The May 1998 Senior Financial Officer Survey

In recent years, the reserve market and payment system have undergone significant structural changes.[1] In the reserve market, the proliferation of retail sweep accounts at banks has led to a dramatic decline in the level of balances that banks must maintain at the Federal Reserve in order to meet reserve requirements. Indeed, many institutions are now able to satisfy their reserve requirement entirely with vault cash. In the past, low levels of required reserve balances have been associated with increased volatility in the federal funds rate. But the federal funds rate has not been especially volatile lately, in part because banks have adapted to the current low required reserve environment by modifying their reserve management practices, though a significant number report persisting difficulties in managing their positions.[2] Important changes in the payment system have been: (i) the imposition of charges for so-called "daylight overdraft" credit that is extended when depositories overdraw their Fed account during the course of the business day; and (ii) the recent extension of operating hours for both Fedwire and CHIPS.

To obtain information on the effects of these developments, the Federal Reserve conducted a survey of senior financial officers of large commercial banks in May 1998.[3] This document summarizes the findings of that survey. The survey questions and tabulations of the responses are included in Appendix A, a glossary of terms is given in Appendix B, and examples of key reserve concepts are discussed in Appendix C.

Part I: Effects of Recent Changes in Bank Reserves

Part I of the survey included questions covering three basic areas--the impact of low required reserve balances on bank reserve management practices, recent changes in banks' behavior in the federal funds market, and changes in banks' attitudes toward the discount window.

---

1. Many of the reserve market issues addressed in the survey were discussed by Governor Lawrence H. Meyer in testimony before the Senate Committee on Banking, Housing, and Urban Affairs on March 3, 1998. This testimony is available on the Federal Reserve Board's web site (http://www.bog.frb.us/) under "Testimony of Federal Reserve Board Officials."

2. Volatility has also been contained by changes in open market operations to adapt to low reserves.

3. The Federal Reserve surveyed forty-four large commercial banks, with respondents selected from each Federal Reserve District. The mean asset size of the survey banks is $40 billion, and total assets of the survey banks account for about 40 percent of all commercial bank assets. In addition, these institutions account for 40 percent of aggregate required reserves and 36 percent of aggregate balances held at the Federal Reserve, including required reserve balances, excess reserves, and required clearing balances. Ninety percent currently have retail sweep programs in place. Given the nature of the sample, the results are most indicative of large bank behavior.

Low Required Fed Account Balances and Bank Reserve Management Practices
(Questions 1-4)

Question 1 was aimed at determining the added degree of difficulty that bank funding managers have faced in managing their reserve position in light of the lower required reserve balances (henceforth, required Fed account balances).[4] Most of the respondents reported that their levels of required Fed account balances had indeed fallen over the last two years. About one-third of these institutions reported that the reduction in their average level of required Fed account balances had not caused them any increased difficulties in reserve management. Another one-quarter noted that they had initially experienced some difficulties in reserve management associated with low required Fed account balances, but also that they had been able to overcome these difficulties through changes in their reserve management practices. A significant number of banks said that their low level of required Fed account balances had presented some problems and that they still found reserve management more difficult today than in the past.

Respondents noted several ways in which reserve management had become more complicated (question 3). A number of respondents said that low required Fed account balances had reduced the usefulness of reserve carryover provisions. The Federal Reserve's Regulation D permits depositories to carry forward surpluses or deficiencies in their reserve position up to 4 percent of the sum of their total reserve requirement and clearing balance requirement. The carryover provisions allow an institution to benefit from a large surplus carried in from a previous maintenance period by reducing the level of reserves it holds in the current maintenance period. But if an institution satisfies a large portion of its reserve requirement with vault cash, it is possible that its maximum carryover allowance could be large in magnitude relative to its required Fed account balance. In this case, it may not be able to lower its Fed account balance much in order to take advantage of a large surplus carried in because doing so would entail very high risks of incurring an overnight overdraft.

In a similar vein, many respondents noted that low required Fed account balances had sometimes made it difficult to benefit fully from positive "as-of adjustments." Ordinarily, an institution can benefit from such adjustments--which are used as a means of compensating banks for accounting or float-related corrections--by lowering the level of its Fed account balance. Again, for an institution with very low required Fed account balances, reducing its Fed account balance to take advantage of a positive as-of adjustment may not be possible because of the heightened risk of overnight overdrafts as Fed account balances decline.

---

4. Required Fed account balances plunged in early 1991 following the reduction in the reserve requirement ratio for nontransaction accounts from 3 percent to zero in December 1990. For the next couple of years, required Fed account balances grew slightly, followed by a steady decline brought on by the start of retail sweep account programs in 1994.

One way in which banks have responded to such difficulties over time has been to increase their clearing balance requirement at the Federal Reserve. Balances held to satisfy this requirement earn implicit interest in the form of earnings credits that can be used to defray charges for Federal Reserve priced services.[5] Although total clearing balance requirements have risen considerably during the 1990s, in the past year the aggregate level of clearing balances has not increased. Many institutions may now be in a position in which further increases in their clearing balance requirement would not be profitable. Indeed, many of the respondents noted that they were not able to increase their clearing balance requirement much because the current level of their requirements already generates earnings credits sufficient to cover their typical priced services charges. Ten assigned a rating of "5" (very significant) to this factor and another five rated it a "4" (described in this summary as "significant"); nine more assigned a rating of "3" (described here as "moderately important").

Another significant reserve management difficulty noted by respondents concerns the treatment of carryover for banks that fully satisfy their reserve requirement with vault cash--so-called "nonbound" institutions.[6] With the proliferation of retail sweep accounts, many depository institutions now fall in this category, including a number of large institutions. Such institutions may still hold an excess Fed account balance or open a clearing balance account in order to facilitate payments through their Fed account, but these institutions are not eligible for carryover, and this situation obviously limits their flexibility in managing reserve balances across maintenance periods. About one-third of the respondents rated this as a significant or very significant factor complicating reserve management, and for another one-fifth or so it is apparently a moderately important consideration.

Another complication for nonbound institutions is that the effective return they earn on balances held to meet clearing balance requirements is lowered.[7] As a result, they have reduced incentives to expand their clearing balance requirement. Indeed, anecdotal

---

5. Balances in such accounts also can be lowered in response to a positive as-of adjustment.

6. During the first four months of 1998, about three-quarters of the survey banks were bound on average in a given maintenance period.

7. The implicit return that institutions receive on their clearing balance requirement is equal to the effective federal funds rate over the maintenance period adjusted by an imputed reserve adjustment factor. The latter is intended to ensure that the earnings credit rate on a clearing balance requirement does not exceed the total return that a bank would earn if it held its clearing account with a correspondent bank rather than the Federal Reserve. The adjustment includes a "deduction" of 10 percent, representing the assumed marginal reserve requirement of the correspondent bank, and a "credit" of the bank's own marginal reserve requirement. Thus, if the bank itself has a 10 percent marginal reserve requirement, the reserve adjustment factor is equal to one and the bank earns the full federal funds rate on balances held to satisfy its clearing balance requirement. However, when an institution becomes "nonbound," its marginal reserve requirement is set at zero in the reserve adjustment factor, and hence it earns only 90 percent of the federal funds rate on balances held to satisfy its clearing balance requirement.

reports suggest that some larger banks have chosen to reduce their clearing balance requirement after they had become nonbound. A total of nine institutions rated this as a significant or very significant factor complicating reserve management, and for another six it is a moderately important factor.

To the extent that the various reserve management complications noted above have impaired banks' ability to arbitrage in the federal funds market across days in the maintenance period or between maintenance periods, one might expect to see some pickup in the daily volatility of the federal funds rate. For example, federal funds rate volatility increased substantially in early 1991 when required Fed account balances had fallen very low in the wake of the cut in reserve requirements in late 1990 and early 1991 (and subsequently returned to prior typical levels).[8] On balance over the last few years, however, there has not been much of a pickup in funds rate volatility. In part, the lack of substantial increase in volatility may reflect the fact that banks' reserve management practices have evolved over time**.** For example, respondents cited improvements in their automated systems and increases in the level of their clearing balance requirements (question 2) as two important ways in which they had responded to the reserve management complications associated with low required Fed account balances. The practices of the Federal Reserve in supplying reserves through open market operations have also evolved in the last two years. In addition to the usual focus on supplying an appropriate quantity of reserves on average over the maintenance period, there is now an increased emphasis on estimating and meeting reserve needs on each day of the maintenance period, in part through enhanced reliance by the domestic Trading Desk on overnight--as opposed to term--repurchase agreements.

A number of respondents also noted that low required Fed account balances had caused them to change their general reserve management strategy within a maintenance period (question 4). For example, many institutions reported that they had shifted toward a strategy of "running short" on reserves for much of the maintenance period and then holding relatively large reserve positions on the last days of the period in order to meet reserve requirements. (The Board permits banks to meet their reserve requirements on average over a two-week maintenance period.) Given the concerns that respondents had noted in question 3 about the reduced usefulness of reserve carryover provisions, these responses seem quite sensible. An institution that builds up a large cumulative reserve

---

8. For a general discussion of this episode and the connection between low required Fed account balances and funds rate volatility, see the articles by Joshua N. Feinman, "Reserve Requirements: History, Current Practice, and Potential Reform," *Federal Reserve Bulletin*, vol. 79, (June 1993), 569-89, and Cheryl L. Edwards, "Open Market Operations in the 1990s," *Federal Reserve Bulletin*, vol. 83, (November 1997), 859-74. For analytical discussions of low required Fed account balances and federal funds rate volatility see James A. Clouse and Douglas W. Elmendorf, "Declining Required Reserves and the Volatility of the Federal Funds Rate," *Finance and Economics Discussion Series*, Board of Governors of the Federal Reserve System, #1997-30, and also Gordon H. Sellon Jr. and Stuart E. Weiner, "Monetary Policy Without Reserve Requirements: Analytical Issues," *Economic Review*, Federal Reserve Bank of Kansas City, vol. 96, (#4, 1996), 5-25.

surplus early in the period runs the risk that it will not be able to reduce that position in the last days of the period. In some cases, institutions can become "locked in" to a surplus position in the sense that they would need to run overdrafts in their Fed accounts on the last day or two of the period in order to eliminate an accumulated surplus. As noted in the responses to question 3, even if such a surplus could be carried forward, a bank might not be able to make effective use of the carryover in the subsequent maintenance period.

