency plans. (A combined 79 percent of the city banks, long-term credit banks, and trust banks, and 45 percent of all of the financial institutions.)

In view of cases where problems have emerged despite certification by vendors, 92 percent of the financial institutions said they had tested and verified the Year 2000 compliance of important systems and equipment themselves.

Furthermore, 76 percent said they were keeping the test results as a precaution against legal risks stemming from possible disruptions in the Year 2000. (All city banks, long-term credit banks, and trust banks, and 97 percent of regional banks said they were keeping the results; Chart 3.)

Chart 3: Internal Testing in Own Environment (%)



5. Change Freeze

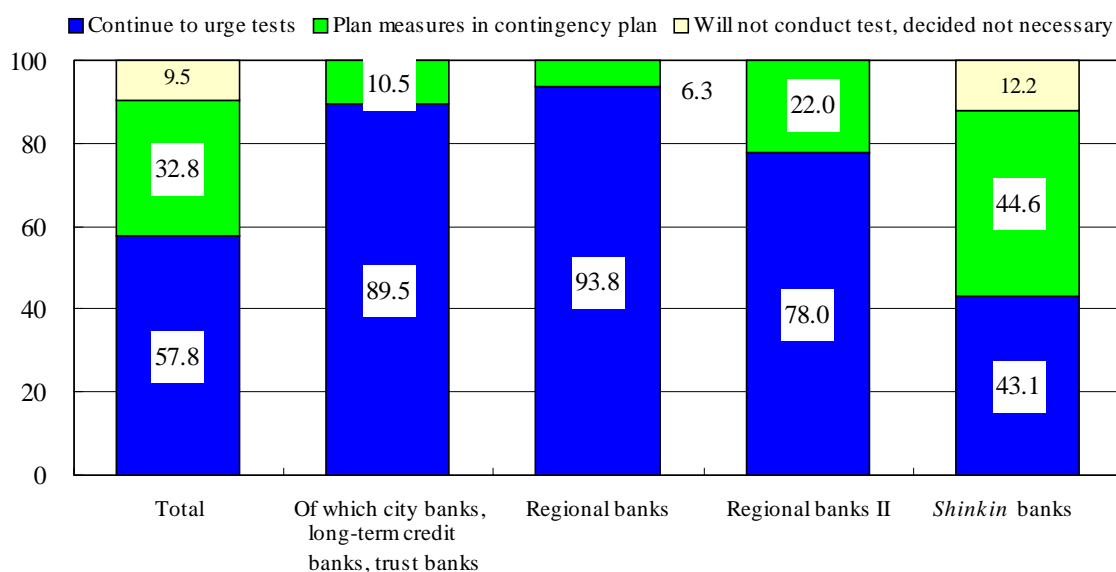
Changing the system environment after final validation could bring about an unexpected and undesired impact on the Year 2000 compatibility of systems. An increasing number of financial institutions therefore plan to institute a “change freeze” (a moratorium on changes in programs or equipment) from late December 1999 to early January 2000. More than half of the financial institutions, 57 percent, plan to freeze changes, 32 percent do not have plans to intentionally freeze changes but do not have any changes scheduled, bringing the total share of financial institutions planning to keep their systems unchanged to 88 percent. All city banks and long-term credit banks, and 35 percent of all the financial institutions plan to suspend changes to the system environment for a relatively long period from early autumn to spring 2000.

6. Electronic Banking Connection Tests

With regard to connection tests, 58 percent of the financial institutions plan such tests with important electronic banking counterparties. Some counterparties are not fully aware of the grave implications of the Year 2000 problem and have not agreed to take part in connection tests. Financial institutions appear to have reached the conclusion that it would not be wise to urge such counterparties to conduct the tests, and 33 percent of the financial institutions plan instead to include measures to deal with connection failures in their contingency plans.

The great majority of city banks, long-term credit banks, trust banks, regional banks, and regional banks II, plan to continue to urge electronic banking counterparties to conduct connection tests (Chart 4). In the case of *shinkin* banks, the number planning to include measures in their contingency plans and planning to continue to urge counterparties to conduct tests was roughly the same.

Chart 4: Stance on Tests with Important Electronic Banking Counterparties (%)



D. Non-system-related Issues

1. Monitoring of Customer Firms' Year 2000 Preparedness.

It is important for financial institutions to be aware of the Year 2000 preparedness of firms with which they have business relations. Almost 75 percent of the financial institutions plan to collect information not only on their loan customers but also on their counterparties in the financial markets and large-volume depositors.

Financial institutions have already collected information on the Year 2000 readiness of a total 1.37 million firms and local public entities. Financial institutions reported they were concerned about Year 2000 readiness of about 100,000 of these firms and local public entities, which accounts for about 7.1 percent of the total (Table 2).

City banks, long-term credit banks, and trust banks were concerned about the Year 2000 readiness of over 10 percent of the firms and local public entities they had surveyed, while other types of financial institutions were less concerned. This is probably due to the fact that the extent of information financial institutions have collected on the Year

2000 readiness of firms varies depending on the financial institution.

Table 2: Monitoring of Counterparties' Year 2000 Preparedness

	Number of counterparties surveyed		Of which number of counterparties that give cause for concern	
	In thousands (A)	Average per financial institution	(B)	Ratio of counterparties giving cause for concern to total surveyed (B/A)
Total	1,373	2,036	97,837	7.1%
City banks and long-term credit banks, trust banks	299	15,743	33,956	11.4%
Regional banks	419	6,540	27,787	6.6%
Regional banks II	213	3,553	9,425	4.4%
<i>Shinkin</i> banks	400	1,136	24,302	6.1%
Others	42	233	2,367	5.7%

2. Action against Counterparties Lagging behind in their Year 2000 Preparations

On whether financial institutions intend to urge counterparties lagging behind in their Year 2000 preparations to speed up efforts, 74 percent replied that the financial institution as a whole would make such efforts, and 16 percent replied they would leave the decision on whether to take such action up to branches. Only 10 percent said they did not intend to urge firms. However, the percentage of financial institutions that plan to urge all of the firms with which they have business relations was limited to 47 percent even for city banks, long-term credit banks, and trust banks. Most financial institutions plan to urge only enterprises for which the financial institutions act as the main or sub-main bank.

3. Disclosure of Information

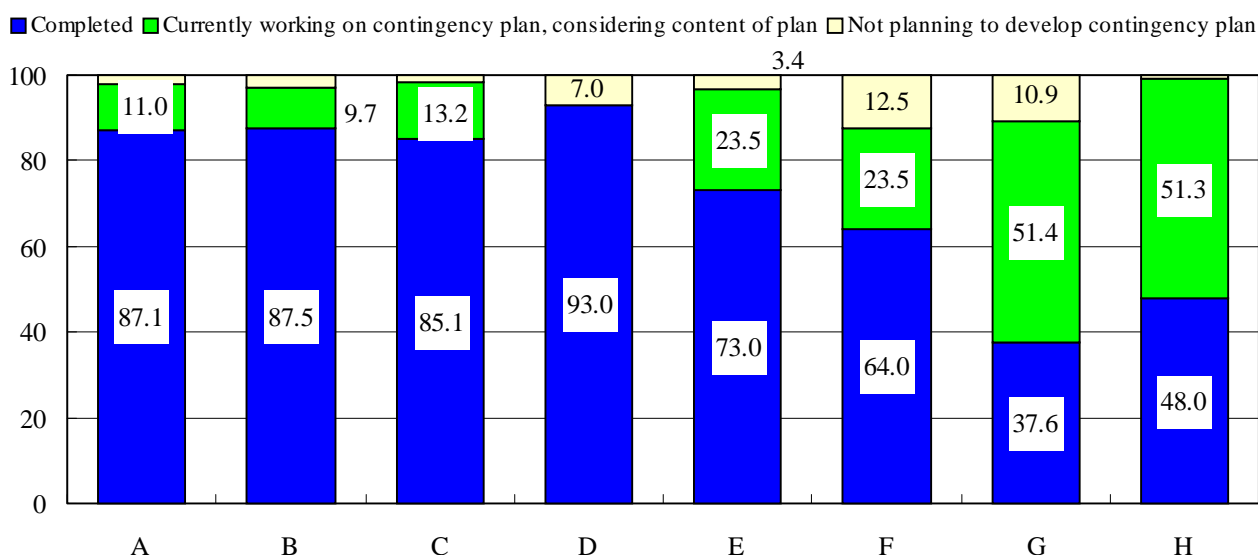
It is vital that financial institutions disclose information on their Year 2000 readiness through such mediums as Web sites in a timely manner to enhance depositor and corporate confidence in financial institutions. All city banks, long-term credit banks, and trust banks are taking care to swiftly update information available to the public. However, the proportion taking such action amongst all financial institutions was relatively small at 63 percent.

E. Development of Contingency Plans

1. Most Financial Institutions Have Finished Drawing up Contingency Plans.

As of the end of June, 98 percent of the financial institutions had developed contingency plans. About 87 percent had completed contingency plans while 11 percent had drawn up first drafts and were in the process of refining them. Almost 90 percent of the financial institutions had completed the following contingency planning: (1) identifying operations that need to be continued in the event of a systems failure; (2) organizing procedures for restoring critical systems; (3) planning for possible social confusion; and (4) developing countermeasures for each risk scenario. The majority of the financial institutions were still working on, or considering whether to develop, contingency plans for the cooperation with subsidiaries and overseas branches (Chart 5).

Chart 5: Progress in Developing Contingency Plans (%)



A: Have identified operations that need to be continued in the event of a systems failure.

B: Have organized procedure for restoring important systems.

C: Have developed countermeasures for each risk scenario.

D: Have assumed social confusion.

E: Have developed alternative measures for systems behind schedule in Year 2000 renovation.

F: Have completed a list of important counterparties.

G: Have coordinated arrangements for cooperation with subsidiaries, overseas branches.

H: Have identified dates for special arrangements.

For the period from late December 1999 to early January 2000, many financial institutions have identified critical dates for special arrangements with task forces on standby, and 68 percent have decided their policy on how to deal with funding and securing cash for branches, while about 30 percent were still mulling what measures to take.

F. Issues that Need to be Dealt with Judging from the Survey Results

The survey results indicate that financial institutions need to continue to work hard on the following main points.

1. Improvement of Contingency Plans

Most financial institutions have finalized or drafted contingency plans. However, as the results of the survey show, many items are still being worked on. Financial institutions need to expedite work on improving contingency plans, test their feasibility by conducting rehearsals and checking the plans in cooperation with relevant sections, and perfect them by improving their effectiveness and ease of implementation.

2. Collect Information on the Year 2000 Preparedness of Counterparties

The nature of the Year 2000 problem is such that financial institutions may not be able to avoid disruptions in the Year 2000 even if their systems and equipment are fully Year 2000 compliant. An unexpected disruption at a counterparty could be transmitted through the complex network of payment and settlement systems and may seriously affect financial institutions. Consequently, it is important for financial institutions to continue to work to mitigate risks by collecting as much information as possible on the Year 2000 readiness of other organizations.

3. Thorough Disclosure of Information

Financial institutions need to actively disclose accurate and concrete information on their Year 2000 readiness in order to improve market participants' and public confidence in financial institutions. Such efforts need to be made towards the turn of the year, so that client enterprises maintain their trust in, and can be confident in their business with, financial institutions.

4. Make the Most of Experiencing Risk Management for the Year 2000

The Year 2000 problem differs from natural disasters because the date is known in advance. This means that financial institutions need to take all necessary measures within a limited time frame. Furthermore, appropriate risk management is necessary for the various risks—system risks, operational risks, credit risks, settlement risks, legal risks, and reputational risks. The management of each financial institution should make the most of this experience of finding solutions for dealing with various

risks, and deepen the institution's recognition of inherent risks, acquire know-how on risk management, and further improve the institution's integrated risk management.

The Bank will continue to conduct interviews with, and targeted examinations of, major financial institutions that have a large influence on payment and settlement systems, and financial institutions that are, relative to others, lagging behind in their Year 2000 preparations. The Bank will monitor the Year 2000 readiness of these financial institutions and encourage them to take necessary measures.

