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Sweep activity: Managing bank reserves in the Seventh District

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This article examines the evolution of retail sweep programs at banks throughout the Seventh Federal Reserve District. Such programs help banks reduce their reserve requirements, freeing up funds for investment.

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The U.S. Federal Reserve System imposes reserve requirements on banks and other depository institutions.[1] Reserve requirements perform a critical support function in the financial system. They help ensure a stable, predictable demand for reserves,[2] which in turn enables the Federal Reserve to achieve policy objectives by controlling the supply of reserves.[3] However, this comes at a cost. If banks do not have enough cash in their vaults to satisfy reserve requirements, calculated as a percentage of specified deposit liabilities, they must hold additional non-interest-bearing reserves on deposit at the Federal Reserve. As such, reserve requirements represent an implicit tax on deposits, since funds held to satisfy these requirements cannot be allocated to interest-bearing assets.

To offset the drain on profitability caused by reserve requirements, many banks have adopted retail sweep programs. These programs allow banks to transfer, or "sweep," funds from deposit accounts that are subject to reserve requirements into accounts that are not; this reduces the institution's reserve requirement. This reduction is of particular interest to banks that do not have sufficient vault cash to satisfy their reserve requirements. For these banks, lowering reserve requirements through sweep activity reduces the amount that must be held idle in Fed accounts, thereby increasing the amount of funds available for the banks to invest in interest-earning assets.

Retail sweep programs were first implemented in January 1994.[4] Since then, these programs have had a major impact on reserve balances. In this *Chicago Fed Letter*, we explore the evolution of retail sweep programs at banks in the Seventh Federal Reserve District.[5]

The mechanics

Retail sweep programs are permissible if they comply with the Federal Reserve's Regulation D (Reserve Requirements of Depository Institutions).[6] These programs restructure transaction accounts into two legally separate accounts: a checking (transaction) account—i.e., a negotiable order of withdrawal (NOW) account or demand deposit account—and a savings (nontransaction) account—i.e., a savings deposit account or money market deposit account (MMDA). Banks determine maximum and minimum threshold balances based on the amount of funds routinely used to pay debits during a typical statement cycle for each individual personal or nonpersonal account selected to be part of the sweep program. The amount in excess of the maximum threshold is then swept out of the checking account and into the savings account, which is not subject to reserve requirements.

1. Stratification of sweep institutions in the Seventh District, 2006

	Asset size distribution			
	Less than $1 billion	$1 billion – $10 billion	Greater than $10 billion	Total
Number of institutions	180	58	12	250
Sweep volume (in $ millions)				
Non-interest-bearing accounts	12,779	7,732	44,914	65,425
Interest-bearing accounts	6,736	9,060	24,121	39,917
Total	19,515	16,792	69,035	105,342

Source: Federal Reserve Bank of Chicago.

Sweep activity does not affect account holder liquidity; customers have access to their funds at all times. Debits and credits are posted directly to the checking account. If this activity should exceed the minimum balance in this account, transfers from the savings account would fund the shortfall. Regulation D, however, limits the number of transfers between accounts within (monthly) statement cycles. On the sixth transfer, the entire remaining balance in the savings account is swept back to the checking account where it remains until the end of the statement cycle. The entire sweep process, as described here, is then reset at the beginning of the next statement cycle. While this activity is transparent to the account holder, banks must ensure that customer account agreements have been amended under applicable contract law to provide for the existence of two distinct accounts rather than a single account.

These programs are quite different from their 1970s predecessors: automatic transfer services (ATS) and wholesale sweep programs. Automatic transfer services allow banks to transfer funds automatically from a savings account to a checking account to cover a check or maintain a minimum balance. These arrangements differ from retail sweep programs in that they offer a direct benefit to the customer, who earns interest on funds until they are needed. In a retail sweep program, the two-account structure appears to be one single checking account, yielding one rate of interest. In most cases, only the savings account balances that are tied to interest-bearing checking accounts will earn interest.

Wholesale sweep programs typically transfer funds from business demand deposit accounts into investment instruments that are not subject to reserve requirements. Like automatic transfer services, wholesale sweep programs also allow customers to earn interest on funds that are effectively equivalent to demand deposits.[7] Some of the more common investments used in wholesale sweep programs are repurchase agreements, offshore Eurodollar deposits, and mutual funds. In contrast to retail sweep funds, wholesale sweep funds may actually be swept off the books and into instruments that are not liabilities of the bank.