Over the latter half of 1997, the aggregate level of excess reserves banks wished to hold seemed to increase substantially. One hypothesis had been that this trend might be the result of depositories holding a larger cushion of excess reserves to reduce the possibility of overdrafts as their level of required Fed account balances fell. Two banks on the survey indicated that they had indeed increased their desired level of excess Fed account balances for this reason (question 2), but most respondents did not report a significant increase in their desired excess reserves.

Daily Funding Strategies
(Questions 5-7)

These survey questions looked at how banks' *intraday* behavior in the federal funds market on both "typical days" and "volatile days" might have been affected by declines in required Fed account balances. In part, these questions were motivated by an increased number of instances in which federal funds have traded quite firm early in the day but ended the day on a softer note. Such situations have seemed often to coincide with particular events that can generate sizable payment flows through reserve accounts, including, for example, settlements for two- and five-year Treasury note auctions, maintenance period ends, quarter-ends, corporate tax dates and so forth. One might expect that the larger volume of payment flows on these days would create heightened uncertainties for banks about their end-of-day reserve positions and, perhaps, that such increased uncertainty about end-of-day reserve conditions might lead some banks to be willing to pay a premium in the federal funds market early in the day to line up their funding early.

Banks reported in question 5.1 that there was little difference between typical days and volatile days in terms of how likely they were to be on the buy or sell side in the federal funds market. Similarly, respondents in question 5.2 reported little difference in their pattern of federal funds transactions over the course of a typical day versus that over the course of a volatile day. Perhaps the premium usually observed in the funds rate on such days is sufficient to deter the surveyed banks from trying to move their fed funds purchases earlier in the day.

Responses to question 5.3 indicated that over the last two years, there has been a marked tendency for trades of federal funds to be more concentrated toward the end of the day.

In question 6, banks reported that deliveries had become more heavily weighted toward the end of the day in the last two years as well. Banks said that on both typical and volatile days, more than 60 percent of their federal funds purchased were not delivered to their account until after 4 p.m. and that roughly 20 percent were not delivered until after 6 p.m.

It seems plausible that the shift in federal funds market transactions toward late in the day might, in part, reflect the combined effects of low required Fed account balances and payment system risk policies such as charges for daylight overdraft credit and monitoring of intraday credit usage against daylight overdraft caps. With a smaller cushion of Fed account balances, institutions might have a greater incentive to hold on to their federal funds purchased from the previous day as long as possible in order to guard against daylight overdraft charges and cap breaches. This behavior on the part of federal funds buyers, in turn, might lead sellers of funds to be more cautious in committing to transactions early in the day until they are sure that funds lent on the previous day will be returned.

Given that most federal funds deliveries seem to be made quite late in the day, question 7 inquired about banks' need and ability to arrange for an expedited delivery of federal funds if necessary. Most banks reported that they either almost never have a need for an expedited delivery of federal funds or that they are almost never able to arrange such a delivery. However, several banks reported that they are either sometimes or frequently able to arrange such early deliveries. Not surprisingly, these banks reported that they typically have to pay a premium of a few basis points to arrange an early delivery. Presumably, the maximum premium that a bank would be willing to pay for an early delivery of federal funds would be a fraction of the Federal Reserve's fee for daylight overdraft credit. For example, the maximum premium that a two-hour early delivery of federal funds purchased should be worth would be the current daylight overdraft fee of 36 basis points multiplied by 1/12 (2 hrs/24 hrs per day) or about 3 basis points. Conceivably, an institution might be willing to pay more than this for an early delivery if it were especially concerned about the potential for a daylight overdraft cap breach and the associated nonpecuniary penalties.

Attitudes Toward the Discount Window

(Question 8)

In principle, the discount window should play an important role in helping the money market adapt to day-to-day imbalances in reserve supply and demand. However, beginning in the mid-1980s, banks appeared to become quite reluctant to turn to the discount window out of concerns that it would be perceived by regulators and others as a

sign of financial weakness.[9] As noted in the May 1996 Senior Financial Officer Survey, many banks remained concerned that discount officers, federal regulators, and market participants would view turning to the discount window as a sign of distress.

One might have expected the recent strength in the economy and banking system to help dispel fears about usage of the discount window. In addition, the Federal Reserve, in its communications with banks, has noted that the discount window is available in appropriate circumstances to meet unexpected funding needs.[10] These factors probably help to explain the responses to question 8. About one-third of the banks reported that they had become either somewhat or considerably more willing to borrow from the discount window over the last two years, and none indicated that they had become less willing to borrow. Of those that indicated an increased willingness to borrow, most reported that they had become less concerned that the Federal Reserve and other federal regulators might view borrowing negatively, and a number reported that they had become less concerned that the market would view borrowing as a sign of weakness.

Part II: Effects of Possible Changes in Reserve Market Structure

Part II of the survey focused on banks' hypothetical responses to various proposed and imminent changes in reserve market structure. The first set of questions asked banks to consider the potential effects if the Federal Reserve were allowed by statute to pay interest on Fed account balances applied against reserve requirements or on excess Fed account balances. In addition, banks were asked about their likely response if the Federal Reserve were allowed to pay interest on reserves and if they could pay explicit interest on demand deposits. A second set of questions asked banks about the likely impact on their reserve management practices of the imminent transition to lagged reserve requirements.[11] A third set of questions asked banks to consider how they might react if the Federal Reserve were

9. For a discussion of trends in discount window borrowing behavior, see James A. Clouse, "Recent Developments in Discount Window Policy," *Federal Reserve Bulletin*, vol. 80 (November 1994), 965-77.

10. Banks' reluctance to borrow at the window was especially acute in the early 1990s. In February 1991, Chairman Greenspan noted in his semiannual testimony to Congress under the Full Employment and Balance Growth Act of 1978 (the Humphrey-Hawkins Act) that the discount window, as always, was available to meet the short-term liquidity needs of depository institutions in appropriate circumstances. Given the findings in the May 1996 Senior Financial Officer Survey indicating that banks remained quite reluctant to turn to the discount window, Reserve Bank staff have met with officials of many depository institutions as well as with other federal regulators in an effort to dispel misperceptions about the use of the discount window.

11. The notice of proposed rulemaking was published in the Federal Register, 62 FedReg 60671 (November 10, 1997). The final rule was approved by the Board of Governors on March 24, 1998. Under the lagged reserve requirement system, depositories will maintain reserves over a two-week maintenance period based upon their average level of transaction deposits over a two-week computation period. The maintenance period begins on the third Thursday following the Monday end of the computation period.

to restructure its discount window as a Lombard credit facility.[12] In this structure, the discount rate would be set above the expected typical level of short-term market interest rates, but banks would be subject to little of the administrative scrutiny that currently comes with borrowing at the discount window.

Payment of Interest on Fed Account Balances and Demand Deposits
(Questions 9-12)

The Federal Reserve has long supported proposals that would allow it to pay interest on some reserves. One common version of such proposals would allow the Federal Reserve to pay interest on Fed account balances applied against reserve requirements (question 10). Presumably, this policy would sharply reduce the incentives for banks to implement new retail sweep programs. Several banks said that receiving interest on required reserves would prompt them to dismantle their sweep programs, either immediately or eventually, presumably because of the operational costs associated with such running programs. More than half of the banks responded, though, that they would continue to seek ways to reduce their required reserves even if required Fed account balances earned interest close to the federal funds rate because they believed that they could earn higher returns on alternative investments. Nonetheless, the results on this question seem qualitatively different from the responses to a similar question on the May 1996 Senior Financial Officer Survey. On that survey, about two-thirds of the respondents indicated that they would dismantle their retail sweep programs either immediately or over time if interest were paid on Fed account balances held to meet reserve requirements.

In other potential responses to the payment of interest on reserves, about one-half of the banks noted that they would be quite likely to try to economize on vault cash in order to meet a larger portion of their reserve requirement with interest-earning Fed account balances. A number of banks reported that they might develop new types of transaction accounts designed to lure back customers that had shifted their deposits to money market mutual funds.[13] And a few banks reported that they would be likely to pursue funding by pledging private securities in repurchase agreement (RP) transactions. Currently, banks that borrow in the RP market for less than seven days using anything other than government and agency securities must classify the liability as a demand deposit that is subject to reserve requirements. As a result, this form of financing is not currently attractive to banks because of the costs of holding non-interest-bearing reserves to satisfy the associated reserve requirements.

---

12. Such a change is not under active consideration by the Federal Reserve.

13. Presumably banks would try and lure back household customers, as the ability to lure back business customers would be limited without interest on demand deposits.

Question 11 considered how banks might respond if the Federal Reserve were to pay interest--albeit at a below-market rate--on excess reserves. Not surprisingly, a number of banks indicated that they might hold somewhat higher levels of excess reserves. Some banks also indicated that they might tend to meet a larger portion of their reserve requirement early in the maintenance period because the cost of winding up with a large positive excess reserve position would be reduced. However, most banks expected that receiving interest on excess reserves would not affect their maintenance period average level of excess reserves or their pattern of excess reserve holdings over the maintenance period.