II. Year 2000 Readiness of Major Payment and Settlement Systems in Japan

Year 2000 compliance of payment and settlement systems, in addition to that of individual financial institutions as described in the previous chapter, is essential to minimize Year 2000 risks in the financial system. As a payment and settlement system involves a number of financial institutions as participants, a Year 2000 disturbance in a single institution could spread to the other participants in the system and might even hamper the stable operation of other payment and settlement systems because of their linkage and interdependence.

What follows reviews the recent status of Year 2000 preparations of major payment and settlement systems in Japan. In summary, steady progress has been made in Year 2000 preparations in the payment and settlement area; all major payment and settlement systems have completed renovation and testing for mission-critical systems and also drafted at least the first version of their contingency plans.

The outline and results of the BOJ-NET external tests conducted jointly with various payment and settlement systems since December 1998 are described in detail in the next chapter.

A. Bank of Japan Systems

From the mid-1990s, the Bank of Japan started to identify potential Year 2000 problems with all computer systems and facilities it operated and managed. After the establishment of the Osaka Backup Center in April 1996, the Bank embarked on policy planning to address system aspects of the Year 2000 problem.

In fiscal 1997, the Bank of Japan began a comprehensive check of all computer and other systems with embedded microchips, ranging from host computer systems (e.g., BOJ-NET) and decentralized systems (e.g., OA systems) to equipment and facilities (e.g., elevators and air conditioning systems). The results showed that renovation would be necessary for three elements of computer systems: hardware, basic software (e.g., operating systems), and application programs (AP). It became clear that

equipment and facilities also needed some improvements.

The Bank of Japan established the following basic policy in fall 1997.

- (1) For host computer systems, the Bank will install Year 2000-compliant basic software and validate their operation. From the end of 1997, hardware will be upgraded and tested to start operation of Year 2000-compliant systems from January 1999.
- (2) For decentralized systems, the Bank will upgrade basic software, modify and test APs, and renovate hardware to start operating the Year 2000-compliant version of systems from the mid-1998.
- (3) External tests with financial institutions holding current accounts at the Bank and with private payment and settlement systems will be started by the beginning of 1999 at the latest, and completed by the mid-1999 or early fall of 1999.

According to this policy, the Bank of Japan proceeded diligently with its preparations to upgrade basic software and hardware, modify the APs in each system, and test their operation using simulated data in the Year 2000 environment.

As a result, the Bank of Japan completed Year 2000 preparations for host computer systems including the BOJ-NET by the end of January 1999, and for almost all decentralized systems by the end of June (Some OA systems are scheduled to become Year 2000 compliant by the end of September). For equipment and facilities, the necessary assessment and modification of programs were also completed by the end of June.

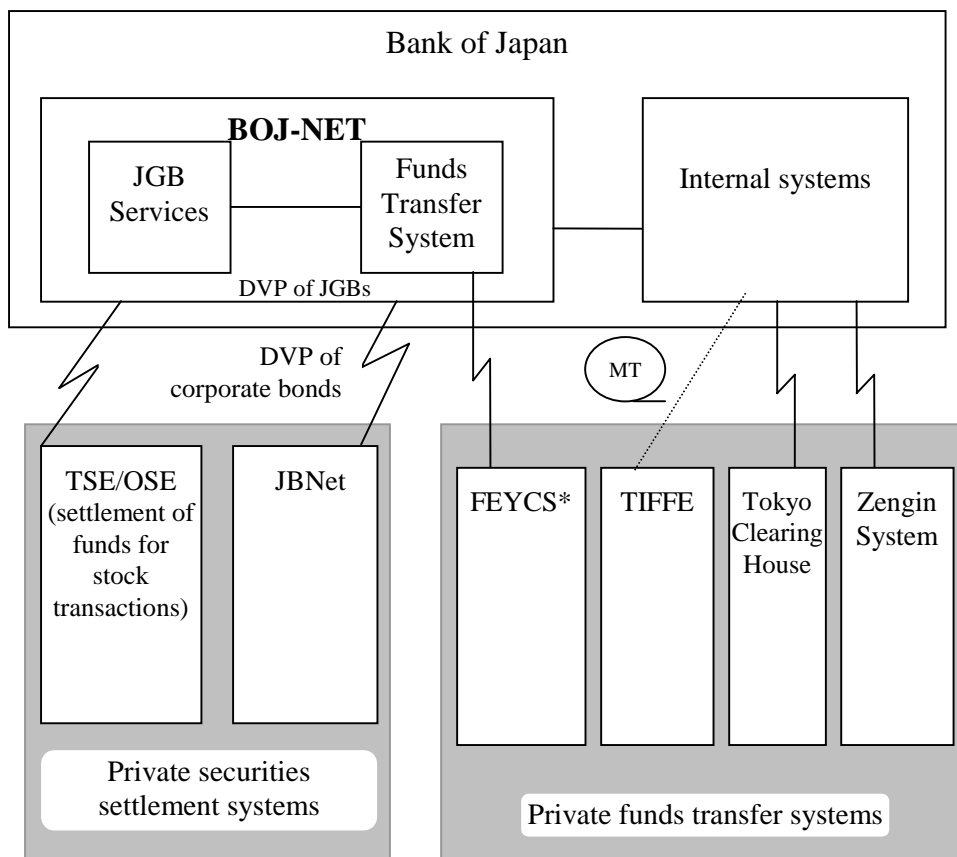
Together with these system-related preparations, the Bank of Japan also carried forward Year 2000 contingency planning. In January 1999, the Bank set up a Year 2000 Steering Group, chaired by Deputy Governor Yutaka Yamaguchi and comprising executive directors and directors of the relevant offices and departments of the Bank, and a working group comprising practitioners, to discuss details of the Bank's contingency plan. The Bank drew up its contingency plan and the outline of the plan was published in April and July 1999.²

² See *Outline of the Bank of Japan's Year 2000 Contingency Plan* (April 1999) and *Outline of the Bank of Japan's Year 2000 Contingency Plan: Additional information on several key items* (July 1999).

Box 1: Roles of the BOJ-NET in Payment and Settlement Systems in Japan

The Bank of Japan Financial Network System (BOJ-NET) is operated by the Bank. Operations of the BOJ-NET includes settlement of funds transfers across current accounts held by financial institutions at the Bank; clearing of yen payments related to the Foreign Exchange Yen Clearing System (FEYCS)*; issuance, registration, and book-entry transfer of Japanese government bonds and bills (JGBs); and delivery-versus-payment (DVP) services for JGBs and corporate bonds.

For the final settlement of funds and JGBs among financial institutions, the BOJ-NET has an on-line and off-line interface with various private payment and settlement systems (see chart below). Regarding funds transfers, the Bank has on-line links with the Zengin Data Telecommunications System (Zengin System) and the Tokyo Clearing House through its internal host computer systems. It also exchanges data by magnetic tapes (MT) with the Tokyo International Financial Futures Exchange (TIFFE). For securities transfers, it exchanges data with Tokyo Stock Exchange (TSE), Osaka Securities Exchange (OSE), and Japan Bond Settlement Network Co. (JBNet) through BOJ-NET terminals.



* Managed by the Tokyo Bankers Association (TBA). The Bank of Japan is entrusted by the TBA with the on-line processing of payment messages and the calculation of net balances for settlement via the BOJ-NET.

B. Private-Sector Funds Transfer Systems

1. Zengin Data Telecommunications System (Zengin System)³

The Year 2000-compliant, fourth-generation Zengin System came into operation from November 1995. External tests were conducted five times from December 1998 to July 1999, by connecting the Zengin center and computer systems of participating banks. The Zengin System participated in the external tests of the BOJ-NET, and verified that the exchange of the data was properly processed in the Year 2000 environment. The contingency plan was drawn up in March 1999 and modified in July.

2. Foreign Exchange Yen Clearing System (FEYCS)⁴

The renovation of computer systems was completed by December 1998. In line with the external tests of the BOJ-NET, external tests with participating banks were carried out seven times from October 1998 to July 1999. The test results showed that the Year 2000 problem had been appropriately addressed by the FEYCS. In June 1999, the FEYCS and some of its participants took part in the Year 2000 Global Payments Systems Test, which involved 34 payment and settlement systems and approximately 500 financial institutions from about 20 countries. The test was successfully completed in regard to the processing of cross-border funds transfers and the clearing of yen payments through the FEYCS (see Box 3 of Chapter 3). The contingency plan was drawn up in April 1999.

3. Tokyo Clearing House

The renovation of computer systems was completed by December 1998. From March 1999, the Tokyo Clearing House tested with participating financial institutions the processing of their settlement data recorded on MTs. It tested six times the transmission of data submitted via the Zengin System to the Bank of Japan for the settlement of clearing balances of bills and cheques, during the external tests of the BOJ-NET, from December 1998 to July 1999. The contingency plan was decided in March 1999 and revised in July.

³ An interbank clearing system for domestic funds transfers including credit transfers and customer payments between companies and individuals.

⁴ A system for clearing the yen leg of foreign exchange transactions.

4. Tokyo International Financial Futures Exchange (TIFFE)⁵

The TIFFE achieved Year 2000 compliance for its computer systems including central systems (e.g., matching, clearing, market database, and market information systems), network interface with participants, participants' terminal systems, and leased lines, through the overall renovation of its computer systems in March 1998. It conducted tests with participants in May and July 1999, and also participated in the external tests of the BOJ-NET in December 1998, and April, May, and July 1999. The test results indicated that no problem was identified in the processing of test data in the Year 2000 environment. The contingency plan was developed and released in July 1999.

⁵ The TIFFE submits to the Bank of Japan the data of clearing balances among member financial institutions by MTs for the settlement of funds across their accounts held at the Bank.

Table 3: Year 2000 Readiness of Private-Sector Funds Transfer Systems

(As of end-July 1999)

Name of the system (operator of the system)	Operations performed by the system	Number of participants	Year 2000 compliance achieved by:	Tests with participants conducted:	Contingency plan developed in:
<i>Systems whose final settlement is carried out through the BOJ-NET</i>					
Zengin System (TBA)	Interbank clearing of domestic funds transfers	2,570 financial institutions	November 1995	December 1998-July 1999	March 1999; revised in July 1999
FEYCS (TBA)	Clearing of the yen leg of foreign exchange transactions	260 banks	December 1998	October 1998-July 1999	April 1999
Tokyo Clearing House (TBA)	Clearing of bills and cheques	129 banks	December 1998	December 1998-July 1999	March 1999; revised in July 1999
TIFFE	Clearing of financial futures	88 banks 70 companies	March 1998	December 1998-July 1999	July 1999
<i>Data communications systems managed by the central organizations</i>					
Zenshinkin System	Domestic funds transfers for <i>shinkin</i> banks	396 <i>shinkin</i> banks	October 1998	November 1998-June 1999	May 1999
Data Transmission System for Credit Cooperatives	Domestic funds transfers for credit cooperatives	309 credit cooperatives	May 1999	February-August 1999	June 1999
Central Network System for Labour Banks	Domestic funds transfers for labour banks	42 labour banks	March 1999	November 1998-June 1999	June 1999
Agricultural Cooperative Savings Network Service	Domestic funds transfers for agricultural cooperatives	1,671 agricultural cooperatives	October 1998	March-May 1999	April 1999

Table 3: Year 2000 Readiness of Private-Sector Funds Transfer Systems (Cont.)

