APPENDIX 13C: Primary Regulators of Depository Institutions

Legend

FDIC	Federal Deposit Insurance Corporation	NCUA	National Credit Union Administration
FTC	Federal Trade Commission	OCC	Office of the Comptroller of the Currency
Federal Reserve	Board of Governors of the Federal Reserve System/Federal Reserve Banks	OTS	Office of Thrift Supervision

A. National banks	Federal Reserve, FDIC, OCC
B. State member banks	State authority, Federal Reserve, FDIC
C. State nonmember banks insured	State authority, Federal Reserve, FDIC
D. Noninsured state banks	State authority, Federal Reserve, FTC
E. Insured savings institutions, federal*	OTS, Federal Reserve, FDIC
Insured savings institutions, state†	State authority, OTS, Federal Reserve, FDIC
F. Uninsured savings institutions, state	State authority, Federal Reserve, FTC
G. Credit unions, federal	NCUA, Federal Reserve, state authority
Credit unions, state	State authority, NCUA, Federal Reserve, FTC
H. Bank holding companies	Federal Reserve, state authority, FTC
I. Savings institution holding companies	OTS, state authority, Federal Reserve, FTC
J. Foreign branches of U.S. banks, national and state members	Federal Reserve, state authority, OCC
Foreign branches of U.S. banks, insured state nonmembers	State authority, FDIC
K. Edge Act corporations	Federal Reserve
Agreement corporations	State authority, Federal Reserve
L. U.S. branches and agencies of foreign banks, federal	OCC, Federal Reserve, FDIC, FTC, state authority
U.S. branches and agencies of foreign banks, state	State authority, Federal Reserve, FDIC, OCC, FTC

The appendix provides an overview of primary regulators of depository institutions as of December 2007. It is not intended to cover each area of regulatory responsibility in detail. Further, the appendix and accompanying footnotes should not be considered either a substitute for or an interpretation of the regulations. Regulatory agencies should be consulted for answers to specific questions.

*Federal savings institutions include any thrift institution such as federal savings banks, federally chartered under Section 5 of the Home Owners' Act.

†State savings institutions include any state-chartered savings bank, savings association, building and loan association, homestead association, or cooperative bank.

Source: Public Information Department, Federal Reserve Bank of New York, 33 Liberty Street, New York, NY 10045. www.federalairserve.gov

APPENDIX 13D: Calculating Minimum Required Reserves at U.S. Depository Institutions

cash reserves

Vault cash and cash deposits held at the Federal Reserve.

transaction accounts

Deposits that permit the account holders to make multiple withdrawals.

This appendix presents a detailed example of U.S. bank liquidity management under the current minimum reserve requirements imposed by the Federal Reserve. Many of the issues and trade-offs are readily generalizable, however, to any FI facing liability withdrawal risk under conditions in which regulators impose minimum liquid asset reserve ratios.

The issues involved in the optimal management of a liquid asset portfolio are illustrated by the problems faced by the money desk manager in charge of a U.S. bank's cash reserve position. In the context of U.S. bank regulation, we concentrate on a bank's management of its **cash reserves,** defined as vault cash and cash deposits held by the bank at the Federal Reserve.[39]

[39]However, banks that are not members of the Federal Reserve System, mostly very small banks, may maintain reserve balances with a Federal Reserve Bank indirectly (on a pass-through basis) with certain approved institutions such as correspondent banks.

Transaction accounts include all deposits on which an account holder may make withdrawals by negotiable or transferable instruments and may make more than three monthly telephone or preauthorized fund transfers for the purpose of making payments to third parties (for example, demand deposits, NOW accounts, and share draft accounts—offered by credit unions). Historically, U.S. banks also had to hold reserves against time deposits and personal savings deposits (including money market deposit accounts—MMDAs). However, this was reduced from 3 to 0 percent at the beginning of 1991. Transaction account balances are reduced by demand balances due from U.S. depository institutions and cash items in process of collection to obtain net transaction accounts.

To calculate the target amount of reserves and to determine whether the bank is holding too many or too few reserves, the bank reserve manager requires two additional pieces of information to manage the position. First, which period's deposits does the manager use to compute the bank's reserve requirement? Second, over which period or periods must the bank maintain the target reserve requirement just computed?

The U.S. system is complicated by the fact that the period for which the bank manager computes the required reserve target differs from the period during which the reserve target is maintained or achieved. We describe the computation and maintenance periods for bank reserves next.