In some countries, the payment of interest on excess reserves has been used as a device to establish a lower bound on the interbank interest rate. The interest rate on excess reserves acts as a lower bound because banks would not be inclined to lend reserves in the market at a rate below what they can earn on balances held at the central bank. Not surprisingly, most banks indicated in the survey that they would be quite reluctant to lend in the federal funds market at a rate below that offered by the Federal Reserve on excess reserves. However, a few banks noted that they might be willing to sell federal funds at a rate below that offered on excess reserves if it helped them to reduce an especially large excess Fed account balance. These institutions expressed concern that a large excess Fed account balance might be viewed by the Federal Reserve or their own senior management as a sign of poor account management.

Question 12 asked banks about their likely pricing strategies for demand deposits in a world in which the Federal Reserve paid interest on Fed account balances applied against reserve requirements and in which banks could pay interest on demand deposits. Most banks responded that it was unlikely that they would pay a single rate on all demand deposit accounts. Rather, they indicated it was possible or likely that they would establish a tiered-rate schedule in which accounts with higher balances would earn higher rates of interest. A number of banks also noted that it was likely that the highest-tier rate on demand deposits would still be considerably below the level of market interest rates.

The pricing strategy that banks would adopt in this scenario would have important implications for how large an increase in demand deposits might be expected. For example, banks on the survey in aggregate reported that, over the first quarter of this year, they swept more than $90 billion in demand deposit balances on average at the end of the day into market instruments such as RPs, Eurodollars, and money market mutual funds. If banks elected to pay an attractive return on high-balance demand deposits, commercial customers might choose to unwind some of their sweep arrangements in favor of simply holding higher demand deposit balances. The respondents expected that about 30 percent of their commercial sweep arrangements would unwind in favor of interest-bearing

demand deposits.[14] If so, the resulting increase in demand deposits and required reserves would be considerable. If 30 percent of the respondent banks' swept balances were instead held as demand deposits, the level of demand deposits at the sample banks would rise by about $27 billion which, in turn, would imply about a $2.7 billion dollar rise in their required reserves. Extrapolating from this figure for the respondent banks to the entire banking system is difficult. The sample banks account for about 40 percent of all bank assets and about 35 percent of all bank demand deposits, but they probably account for a larger share of all commercial balances swept because the sample includes many of the largest banks in the country. It seems reasonable to infer that the aggregate increase in demand deposits might be as large as twice that for the sample, or roughly $60 billion.[15]

Another important policy issue associated with allowing banks to pay interest on demand deposits is the extent to which banks would incur increased costs and lower profits. The responses to question 9 suggest how banks' short-run costs might be affected. Respondents noted that about 60 percent of their total demand deposits were held by businesses. In addition, about 60 percent of business demand deposits were held under compensating balance arrangements or under the terms of a commercial loan agreement. These ratios appear roughly consistent with historical information from the Demand

---

14. Even with an attractive rate of interest offered on demand deposits, there may be reasons for the continuation of commercial sweep arrangements. For example, firms might be more comfortable sweeping a large balance into an RP rather than holding it as a demand deposit because only the first $100,000 in a demand deposit would be insured while balances in an RP agreement would be fully collateralized. Moreover, there are apparently important tax considerations for some firms (and banks) in booking deposits as a deposit at the foreign office of a U.S. bank rather than as a domestic demand deposit. See, for example, the discussion in Marcia Stigum, *The Money Market*, (Dow Jones-Irwin, 1990), pp. 276-278 or *Banking and Finance in the Cayman Islands*, (Peat, Marwick, Mitchell & Co., 1988). On the other hand, as a result of the depositor preference provisions of the Omnibus Budget Reconciliation Act of 1993, Eurodollar deposits have a lower priority in bankruptcy proceedings than domestic deposits, which might be a factor at the margin that would encourage corporate customers to move overnight Eurodollar deposits back as domestic demand deposits. In addition, banks may have some incentives to maintain commercial sweep arrangements as well. For example, RPs and Eurodollar liabilities are not included in the assessment base for deposit insurance premiums while demand deposit balances are. Also, sweeps into money market mutual funds effectively reduce the size of the bank's balance sheet and hence boost its regulatory capital ratios.

15. Of course, the ultimate increase in demand deposits in this scenario could be considerably higher. For example, interest on demand deposits might cause businesses to shift funds out of savings accounts or money funds and into demand deposits. In addition, if banks began to pursue overnight RP funding using private securities as collateral as noted in question 10, aggregate demand deposits would increase. Finally, banks might convert some of their overnight federal funds sold position to overnight demand deposits. Interbank deposits are not included in the monetary aggregates, so this conversion would not have any effect on M1 or M2. However, interbank transaction deposits are reservable so the conversion of overnight federal funds to overnight demand deposits might boost aggregate required reserves to the extent that the marginal reserve requirement for banks "lending" overnight demand deposits, and hence able to deduct such "due from" deposits from reservable liabilities, was lower on average than the marginal reserve requirement for banks receiving such "due to" demand deposits.

Deposit Ownership Survey and from the January 1988 Senior Financial Officer Survey.[16] The remaining 40 percent of business demand deposits, which are not held under some form of contractual agreement, was about evenly split among small, medium-sized, and large businesses.

Presumably, banks would not have to pay much if any interest on the 25 percent or so of demand deposits currently held by individuals because these individuals already have the option of establishing interest-bearing checking accounts and have simply chosen not to do so, perhaps because fees would make such a change unattractive. Banks might have to pay interest on business demand deposits, but they would not incur much of an increased cost in paying explicit interest on the reported 60 percent of business demand deposits held under compensating balance arrangements because these balances already earn implicit interest through earnings credits. Banks might experience some increased costs in paying interest on the 40 percent or so of business demand deposits that are not held under compensating balance arrangements. However, as noted above, about 70 percent of these balances were reported to be held by small and medium-sized businesses. Such firms probably would not hold very large demand deposit balances and hence probably would not earn a market rate of interest on their deposits. Even current business savings account rates, for example, tend to be well below the level of short-term market interest rates. Presumably, banks would not pay more on a low-balance business demand deposit than they currently offer on business savings deposits.

In summary, it seems that banks would incur a short-run increase in costs if they were allowed to pay interest on demand deposits. The extent of this increase, however, would probably be muted considerably by a tiered-deposit rate schedule and by the fact that a substantial proportion of demand deposits already earn implicit interest. In the long run, the effects of allowing banks to pay interest on demand deposits would almost certainly be salutary by removing a significant regulatory distortion and by encouraging increased competition and efficiency in the banking industry.

16. In the past, the Federal Reserve obtained information on the holders of demand deposits from the Demand Deposit Ownership Survey (DDOS), but the DDOS was discontinued in 1990. Results from the January 1988 Senior Financial Officer Survey were discussed in Patrick I. Mahoney, "The Recent Behavior of Demand Deposits," *Federal Reserve Bulletin*, vol. 74, (April 1988), 195-208.

Lagged Reserve Requirements[17]
(Question 13)

Recently, the Board approved a proposal to implement a system of lagged reserve requirements effective with the maintenance period beginning July 30, 1998.[18] About three-quarters of the respondents to question 13 indicated that this plan would appreciably reduce the overall uncertainties involved in managing their reserve position and would be helpful in managing reserves more effectively with low required Fed account balances. These responses are consistent with public comments received from banks on the Board's proposal to move to a system of lagged reserve requirements. Less than half of the banks indicated that the reduced uncertainty with lagged reserve requirements might lead them to hold somewhat lower excess Fed account balances on average over the maintenance period and would also lead them to meet a larger portion of their reserve requirement early in the maintenance period.

Lombard Credit Facility
(Question 14)

From time to time, various observers have considered whether the Federal Reserve should restructure the discount window as a Lombard credit facility.[19] The discount rate for such a facility would be set above the expected typical level of short-term market interest rates, and banks would be able to borrow from it with relatively few administrative constraints. This structure would tend to place an upper bound on the federal funds rate because banks would be unwilling to pay a higher rate on funds purchased in the market than they would pay in borrowing from the Lombard facility.

About three-quarters of the respondents indicated that they would be quite willing to borrow from such a facility on any day when the federal funds rate moved above the Lombard credit rate. However, a few banks indicated that they would not be willing to use such a facility in these circumstances. Moreover, about one-quarter of the respondents noted that they would be concerned that borrowing from such a facility might

---

17. Discussion and debate over the merits of various forms of reserve requirements including lagged and contemporaneous reserve requirements have a long history. See, for example, Joshua N. Feinman, "Reserve Requirements: History, Current Practice, and Potential Reform," *Federal Reserve Bulletin*, vol. 79, (June 1993), 569-89 or William Poole and Charles Lieberman, "Improving Monetary Control," *Brookings Papers on Economic Activity*, (1972:2), pp. 293-335.

18. For more information see the notice of final rule in the Federal Register, 63 FedReg 15069 (March 30, 1998), which includes a background discussion.

19. See for example, John Wenninger, "Alternative Approaches to Discount Window Lending," in *Reduced Reserve Requirements: Alternatives for the Conduct of Monetary Policy and Reserve Management*, (Federal Reserve Bank of New York, 1993), pp. 137-168 or Milton Friedman, "Monetary Policy: Theory and Practice," *Journal of Money, Credit and Banking*, vol. 14, (February 1982), pp. 98-118.

be viewed negatively by the Federal Reserve. A somewhat smaller proportion indicated concerns about perceptions by other market participants. Many respondents noted that their willingness to use such a facility would depend, to varying degrees, on overall financial conditions in the economy and their bank's own financial condition.

Judging from these responses, it seems that even if the discount window were restructured as a Lombard credit facility, there would still be some lingering reluctance to borrow from the Federal Reserve, weakening its effectiveness in setting an upper bound on the federal funds rate. In addition, a number of administrative and policy concerns would complicate the actual implementation of this option. As noted previously, this option is not under active consideration by the Federal Reserve.