Name of the system (operator of the system)	Operations performed by the system	Number of participants	Year 2000 compliance achieved by:	Tests with participants conducted:	Contingency plan developed in:
<i>CD/ATM networks</i>					
MICS	Intermediary of CD/ATM networks listed below	See below	March 1997	April-May 1999	June 1999
BANCS	CD/ATM network for city banks	11 banks	March 1997	April-May 1999	March 1999
ACS	CD/ATM network for regional banks	64 banks	June 1998	November 1998-May 1999	May 1999
SOCS	CD/ATM network for trust banks	7 banks	October 1993	April-May 1999	June 1999
LONGS	CD/ATM network for long-term credit banks and Shoko Chukin Bank	4 banks	November 1994	April-May 1999	May 1999
SCS	CD/ATM network for regional banks II	60 banks	May 1997	November 1998-May 1999	June 1999
SNCS	CD/ATM network for <i>shinkin</i> banks	395 <i>shinkin</i> banks	October 1998	November 1998-June 1999	April 1999
SANCS	CD/ATM network for credit cooperatives	274 credit cooperatives	May 1999	February-August 1999	June 1999
ROCS	CD/ATM network for labour banks	41 labour banks	March 1999	April-May 1999	June 1999
Agricultural Cooperative Network	CD/ATM network for agricultural cooperatives	1,644 agricultural cooperatives	September 1998	March-June 1999	June 1999
<i>Electronic Banking (EB)/Firm Banking (FB)/Home Banking (HB) networks</i>					
Joint CMS	FB network for city banks	20 banks 1,033 companies	December 1998	January-June 1999	June 1999
CNS	FB network for regional banks	64 banks 258 companies	September 1997	January-June 1999	May 1999
SDS	FB network for regional banks II	60 banks 171 companies	February 1996	November 1998-June 1999	June 1999
Shinkin Data Transfer System	FB network for <i>shinkin</i> banks	133 <i>shinkin</i> banks 168 companies	October 1998	November 1998-June 1999	April 1999
ANSER system	FB/HB networks	562 banks	October 1997	-June 1999	June 1999

Table 3: Year 2000 Readiness of Private-Sector Funds Transfer Systems (Cont.)

Name of the system (operator of the system)	Operations performed by the system	Number of participants	Year 2000 compliance achieved by:	Tests with participants conducted:	Contingency plan developed in:
<i>Other systems</i>					
CAFIS	On-line processing of credit card payments	133 banks	January 1998	March-June 1999	June 1999
S.W.I.F.T.	Data communications for cross-border financial transactions	262 banks	December 1998	March-July 1999	June 1999
MT exchange	Interbank bulk data transfers	104 banks	December 1998	March 1999	March 1999
Personal credit information system	Credit reference service for financial institutions registering credit histories of consumer loans	126 banks	December 1998	December 1998-July 1999	April 1999

Source: Based on information from the Year 2000 Liaison Meeting.

C. Private-Sector Securities Settlement Systems

1. Tokyo Stock Exchange (TSE)

The TSE completed the necessary renovation of computer systems for trading, information transmission, and clearing in December 1998. From January to June 1999, it conducted external tests with members and special participants, and participated in the external tests of the BOJ-NET in December 1998, and February, April, May, and June 1999. The TSE commented on the results of the tests, “a few problems in January and February, due to the early stages of Y2K preparedness. From March, however, the number of problems decreased, most likely because of Y2K compliance-preparations by members/special participants.”

The TSE also reported that all members and special participants took part in the test carried out in June, which was completed without problems. It released its contingency plan in July 1999 after seeking public comments on the draft plan.

In addition, in January 1999 the TSE announced a policy of excluding members and special participants failing to achieve Y2K compliance from live trading and settlement in the year 2000 until their systems are fully compliant to ensure the safety and stability of the market.

The TSE also plans to conduct a final external test in October and hold a “Health Check Test” on January 2, 2000 to confirm normal operation of the first business day.

2. Osaka Securities Exchange (OSE)

The OSE completed the necessary internal test of computer systems in December 1998. From February to June 1999, it conducted external tests with member securities firms and participated in the external test of the BOJ-NET in June. No Year 2000-related errors occurred in these tests. The OSE released its contingency plan in July to seek public comments.

3. JBNet⁶

JBNet's computer systems were Year 2000 compliant from the start of operations in December 1997. JBNet participated in the external tests of the BOJ-NET in December 1998 and thereafter with participating financial institutions and pre-settlement service agencies. These tests confirmed that the test data were properly processed in the Year 2000 environment. The contingency plan was drawn up in June 1999.

4. Japan Securities Depository System (JASDEC)⁷

JASDEC completed the necessary renovation of terminals in June 1997 and host computers in June 1998. It also carried out external tests with its participants in November 1998, and January, February, April, May, and June 1999. With respect to the results of these tests, JASDEC stated, "Although certain items have not been confirmed with a few participants due to errors in environmental settings, data preparation, etc., all tests were generally completed with no material problem. JASDEC believes that these tests confirm the stability of the processing of tasks between the custody and transfer system of JASDEC and the systems of participants and issuing companies." The contingency plan was drafted and released in July 1999.

5. JASDAQ⁸

The necessary renovation of computer systems was completed in November 1998. External tests with users were conducted from January to June 1999, in which no Year 2000-related errors were found by the Japan Securities Dealers Association. In July 1999, the Association drafted and released its contingency plan in the event of disruptions in the JASDAQ system and/or computer systems of associated users.

⁶ A system operated by the Japan Bond Settlement Network Co. for the settlement of corporate and other bonds.

⁷ A system operated by the Japan Securities Depository Center (JASDEC) for custody and book-entry transfer of securities.

⁸ A system operated by the Japan Securities Dealers Association for the trading and settlement of OTC stocks.

Table 4: Year 2000 Readiness of Private-Sector Securities Settlement Systems

(As of end-July 1999)

Name of the system (operator of the system)	Operations performed by the system	Number of participants	Year 2000 compliance achieved by:	Tests with participants conducted:	Contingency plan developed in:
Tokyo Stock Exchange (TSE)	Trade processing and settlement of listed share transactions, futures, and options	236	December 1998	January-October 1999	July 1999
Osaka Securities Exchange (OSE)	Trade processing and settlement of listed share transactions, futures, and options	114	December 1998	February-June 1999	July 1999
JBNet (Japan Bond Settlement Network Co.)	Data exchange concerning settlement of corporate and other bonds	339	December 1997	December 1998-July 1999	June 1999
Japan Securities Depository System (JASDEC)	Custody and book-entry transfer of securities	328	June 1998	November 1998-June 1999	July 1999
JASDAQ (Japan Securities Dealers Association)	Trade processing and settlement of OTC stock and other transactions	187	November 1998	January-June 1999	July 1999

III. Results of the External Tests of the BOJ-NET

A. Outline of the External Tests

As noted in the previous chapters, the Bank of Japan conducted six external tests of the BOJ-NET jointly with private-sector payment and settlement systems from December 1998 to July 1999 (see Box 2). The tests were conducted for the final checkup on the Bank's Year 2000 preparations that began in the mid-1990s.

The general purpose of external tests is to confirm comprehensively and across various computer systems whether payment and settlement systems and their participants have adequately addressed the Year 2000 problem. From the viewpoint of the functions of the BOJ-NET, the external tests aim to: (i) check business operations processed by financial institutions over the BOJ-NET (see Box 1 in Chapter 2); (ii) confirm the transmission of credit transfer statements (notification of transfer details classified by the type of financial institution) concerning the outflow of treasury payments processed over the BOJ-NET and the Zengin System and the corresponding credit transfer to BOJ current accounts; (iii) provide opportunities for individual financial institutions and payment and settlement systems that interface with the BOJ-NET to test their internal systems for the Year 2000 problem.

External tests confirmed that the entire on-line network of the BOJ-NET, including the computer center of the Bank of Japan and terminals and related internal systems of BOJ-NET participants, could operate properly in the year 2000 environment. Besides this, the tests provided financial institutions with opportunities to verify the entire process of transactions initiated in their internal systems and subsequently processed in the BOJ-NET. The tests also encouraged Year 2000 preparations in the financial industry as a whole because individual financial institutions typically considered the test dates as the target dates for completion of their internal Year 2000 preparations.

The results of the external tests indicate that Japan's payment and settlement systems as a whole are well prepared for the year 2000. The tests confirmed normal business processing for the transfer of funds and the delivery of JGBs among financial

institutions on the simulated dates of January 4, 2000 (i.e., the first business day in Japan) and February 29, 2000, the leap day.

The following sections describe the test plan and test results of the external tests in more detail. Information on additional Year 2000-related external tests is also provided.

Box 2: Industry-wide Tests of the Financial Industry in Japan

There are three types of external tests for payment and settlement systems to verify their Year 2000 preparations: (i) a *point-to-point test* conducted within a payment and settlement system where test data are exchanged between the center of the system and each of its participants; (ii) an *end-to-end test* conducted within a payment and settlement system where its participants exchange test data with other participants through the system; and (iii) an *industry-wide test* or *street-wide test* carried out jointly by several payment and settlement systems together with their participants. Industry-wide tests are very important and effective for individual financial institutions as they can test the entire process of transactions and operations in the way they actually make transactions.

In Japan, the BOJ-NET and other key payment and settlement systems, such as the Zengin System and Tokyo Stock Exchange, cooperated and coordinated external test dates and simulated dates to realize industry-wide tests on a large scale. The relevant government agencies, such as the accounting center of the Ministry of Finance, also cooperated in the external tests by providing test data on outflow of treasury payments.

B. Test Plan and Test Results

Test Plan

The key information on the external tests of the BOJ-NET is summarized in Table 5 below.⁹

Table 5: External Tests of the BOJ-NET

Test date	Sun., Dec. 20, 1998	Sun., Feb. 14, 1999	Sun., Apr. 25, 1999
Simulated date	Tues., Jan. 4, 2000	Tues., Jan. 4, 2000	Tues., Feb. 29, 2000
Participating systems	BOJ-NET Zengin System Foreign Exchange Yen Clearing System JBNet Personal Credit Information System Tokyo Clearing House* Tokyo International Financial Futures Exchange* Tokyo Stock Exchange* Japan Bond Trading Co.* Osaka Securities Exchange* Osaka Clearing House* Nagoya Clearing House* Shizuoka Clearing House* Kobe Clearing House* Zenshinkin System*	BOJ-NET Tokyo Stock Exchange Osaka Securities Exchange JASDAQ Japan Securities Depository Center JBNet Zengin System Foreign Exchange Yen Clearing System Personal Credit Information System Zenshinkin System* Data Transmission System for Credit Cooperatives* Central Network System for Labour Banks* Tokyo Clearing House* Yokohama Clearing House*	BOJ-NET Zengin System Foreign Exchange Yen Clearing System Personal Credit Information System JBNet Zenshinkin System* Data Transmission System for Credit Cooperatives* Agricultural Cooperative Savings Network Service* Central Network System for Labour Banks* Tokyo Clearing House* Osaka Clearing House* Nagoya Clearing House* Yokohama Clearing House* Shizuoka Clearing House* Kobe Clearing House* Fukuoka Clearing House* Tokyo Stock Exchange* Tokyo International Financial Futures Exchange* Japan Bond Trading Co.*
Number of institutions that participated (BOJ-NET)	443	111	214

* Network systems that participated in the test, either by themselves or with some of their member financial institutions.

⁹ The Bank of Japan made public the detailed plan and schedules of the external tests. Please see the list of the Bank's publications on external tests in Annex 2.

Table 5: External Tests of the BOJ-NET (cont.)

Test Date	Sun., May 16, 1999	Sat., Jun. 12, 1999 Sun., Jun. 13, 1999 Sat., Jun. 26, 1999 Sun., Jun. 27, 1999	Sun., Jul. 25, 1999
Simulated Date	Tues., Jan. 4, 2000	Thurs., Dec. 30, 1999 Tues., Jan. 4, 2000 Wed., Jan. 5, 2000 Thurs., Jan. 6, 2000	Tues., Feb. 29, 2000
Participating systems	BOJ-NET Zengin System Foreign Exchange Yen Clearing System Personal Credit Information System Tokyo Stock Exchange Tokyo International Financial Futures Exchange JB Net Zenshinkin System* Agricultural Cooperative Savings Network Service* Central Network System for Labour Banks* Tokyo Clearing House* Fukuoka Clearing House*	BOJ-NET Zengin System Foreign Exchange Yen Clearing System Tokyo Stock Exchange Osaka Securities Exchange JASDAQ Japan Securities Depository Center JB Net Japan Bond Trading Co. Zenshinkin System* Central Network System for Labour Banks* Tokyo Clearing House*	BOJ-NET Zengin System Foreign Exchange Yen Clearing System Personal Credit Information System JB Net Tokyo International Financial Futures Exchange Data Transmission System for Credit Cooperatives* Tokyo Clearing House*
Number of institutions that participated (BOJ-NET)	135	277	48

* Network systems that participated in the test, either by themselves or with some of their member financial institutions.