Reserve requirements

Sweep activity is reflected on a bank's report of deposits (i.e., its official report of transaction accounts, other deposits, and vault cash to the Federal Reserve).[8] This report is the primary input for the calculation of reserve requirements and the construction of the monetary and reserves aggregates used in the formulation of monetary policy.

Reserve requirements are assessed on net transaction accounts, calculated as total transaction accounts less demand balances due from banks in the U.S. and cash items in process of collection. Reserve ratios are prescribed for all banks, banking Edge and agreement corporations,[9] and U.S. branches and agencies of foreign banks in a range of 0% to 10%, depending on the value of net transactions—0% up to the exemption amount, 3% from the exemption amount to the low reserve tranche, and 10% on amounts above the low reserve tranche. For 2008, the exemption amount is $9.3 million and the low reserve tranche is $43.9 million.

Seventh District analysis

The Federal Reserve Board has monitored the volume of funds swept since 1994. These data consist of sweep balance information obtained at the implementation of an institution's sweep program and subsequent updates, which occur infrequently. Updates are typically triggered by isolated events such as mergers and large, uncharacteristic data fluctuations related to new sweep activity. The expansions of existing sweep programs can sometimes be difficult to track, since they can be phased in over time in small increments. Two years ago, we conducted a survey to help measure the volume of sweep activity in the Seventh District as of June 30, 2006. We compared our 2006 survey data with those of the Federal Reserve Board.

Of a total of 1,462 institutions we surveyed, 76.5%, or 1,118 banks, responded. We found that the number of banks using retail sweep programs had risen significantly; this increased usage along with growth in the deposit base had caused aggregate sweep volume to soar. In 1995, only 39 Seventh District institutions used these programs, sweeping a modest $2.0 billion. By mid-2006, the number of sweepers had grown over sixfold to 250; and the volume of funds swept had increased exponentially, to a total of $105.3 billion.[10] During this time, our sample deposit base experienced an average annual increase of 4%, rising to $670.3 billion. Still, 77.6% of Seventh District institutions had yet to implement such programs at the time of the 2006 survey.

Figure 1 illustrates that the volume of funds swept in 2006 was primarily being driven by the 12 largest institutions in the Seventh District. The remaining portion is closely distributed between small and mid-size entities.

Profitability provides banks with a powerful incentive to reduce non-interest-bearing balances held at the Federal Reserve. The impact of sweep programs is reflected in a marked decline in Seventh District reserve requirements. In 2006, reserve requirements were $3.5 billion—a 41.7% reduction from $6.0 billion in 1995. Although a number of factors contributed to this decline, including merger activity and adjustments in exemption and tranche levels

2. Opportunity cost of not sweeping, 1998–2006

Year	Required reserve balances ($ thousands)	Annual federal funds rate (%)	Annual return ($ thousands)
1998	169.5	5.35	9.1
1999	178.2	4.97	8.9
2000	269.0	6.24	16.8
2001	402.0	3.88	15.6
2002	1,568.9	1.67	26.2
2003	3,035.1	1.13	34.3
2004	5,215.7	1.35	70.4
2005	7,126.6	3.22	229.5
2006	7,360.0	4.97	365.8

Notes: The values here are for one sample nonsweeping bank in the Seventh District. Required reserve balances are the portion of a bank's reserve requirement not satisfied by vault cash. The annual federal funds rate refers to the annualized, daily effective federal funds rate derived from a weighted average of rates on brokered trades. Rates were obtained from the Federal Reserve Board's H.15 statistical release.

Sources: Authors' calculations based on data from the Federal Reserve Bank of Chicago and Board of Governors of the Federal Reserve System, reports of transaction accounts, other deposits, and vault cash; and Board of Governors of the Federal Reserve System, "Selected interest rates," statistical release, No. H.15.

for calculating reserve requirements, the significant volume of sweep activity that took place over this period clearly makes it one of the primary drivers. In fact, 189 of the 250 institutions that engaged in sweep activity in 2006 were able to satisfy their reserve requirements with vault cash alone. For these institutions, reserve requirements were virtually costless, given that they were already holding vault cash for the purpose of meeting customer demand.