Part III: Effects of Recent and Potential Changes in Payment System Policies

Part III of the survey focused on banks' responses to certain policy and operational changes in the payment system. Questions 15 and 16 were aimed at determining the extent and nature of banks' participation in expanded operating hours of the Fedwire and Clearing House Interbank Payments System (CHIPS) large-dollar funds transfer systems. Questions 17-19 were targeted at banks that participate in both systems and inquired about the factors that influence whether banks send large-dollar payments on Fedwire or CHIPS. Questions 20-24 asked about banks' responses to the April 1994 implementation of the 24 basis point daylight overdraft fee (annual rate) and the fee increase to 36 basis points in April 1995.[20] The May 1996 Senior Financial Officer Survey included a question about banks' response to the daylight overdraft fee. The 1998 survey obtained more detailed responses on this topic and also attempted to determine banks' response to a hypothetical further increase in the daylight overdraft fee.

Expanded Fedwire and CHIPS Operating Hours and Payment System Choice
(Questions 15-19)

On December 8, 1997, the Fedwire funds transfer system and CHIPS began operating at 12:30 a.m. ET. Formerly, the systems opened at 8:30 a.m. and 7:00 a.m. ET, respectively.[21] The Federal Reserve expected that the number of banks sending Fedwire transfers during expanded hours initially would be limited to a small subset of Fedwire participants that initiate the bulk of Fedwire dollar value, but that eventually more banks

20. The daylight overdraft fee is often quoted as an effective annual rate. The annual rate is converted to an effective rate by multiplying it by the fraction of the day that Fedwire operates. The current effective rate is 27 basis points (36 x 18/24).

21. Fedwire and CHIPS closing times (6:30 p.m. and 4:30 p.m. ET, respectively) did not change.

would elect to send transfers during early hours. The survey responses are consistent with this expectation. Ten banks, representing about one-quarter of the survey respondents, indicated that they are sending funds transfers during expanded Fedwire hours (question 15.1).[22] Eleven other banks indicated they are considering sending transfers during expanded hours at some future time (question 16.2). Of the survey banks that are CHIPS participants, over one-half reported sending transfers during expanded CHIPS hours.

One of the primary determinants of the length of expanded Fedwire operating hours was the Federal Reserve's desire to provide sufficient overlap of Fedwire with the banking days in European and Asian markets. As a result, the Federal Reserve expected that banks would use expanded hours mainly to send payments related to international transactions, for example, to settle dollar payment instructions received from international affiliates or respondent banks. Anecdotal evidence received from a few large Fedwire users in the weeks following the initial extension of Fedwire hours, however, indicated that a large number of transfers sent during expanded hours were domestic commercial payments. The survey results confirm this evidence in that the majority of banks reported that their expanded hour Fedwire payment activity is characterized by a mix of domestic- and international-related payments (question 15.2). The same result was reported by the majority of CHIPS participants, although these banks reported sending a slightly greater volume of international-related payments (question 15.3).[23]

Banks' use of expanded hours to conduct a variety of payment activity seems to indicate that a longer operating day has enhanced processing efficiency for these banks. Indeed, the banks participating in expanded Fedwire or CHIPS hours rated increased operational efficiency as a fairly important result of longer operating hours (question 16.1). Banks also rated enhanced opportunity for payment innovation and the possibility for earlier settlement of the dollar leg of foreign exchange contracts as important effects of expanded hours. These effects are consistent with the Federal Reserve's intended public policy goals for expanded funds transfer operating hours.[24]

The degree of substitutability between Fedwire and CHIPS has long been of interest to the Federal Reserve in the context of payment system risk policy, as the Federal Reserve is concerned about the extent to which payment system policies increase implicit Fedwire costs and thus might prompt banks to shift large-dollar payment volume from Fedwire to systems that do not settle payments on a real-time basis in central bank money. Survey

---

22. Internal Federal Reserve data indicate that about 100 Fedwire participants, representing about one percent of all participants, send transfers during expanded Fedwire hours. Of these 100, a core group of about 40 banks send transfers during early hours each day: The remaining banks participate intermittently.

23. This result is consistent with historical payment patterns on CHIPS and Fedwire. Typically, payments related to international transactions are proportionally more of total transfers on CHIPS than on Fedwire.

24. See 59 FedReg 8981 (February 24, 1994).

questions 17-19 were aimed at determining current usage of Fedwire and CHIPS by banks that participate on both systems and factors that influence choice of system.

Banks that use Fedwire and CHIPS indicated that they send about two-thirds of their large-dollar payment value on Fedwire compared with about one-third on CHIPS (question 17). However, banks in the New York District reported the reverse; they reported sending one-third of payment dollar value on Fedwire and two-thirds on CHIPS. These percentages should be interpreted with some degree of caution because banks' ability to send payments on CHIPS is limited by the extent that receiving banks are CHIPS participants.

On average, respondents indicated that the most important factors in choice of system are customer request and type of payment (for example, fed funds payments, commercial payments, payments for international transactions) (question 18). Banks rated price and the desire to minimize daylight overdrafts as the least important factors. This ranking suggests that the distinguishing characteristics of Fedwire and CHIPS, such as real-time gross settlement versus net settlement and network size, make the systems less than perfect substitutes. Another distinguishing characteristic may be system-enforced limits on payment activity, as over one-half of CHIPS participants reported that bilateral and net debit limits constrain their CHIPS payment activity to some degree (question 19). By contrast, internal Federal Reserve daylight overdraft data indicate that most large Fedwire participants rarely reach their debit cap limits on any given day.

Response to Daylight Overdraft Charges
(Questions 20-24)

After the implementation of daylight overdraft charges in April 1994, the aggregate level of peak and average daylight overdrafts immediately decreased by 40 percent. The most dramatic and widely expected response to fees came from the primary dealers in government securities that modified their financing practices. These modifications resulted in a decrease in the level and duration of securities-related overdrafts in the Fed accounts of the banks that provide clearance and settlement services to the primary dealers.[25] The Federal Reserve was interested in other actions that banks may have taken in response to the fee, in particular actions that may have affected overdrafts caused by funds transfer payments. Therefore, the May 1996 survey asked banks the extent to which they had taken certain measures to reduce daylight overdrafts. Banks on that survey reported that they had delayed sending funds transfers and, to a lesser extent, purchased federal funds earlier in the day as a means of avoiding daylight overdrafts.

25. For further information, see Heidi Willman Richards, "Daylight Overdraft Fees and the Federal Reserve's Payment System Risk Policy," *Federal Reserve Bulletin*, vol. 81 (December 1995), pp. 1065-1077.

Although the 1998 survey contained a longer list of potential actions taken by banks, responses to the 1998 survey were similar to those in 1996. One-half of the banks stated that daylight overdraft fees affected their account management practices (question 21) and that the most significant actions they took in response were to modify federal funds transactions delivery practices and to delay payments until sufficient account cover is available (question 22). Also similar to the 1996 survey, other expected responses, such as increased use of securities netting arrangements, increased use of term or continuing contract federal funds and RP contracts, and shift of payment volume from Fedwire to CHIPS, were not reported as significant actions taken in response to daylight overdraft fees.[26]

The 1998 survey also asked to what extent banks had taken certain actions in response to the 50 percent increase in the fee in April 1995. In the weeks following the fee increase, the impact on aggregate overdrafts was unclear. Subsequent econometric analysis indicated that while the long-run effect of the fee increase on aggregate overdrafts may have been more significant than initially thought, the impact was not nearly as large as in 1994.[27] The results from the 1998 survey appear to be consistent with that analysis: Banks reported a slight marginal response to the fee increase in the form of payment delays, shifting volume from Fedwire to CHIPS, increased use of term or continuing contract federal funds and RP contracts, and charging customers for overdrafts. Not surprisingly, banks reported that all of the potential responses to fees identified would be more likely if the fee were increased by another 50 percent.

Various analysts have hypothesized that an intraday market for funds might develop as a result of daylight overdraft fees, as banks might find borrowing and returning funds during the day from private counterparties less costly than charges for Federal Reserve intraday credit.[28] To date, it does not appear that such a market is emerging. Respondents reported that several factors currently impede an intraday funds market. Concerns about efficiency, in terms of the ability to ensure timely intraday delivery and receipt of funds, were rated as the most dominant factors (question 23). Transaction and interest costs were also rated as fairly important barriers to an intraday market. Respondents indicated that a relatively large increase in the daylight overdraft fee may lead to the development of such a market (question 24).

---

26. In securities netting arrangements, such as those provided by the Government Securities Clearing Corporation and Delta Clearing Corporation, obligations resulting from the delivery and receipt of securities transactions among a group of participants are netted down to a single amount owed to or from each participant in the arrangement.

27. See Diana Hancock and James A. Wilcox, "Intraday Management of Bank Reserves: The Effects of Caps and Fees on Daylight Overdrafts," *Journal of Money, Credit, and Banking*, vol. 28(4) part 2 (November 1996), pp. 870-909.

28. See David B. Humphrey, "Payment Systems, Principles, Practice, and Improvements," Technical Paper Number 260 (World Bank, February 1995).

The Federal Reserve System

May 1998
Senior Financial Officer Survey

This report is authorized by law 12 U.S.C. 225(a), 263, 353 et seq., and 461. Your voluntary cooperation in submitting this report is needed to make the results comprehensive, accurate, and timely. The Federal Reserve System regards the individual bank information provided by each respondent as confidential. If it should be determined subsequently that any information submitted on this form must be released, respondents will be notified.