1. Test Date and Simulated Date

The external tests of the BOJ-NET were carried out on bank holidays six times in total. Four tests with the simulated date of January 4, 2000 were conducted on December 20, 1998, and February 14, May 16, and June 12, 13, 26 and 27, 1999. Two tests with the simulated date of February 29, 2000 were conducted on April 25 and July 25, 1999.

As securities transactions require some days from the trade contract to the settlement of securities and funds (e.g., T+3 for the settlement of JGBs), the external test conducted in June simulated four consecutive business days, December 30, 1999, and January 4, 5 and 6 in the year 2000, to provide testing opportunities for the entire process of securities transactions. In addition, the “Year 2000 Global Payments Systems Test” was conducted as part of the external test carried out on June 12 and 13 (see Box 3).

Box 3: Year 2000 Global Payments Systems Test

On June 12 and 13, 1999, the test dates for the first half of the external test of the BOJ-NET in June, major payment and settlement systems and networks around the world jointly conducted the “Year 2000 Global Payments Systems Test” to test Year 2000 transaction processing of cross-border funds transfers in a Year 2000 environment.

This test was planned on the basis of the proposal by the New York Clearing House Association L.L.C. (NYCH) to check processing of funds settlement of foreign exchange transactions in a Year 2000 global environment. Thirty-four payment and settlement systems and approximately 500 financial institutions from about 20 countries participated in the test. From Japan, the Foreign Exchange Yen Clearing System (FEYCS) and 36 member financial institutions took part.

Test participants exchanged messages such as payment orders with the simulated test date of January 4, 2000 via S.W.I.F.T., a provider of global telecommunications infrastructure for the cross-border transmission and exchange of payment messages for interbank transactions. Participants who received these messages then processed payment orders for funds settlement through their respective domestic payment and settlement systems. It was verified that a series of processings for cross-border funds transfers were successfully carried out. For the details of the test results, see the Web site of the NYCH (<http://www.chips.org>).

2. Test Participants

The participants in the external tests were BOJ-NET on-line users (520 institutions as of end-June 1999) and private-sector payment and settlement systems with a system interface with the Bank of Japan’s computer systems.

BOJ-NET on-line users are classified by the types of interface they have with the BOJ-NET. There are on-line users who access the BOJ-NET through dedicated BOJ-NET terminals (terminal users) and those who access the BOJ-NET by having a direct CPU-to-CPU connection between their computer systems and the computer center of the Bank through telecommunications lines (CPU-to-CPU interface users). Terminal users are further classified into three categories according to the way they input data to BOJ-NET terminals for transmission. There are those who input data to BOJ-NET terminals: (i) manually (manual input); (ii) by floppy disks (FD data exchange system); and (iii) by file transfer through an on-line link between their computer systems and BOJ-NET terminals (NTC file transfer system). The Bank requested each category of BOJ-NET on-line users to participate in the external tests in the way they usually exchange data over the BOJ-NET. About 95 percent of on-line users, 496 institutions, took part in at least one of the six external tests (see Table 4).

Table 6: Rate of Participation for the Different Categories of BOJ-NET Users

Total	95%
Terminal users	95%
Users with manual input	94%
Users with FD data exchange system	99%
Users with NTC file transfer system	100%
CPU-to-CPU interface users	100%

Private-sector payment and settlement systems also have several types of interface with the BOJ-NET and/or the Bank's computer systems; there are those that exchange data with the Bank's systems on-line through telecommunications lines, and those that exchange data by MTs or FDs. The tests were open to private-sector payment systems with either type of interface with the Bank and those participating in the tests confirmed normal exchange of data between their systems and the Bank's computer systems. With various payment and settlement systems taking part in the external tests, the tests provided financial institutions with opportunities to check the entire process of transactions across different systems in much the same environment as the production environment.

3. Test Environment

The external tests were carried out primarily in the production environment, where hardware, software and networks were those normally used, to conduct the final checkup on the Year 2000 preparations of the BOJ-NET most effectively. Regarding test data for the use of participants, the Bank took out the actual data stored in its computer systems as of a certain point of time prior to the test dates and substituted simulated data with the dates in the Year 2000 immediately before the external tests.

In conducting the tests, the Bank of Japan also requested test participants having any system interface with the BOJ-NET, such as CPU-to-CPU interface users, and FD data exchange/NTC file transfer BOJ-NET terminal users, to take part in the external tests by setting their computer systems to the year 2000 environment.

4. Test Data

To carry out the external tests in much the same environment as in the production environment, the Bank of Japan took an approach that enabled each participant to prepare and transmit the data of their choice to other participants, with whom they usually have business relations, for different types of transactions conducted over the BOJ-NET. The types of transactions include funds transfers across current accounts, the clearing of the yen leg of foreign exchange transactions, JGB issuance, JGB transfer registration, JGB book-entry transfers, DVP of JGBs, and DVP of corporate bonds and other bonds. Compared to tests with predetermined types and messages of test data, the external tests of the BOJ-NET allowed a wide variety of test messages to be exchanged between participants. The Bank considered that this approach would enhance the effectiveness of the tests.

Test data used between the Bank's systems and private-sector payment and settlement systems were made transferable to the Bank's computer systems according to the same procedures as in usual operation. Those included data prepared by the payment and settlement systems for their external tests, which were conducted at the same time as the external tests of the BOJ-NET.

Test Results

The Bank of Japan confirmed the proper functioning of the BOJ-NET and the successful exchange of data between the Bank's systems and private-sector payment and settlement systems. For each external test, the Bank received preliminary test results on the test day from BOJ-NET on-line users participating in the tests, and compiled and released the test results jointly with those of private-sector payment and settlement systems participating.¹⁰

The following section explains the results of the external test of the BOJ-NET on the basis of the finalized test results provided by test participants.

(a) Bank of Japan

The Bank of Japan's computer center confirmed normal operation of the BOJ-NET (i.e., the exchange of data between individual financial institutions over the BOJ-NET) and successful data transfer between the Bank's computer systems and private-sector payment and settlement systems on the simulated year 2000 dates and in the test environment described above. In addition, for data transfer between the BOJ-NET and the payment and settlement systems, the Bank inquired of the relevant participants of the BOJ-NET whether the data transfers between the BOJ-NET and private-sector payment and settlement systems were accurately updated in the BOJ-NET, and it was confirmed that data were accurately updated.

(b) BOJ-NET on-line users

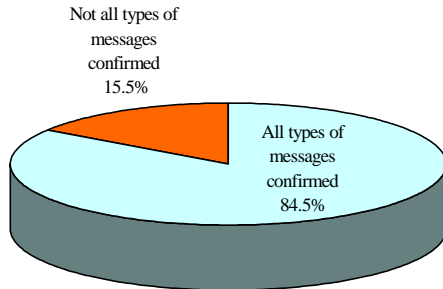
BOJ-NET on-line users that participated in the tests confirmed that they could, according to the test manuals, start up and/or shut down BOJ-NET terminals, and exchange test data with other participants without Year 2000-related problems for business operations conducted by the BOJ-NET (see Chart 6). Test participants also confirmed that various types of on-line processing of the BOJ-NET were performed correctly in the year 2000 environment, including confirmation that the results of the calculation of various test data that were exchanged were correctly reflected in current account balances and JGB account balances at each designated settlement time.

¹⁰ Please see publications listed in "Test results" in the Annex 2.

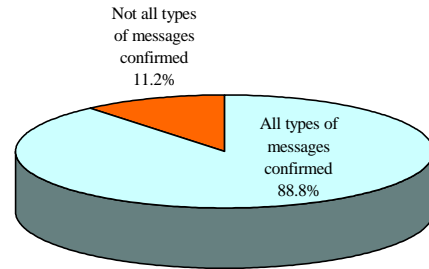
Chart 6: Confirmation of the Exchange of Data

-- Average of the six external tests

Simulated Date: January 4, 2000



Simulated Date: February 29, 2000



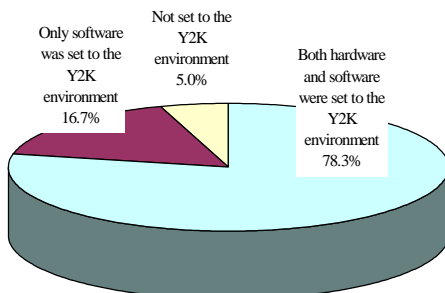
Note: The figures were calculated by simply adding up the test results reported by test participants for each external test. Participants who answered “not all types of messages confirmed” did so because they limited the range of messages they confirmed in each test. After six external tests, however, these participants also reported that they had confirmed exchange of all types of messages.

Over 90 percent of BOJ-NET on-line users whose computer systems have some interface with the BOJ-NET (CPU-to-CPU interface users, FD data exchange system users, NTC file transfer system users) had set their computer systems, either both hardware and software or software only, to the year 2000 environment (see Chart 7). They confirmed that both the preparation of the data to be input to the BOJ-NET and the exchange of the data between the BOJ-NET and their computer systems were successful in this test environment.

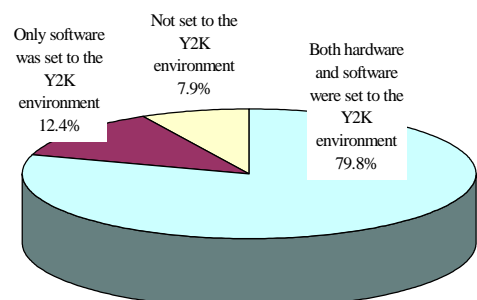
Chart 7: Test Environment of BOJ-NET Users with a System Interface with the BOJ-NET

-- Average of all six external tests

Simulated Date: January 4, 2000



Simulated Date: February 29, 2000



(c) Errors in the external tests

No participant in the external tests of the BOJ-NET reported that they had experienced errors related to the Year 2000 problem.

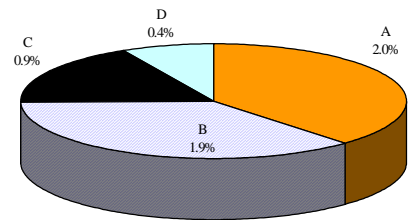
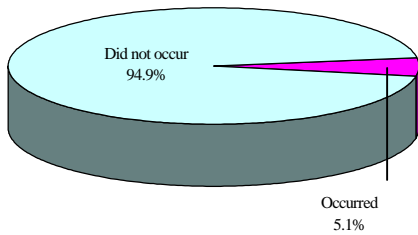
Note: Four to five percent of all the test participants reported that they had experienced some errors in the external tests. Most of the errors were due to incorrect procedures in operating BOJ-NET terminals, the incorrect use of ID cards for the test purpose and participants' lack of understanding of test procedures. See the breakdown of the types of error in Chart 8 below.

Chart 8: Errors in the External Tests

-- Average of all six external tests

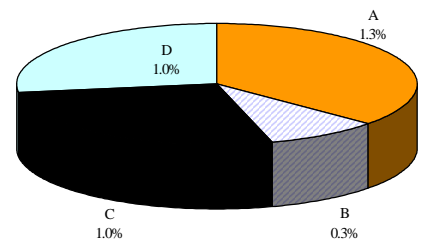
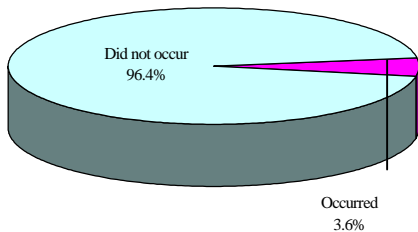
Simulated Date: January 4, 2000

[Breakdown of Type of Error]



Simulated Date: February 29, 2000

[Breakdown by Type of Error]



- A: Incorrect operational procedures and/or wrong test environment in the BOJ-NET or relevant internal systems of test participants
- B: Incorrect use of ID cards (i.e., those issued especially for the test) necessary for operating BOJ-NET terminals in the tests
- C: Incorrect test procedures due to participants' lack of understanding of test procedures
- D: Disruptions in telecommunications lines and/or printers

C. Planned External Tests

In addition to the six external tests already carried out, the Bank of Japan plans the following test and drill for the Year 2000 problem.