Computation Period

For the purposes of bank reserve management, a U.S. bank reserve manager must think of the year as being divided into two-week periods. The **reserve computation period** always begins on a Tuesday and ends on a Monday 14 days later.

reserve computation period

Period over which required reserves are calculated.

Example 13–6 Computation of Daily Average Required Reserves

Consider ABC Bank's reserve manager, who wants to assess the bank's minimum cash reserve requirement target. The manager knows the bank's net transaction accounts balance at the close of the banking day on each of the 14 days over the period Tuesday, June 30, to Monday, July 13. Consider the realized net transaction account positions of ABC Bank in Table 13–14.

The minimum daily average reserves that a bank must maintain is computed as a percentage of the daily average net transaction accounts held by the bank over the two-week computation period, where Friday's balances are carried over for Saturday and Sunday. The minimum daily average for ABC Bank to hold against the daily average of $1,350.70 million in net transaction accounts is calculated as follows (amounts in millions):

Daily Average Net Transaction Accounts	× Reserve Percentage	= Daily Average Reserves Required
$9.3	0%	$ 0.000
$43.9 − $9.3	3	1.038
$1,350.7 − $43.9	10	130.680
Minimum average reserves to be held		$131.718

Note that the daily average target in Example 13–6 is calculated by taking a 14-day average of net transaction accounts even though the bank is closed for 4 of the 14 days (two Saturdays and two Sundays). Effectively, Friday's deposit figures count three times compared to those of other days in the business week. This means that the bank manager who can engage in a strategy in which deposits are lower on Fridays can, on average, lower the bank's reserve requirements. This may be important if required liquid asset reserve

TABLE 13–14 Net Transaction Accounts and Vault Cash Balances of ABC Bank *(in millions of dollars)*

	Transaction Accounts	Less Demand Balances Due from U.S. Depository Institutions	Less Cash Items in Process of Collection	Net Transaction Accounts	Vault Cash
Tuesday, June 30	$ 1,850	$ 240	$ 140	$ 1,470	$ 30
Wednesday, July 1	1,820	235	135	1,450	28
Thursday, July 2	1,770	250	120	1,400	24
Friday, July 3	1,610	260	100	1,250	21
Saturday, July 4	1,610	260	100	1,250	21
Sunday, July 5	1,610	260	100	1,250	21
Monday, July 6	1,655	250	125	1,280	24
Tuesday, July 7	1,650	230	130	1,290	26
Wednesday, July 8	1,690	240	130	1,320	25
Thursday, July 9	1,770	275	135	1,360	25
Friday, July 10	1,820	280	140	1,400	27
Saturday, July 11	1,820	280	140	1,400	27
Sunday, July 12	1,820	280	140	1,400	27
Monday, July 13	1,785	260	135	1,390	29
Total	$24,280	$3,600	$1,770	$18,910	$ 355
Daily average net transaction accounts				$1,350.7	$25,357

holdings are above the optimal level from the bank's perspective to handle liquidity drains due to expected and unexpected deposit withdrawals.

One strategy employed in the past was for a bank to send deposits out of the country (e.g., transfer them to a foreign subsidiary) on a Friday, when a reduction in deposits effectively counts for 3/14 of the two-week period, and to bring them back on the following Monday, when an increase counts for only 1/14 of the two-week period. This action effectively reduced the average demand deposits on the balance sheet of the bank over the 14-day period by 2/14 times the amount sent out of the country and, thus, reduced the amount of reserves it needed to hold. Analysts term this the **weekend game.**

weekend game

Name given to the policy of lowering deposit, balances on Fridays, since that day's figures count three times for reserve accounting purposes.

Note that the $131.718 million figure is a minimum reserve target. The bank manager may hold excess cash reserves above this minimum level if the privately optimal or prudent level for the bank exceeds the regulatory specified minimum level because this bank is especially exposed to deposit withdrawal risk. In addition, the bank manager may hold some buffer reserves in the form of government securities that can quickly be turned into cash if deposit withdrawals are unusually high or to preempt the early stages of a bank run.