Bank Name		
Bank Contact	**Name**	
	Title	
	Phone	
Date Survey Conducted		

I. Introduction

In 1996, the Federal Reserve conducted a Senior Financial Officer Survey (SFOS) that explored a range of issues associated with reserve management, the decline in balances that banks maintain at the Federal Reserve (hereafter, Fed account balances), and changes in payment system policies. Since that time, the aggregate level of Fed account balances has dropped further still and many institutions now have considerable experience in managing their reserve position at low levels of Fed account balances. Indeed, a number of larger institutions now satisfy their reserve requirements entirely with vault cash. The current SFOS follows up on the 1996 survey and asks for updated information on some of the same questions posed in the earlier survey. In addition, the current survey poses new questions that address recent and proposed changes in reserve market structure and payment system policies.

Part II provides some definitions of key reserve concepts used in survey. Further discussion of these concepts is provided in Appendix C.

Part III of the survey seeks to identify ways in which banks might have changed their reserve management practices in recent years in response to a lower level of Fed account balances. Questions in this section cover topics including general reserve management strategies, operating patterns in the federal funds market during the course of a day and over the maintenance period, and attitudes toward use of the discount window. In addition, this section asks for certain data on banks' demand deposits in order to update our information on compensating balance arrangements and to better judge the potential effects of proposed legislation that would allow banks to pay explicit interest on demand deposits.

Part IV of the survey focuses on the possible effects of various potential changes in reserve market structure. Although the questions in this section are mostly hypothetical, banks' responses to such questions in the past have yielded valuable insights. Questions in this part of the survey cover various scenarios, including the likely outcome if the Federal Reserve were to pay interest on Fed account balances held to meet reserve requirements or on excess Fed account balances, if the discount window were restructured as a Lombard credit facility, and if banks were allowed to pay explicit interest on demand deposits.

Part V of the survey asks questions regarding the effects of changes in the operating hours of large-value payment systems and changes in the Fedwire daylight overdraft fee on reserve and clearing account management. The Board is seeking input on whether expanded operating hours have increased or have the potential to increase payment system efficiency in the manner originally intended by the Board. In addition, the Board is seeking input on whether the daylight overdraft fee has encouraged institutions to modify payment practices or to take other steps to reduce their use of Federal Reserve intraday credit. Responses to this survey may be used as input into future decisions by the Board on the appropriate level of the daylight overdraft fee.

Appendix B contains a glossary of important terms used in the survey. Each glossary term is noted in italics when first used in the survey.

II. Key Definitions

Parts III and IV of the survey make frequent use of the following terms:

(1) Fed account balance required to satisfy reserve requirements
(2) clearing balance requirements
(3) total required Fed account balance
(4) Fed account balance
(5) Fed account balance applied against reserve requirements
(6) Fed account balance applied against clearing balance requirements
(7) excess Fed account balances

These terms are defined precisely in the glossary and examples illustrating the concepts are provided in Appendix C. Of course, bank reserve managers are intimately familiar with these concepts, but we define them here and in the appendices in order to avoid any confusion over terminology. In brief, the first three terms are measures of Fed account balances that banks are required to maintain and the last four terms are measures of Fed account balances that banks actually hold in order to meet their requirements or to carry as excess.

A bank's *Fed account balance required to satisfy reserve requirements* (1) is simply the level of balances it must hold in order to fully satisfy reserve requirements. It is calculated as the difference between a bank's total reserve requirement and the amount of vault cash the bank holds that can be applied against its reserve requirement. A bank's *clearing balance requirement* (2) is an arrangement in which it agrees to hold a specified level of Fed account balances on average over a maintenance period. Such balances generate earnings credits which may be applied against Federal Reserve priced services charges. A bank's *total required Fed account balance* (3) is simply the sum of its Fed account balance required to satisfy reserve requirements (1) and its clearing balance requirement (2).

A bank's *Fed account balance* (4) is just the end-of-day balance in its Fed account. This concept EXCLUDES currency held by banks. Fed account balances are applied first against reserve requirements and next against clearing balance requirements. Thus, a bank's *Fed account balance applied against reserve requirements* (5) is the lesser of its Fed account balance (4) and its Fed account balance required to satisfy reserve requirements (1). Fed account balances exceeding a bank's Fed account balance required to satisfy reserve requirements are classified as *a Fed account balance applied against clearing balance requirements* (6)--up to a maximum of the bank's clearing balance requirement. Fed account balances that exceed a bank's total required Fed account balance (3) are classified as *excess Fed account balances* (7).

III. The Effects of Recent Changes in Bank Reserves

A. The Impact of Lower Levels of Fed Account Balances

Over the last few years, many banks have reduced their transactions deposits subject to reserve requirements by implementing *retail sweep programs.* As their required reserves have fallen, some of these banks also have sharply reduced their balances at Federal Reserve Banks. The following questions address your bank's experience in operating with lower levels of Fed account balances.

(1) Over the last two years, how would you characterize reserve management at your bank? (Check one)

		Number of Banks
a	Our bank's average level of Fed account balances has not changed much over the last two years.	4
b	We have reduced our average level of Fed account balances. We have not experienced any significant difficulties in reserve management as a result.	16
c	We have reduced our average level of Fed account balances. Initially, we experienced some difficulties in managing our reserve position, but our reserve management practices have evolved and we no longer face any significant difficulties in reserve management.	11
d	We have reduced our average level of Fed account balances. Initially, we experienced some difficulties in managing our reserve position and we still find reserve management more difficult today than in the past.	13

(2) If you checked (b), (c) or (d) in question (1), please rate the significance of the following actions your bank has taken to better manage its reserve position.

		1 = Not Significant (or not used) ..... 5 = Very Significant					*Memo*:
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Increased the level of our clearing balance requirement to provide adequate protection against *daylight and/or overnight overdrafts* and additional flexibility in managing our reserve position.	19	4	5	1	11	2.53

b	Improved our automated systems to provide better estimates of our daily funding needs.	11	6	12	5	6	2.73
c	Increased our average level of excess Fed account balances.	26	7	5	0	2	1.63

(3) In the current environment of low Fed account balances, please rate the significance of the following as factors complicating reserve management at your bank.

		1 = Not Significant ..... 5 = Very Significant					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	We would not benefit by establishing a higher clearing balance requirement because our current Fed account balance applied against clearing balance requirements already generates earnings credits sufficient to cover our typical priced service charges.	17	3	9	5	10	2.73
b	We considered increasing our clearing balance requirement but have not done so because the earnings credit rate on our Fed account balance applied against clearing balance requirements is less than the effective federal funds rate in maintenance periods when we fully satisfy our reserve requirement with vault cash.	22	7	6	6	3	2.11
c	Our lower total required Fed account balance has significantly reduced the usefulness of the *reserve carryover provisions.*	9	6	10	6	13	3.18
d	Our lower total required Fed account balance has sometimes made it difficult to fully benefit from positive *as-of adjustments.*	8	5	10	6	14	3.30
e	We are often able to satisfy our reserve requirement entirely with vault cash and, as a result, are not able to carry over deficiencies in meeting our clearing balance requirement from one period to the next.	18	2	9	6	9	2.68

(4) Please characterize the importance of any changes in your bank's general strategy for managing its reserve position across days in the maintenance period that have been associated with a lower total required Fed account balance.

		1 = Unimportant ... 5 = Very Important					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	A lower total required Fed account balance has not caused us to change our general strategy in managing our reserve position across days in the maintenance period.	13	9	10	4	8	2.66
b	A lower total required Fed account balance has caused us to want to hold most of our reserves late in the maintenance period in order to reduce the risk of accumulating a large *cumulative reserve position* early in the period that cannot be offset in the last days of the maintenance period.	8	7	7	6	16	3.34
c	A lower total required Fed account balance has caused us to focus more carefully on the level of Fed account balances we need each day to facilitate clearing and to avoid overnight overdrafts.	8	2	8	11	15	3.52

B. Daily Funding Strategies

Questions 5-7 address your daily funding strategy in the reserve market on two general categories of days: (i) "typical" days on which payment volumes and volatility in the federal funds rate are expected to be fairly normal; (ii) "volatile" days on which payment volumes or volatility of the federal funds rate might be very high (e.g., maintenance period ends, quarter-ends, settlement days for Treasury auctions, corporate tax dates, etc.).

(5.1) On typical and volatile days, approximately how often is your bank a net buyer or seller of federal funds (as a percentage of days)?

		Percentage	
		Typical Days (percentage of all typical days)	Volatile Days (percentage of all volatile days)
		Mean Response	Mean Response
a	net seller of funds to larger banks and brokers	11.3	13.7
b	net buyer of funds from larger banks and brokers	66.6	65.4
c	net buyer of funds from smaller banks and respondents, and net seller to larger banks and brokers	21.7	19.8
d	neither buy nor sell federal funds	.4	1.0
	Memo: Total	100	100

(5.2) If you buy or sell funds through a broker, approximately what percentage of your bank's transactions are arranged during the time periods listed below? All time of day references are Eastern Time (E.T.).

		Percentage	
		Typical Days	Volatile Days
		Mean Response	Mean Response
a	2 p.m. or earlier (E.T.)	33.8	32.4
b	2-4:30 p.m. (E.T.)	22.4	21.4
c	4:30-6 p.m. (E.T.)	27.9	29.2
d	6-6:30 p.m. (E.T.)	16.0	17.0
	Memo: Total	100	100

(5.3) If you have reduced your average level of Fed account balances during the last two years and you buy or sell funds through a broker, please indicate generally how your actions on typical days and volatile days have changed. (Check any that apply)

		Number of Banks
a	If your average level of Fed account balances has NOT declined much over the last two years, check the box to the right and proceed to question 6.1. Otherwise please mark the appropriate boxes below.	10

			Typical Days	Volatile Days
			Number of Banks	Number of Banks
Sales of federal funds	b	Basically unchanged	10	8
	c	More heavily weighted toward early in the day.	1	0
	d	More heavily weighted toward later in the day.	16	17
Purchases of federal funds	e	Basically unchanged	14	9
	f	More heavily weighted toward early in the day.	5	10
	g	More heavily weighted toward later in the day.	13	14

(6.1) What percentage of your bank's federal funds purchases through a broker would you estimate is **delivered** to your Federal Reserve account during the time periods listed below on both typical and volatile days? All time of day references are Eastern Time (E.T.).