1. External test of the BOJ-NET after the transition to the year 2000

The Bank of Japan plans to conduct an external test on January 2, 2000 to confirm the proper start up of BOJ-NET terminals and the relevant facilities, and the connectivity of the entire BOJ-NET on-line network to ensure smooth operation of the BOJ-NET in the year 2000. The simulated date of the test is January 4, 2000.

In the test, BOJ-NET on-line users will confirm on-line connectivity between their BOJ-NET terminals/in-house computer systems and the BOJ-NET center. Private-sector payment and settlement systems (i.e., the Zengin System, Tokyo Clearing House, JBNet, Tokyo International Financial Futures Exchange) plan to check the exchange of settlement data with the Bank.

2. Year 2000 Drill for Year 2000 Disruptions

Since the establishment of the Osaka Backup Center in April 1996, the Bank conducts a drill every year for the BOJ-NET to enhance the ability of BOJ-NET users and the Bank staff to address system disruptions at the Bank's computer center in Tokyo (primary site of BOJ-NET operation). Both BOJ-NET users and the headquarters and branches of the Bank participate in the drill.

This year, the Bank of Japan plans to conduct a drill in the Year 2000 environment (i.e., January 4, 2000) on September 19, 1999 as part of the usual drill. In the drill, the operation of the BOJ-NET will be switched from the primary site in Tokyo to the backup site in Osaka.

Annex 1: Tables for Survey of Financial Institutions on their Year 2000 Preparations

Survey Procedures

Respondents: Financial institutions that have current accounts at the Bank of Japan as of the end of June 1999. Of the total 676 financial institutions, two financial institutions—one that was due to transfer its business and another that was due to be shut down permanently, both in July—were excluded. All of the 674 financial institutions completed and returned the questionnaires.

Foreign Institutions: Foreign banks and securities companies operating in Japan. These institutions were asked to provide answers only for their operations in Japan.

Survey Period: The respondents filled in information as of June 30, and the questionnaires were collected in early- to mid-July.

Financial Institutions Surveyed

Type	Number surveyed	Notes
City banks and long-term credit banks	12	
Trust banks	7	Excludes foreign trust banks and subsidiary trust banks.
Regional banks	64	
Regional banks II	60	
<i>Shinkin</i> banks	352	
Securities companies	31	Excludes foreign securities companies and subsidiary securities companies.
Central organizations	14	Norinchukin Bank, Shoko Chukin Bank, Zenshinren Bank, Shinkumi (credit cooperatives) Federation Bank, Federation of Labor Credit Associations, Securities finance companies, and <i>tanshi</i> companies (money market dealers).
Financial subsidiaries	27	Subsidiary trust banks and securities companies.
Foreign institutions	107	Foreign banks, trust banks, and securities companies
Total	674	

Definition of Types of Systems

Type of System	Definition
Main accounting systems	Main systems for operations related to accounting such as the management of deposits and loans. Also includes the accounting system for customers of trust banks and the order/settlement system of securities companies.
Information systems	Customer information systems and systems related to business performance and the earnings of head offices and branches.
Externally linked systems	Externally linked systems for the exchange of data with customers to enable direct debit of payrolls and public utility charges, and firm/home banking. Also includes linkages with payment and settlement systems.
Funds and securities systems	Systems for front office/back office processing related to domestic transactions of funds and securities.
International operations systems	Domestic systems for foreign exchange and international operations including those for overseas branches and subsidiaries.
Small and medium-scale systems	Decentralized and other small/medium-scale systems managed by end-user sections including office computers and personal computers.
Branch/ATM terminals	Online terminals at branches, CD/ATM terminals, and terminal controllers, etc.
Overseas branches' systems	Systems at overseas branches and subsidiaries.
Subsidiaries' systems	Systems used at subsidiaries.
Equipment and facilities	Power supply facilities, heating and cooling systems, security systems, vaults, elevators, and other equipment and facilities which might contain embedded microchips.
Others	Other systems.

I. Preparations for the Century Date Change

A. Degree of Management Involvement in Checking Year 2000 Readiness %

	number of respondents	Confirms the status of Year 2000 projects in detail at management meetings and gives specific instructions.	Confirms the status of Year 2000 projects at management meetings, but detailed instructions are given by the executive in charge.	Checks roughly and gives necessary instructions only.	Year 2000 projects mostly managed by subordinates.
Total	(674)	40.4	52.2	7.1	0.3
City banks and long-term credit banks	(12)	83.3	16.7	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0	0.0
Regional banks	(64)	64.1	35.9	0.0	0.0
Regional banks II	(60)	50.0	50.0	0.0	0.0
<i>Shinkin</i> banks ¹	(352)	28.4	61.4	9.9	0.3
Own systems	(66)	37.9	51.5	10.6	0.0
Joint center members	(286)	26.2	63.6	9.8	0.3
Securities companies	(31)	25.8	71.0	3.2	0.0
Central organizations	(14)	50.0	42.9	7.1	0.0
Financial subsidiaries	(27)	63.0	29.6	7.4	0.0
Foreign institutions	(14)	48.6	42.1	8.4	0.9

Note: 1. "Own systems" refers to *shinkin* banks that have their own computer systems. "Joint center members" refers to *shinkin* banks that are members of joint computer system centers.

B. Expenditure for Year 2000 Preparations 100 million yen, %

	Total					
		Change from previous survey	Parent company	Change from previous survey	Subsidiaries	Change from previous survey
Total	4,552	26.0	3,986	22.1	566	63.3
City banks and long-term credit banks	1,930	20.4	1,557	16.0	373	43.3
Trust banks	512	12.4	495	12.4	17	13.4
Regional banks	703	23.3	670	21.7	33	66.8
Regional banks II	217	29.2	187	28.5	30	33.4
<i>Shinkin</i> banks	469	37.7	465	37.5	4	64.4
Own systems	186	42.9	183	42.2	3	89.9
Joint center members	283	34.5	283	34.6	0	-22.2
Securities companies	402	28.9	302	4.7	100	325.9
Central organizations	127	174.5	118	168.5	10	278.9
Financial subsidiaries	34	33.9	34	33.9	0	-
Foreign institutions	159	72.5	158	74.2	0	-68.0

C. Prospects for Completing Year 2000 Preparations

%

	number of respondents	Preparations have been completed without any problems.	Preparations likely to be completed soon without any problems.	There may be some difficulties, but very likely to complete preparations without any problems.	Not confident that will complete preparations without any problems.	Not sure. (Cannot say for certain.)
Total	(674)	49.0	46.6	4.5	0.0	0.0
City banks and long-term credit banks	(12)	58.3	41.7	0.0	0.0	0.0
Trust banks	(7)	57.1	42.9	0.0	0.0	0.0
Regional banks	(64)	42.2	57.8	0.0	0.0	0.0
Regional banks II	(60)	63.3	35.0	1.7	0.0	0.0
<i>Shinkin</i> banks	(352)	44.3	48.3	7.4	0.0	0.0
Own systems	(66)	50.0	47.0	3.0	0.0	0.0
Joint center members	(286)	43.0	48.6	8.4	0.0	0.0
Securities companies	(31)	48.4	45.2	6.5	0.0	0.0
Central organizations	(14)	35.7	64.3	0.0	0.0	0.0
Financial subsidiaries	(27)	55.6	44.4	0.0	0.0	0.0
Foreign institutions	(107)	58.9	40.2	0.9	0.0	0.0

D. Confirmation of Year 2000 Compliance of the Interface with Joint Computer System Centers

%

	number of respondents	Our institution has taken responsibility and confirmed Year 2000 compliance.	Our institution is currently in the process of confirmation.	Do not think it necessary for our institution to confirm Year 2000 compliance.
Total	(313)	82.1	11.5	6.4
City banks and long-term credit banks	(0)	-	-	-
Trust banks	(0)	-	-	-
Regional banks	(0)	-	-	-
Regional banks II	(11)	100.0	0.0	0.0
<i>Shinkin</i> banks	(287)	80.5	12.5	7.0
Own systems	(4)	100.0	0.0	0.0
Joint center members	(283)	80.2	12.7	7.1
Securities companies	(7)	100.0	0.0	0.0
Central organizations	(0)	-	-	-
Financial subsidiaries	(5)	100.0	0.0	0.0
Foreign institutions	(3)	100.0	0.0	0.0

Note: 1. Members of joint computer system centers were asked this question.

II. System-related Issues

A. Expected Completion Date of Renovation and Internal Testing

1. Main Accounting Systems

%

	number of respondents	end of 1997	end-June 1998	end-Sept. 1998	end-Dec. 1998	end-March 1999	end-June 1999	end-Sept. 1999
Total (forecasts in the previous survey in parentheses)	658 (663)	42.1 (42.2)	45.4 (48.3)	48.5 (54.1)	65.3 (79.2)	77.8 (92.2)	98.3 (96.5)	100.0 (98.2)
City banks and long-term credit banks	(12)	0.0	0.0	0.0	25.0	50.0	100.0	100.0
Trust banks	(7)	0.0	0.0	0.0	14.3	85.7	100.0	100.0
Regional banks	(64)	1.6	12.5	21.9	54.7	78.1	100.0	100.0
Regional banks II	(57)	10.5	15.8	21.1	64.9	82.5	100.0	100.0
<i>Shinkin</i> banks	(352)	76.1	78.1	79.5	86.9	92.6	99.7	100.0
Securities companies	(30)	0.0	0.0	3.3	10.0	30.0	100.0	100.0
Central organizations	(14)	14.3	14.3	14.3	42.9	57.1	92.9	100.0
Financial subsidiaries	(23)	0.0	0.0	0.0	8.7	26.1	91.3	100.0
Foreign institutions	(99)	0.0	5.1	10.1	37.4	54.5	92.9	100.0

Note: 1. Excludes financial institutions that do not need to renovate systems.

2. *Shinkin* banks that are members of joint computer system centers, and do not need to adjust systems are included in figures for the end of 1997, as was the case in the previous survey.

2. Expected Completion Date of Renovation and Internal Testing, Breakdown by System (Excludes Main Accounting System)

%

	number of respondents	end of 1997	end-June 1998	end-Sept. 1998	end-Dec. 1998	end-March 1999	end-June 1999	end-Sept. 1999
Information system	(435)	10.6	15.4	20.7	40.0	60.0	95.6	100.0
Externally linked systems	(423)	2.4	6.6	9.5	30.7	42.8	93.9	99.8
Funds and securities system	(318)	3.1	9.1	14.5	30.8	45.9	94.7	99.7
International operations system	(242)	3.3	11.2	19.0	42.6	63.6	97.1	99.6
Small and medium-scale system	(485)	1.0	3.5	5.2	12.4	33.6	83.3	99.8
Branch/ATM terminals	(429)	5.1	16.3	24.0	49.9	67.8	94.6	98.8
Overseas branches' system	(92)	1.1	2.2	6.5	25.0	83.7	83.7	100.0
Subsidiaries' system	(248)	1.2	5.6	9.7	20.6	33.9	75.0	96.4
Equipment and facilities (excludes computer center)	(507)	2.0	8.1	12.0	23.7	50.5	91.1	99.2
Equipment and facilities (computer center)	(445)	4.0	9.7	13.5	28.5	58.0	94.4	99.3
Others	(84)	0.0	1.2	2.4	21.4	44.0	71.4	100.0

Note: 1. Excludes financial institutions that do not need to renovate systems.