Despite the decline in reserve requirements, institutions must continue to maintain balances in Federal Reserve accounts to fund normal payments activity. To ensure sufficient coverage, many institutions have opted to redirect funds toward contractual clearing balances. Unlike excess reserves (balances in excess of a bank's reserve requirement), contractual clearing balances generate earnings credits that can be used to offset eligible Federal Reserve service charges.

With the erosion of reserve requirements, contractual clearing balances have become increasingly important in the measurement of demand for reserves. From 1995 to 2006, contractual clearing balances in the U.S. rose 46.6%, from $4.8 billion to $7.1 billion. However, in the Seventh District, these balances actually decreased by $44.8 million, from $704.1 million to $659.3 million, over the same period, due to offsetting factors, such as mergers with banks in other Federal Reserve Districts.

To sweep or not to sweep

We know why sweep programs are appealing: They provide institutions with an opportunity to free up cash for investment by reducing or eliminating required reserve balances (i.e., the portion of their reserve requirements not satisfied by vault cash). However, not all institutions have bought into the idea. To assess the impact of a bank's decision not to sweep, we looked at one sample nonsweeping bank in the Seventh District. This mid-size bank has been required to maintain reserves since 1998. Figure 2 outlines the revenue the bank's balances would have earned if they had been invested in the overnight federal funds market from 1998 through 2006. This institution experienced significant deposit growth during this period as evidenced by the increase in required reserve balances. Despite the volatility in the federal funds rate, the opportunity cost of not sweeping generally rose over time. While the analysis presented in this scenario is oversimplified—e.g., we do not take into account the cost of implementing and maintaining a sweep program—it does illustrate the potential revenue loss associated with not sweeping.

Conclusion

Retail sweep programs have experienced tremendous growth not only on the Seventh District level but on a national level. Many banks have taken advantage of the opportunity to redirect funds formerly held to satisfy required reserve balances toward more rewarding alternatives, such as investment in money market instruments and/or clearing balance arrangements.

The Financial Services Regulatory Relief Act of 2006 may slow the ongoing expansion of these programs. Signed into law on October 13, 2006, the act authorizes the payment of interest on Federal Reserve account balances effective October 1, 2011. Reducing the impact of the implicit tax could motivate some sweepers to streamline their sweep activity in favor of earning interest on balances held in their Federal Reserve accounts. Also, we may begin to observe an alteration in the number of banks implementing or maintaining sweep programs. When the payment of interest on reserve balances becomes effective, there will be less of an incentive for banks to invest in such reserve avoidance schemes.[11] The extent of this response will depend on the specific payment structure offered through this legislation.

[1] Hereafter in this article, we use the term "banks" as shorthand for banks and other depository institutions that are subject to reserve requirements. We thank David Tucker, credit analyst, Federal Reserve Bank of Chicago, for his contributions to this article.

[2] Demand for reserves refers to the sum of required reserve balances, contractual clearing balances, and excess reserve balances.

[3] Joshua N. Feinman, 1993, "Reserve requirements: History, current practice, and

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potential reform," *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System, June, pp. 569–589.

[4] C. L. Edwards, 1997, "Open market operations in the 1990s," *Federal Reserve Bulletin*, Board of Governors of the Federal Reserve System, November, pp. 859–874.

[5] The Seventh Federal Reserve District comprises all of Iowa and most of Illinois, Indiana, Michigan, and Wisconsin.

[6] For details, see www.federalreserve.gov/Regulations/#d.

[7] Donald L. Kohn, 2003, "Business Checking Freedom Act of 2003, H. R. 758 and H. R. 859," testimony before the Subcommittee on Financial Institutions and Consumer Credit, Committee on Financial Services, U.S. House of Representatives, Washington, DC, March 5, available at www.federalreserve.gov/boarddocs/testimony/2003/20030305/default.htm.

[8] See www.federalreserve.gov/reportforms/ReportDetail.cfm?WhichFormID=FR_2900cb.

[9] Both Edge and agreement corporations are organizations chartered by the Federal Reserve to engage in international banking and financial operations.

[10] The actual increase in the number of sweepers and the volume of funds swept between 1995 and 2006 is likely to be smaller because of differences in deriving these figures in those years.

[11] Federal Reserve Chairman Ben S. Bernanke recently requested Congress to permit the payment of interest on reserves effective immediately.