		Percentage	
		Typical Day	Volatile Day
		Mean Response	Mean Response
a	2 p.m. or earlier (E.T.)	13.0	11.1
b	2-4 p.m. (E.T.)	23.0	21.8
c	4-6 p.m. (E.T.)	45.7	46.5
d	6-6:30 p.m. (E.T.)	18.3	20.6
	Memo: Total	100	100

(6.2) Please indicate generally how these patterns of federal funds deliveries may have changed over the last two years. (Check appropriate boxes in columns 1 and 2).

		Typical Days	Volatile Days
		Number of Banks	Number of Banks
a	Basically unchanged	20	15
b	More heavily weighted toward early in the day.	1	1
c	More heavily weighted toward later in the day.	22	27

(7.1) How would you characterize your bank's ability to arrange for an expedited delivery of federal funds purchased if the funds are needed early in the day? (Choose one)

		Number of Banks
a	We almost never have a need for an early delivery of federal funds.	30
b	We almost never are able to arrange for an expedited delivery of federal funds purchased through a broker.	5
c	We sometimes are able to arrange for an expedited delivery of federal funds purchased through a broker.	6
d	We frequently are able to arrange for an expedited delivery of federal funds purchased through a broker.	2

(7.2) If you answered (c) or (d) in question (7.1), how large a premium (in basis points) must you typically pay in order to induce federal funds sellers to make an early delivery?
(Choose one)

		Number of Banks
a	0 to 2	5
b	2 to 5	2
c	5 to 10	1
d	10 to 15	0
e	15 or more	0

C. Attitudes Toward the Discount Window

(8.1) Please indicate how your bank's willingness to borrow at the discount window has changed in the last two years. If you answer "Unchanged," skip to question (9.1).

1 = Considerably MORE Willing 2 = Somewhat MORE Willing 3 = Unchanged 4 = Somewhat LESS Willing 5 = Considerably LESS Willing					*Memo*:
1	2	3	4	5	
Number of Banks					*Mean*
3	14	27	0	0	2.55

(8.2) If you indicated in (8.1) that your bank has become either somewhat or considerably MORE willing to borrow at the discount window in the last two years, please rate the importance of the following factors in producing this changed view. Otherwise, skip to (8.3).

		1 = Unimportant ..... 5 = Very Important					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	We have become less concerned that occasional borrowing at the discount window might be viewed negatively by federal regulators.	0	1	2	7	7	4.18
b	We have become less concerned that occasional borrowing at the discount window might be viewed negatively by Reserve Bank discount officers.	1	0	2	7	7	4.12
c	We have become less concerned that occasional borrowing at the discount window might be viewed negatively if discovered by private analysts and other market participants.	2	2	7	5	1	3.06

(8.3) If you indicated in (8.1) that your bank has become either somewhat or considerably LESS willing to borrow at the discount window in the last two years, please rate the importance of the following factors in producing this changed view. (Otherwise, skip to the next question)

		1 = Unimportant ..... 5 = Very Important					
		1	2	3	4	5	*Memo:*
		Number of Banks					*Mean*
a	We have become more concerned that occasional borrowing at the discount window might be viewed negatively by federal regulators.	0	0	0	0	0	0.00
b	We have become more concerned that occasional borrowing at the discount window might be viewed negatively by Reserve Bank discount officers.	0	0	0	0	0	0.00
c	We have become more concerned that occasional borrowing at the discount window might be viewed negatively if discovered by private analysts and other market participants.	0	0	0	0	0	0.00
d	We want to be conservative now in our use of the discount window so that we can turn to the window more readily during any future periods of funding difficulties.	0	0	0	0	0	0.00

D. Demand Deposits and Compensating Balance Arrangements

(9.1) What percentage of your bank's **total** demand deposits would you estimate is held by the following categories of owners?

Percentage of Total Demand Deposits Held By:			
		Mean Response	*Memo: Number of Banks Responding*
a	Individuals	26.7	44
b	Businesses (Excluding Banks and Other Depositories)	59.1	44
c	Other (Includes Banks and Other Depositories, Government, and Non-Profit Organizations)	14.2	44

(9.2) What percentage of your bank's **business** demand deposits that you reported in 9.1(b) above would you estimate is in the following form?

Percentage of Non-Depository Business Demand Deposits Held As:			
		Mean Response	*Memo: Number of Banks Responding*
a	A contractual *compensating balance arrangement* in which your bank pays implicit interest in the form of earnings credits that can be applied against charges the customer incurs for various bank services.	58.2	35
b	A contractual balance specified under the terms of a commercial loan agreement or any other agreement other than a compensating balance arrangement.	3.7	35
c	Balances **NOT** held under any contractual obligation	38.1	35

(9.3) What percentage of your bank's business demand deposits that **ARE NOT** held under a contractual arrangement (your answer to question 9.2(c) above) would you estimate is held by businesses in the following size categories in terms of annual sales? (Note: Please provide your best judgement below if the data necessary to answer this question precisely are not readily available.)

Percentage of Non-Depository, Non-Contractual Business Demand Deposits Held By:			
		Mean Response	*Memo: Number of Banks Responding*
a	Small Businesses (total annual sales < $1 million)	40.8	26
b	Medium-Sized Businesses (total annual sales between $1 million and $50 million)	29.1	26
c	Large Businesses (total annual sales exceeding $50 million)	30.1	26

IV. Effects of Possible Changes in Reserve Market Structure

A. Payment of Interest on Fed Account Balances

Congress is currently considering proposals that would allow the Federal Reserve to pay interest on Fed account balances. For example, under some proposals, the Federal Reserve would be allowed to pay interest on Fed account balances applied against reserve requirements (interest would not be paid on vault cash used to meet reserve requirements). Under other proposals, the Federal Reserve would also be allowed to pay interest on excess Fed account balances. Many of these proposals have been coupled with plans that would allow depository institutions to pay explicit interest on demand deposits. The following three questions ask about your bank's likely responses to such proposed changes in market structure.

(10) If the Federal Reserve remunerated Fed account balances applied against reserve requirements at a rate set close (say 20 basis points below) the *Federal Open Market Committee's intended federal funds rate,* please indicate how likely your bank would be to take any of the following actions.

		1 = Not Likely ..... 5 = Very Likely					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Dismantle our retail sweep program immediately.	28	7	6	1	0	1.52
b	Dismantle our retail sweep program over time.	17	7	11	4	3	2.26
c	Continue to seek ways to minimize our required reserves because the returns on alternative investments we could make would exceed that paid by the Federal Reserve on Fed account balances.	2	3	7	14	16	3.93
d	Attempt to satisfy a larger portion of our reserve requirement with Fed account balances by economizing on vault cash.	7	2	7	12	15	3.60
e	Increase the earnings credit rate we pay on demand deposits held in a compensating balance arrangement.	14	13	13	2	1	2.14
f	Increase our offering rates on existing transaction accounts.	10	13	18	2	0	2.28
g	Offer new transaction accounts designed to attract customers that have shifted their transaction balances to money market mutual funds.	10	9	12	9	2	2.62
h	Target a somewhat higher level of excess Fed account balances because the incentives to run short on Fed account balances in order to book alternative interest-earning assets would be reduced.	21	8	12	2	0	1.88

i	Pursue new funding opportunities by pledging private securities in RP transactions because the reserve requirement cost of such transactions would be much reduced. (Currently banks that borrow in the RP market on anything other than government and agency securities must classify the liability as a demand deposit that is subject to reserve requirements).	17	10	10	3	2	2.12

(11) If the Federal Reserve paid interest on excess Fed account balances at an administered rate set somewhat below (say 100 basis points) the FOMC's intended federal funds rate, please indicate the likelihood that your bank would act in any of the ways listed below.

		1 = Not Likely ..... 5 = Very Likely					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Target a somewhat higher level of excess Fed account balances on average over the maintenance period because the opportunity cost of holding excess Fed account balances would be reduced.	29	6	5	4	0	1.64
b	Target a much higher level of excess Fed account balances on average over the maintenance period because the opportunity cost of holding excess Fed account balances would be reduced.	34	6	3	1	0	1.34
c	Meet a larger portion of our desired maintenance period average reserve position earlier in the maintenance period than we do currently because the possibility of winding up with a large positive cumulative excess position late in the period that could not be run off would be less costly.	15	7	17	4	0	2.23

d	Offer more attractive account arrangements for small banks that make payments and other transactions through an account with our bank in order to deter them from conducting their business directly through an interest-earning account at the Federal Reserve.	14	14	13	1	1	2.09
e	Sell federal funds at a rate below that paid by the Federal Reserve on excess Fed account balances if it would reduce a large positive Fed account balance. Even with interest paid on excess Fed account balances, our bank's senior management might regard a large positive Fed account balance as a sign of poor account management practices.	32	4	5	2	1	1.55
f	Sell federal funds at a rate below that paid by the Federal Reserve on excess Fed account balances if it would reduce a large positive Fed account balance. Even with interest paid on excess Fed account balances, our bank's senior management might be concerned that Federal Reserve officials or bank examiners would regard a large positive Fed account balance as a sign of poor account management practices.	29	5	5	4	1	1.70

(12.1) If Fed account balances applied against reserve requirements were remunerated at close to a market rate (again, say 20 basis points below the FOMC's intended federal funds rate) **AND** you were allowed to pay explicit interest on demand deposits, please rate the likelihood that your bank would adopt one of the pricing strategies for demand deposits described below.