3. Financial Institutions' Renovation of Systems (Excludes Subsidiaries) %

	number of respondents	Finished	Expect to
		by end-June	finish by end-September
Total	(672)	70.4	97.6
City banks and long-term credit banks	(12)	50.0	100.0
Trust banks	(7)	71.4	100.0
Regional banks	(64)	57.8	96.9
Regional banks II	(60)	65.0	95.0
<i>Shinkin</i> banks	(352)	77.6	97.7
Own systems	(66)	72.7	98.5
Joint center members	(286)	78.7	97.6
Securities companies	(31)	51.6	96.8
Central organizations	(14)	50.0	100.0
Financial subsidiaries	(26)	76.9	100.0
Foreign institutions	(106)	66.0	98.1

Note: 1. Excludes financial institutions that do not need to renovate computer systems.

2. Financial institutions with one or more system that is not Year 2000 compliant are counted as unfinished.

3. *Shinkin* banks that are members of joint computer system centers, and have no need to renovate systems are included in figures for the end of 1997.

B. Confirmation with Vendors of Year 2000 Compliance of Microchips %

	number of respondents	Have received confirmation from all vendors, and are also considering measures in contingency plan.	Have received confirmation from almost all vendors, and consider compliance work on this issue completed.	Have investigated the matter, but have not received a satisfactory response from vendor(s).	Have not checked Year 2000 compliance of microchips, but plan to do so in the future.	Do not think there is a great need to confirm Year 2000 compliance of microchips.
		Total	(674)	45.1	51.3	2.4
City banks and long-term credit banks	(12)	83.3	16.7	0.0	0.0	0.0
Trust banks	(7)	71.4	14.3	14.3	0.0	0.0
Regional banks	(64)	60.9	37.5	1.6	0.0	0.0
Regional banks II	(60)	51.7	48.3	0.0	0.0	0.0
<i>Shinkin</i> banks	(352)	36.6	58.8	3.4	0.6	0.6
Own systems	(66)	42.4	56.1	0.0	0.0	1.5
Joint center members	(286)	35.3	59.4	4.2	0.7	0.3
Securities companies	(31)	48.4	48.4	3.2	0.0	0.0
Central organizations	(14)	35.7	57.1	0.0	7.1	0.0
Financial subsidiaries	(27)	66.7	33.3	0.0	0.0	0.0
Foreign institutions	(107)	48.6	47.7	0.9	0.0	2.8

C. Internal Testing of Mission-critical Systems and Important Equipment in Own Environment %

	number of respondents	Have tested and confirmed readiness. Have evidence.	Have tested and confirmed but do not have evidence.	Would like to confirm but have not done so yet.	Do not think there is a great need to confirm.
Total	(674)	76.1	15.4	3.7	4.7
City banks and long-term credit banks	(12)	100.0	0.0	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0	0.0
Regional banks	(64)	96.9	3.1	0.0	0.0
Regional banks II	(60)	88.3	10.0	0.0	1.7
<i>Shinkin</i> banks	(352)	68.8	20.5	4.8	6.0
Own systems	(66)	77.3	22.7	0.0	0.0
Joint center members	(286)	66.8	19.9	5.9	7.3
Securities companies	(31)	58.1	25.8	9.7	6.5
Central organizations	(14)	64.3	21.4	0.0	14.3
Financial subsidiaries	(27)	92.6	7.4	0.0	0.0
Foreign institutions	(107)	79.4	10.3	4.7	5.6

D. Dates Covered in Internal Tests %

	number of respondents	Main critical dates covered in all tests.	Main critical dates covered in most tests, but some test only periods immediately preceding, during and after the century rollover.	Most tests only cover periods immediately preceding, during, and after the century rollover, and the leap Year 2000 date (February 29).
Total	(673)	48.4	47.1	4.5
City banks and long-term credit banks	(12)	66.7	33.3	0.0
Trust banks	(7)	100.0	0.0	0.0
Regional banks	(64)	25.0	75.0	0.0
Regional banks II	(60)	40.0	60.0	0.0
<i>Shinkin</i> banks	(352)	42.0	51.7	6.3
Own systems	(66)	43.9	51.5	4.5
Joint center members	(286)	41.6	51.7	6.6
Securities companies	(31)	41.9	48.4	9.7
Central organizations	(14)	57.1	28.6	14.3
Financial subsidiaries	(27)	55.6	40.7	3.7
Foreign institutions	(106)	82.1	16.0	1.9

E. Plans for Final Validation Testing %

	number of respondents	Have conducted final validation test.	Plan to conduct final validation test.	Do not plan to conduct final validation test.
Total	(408)	85.3	12.0	2.7
City banks and long-term credit banks	(12)	75.0	25.0	0.0
Trust banks	(7)	85.7	14.3	0.0
Regional banks	(64)	87.5	12.5	0.0
Regional banks II	(55)	94.5	5.5	0.0
<i>Shinkin</i> banks	(96)	89.6	8.3	2.1
Own systems	(64)	89.1	7.8	3.1
Joint center members	(32)	90.6	9.4	0.0
Securities companies	(29)	89.7	10.3	0.0
Central organizations	(14)	71.4	28.6	0.0
Financial subsidiaries	(26)	76.9	15.4	7.7
Foreign institutions	(105)	79.0	14.3	6.7

Note: 1. Excludes *shinkin* banks that are members of joint computer system centers.

F. Environment of Final Validation Test %

	number of respondents	Production environment.	Similar to production environment.	Hardware and operating system in production environment, but some other items in different environment.	Environment for hardware and operating system differs from production environment.	Do not know whether test environment and production environment differ.
Total	(397)	44.8	48.1	6.8	0.3	0.0
City banks and long-term credit banks	(12)	58.3	41.7	0.0	0.0	0.0
Trust banks	(7)	28.6	57.1	14.3	0.0	0.0
Regional banks	(64)	51.6	34.4	14.1	0.0	0.0
Regional banks II	(55)	50.9	34.5	14.5	0.0	0.0
<i>Shinkin</i> banks	(94)	50.0	44.7	4.3	1.1	0.0
Own systems	(62)	48.4	43.5	6.5	1.6	0.0
Joint center members	(32)	53.1	46.9	0.0	0.0	0.0
Securities companies	(29)	58.6	37.9	3.4	0.0	0.0
Central organizations	(14)	42.9	50.0	7.1	0.0	0.0
Financial subsidiaries	(24)	41.7	58.3	0.0	0.0	0.0
Foreign institutions	(98)	28.6	68.4	3.1	0.0	0.0

Note: 1. Financial institutions that have conducted or plan to conduct final validation tests were asked this question.

G. Plans to Keep System Structure Configuration Unchanged (“Change Freeze”) after Final Validation Testing %

	number of respondents	Will not make changes to system from early autumn to next spring.	Will not make changes to system for a relatively short period from late December to early January.	Have no plan to keep configuration unchanged but have no plan at present to change any programs.	Will install a few new programs but will not make any other changes.	Do not think it necessary to keep configuration unchanged, and plan to install new programs.
Total	(670)	34.8	21.9	31.6	9.3	2.4
City banks and long-term credit banks	(12)	100.0	0.0	0.0	0.0	0.0
Trust banks	(7)	71.4	14.3	0.0	14.3	0.0
Regional banks	(64)	56.3	32.8	4.7	6.3	0.0
Regional banks II	(60)	35.0	40.0	10.0	13.3	1.7
<i>Shinkin</i> banks	(348)	19.3	20.4	49.1	9.2	2.0
Own systems	(66)	25.8	30.3	28.8	15.2	0.0
Joint center members	(282)	17.7	18.1	53.9	7.8	2.5
Securities companies	(31)	29.0	19.4	16.1	25.8	9.7
Central organizations	(14)	57.1	21.4	14.3	0.0	7.1
Financial subsidiaries	(27)	48.1	18.5	14.8	18.5	0.0
Foreign institutions	(107)	57.9	15.0	19.6	3.7	3.7

H. Plans for Special Measures for the Century Date Change Period %

	number of respondents	Have rehearsed special measures and are fully prepared.	Not planning a rehearsal, but considering other measures in case of emergency.	Will take special measures but have not planned measures in case of emergency.	Do not plan any special measures.
Total	(419)	63.5	27.4	4.8	4.3
City banks and long-term credit banks	(12)	91.7	8.3	0.0	0.0
Trust banks	(7)	85.7	14.3	0.0	0.0
Regional banks	(64)	78.1	15.6	3.1	3.1
Regional banks II	(55)	69.1	29.1	1.8	0.0
<i>Shinkin</i> banks	(107)	59.8	25.2	9.3	5.6
Own systems	(64)	73.4	15.6	7.8	3.1
Joint center members	(43)	39.5	39.5	11.6	9.3
Securities companies	(28)	75.0	17.9	7.1	0.0
Central organizations	(14)	50.0	35.7	7.1	7.1
Financial subsidiaries	(26)	50.0	30.8	7.7	11.5
Foreign institutions	(106)	52.8	39.6	1.9	5.7

Note: 1. Excludes *shinkin* banks that are members of joint computer system centers.

I. Connection Tests with Electronic Banking Counterparties

%

	number of respondents	Completed tests with all counterparties by the end of June.	Tests were not completed by the end of June, but plan to complete them.	Do not plan to urge counterparties that did not agree to take part in tests to do so. Will use contingency plans to deal with such counterparties.	Do not have any plans to come up with measures for counterparties that did not agree to take part in tests.	Do not think tests are necessary.
Total	(528)	12.9	44.9	32.8	0.8	8.7
City banks and long-term credit banks	(12)	0.0	91.7	8.3	0.0	0.0
Trust banks	(7)	0.0	85.7	14.3	0.0	0.0
Regional banks	(64)	3.1	90.6	6.3	0.0	0.0
Regional banks II	(59)	5.1	72.9	22.0	0.0	0.0
<i>Shinkin</i> banks	(327)	11.9	31.2	44.6	1.2	11.0
Own systems	(66)	7.6	48.5	40.9	0.0	3.0
Joint center members	(261)	13.0	26.8	45.6	1.5	13.0
Securities companies	(22)	31.8	36.4	9.1	0.0	22.7
Central organizations	(8)	12.5	75.0	12.5	0.0	0.0
Financial subsidiaries	(5)	60.0	0.0	20.0	0.0	20.0
Foreign institutions	(24)	54.2	12.5	16.7	0.0	16.7

Note: 1. Excludes financial institutions that do not conduct electronic banking operations.

III. Non-system-related Issues (Excludes Contingency Plans)

A. Concerns over Year 2000 Compliance of Counterparties in the Financial Market and Large-volume Depositors

%

	number of respondents	A wide range of counterparties in the financial market and customers with large deposits were covered in our assessment.	Assessment covers only counterparties in the financial market and large-volume depositors that conduct large transactions with our financial institution.	The Year 2000 readiness of our counterparties in the financial market will not affect our institution, therefore we have not assessed them.	Would like to assess counterparties in the financial market, but have not done so yet.	Do not think there is a great need to assess counterparties in the financial market.
Total	(674)	57.0	17.4	16.5	5.3	3.9
City banks and long-term credit banks	(12)	100.0	0.0	0.0	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0	0.0	0.0
Regional banks	(64)	76.6	10.9	4.7	6.3	1.6
Regional banks II	(60)	65.0	15.0	10.0	10.0	0.0
<i>Shinkin</i> banks	(352)	46.0	20.5	24.7	5.1	3.7
Own systems	(66)	53.0	13.6	27.3	4.5	1.5
Joint center members	(286)	44.4	22.0	24.1	5.2	4.2
Securities companies	(31)	48.4	19.4	12.9	3.2	16.1
Central organizations	(14)	78.6	14.3	7.1	0.0	0.0
Financial subsidiaries	(27)	74.1	11.1	0.0	11.1	3.7
Foreign institutions	(107)	64.5	16.8	9.3	3.7	5.6