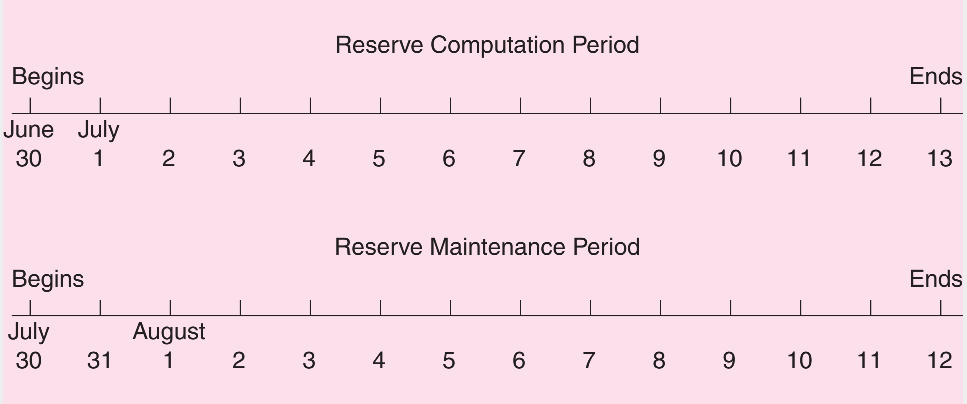
Maintenance Period

We have computed a daily average minimum cash reserve requirement for ABC Bank but have yet to delineate the exact period over which the bank manager must maintain this $131.718 million daily average reserve target. Reserves may be held either as vault cash or as deposits held by the bank at the Federal Reserve. Under the current set of regulations, the average daily vault cash held during the reserve computation period (June 30 through July 13 in our example) is deducted from the institution's required reserves to determine the reserve balance to be maintained at the Federal Reserve. In addition, a lag of 30 days exists between the beginning of the reserve computation period and the beginning of the **reserve maintenance period** (over which deposits at the Federal Reserve Bank must meet or exceed the required reserve target). For ABC Bank, this reserve maintenance period is from July 30 through August 12 (see Figure 13–6). Thus, the bank's reserve manager knows the value of its target reserves with perfect certainty throughout the reserve maintenance period. However, the reserve manager still has a challenge in maintaining sufficient

reserve maintenance period

Period over which deposits at the Federal Reserve Bank must meet or exceed the required reserve target.

Figure 13–6 **Lagged Reserve Requirements**



reserves at the Fed to hit the reserve target, while still minimizing these non-interest-bearing balances and maintaining the liquidity position of the bank.

The reserve manager also knows the vault cash component of the reserve target, since this is based on the average vault cash held by the bank over the reserve computation period, as reported in Table 13–14. The daily balances in deposits at the Federal Reserve for ABC Bank for the 14-day reserve maintenance period from July 30 through August 12 are shown in Table 13–15. Since the average daily balance in vault cash during the reserve computation period is shown (in Table 13–14) at \$25.357 million, the average daily target balance for deposits at the Federal Reserve are \$106.343 million (i.e., \$25.357 million + \$106.343 million = \$131.718 million). Essentially, since the vault cash component of the reserve target is based on vault cash held over the reserve computation period, the bank's active target during the maintenance period itself is its reserve position at the Fed (in this case, it seeks to hold an average of \$106.343 million per day over the 14-day maintenance period).

TABLE 13–15 ABC Bank's Daily Reserve Position over the July 30-August 12 Reserve Maintenance Period *(in millions of dollars)*

Date	Deposits at the Federal Reserve
Thursday, July 30	$ 98
Friday, July 31	100
Saturday, August 1	100
Sunday, August 2	100
Monday, August 3	98
Tuesday, August 4	91
Wednesday, August 5	102
Thursday, August 6	101
Friday, August 7	99
Saturday, August 8	99
Sunday, August 9	99
Monday, August 10	107
Tuesday, August 11	154
Wednesday, August 12	140.802
Total	$1,488.802
Daily average	106.343

lagged reserve accounting system

An accounting system in which the reserve computation and reserve maintenance period do not overlap.

contemporaneous reserve accounting system

An accounting system in which the reserve computation and reserve maintenance periods overlap.

As discussed above, currently the reserve maintenance period for meeting the reserve target begins 30 days after the start of the reserve computation period—the reserve maintenance period does not begin until 17 days after the end of the computation period. Regulators introduced this **lagged reserve accounting system** to make it easier for bank reserve managers to calculate their required reserve balances and to increase the accuracy of information on aggregate required reserve balances. Prior to July 1998, regulators used a **contemporaneous reserve accounting system** in which the two-week reserve maintenance period for meeting the reserve target began only two days (as opposed to the current 30 days) after the start of the reserve computation period. This contemporaneous reserve system resulted in only a two-day window during which required reserves were known with certainty—in the above example, the reserve maintenance period would have been from Thursday, July 2, through Wednesday, July 15, for a reserve computation period beginning Tuesday, June 30, and ending Monday, July 13.