		Unlikely	Possible	Likely
		1	2	3
		Number of Banks		
a	We would establish a *tiered-rate schedule* in which demand deposit accounts with low balances would earn low interest rates while accounts with high balances would earn somewhat higher rates (perhaps comparable with our rates on business savings deposits but considerably below the level of short-term market interest rates).	5	26	11
b	We would establish a tiered-rate schedule in which demand deposit accounts with high balances would earn rates close to a short-term market rate.	11	22	9
c	We would pay a single rate on all demand deposits that would be considerably below the level of short-term market interest rates.	27	15	0
d	We would pay a single rate on all demand deposits close to the level of short-term market interest rates.	31	8	1

(12.2) On average over the first quarter of this year, approximately what dollar volume of end-of-day demand deposit balances held by commercial customers did you sweep into overnight market instruments such as RPs, Eurodollars, and money market mutual funds?

Approximate Average Dollar Amount of Balances Swept into Overnight Instruments (RPs, Eurodollars, and money market mutual funds) For Commercial Customers		
($ Millions)		*Memo: Number of Banks Responding*
Mean	Total	
$2,298	$91,909	40

(12.3) Of the total dollar amount you reported in (12.2), what percentage would you expect these customers to want to hold instead in the form of interest-earning demand deposits?

Percent of Currently Swept Balances for Commercial Customers That Might Be Held As Interest-Earning Demand Deposits		
Percentage		*Memo: Number of Banks Responding*
Unweighted Mean Response	Mean Response Weighted by "Swept Balances" Reported in Question 12.2	
36.6	31.3	36

B. Lagged Reserve Requirements

The Board recently approved a proposal to implement a system of lagged reserve requirements effective with the reserve maintenance period beginning July 30, 1998. Under this system, banks will know precisely what their reserve requirement is for any given maintenance period before the period begins.

(13) Please indicate the extent to which the move to lagged reserve requirements will:

		1= Not at all .... 5 = To a large extent					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Reduce the overall uncertainties involved in managing your bank's reserve position.	4	6	9	12	13	3.55
b	Allow your bank to manage its reserve position more effectively with a low total required Fed account balance.	5	7	10	8	13	3.40
c	Encourage your bank to hold somewhat lower excess Fed account balances.	20	6	7	5	4	2.21

d	Encourage your bank to run a somewhat higher cumulative average reserve position early in the maintenance period because you no longer need to worry about an unexpected drop in reserve requirements that might leave you with a large positive excess position.	16	9	8	5	5	2.40

C. Lombard Credit Facility

From time to time, various observers have suggested that the Federal Reserve should restructure its discount window as a Lombard credit facility analogous to the central bank lending facilities employed in many European countries. In this facility, the Federal Reserve would stand ready to extend short-term, collateralized loans to banks at a rate that exceeds the Federal Open Market Committee's intended federal funds rate by some pre-established margin. For example, the Lombard credit rate might be set at say 200 basis points above the FOMC's intended federal funds rate. Banks could arrange a Lombard credit loan at any point during the day, but the loan proceeds generally would posted to the institution's Fed account at the close of business. Apart from requiring adequate collateral, borrowing from this facility would entail few, if any, of the conditions that are currently employed by Reserve Banks in administering the discount window (e.g., expecting banks to first pursue market funding sources before turning to the discount window, asking banks to explain their reasons for borrowing, and requiring that banks submit balance sheet data ex-post covering the period of borrowing).

(14) Please indicate how likely your bank would be to respond in any of the ways listed below if the Federal Reserve were to restructure the discount window as a Lombard credit facility.

		1 = Unlikely ..... 5 = Very Likely					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Our bank would be quite willing to make use of such a facility on any day when the federal funds rate moved above the Lombard credit rate.	4	2	7	10	21	3.95

b	Our bank's senior management would probably need some time before becoming comfortable with using such a facility, even on days when the federal funds rate moved above the Lombard credit rate.	17	6	16	3	2	2.25
c	Our bank might still be concerned that borrowing from such a facility would be viewed negatively by the Federal Reserve.	14	5	13	9	3	2.59
d	Our bank would probably be willing to pay a rate above the Lombard credit rate for federal funds in the market in order to avoid any potential for an adverse market reaction if it became known that we had borrowed at the Lombard credit facility.	16	14	6	5	3	2.20
e	Our bank's willingness to use such a facility might depend upon the overall financial conditions prevailing in the U.S. economy. For example, we might be less willing to borrow from such a facility during periods such as the early 1990s when markets are especially focused on the financial condition of banks and other firms.	14	6	10	7	6	2.65
f	Our bank's willingness to use such a facility might depend on our bank's own financial condition. For example, we might be less willing to borrow at such a facility during periods when our capital ratios and other financial ratios had deteriorated.	9	10	11	9	4	2.74

V. Effects of Recent and Potential Changes in Payment System Policies

A. Expanded Hours for Fedwire and CHIPS

(15.1) Recently, the opening times for the *Fedwire* funds transfer system and the *Clearing House Interbank Payments System (CHIPS)* were changed from 8:30 a.m. and 7:30 a.m. E.T., respectively, to 12:30 a.m. E.T. Is your bank originating payments at any time during these earlier hours?

		Yes	No	NA - Not a participant
		1	2	3
		Number of Banks		
a	Fedwire	10	34	0
b	CHIPS	9	8	27

(15.2) If you answered "Yes" for Fedwire in question (15.1), approximately what percentage of the dollar value of your bank's payment activity during earlier hours is associated with:

Fedwire payments		Percentage			
		0 to 25	25 to 50	50 to 75	75 to 100
		1	2	3	4
		Number of Banks			
a	Payments generated by internal departments.	6	0	0	2
b	Domestic *third-party payments.*	7	0	1	0
c	International payments related to the settlement of foreign exchange contracts.	6	1	0	0
d	International payments related to transactions other than the settlement of foreign exchange contracts.	5	1	0	1

(15.3) If you answered "Yes" for CHIPS in question (15.1), approximately what percentage of the dollar value of your bank's payment activity during earlier hours is associated with:

CHIPS payments		Percentage			
		0 to 25	25 to 50	50 to 75	75 to 100
		1	2	3	4
		Number of Banks			
a	Payments generated by internal departments.	7	1	0	1
b	Domestic third-party payments.	8	1	0	0
c	International payments related to the settlement of foreign exchange contracts.	6	3	0	0
d	International payments related to transactions other than the settlement of foreign exchange contracts.	4	3	1	1

(16.1) If you answered "Yes" for either Fedwire or CHIPS in question (15.1), how important are the following effects for your bank of expanded transfer hours?

		1=Unimportant ..... 5=Very Important					*Memo:*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Increased operational efficiency.	1	3	1	2	2	3.11
b	Enhanced ability to manage Fed account overdrafts.	5	3	0	0	1	1.78
c	Enhanced ability to accommodate customer requests and/or design new payment products.	2	0	1	4	3	3.60
d	Earlier settlement of the dollar leg of foreign exchange contracts reduces settlement risk.	1	2	2	1	2	3.13

(16.2) Regardless of your answer to question (15.1), please indicate whether your bank has taken any of the following steps in light of expanded Fedwire and CHIPS operating hours:

		Yes	No
		1	2
		Number of Banks	
a	Increased our closing reserve or clearing account balance to ensure sufficient liquidity for early morning payments.	3	40
b	Increased staff for early-hours account management.	6	36
c	Although not currently a participant, our bank is considering sending transfers during expanded hours at some future time.	11	22

If your bank is a participant in both Fedwire *and* CHIPS, please answer questions (17) and (18).

(17) Approximately what percentage of the dollar value of your bank's large-dollar payment activity that is not conducted by book transfer is conducted on Fedwire and CHIPS? (Total responses should add to 100 percent)

		Percentage
		Mean Response
a	Fedwire	70.8
b	CHIPS	29.2
	Total	100

(18) For payments that your bank sends to banks that are also both Fedwire and CHIPS participants, how important are the following factors in your decision to send the payment on CHIPS versus Fedwire?

		1 = Unimportant ..... 5 = Very important					*Memo*:
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Explicit cost per transfer on CHIPS versus Fedwire	4	1	5	5	2	3.00
b	The desire to minimize daylight overdrafts in our Federal Reserve account.	4	3	2	5	3	3.00
c	Type of payment, e.g., international payments versus fed funds deliveries.	0	2	6	4	5	3.71
d	Customer request.	0	0	2	5	9	4.44
e	Payment finality.	1	5	4	4	3	3.18

(19) How frequently do CHIPS *bilateral and net debit limits* constrain the amount of payments that your institution is able to send on CHIPS on a given day?

1 =Seldom 2 = Occasionally 3=Often		
1	2	3
Number of Banks		
6	6	4

B. Daylight Overdraft Experience and Fees

(20.1) Does your bank routinely incur daylight overdrafts in its Federal Reserve account?

Yes (1)	No (2)
Number of Banks	
34	9

(20.2) Approximately what percentage of your bank's daylight overdrafts is associated with settlement of the following types of payments?

		Percentage
		Mean Response
a	Fedwire funds transfers.	59.3
b	Fedwire securities transfers.	18.3
c	Settlement of ACH transactions.	9.9
d	Settlement of check debits.	10.9
	Total	100

(21) Have *daylight overdraft fees* significantly affected your bank's Federal Reserve account management practices?

Yes (1)	No (2)
Number of Banks	
22	22

If no, please skip to question 23.

(22) If you answered "Yes" in question (21), to what extent has your bank taken any of the actions indicated below when daylight overdraft fees were first imposed in April 1994 and when they were increased in April 1995? Similarly, please rate the extent you think your bank might take such actions in response to a hypothetical fifty percent increase in fees.