B. Assessment of Counterparties' Year 2000 Risks

%

	number of respondents	Have assigned ratings to counterparties according to their Year 2000 readiness, and the ratings have been reflected in our business policy.	Will use the level of Year 2000 readiness as an item in assessment of counterparties' credit risks.	Have surveyed counterparties but have yet to assess Year 2000 risks of customers.	Have not conducted a survey of counterparties, but plan to do so soon.	Do not think it necessary to conduct a survey.
Total	(674)	14.8	7.1	70.8	3.1	4.2
City banks and long-term credit banks	(12)	75.0	16.7	8.3	0.0	0.0
Trust banks	(7)	42.9	28.6	28.6	0.0	0.0
Regional banks	(64)	23.4	9.4	67.2	0.0	0.0
Regional banks II	(60)	6.7	6.7	86.7	0.0	0.0
<i>Shinkin</i> banks	(352)	4.0	2.0	90.9	2.3	0.9
Own systems	(66)	1.5	3.0	93.9	1.5	0.0
Joint center members	(286)	4.5	1.7	90.2	2.4	1.0
Securities companies	(31)	3.2	9.7	51.6	3.2	32.3
Central organizations	(14)	14.3	0.0	64.3	7.1	14.3
Financial subsidiaries	(27)	7.4	0.0	70.4	18.5	3.7
Foreign institutions	(107)	46.7	22.4	14.0	5.6	11.2

C. Views on Advising Counterparties to Expedite Year 2000 Preparations

%

	number of respondents	The institution as a whole has made efforts to advise all counterparties on Year 2000 preparations.	Have made efforts to advise enterprises for which the financial institutions acts as a main or sub-main bank.	Decision on such action entrusted to branch managers.	Have not taken any action as the issue is the sole responsibility of counterparties.
Total	(673)	16.5	57.9	16.0	9.5
City banks and long-term credit banks	(12)	58.3	41.7	0.0	0.0
Trust banks	(7)	28.6	57.1	14.3	0.0
Regional banks	(64)	28.1	68.8	3.1	0.0
Regional banks II	(60)	20.0	70.0	8.3	1.7
<i>Shinkin</i> banks	(351)	11.1	63.2	24.5	1.1
Own systems	(65)	15.4	64.6	20.0	0.0
Joint center members	(286)	10.1	62.9	25.5	1.4
Securities companies	(31)	9.7	38.7	6.5	45.2
Central organizations	(14)	21.4	42.9	0.0	35.7
Financial subsidiaries	(27)	14.8	44.4	7.4	33.3
Foreign institutions	(107)	21.5	40.2	9.3	29.0

D. Business Policy in Relation to Counterparties that are Behindhand in Addressing the Year 2000 Problem %

	number of respondents	Have decided how to deal with counterparties that have not made adequate preparations.	Currently considering how to deal with them.	Do not plan to decide how to deal with them in advance of any actual problem occurring.
Total	(672)	23.4	67.9	8.8
City banks and long-term credit banks	(12)	75.0	25.0	0.0
Trust banks	(7)	42.9	57.1	0.0
Regional banks	(64)	21.9	78.1	0.0
Regional banks II	(60)	16.7	80.0	3.3
<i>Shinkin</i> banks	(350)	20.9	72.0	7.1
Own systems	(66)	28.8	66.7	4.5
Joint center members	(284)	19.0	73.2	7.7
Securities companies	(31)	9.7	64.5	25.8
Central organizations	(14)	14.3	78.6	7.1
Financial subsidiaries	(27)	7.4	85.2	7.4
Foreign institutions	(107)	38.3	42.1	19.6

E. Financial Institutions' Survey of Counterparties

1. Number of Counterparties Surveyed (Average per Financial Institution)

	Electronic banking counterparties	Loan customers	Large-volume depositors	Counterparties in the financial market	Local public entities	Total
Total	616	1,128	226	61	5	2,036
City banks and long-term credit banks	9,034	9,784	3,277	689	39	22,824
Trust banks	598	1,949	482	576	0	3,604
Regional banks	2,291	3,794	328	86	40	6,540
Regional banks II	984	2,022	515	30	2	3,553
<i>Shinkin</i> banks	264	707	155	10	1	1,136
Own systems	700	1,813	482	19	2	3,015
Joint center member	163	452	79	8	1	703
Securities companies	39	24	49	102	1	215
Central organizations	206	610	62	246	0	1,125
Financial subsidiaries	1	17	3	107	0	128
Foreign institutions	2	60	5	82	0	148

Note: 1. Counterparties that engage in more than one area of business have been listed under each area.

2. Number of Counterparties that Give Cause for Concern (Average per Financial Institution)

	Electronic banking counterparties	Loan customers	Large-volume depositors	Counterparties to market transactions	Local public entities	Total	Ratio to number of firms surveyed
Total	31	103	8	4	0	145	7.1%
City banks and long-term credit banks	776	1,727	31	103	5	2,643	11.6%
Trust banks	8	171	68	73	0	320	8.9%
Regional banks	99	319	13	1	2	434	6.6%
Regional banks II	43	97	17	0	0	157	4.4%
<i>Shinkin</i> banks	6	55	7	1	0	69	6.1%
Own systems	9	119	21	1	0	149	5.0%
Joint center member	6	40	4	1	0	50	7.2%
Securities companies	0	0	0	1	0	1	0.4%
Central organizations	7	109	0	1	0	117	10.4%
Financial subsidiaries	0	0	0	0	0	1	0.5%
Foreign institutions	0	2	0	4	0	6	4.4%

Note: 1. Counterparties that engage in more than one area of business have been listed under each area.

F. Views on Disclosure of Information

%

	number of respondents	Take care to quickly update information.	Do not update information until predetermined updating dates.	Do not disclose information through a medium that can be updated in a timely manner such as Web sites.
Total	(674)	63.2	10.7	26.1
City banks and long-term credit banks	(12)	100.0	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0
Regional banks	(64)	89.1	9.4	1.6
Regional banks II	(60)	73.3	13.3	13.3
<i>Shinkin</i> banks	(352)	55.7	11.6	32.7
Own systems	(66)	77.3	4.5	18.2
Joint center members	(286)	50.7	13.3	36.0
Securities companies	(31)	83.9	6.5	9.7
Central organizations	(14)	64.3	14.3	21.4
Financial subsidiaries	(27)	37.0	7.4	55.6
Foreign institutions	(107)	60.7	10.3	29.0

G. Answering External Inquiries

%

	number of respondents	Coordinating section and legal section are consulted for response to inquiries.	Only legal section is consulted.	Only coordinating section is consulted.	Response is responsibility of relevant section.
Total	(674)	38.0	2.1	57.6	2.4
City banks and long-term credit banks	(12)	100.0	0.0	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0	0.0
Regional banks	(64)	79.7	0.0	20.3	0.0
Regional banks II	(60)	51.7	1.7	45.0	1.7
<i>Shinkin</i> banks	(352)	17.6	1.7	77.3	3.4
Own systems	(66)	16.7	1.5	81.8	0.0
Joint center members	(286)	17.8	1.7	76.2	4.2
Securities companies	(31)	41.9	3.2	51.6	3.2
Central organizations	(14)	42.9	0.0	57.1	0.0
Financial subsidiaries	(27)	37.0	7.4	55.6	0.0
Foreign institutions	(107)	59.8	40.2	34.6	1.9

IV. Contingency Planning

A. Progress in Developing Contingency Plans

%

	number of respondents	Plan has been approved by the management and has been distributed to relevant sections.	Plan has been compiled but has not yet been distributed to relevant sections.	In process of fine tuning first draft.	In process of drawing up first draft.	Will not make a Year 2000 contingency plan, will use existing contingency plan for natural disasters.
Total	(673)	51.7	35.4	10.7	1.8	0.4
City banks and long-term credit banks	(12)	83.3	16.7	0.0	0.0	0.0
Trust banks	(7)	85.7	14.3	0.0	0.0	0.0
Regional banks	(64)	79.7	20.3	0.0	0.0	0.0
Regional banks II	(60)	40.0	53.3	6.7	0.0	0.0
<i>Shinkin</i> banks	(351)	47.0	41.6	10.5	0.6	0.3
Own systems	(66)	39.4	51.5	9.1	0.0	0.0
Joint center members	(285)	48.8	39.3	10.9	0.7	0.4
Securities companies	(31)	29.0	41.9	29.0	0.0	0.0
Central organizations	(14)	42.9	14.3	21.4	21.4	0.0
Financial subsidiaries	(27)	63.0	29.6	7.4	0.0	0.0
Foreign institutions	(107)	56.1	19.6	15.9	6.5	1.9

B. Classification of Operations into those that Must be Continued and those that Can be Temporarily Suspended in the Event of a System Disruption %

	number of respondents	Have classified and organized operations. Have received approval from the management.	Have classified and organized operations, but have yet to receive approval from the management.	Classifying operations at present.	Have yet to classify or organize operations, but plan to do so.	Do not plan to classify or organize operations.
Total	(673)	64.8	22.3	7.4	3.6	1.9
City banks and long-term credit banks	(12)	83.3	16.7	0.0	0.0	0.0
Trust banks	(7)	100.0	0.0	0.0	0.0	0.0
Regional banks	(64)	87.5	10.9	0.0	1.6	0.0
Regional banks II	(60)	56.7	31.7	8.3	1.7	1.7
<i>Shinkin</i> banks	(351)	62.4	22.8	8.3	4.6	2.0
Own systems	(66)	62.1	27.3	6.1	1.5	3.0
Joint center members	(285)	62.5	21.8	8.8	5.3	1.8
Securities companies	(31)	41.9	51.6	6.5	0.0	0.0
Central organizations	(14)	42.9	14.3	42.9	0.0	0.0
Financial subsidiaries	(27)	59.3	33.3	0.0	3.7	3.7
Foreign institutions	(107)	70.1	14.0	7.5	4.7	3.7

C. Procedure for Restoring Mission-critical Systems %

	number of respondents	Have organized all procedures and have secured necessary resources including manpower.	Have organized most procedures and are likely to be able to secure resources including manpower.	In process of organizing procedures.	Have not started organizing procedures, but plan to.	Do not think it necessary to organize procedures.
Total	(672)	49.3	38.2	7.7	1.9	2.8
City banks and long-term credit banks	(12)	91.7	8.3	0.0	0.0	0.0
Trust banks	(7)	71.4	28.6	0.0	0.0	0.0
Regional banks	(64)	62.5	29.7	6.3	1.6	0.0
Regional banks II	(60)	43.3	53.3	3.3	0.0	0.0
<i>Shinkin</i> banks	(350)	46.0	38.9	7.7	2.9	4.6
Own systems	(66)	47.0	37.9	10.6	4.5	0.0
Joint center members	(284)	45.8	39.1	7.0	2.5	5.6
Securities companies	(31)	38.7	41.9	19.4	0.0	0.0
Central organizations	(14)	57.1	21.4	21.4	0.0	0.0
Financial subsidiaries	(27)	59.3	37.0	0.0	0.0	3.7
Foreign institutions	(107)	48.6	38.3	9.3	1.9	1.9

D. Compilation of a list of Counterparties that Could be Seriously Affected by Systems Failures %

	number of respondents	Have made a list of counterparties and our business with them, have informed relevant sections.	Have made a list of counterparties and have informed relevant sections.	List of counterparties compiled at head office, but relevant sections not informed.	Considering listing up counterparties, but have not completed a list.	Not thinking of making a list.
Total	(673)	15.0	29.7	19.3	23.5	12.5
City banks and long-term credit banks	(12)	41.7	16.7	25.0	16.7	0.0
Trust banks	(7)	28.6	28.6	28.6	14.3	0.0
Regional banks	(64)	17.2	43.8	14.1	21.9	3.1
Regional banks II	(60)	16.7	23.3	33.3	23.3	3.3
<i>Shinkin</i> banks	(351)	8.5	29.3	21.1	26.8	14.2
Own systems	(66)	12.1	28.8	31.8	18.2	9.1
Joint center members	(285)	7.7	29.5	18.6	28.8	15.4
Securities companies	(31)	12.9	29.0	38.7	9.7	9.7
Central organizations	(14)	35.7	21.4	7.1	14.3	21.4
Financial subsidiaries	(27)	11.1	44.4	11.1	11.1	22.2
Foreign institutions	(107)	29.0	25.2	5.6	23.4	16.8

E. Procedures for Each Risk Scenario %

	number of respondents	Have analyzed each risk scenario for all mission-critical systems. Have finalized procedures for each risk scenario and system.	Have compiled a manual for procedures based on each risk scenario.	At present considering process and measures for each risk scenario.	Not thinking of putting together measures, procedures for risk scenarios.
Total	(673)	14.3	70.9	13.2	1.6
City banks and long-term credit banks	(12)	66.7	33.3	0.0	0.0
Trust banks	(7)	28.6	57.1	14.3	0.0
Regional banks	(64)	15.6	84.4	0.0	0.0
Regional banks II	(60)	35.0	61.7	3.3	0.0
<i>Shinkin</i> banks	(351)	6.0	76.4	15.4	2.3
Own systems	(66)	4.5	89.4	6.1	0.0
Joint center members	(285)	6.3	73.3	17.5	2.8
Securities companies	(31)	22.6	64.5	12.9	0.0
Central organizations	(14)	0.0	57.1	42.9	0.0
Financial subsidiaries	(27)	25.9	59.3	14.8	0.0
Foreign institutions	(107)	18.7	61.7	16.8	2.8

F. Assumption of Social Confusion as a Result of the Year 2000 Problem %

	number of respondents	Have drawn up measures based on assumption confusion will be prolonged.	Realize confusion may break out, but assume such confusion will end quickly.	Do not expect confusion.
Total	(673)	7.3	85.7	7.0
City banks and long-term credit banks	(12)	16.7	83.3	0.0
Trust banks	(7)	0.0	100.0	0.0
Regional banks	(64)	3.1	96.9	0.0
Regional banks II	(60)	11.7	88.3	0.0
<i>Shinkin</i> banks	(351)	4.0	91.2	4.8
Own systems	(66)	6.1	90.9	3.0
Joint center members	(285)	3.5	91.2	5.3
Securities companies	(31)	0.0	90.3	9.7
Central organizations	(14)	0.0	92.9	7.1
Financial subsidiaries	(27)	18.5	74.1	7.4
Foreign institutions	(107)	17.8	59.8	22.4

G. Alternative Measures for Systems that are behind Schedule in their Year 2000 Preparations %

	number of respondents	Aware of which systems are behind schedule, and have ready an alternative plan in case Year 2000 preparations are not completed.	Aware of which systems are behind schedule, but have not decided an alternative plan.	In process of identifying which systems are behind schedule.	Identifying systems behind schedule, but are not considering an alternative plan.	There are systems that are behind schedule, but we are not identifying which systems they are.
Total	(319)	73.0	13.5	10.0	2.8	0.6
City banks and long-term credit banks	(9)	100.0	0.0	0.0	0.0	0.0
Trust banks	(2)	100.0	0.0	0.0	0.0	0.0
Regional banks	(26)	73.1	15.4	11.5	0.0	0.0
Regional banks II	(32)	84.4	15.6	0.0	0.0	0.0
<i>Shinkin</i> banks	(177)	65.5	18.6	9.6	5.1	1.1
Own systems	(27)	85.2	11.1	3.7	0.0	0.0
Joint center members	(150)	62.0	20.0	10.7	6.0	1.3
Securities companies	(12)	83.3	0.0	16.7	0.0	0.0
Central organizations	(4)	75.0	0.0	25.0	0.0	0.0
Financial subsidiaries	(8)	100.0	0.0	0.0	0.0	0.0
Foreign institutions	(49)	79.6	2.0	18.4	0.0	0.0

Note: 1. Excludes financial institutions that have no systems that are behind schedule in renovation work.

H. Practice of Contingency Plans

%

	number of respondents	Have already rehearsed plan and due to practice it again. In process of improving it.	Due to rehearse, considering revising plan to improve effectiveness.	Have rehearsed, or have plan to rehearse, but not considering revising plan.	Not thinking of conducting a rehearsal.
Total	(673)	11.7	83.5	1.6	3.1
City banks and long-term credit banks	(12)	33.3	58.3	8.3	0.0
Trust banks	(7)	57.1	42.9	0.0	0.0
Regional banks	(64)	7.8	92.2	0.0	0.0
Regional banks II	(60)	8.3	91.7	0.0	0.0
<i>Shinkin</i> banks	(351)	5.4	90.6	1.1	2.8
Own systems	(66)	6.1	93.9	0.0	0.0
Joint center members	(285)	5.3	89.8	1.4	3.5
Securities companies	(31)	3.2	87.1	0.0	9.7
Central organizations	(14)	7.1	85.7	0.0	7.1
Financial subsidiaries	(27)	25.9	66.7	0.0	7.4
Foreign institutions	(107)	30.8	58.9	5.6	4.7

I. Level of Coordination with Subsidiaries, Overseas Branches

%

	number of respondents	Have identified and organized important operations of subsidiaries, and have developed a line of command and cooperation in case of emergency.	Have agreed to cooperate in emergencies, but have not drawn up specific measures.	Have left it up to the initiative of each subsidiary or overseas branch, have not included them in plan of financial institution as a whole.
Total	(457)	37.6	51.4	10.9
City banks and long-term credit banks	(11)	54.5	36.4	9.1
Trust banks	(7)	71.4	28.6	0.0
Regional banks	(64)	42.2	57.8	0.0
Regional banks II	(58)	24.1	65.5	10.3
<i>Shinkin</i> banks	(184)	20.7	62.0	17.4
Own systems	(57)	28.1	66.7	5.3
Joint center members	(127)	17.3	59.8	22.8
Securities companies	(26)	46.2	46.2	7.7
Central organizations	(12)	41.7	41.7	16.7
Financial subsidiaries	(9)	22.2	66.7	11.1
Foreign institutions	(86)	73.3	19.8	7.0

Note: 1. Excludes financial institutions that have no subsidiaries or overseas branches.

J. Decisions on Special Arrangements for Critical Dates

%

	number of respondents	Have decided dates, everyone is aware of the dates.	Have decided dates, but details of special arrangements are currently being debated.	Currently considering critical dates.	Not thinking of making special arrangements.
Total	(673)	48.0	47.1	4.2	0.7
City banks and long-term credit banks	(12)	91.7	8.3	0.0	0.0
Trust banks	(7)	85.7	14.3	0.0	0.0
Regional banks	(64)	64.1	35.9	0.0	0.0
Regional banks II	(60)	53.3	41.7	5.0	0.0
<i>Shinkin</i> banks	(351)	43.9	51.0	4.6	0.6
Own systems	(66)	43.9	54.5	0.0	1.5
Joint center members	(285)	43.9	50.2	5.6	0.4
Securities companies	(31)	32.3	67.7	0.0	0.0
Central organizations	(14)	57.1	28.6	14.3	0.0
Financial subsidiaries	(27)	55.6	40.7	3.7	0.0
Foreign institutions	(107)	43.0	48.6	5.6	2.8

K. Plans for Fund Procurement and Cash Availability during Critical Period

%

	number of respondents	Have decided policies for handling critical dates, have already implemented some of them.	Have decided policies, but have not yet implemented any.	Considering measures.	Not considering measures at present.
Total	(673)	18.3	50.1	29.6	2.1
City banks and long-term credit banks	(12)	75.0	16.7	8.3	0.0
Trust banks	(7)	42.9	57.1	0.0	0.0
Regional banks	(64)	17.2	62.5	20.3	0.0
Regional banks II	(60)	25.0	60.0	15.0	0.0
<i>Shinkin</i> banks	(351)	9.1	58.1	32.2	0.6
Own systems	(66)	6.1	65.2	27.3	1.5
Joint center members	(285)	9.8	56.5	33.3	0.4
Securities companies	(31)	0.0	35.5	61.3	3.2
Central organizations	(14)	0.0	28.6	64.3	7.1
Financial subsidiaries	(27)	25.9	40.7	25.9	7.4
Foreign institutions	(107)	43.0	23.4	26.2	7.5

Annex 2: The Bank of Japan's Publications on the Year 2000 Problem*

1. Publications on the Bank's Year 2000 Preparations

- Year 2000 Compliance of BOJ-NET (Jun. 16, 1998)
- The Completion of Year 2000 Preparations of the BOJ-NET (Jan. 29, 1999)
- Establishment of the Year 2000 Steering Group (Feb. 8, 1999)

2. Publications on Japan's Financial Industry's Year 2000 Preparations

- Year 2000 Readiness in the Financial Industry in Japan (Aug. 14, 1998)
- Year 2000 Readiness of Financial Institutions and Recommended Checklist for Further Improvement: Based on Findings of Targeted Examinations Focusing on Year 2000 Readiness (Jun. 10, 1999)

3. Checklist and Guidance Papers

- Checklist for the Year 2000 Problem (Oct. 13, 1997)
- Guidance on Cooperation with Service Providers and Vendors in Addressing the Year 2000 Problem, and Guidance on Year 2000 Contingency Planning (Dec. 9, 1998)

4. Publications on Testing

<Notices of Year 2000 external tests>

- Year 2000 Compliance Tests on the BOJ-NET and Its Linked Systems (Apr. 27, 1998)
- Year 2000 Compliance of BOJ-NET (Jun. 16, 1998)
- Year 2000 Compliance Tests of BOJ-NET and Systems Linked to the BOJ-NET: Features of the First through Third Tests (Oct. 30, 1998)
- Leap Day Functionality Tests for the Year 2000 on the BOJ-NET and Systems Linked to the BOJ-NET (Mar. 4, 1999)
- Year 2000 Compliance Tests of BOJ-NET and Systems Linked to BOJ-NET: Features of the Fourth Test (Apr. 23, 1999)
- Year 2000 External Test of the BOJ-NET on January 2, 2000 (Aug. 3, 1999)

<Test results>

- Results of the Industry-wide Test for the Year 2000 Problem (Preliminary Results) (Jan. 8, 1999)
- Results of the Second Industry-wide Test for the Year 2000 Problem (Feb. 17, 1999)
- Preliminary Results of the Leap day Functionality Test for the Year 2000 Problem (Apr. 28, 1999)
- Preliminary Results of the Third Industry-wide Test for the Year 2000 Problem (May 19, 1999)

* Available on the Bank's Web site (<http://www.boj.or.jp/>).

- Preliminary Results of the Year 2000 Global Payments Systems Test (Jun. 17, 1999)
- Preliminary Results of the Fourth Industry-wide Test for the Year 2000 Problem (Jul. 2, 1999)
- Preliminary Results of the Second Leap Day Functionality Test for the Year 2000 Problem (Jul. 28, 1999)

5. Publication on Contingency Planning

- Outline of the Bank of Japan's Year 2000 Contingency Plan (Apr. 15, 1999)
- Outline of the Bank of Japan's Year 2000 Contingency Plan: Additional information on several key items (Jul. 30, 1999)

Annex 3: Year 2000 Web sites*

Japan

- Bank of Japan <http://www.boj.or.jp/>
- Financial Supervisory Agency <http://www.fsa.go.jp>
- Ministry of Finance <http://www.mof.go.jp>
- Prime Minister's Official Residence (*Kantei*) <http://www.kantei.go.jp>
- Japanese Bankers Association <http://www.zenginkyo.or.jp>
- Japan Securities Dealers Association <http://www.jsda.or.jp>
- Tokyo Stock Exchange <http://www.tse.or.jp>
- Osaka Securities Exchange <http://www.ose.or.jp>
- Tokyo International Financial Futures Exchange <http://www.tiffe.or.jp>
- Japan Bond Settlement Network Co. <http://www.j-b-net.co.jp>
- The Zenshinren Bank <http://www.shinkin.co.jp/scb>
- The Shinkumi Federation Bank <http://www.mediagalaxy.co.jp/zshinkumi>
- The Rokinren Bank <http://all.rokin.or.jp>
- The Norinchukin Bank <http://www.nochubank.or.jp>

Abroad

- Bank for International Settlements <http://www.bis.org>
- Global 2000 Co-ordinating Group <http://www.global2k.com>
- S.W.I.F.T. <http://www.swift.com>
- New York Clearing House <http://www.chips.org>

* Many financial institutions provide information on the progress of their own Year 2000 preparations on their Web sites. Please refer to the Web sites for more information on Year 2000 readiness of individual financial institutions.