		1 = Not at All ... 5 = To a Large Extent		
		Response to Initial Imposition of 24 basis point DLOD Fee in 1994	Response to Increase in DLOD Fees in April 1995 to 36 basis points	Response to Hypothetical Fifty Percent Increase in DLOD Fee
		Rank 1-5	Rank 1-5	Rank 1-5
		Mean Response	Mean Response	Mean Response
a	Delay non time-critical payments until sufficient account cover is available.	3.11	3.21	4.15
b	Identify payment activity causing the majority of account overdrafts and modify settlement practices accordingly.	2.79	2.68	3.65
c	Arrange *payment netting* relationships with principal counterparty banks.	1.44	1.39	2.61
d	Shift certain payments from Fedwire to CHIPS.	1.82	2.00	2.12
e	Charge customers whose payment activity causes Federal Reserve account overdrafts.	1.42	1.47	2.35
f	Increase the use of securities netting arrangements, e.g., Government Securities Clearing Corporation.	1.53	1.41	1.94
g	Modify federal funds transactions delivery practices.	3.47	3.16	3.60
h	Extend the length of federal funds and RP contracts from overnight to term or continuing contract.	1.58	1.63	2.40
i	Impose limitations on draw-down requests by *respondent banks*.	1.53	1.35	1.83
j	Arrange funding from correspondents to cover time-specific settlement obligations (e.g., ACH settlement, settlement of net positions in clearinghouse arrangements)	1.18	1.18	1.50

k	Modify or enhance internal account balance monitoring system in order to manage better Federal Reserve account intraday balance.	2.67	2.44	2.74
l	Provide an intraday balance monitoring system for customers in order to assist them in managing better their intraday account position.	2.47	2.11	2.60
m	Re-evaluate intraday credit policies for corporate customers.	2.42	2.37	3.05
n	Increase capital so as to increase the amount of free daylight credit available on a given day.	1.53	1.53	1.60

(23) Many observers had expected that an intraday federal funds market might develop as a consequence of the Federal Reserve's initiatives to charge depositories for daylight overdrafts incurred in their Federal Reserve account. To date, there appear to be few signs that a true intraday federal funds market has developed. How would you characterize the importance of the following factors in explaining the lack of a well-developed intraday federal funds market?

		1 = Unimportant ... 5 = Very Important					*Memo*:
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Transaction costs, in terms of either Fedwire transfer fees or brokers fees, make it too costly to arrange for intraday federal funds contracts.	8	7	8	14	6	3.07
b	The explicit interest our bank would have to pay in order to purchase federal funds intraday exceeds the Federal Reserve's current charge for daylight overdraft credit.	10	3	11	11	7	3.05
c	Concerns that any intraday federal funds purchased might not be delivered at the agreed upon time.	5	6	10	10	12	3.42
d	Concerns that any intraday federal funds sold might not be returned at the agreed upon time.	7	6	10	9	11	3.26

(24) In light of your answers in question (23), how would you rate the importance of the following factors as developments that might lead to an active intraday federal funds market?

		1 = Unimportant ... 5 = Very Important					*Memo*
		1	2	3	4	5	
		Number of Banks					*Mean*
a	Reductions in transaction costs, e.g., Fedwire transfer fees or brokers fees.	11	11	11	7	3	2.53
b	Relatively small increases in the daylight overdraft fee, e.g., 10 to 20 basis points.	8	14	15	5	1	2.47
c	Relatively large increases in the daylight overdraft fee, e.g., more than 20 basis points.	1	4	9	13	15	3.88

Appendix B: Glossary

(1) As-Of Adjustment: Administrative adjustments to an institution's Fed account position in order to correct the impact of errors or to recover float.

(2) Bilateral and Net Debit Limits: On the CHIPS system, a bilateral limit is the maximum net amount that one participant is willing to receive from another participant; a net debit limit is the maximum negative position that a participant may incur.

(3) Clearing House Interbank Payments System (CHIPS): The funds transfers system operated by the New York Clearing House Association.

(4) Clearing Balance Requirement: A contractual arrangement in which a depository institution agrees to maintain a specified level of Fed account balances on average over a maintenance period. Such balances generate earnings credits based upon the effective federal funds rate over the maintenance period and these credits may be applied against the institution's charges for various Federal Reserve priced services.

(5) Compensating Balance Arrangement: An arrangement in which demand deposits held by a bank's business customers receive implicit interest in the form of earnings credits that can be applied against charges that the customer incurs in using various bank services. Often the rate at which earnings credit accrue--the earnings credit rate--is based on the level of a short-term market interest rate such as the three-month Treasury bill rate with adjustments to reflect the bank's reserve requirement ratio and deposit insurance premium rate.

(6) Cumulative Average Reserve Position: On any given day in the maintenance period, the average of reserve balances held on the current and all previous days in the maintenance period.

(7) Daylight Overdraft: A negative position in a bank's Federal Reserve account at any time during the business day.

(8) Daylight Overdraft Fee: Fee charged by the Federal Reserve on all daylight overdrafts incurred in a bank's Federal Reserve account, subject to a deductible amount.

(9) Excess Fed Account Balance: Balances held on average over a two-week maintenance period that exceed the balances a bank must maintain in order to fully satisfy its reserve requirement and clearing balance requirement. See examples in Appendix C.

(10) Fed Account Balance: Balances maintained in a depository institution's account at their Federal Reserve Bank (excludes currency held by depositories). See examples in Appendix C.

(11) Fed Account Balance Required to Satisfy Reserve Requirements: The level of balances that a bank must maintain on average over the maintenance period in order to fully satisfy reserve requirements. It is computed as an institution's reserve requirement less its vault cash eligible to apply against reserve requirements. (See examples in Appendix C.)

(12) Fed Account Balance Applied Against Reserve Requirements: The actual level of balances that a depository maintains in its Fed account over a maintenance period that is applied against reserve requirements. (See examples in Appendix C.)

(13) Fed Account Balance Applied Against Clearing Balance Requirements: The actual level of balances a depository maintains in its Fed account over a maintenance period that is applied against its clearing balance requirement. (See examples in Appendix C.)

(14) Federal Open Market Committee's Intended Federal Funds Rate: A level of the federal funds rate that is announced by the FOMC as consistent with its short-term policy objectives. The Open Market Desk seeks to promote conditions in the reserve market so that federal funds generally trade in a narrow range around the FOMC's intended rate.

(15) Fedwire: The Federal Reserve's funds and book-entry government securities transfer system.

(16) Overnight Overdraft: A negative end-of-day balance (overdraft) in an institution's Fed account. Overdrafts are currently penalized at rate set four percentage points above the effective federal funds rate on the day of the overdraft.

(17) Payment Netting: An arrangement whereby the value of individual payments destined to or received from a certain counterparty is netted down to a single amount, which is then paid to or received from the counterparty.

(18) Reserve Carryover Provision: A provision of the rules governing maintenance of reserves that allows banks to meet a portion of their current period reserve requirement in the subsequent maintenance period or to apply a portion of their excess reserves held in the current maintenance period against their reserve requirement in the subsequent period. Banks that satisfy all of their reserve requirement with vault cash are not eligible for carryover.

(19) Respondent Bank: A bank that clears some or all of its transactions on the books of another bank (the correspondent).

(20) Retail Sweep Program: Programs implemented by many commercial banks in recent years that sweep balances from checking accounts into money market deposit accounts. Such programs have allowed many banks to significantly reduce their reserve requirements.

(21) Third-Party Payments: Payments made by a bank on behalf of commercial customers.

(22) Tiered-Rate Schedule: A common pricing strategy for retail deposits in which banks offer higher rates on accounts with larger balances.

(23) Total Required Fed Account Balance: The level of balances that a bank must maintain on average over a maintenance period in order to fully satisfy its reserve requirement and clearing balance requirement. (See examples in Appendix C.)

Appendix C: Examples of Key Reserve Concepts

	Reserve Concept	Bank A	Bank B	Bank C
(1)	Reserve Requirement	110	110	110
(2)	Vault Cash Eligible To Apply Against Reserve Requirements	10	10	10
(3) = (1) - (2)	Fed Account Balance Required to Satisfy Reserve Requirement	100	100	100
(4)	Clearing Balance Requirement	50	50	50
(5) = (3) + (4)	Total Required Fed Account Balance	150	150	150
(6)	Fed Account Balance	75	125	175
(7)	Fed Account Balance Applied Against Reserve Requirement	75	100	100
(8)	Fed Account Balance Applied Against Clearing Balance Requirement	0	25	50
(9)	Excess Fed Account Balance	0	0	25
NOTE: For the purposes of this survey, we abstract from complications arising from reserve carryover provisions and from the so-called "penalty free band" associated with clearing balance requirements.				

Discussion: All three banks have the same structure of required Fed account balances. Each institution has a total reserve requirement of 110 and vault cash of 10 available to apply against reserve requirements. Thus, each institution has a Fed account balance required to satisfy reserve requirements (row 3) of 100. In addition, each institution has a clearing balance requirement of 50. As a result, each institution as a total required Fed account balance of 150.

The bottom four rows show the difference between the three banks in the concepts of maintained balances, rows 6-9. Each bank's maintained Fed account balance is shown in row 6. Maintained Fed account balances are first applied against reserve requirements and then against clearing balance requirements. Thus, Bank A has only 75 in balances applied against reserve requirements (row 7) and has no balances available to be applied against its clearing balance requirement (row 8) or that would be classified as excess Fed account balances (row 9). Bank B maintains a balance of 125 and so records the maximum of 100 as balances applied against its reserve requirement. The remaining 25 in maintained Fed account balances are then applied against the bank's clearing balance requirement. This bank has no balances that would be classified as excess Fed account balances. Finally, bank C maintains 175 in Fed account balances and so records the maximum of 100 in Fed account balances applied against reserve requirements and 50 in Fed account balances applied against its clearing balance requirement. The remaining 25 in maintained balances would be classified as excess Fed account balances.