

# REGULATION Q AND THE BEHAVIOR OF SAVINGS AND SMALL TIME DEPOSITS AT COMMERCIAL BANKS AND THE THRIFT INSTITUTIONS

*Timothy Q. Cook*

The behavior of small time and savings deposits at commercial banks, savings and loan associations, and mutual savings banks is a matter of widespread interest for a number of reasons. Part or all of these deposits are included in various monetary aggregates, which are widely viewed as important determinants of economic activity and play an important role in the formulation of monetary policy under current Federal Reserve operating procedures. In addition, many observers feel these deposits have a significant impact on the performance of the housing industry. Finally, the behavior of these deposits directly affects the financial health of savings and loan associations and mutual savings banks.

This article examines the behavior of savings deposits and small time deposits of less than \$100,000 at commercial banks and the thrift institutions (savings and loan associations and mutual savings banks) in recent years. Savings deposits are time deposits on which 30 days' notice may be required prior to withdrawal. In practice, however, such notice is seldom enforced and these deposits can be withdrawn on demand without penalty. Other small time deposits have maturities ranging up to several years and are subject to substantial interest forfeiture penalties if withdrawn prior to maturity.

The Federal Reserve Board sets interest rate ceilings on these deposits at member banks under Regulation Q of the Federal Reserve Act. The Federal Deposit Insurance Corporation and the Federal Home Loan Bank Board—in coordination with the Federal Reserve Board—set Federal ceilings on deposits at federally insured nonmember banks, savings and loan associations, and mutual savings banks. As will be shown in detail later in the article, the movement of small time and savings deposits is closely related to movements in market interest rates around these ceilings. In particular, when market interest rates rise above Regulation Q ceilings, the growth rate of small time and savings deposits falls

sharply as many investors withdraw funds out of the deposit institutions to invest in market instruments. Such behavior is widely referred to as "disintermediation."

**A Brief History of Regulation Q** Because of the importance of Regulation Q as a determinant of the volume of small time and savings deposits, a short review of the history of this regulation may be useful. Deposit interest rate ceilings under Regulation Q originated with the Banking Act of 1933 and initially applied only to rates paid on commercial bank time and savings deposits. The purpose of the ceilings was to prevent "excessive" rate competition for deposits that might encourage risky loan and investment policies and lead to bank failures.

Until the 1960's Regulation Q was of little significance in U. S. banking. There were two main reasons for this. First, between 1933 and 1960 commercial banks showed little or no interest in competing for time and savings deposits, leaving the so-called "thrift deposit" market to other types of institutions. In the second place, market interest rates through most of this period were below the legal ceilings and market instruments posed no serious threat to the ability of banks or other institutions to attract thrift deposits. Only in 1957, after a gradual but steady updrift in market rates, did market instruments begin to compete with thrift institution deposits. In that year, the legal ceiling was raised from 2½ percent to 3 percent. The only previous adjustment in the ceiling was a reduction from 3 percent to 2½ percent in 1935.

For reasons associated mainly with a continuing updrift in interest rates and its impact on the ability of commercial banks to raise funds, this situation changed dramatically in the 1960's. Early in that decade commercial banks began to compete, with increasing aggressiveness, for both thrift deposits and money market funds. Through 1961 and 1962, when

interest rates were low following a recession trough, they were able to do so effectively. But as the business recovery progressed and market interest rates rose, the Regulation Q ceiling, at a maximum of 3 percent, hampered banks in their efforts to raise funds. At the same time, the philosophy of bank regulation, which between 1933 and the late 1950's focused on limiting competition, was evolving in a direction that placed emphasis on increasing competition, not only among commercial banks but also between the various types of depository institutions. In this new environment, the maximum Regulation Q ceiling was raised to 4 percent, and then to 4½ percent in 1964 and 5½ percent in late 1965.

The rising interest rates in the early and middle 1960's affected banks and thrift institutions differently, mainly because of differences in the asset composition of the two types of institutions. For thrift institutions a large imbalance existed between the long-term maturity of their assets (primarily mortgages) and the short-term maturity of their liabilities. As a result, it was difficult for them to compete for deposits at current market levels without experiencing poor or negative cash flows. In order to discourage rate competition for deposits among savings and loan associations in these circumstances, the Federal Home Loan Bank Board (FHLBB) in 1964 and 1965 refused to make advances to institutions that paid above a specified yield on deposits. Due to the value of FHLBB advances to savings and loan associations in this period, this action by the FHLBB constituted de facto rate control.<sup>1</sup>

The average maturity of commercial bank assets is much shorter than that of the thrift institutions. Consequently, banks were better able to compete for deposits on a rate basis when market interest rates rose in 1965 and 1966. As the rate paid on deposits at banks rose relative to that paid at the thrift institutions, the growth rate of deposits at the thrift institutions in 1965 and much of 1966 fell relative to the growth rate at commercial banks.<sup>2</sup> This experience provoked strong protest from the thrift institutions. There was also a widespread belief at the time that

---

<sup>1</sup> The actions taken by the FHLBB to control dividend rates are described in [9].

<sup>2</sup> In 1963 and 1964 the growth rates of time and savings deposits at the thrift institutions were 12.0 percent and 11.1 percent respectively, while the growth rates at banks were a comparable 11.8 percent and 10.0 percent. In 1965, however, the growth rate of deposits at the thrift institutions was 8.3 percent while the growth rate of deposits at banks was a much greater 14.7 percent. Similarly, in the first three quarters of 1966 the annualized growth rate of deposits at the thrift institutions was 3.8 percent, while the growth rate at banks was 10.7 percent.

the decline in the relative growth rate of thrift versus bank deposits was having an adverse effect on mortgage markets and the housing industry. Congress reacted to these concerns in September of 1966 by passing the Interest Adjustment Act.

The Interest Adjustment Act expanded the coverage of deposit interest rate ceilings to the thrift institutions. The purpose of this expanded coverage was to prevent "excessive" competition between banks and the thrift institutions. By setting rate ceilings on *both* banks and the thrift institutions, it was reasoned, loss of funds from the latter to the former could be prevented in periods of rising interest rates. This, however, would not prevent withdrawal of savings and time deposits from both institutions for investment in market instruments that carried yields above the Regulation Q ceilings.

A second feature of the Interest Adjustment Act was the establishment of a "differential" between the ceiling rates that banks and thrifts could pay on deposits, which allowed the thrifts to pay a higher rate. The rationale underlying the differential was that banks had an inherent competitive advantage over thrifts because of the wider array of services they could offer customers. In order to offset this competitive advantage, it was argued, thrifts needed to be able to pay higher deposit rates. The ceiling rates on savings deposits were initially set at 4.00 percent for banks and 4.75 percent for the thrift institutions, a differential of 75 basis points. The ceiling rate for time deposits at banks was rolled back from 5½ to 5 percent while the ceiling rate for the thrift institutions was set at 5¼ percent, a differential of 25 basis points. These rates were below comparable maturity market interest rates at the time.

Since the passage of the Interest Adjustment Act, there have been major revisions of Regulation Q ceiling rates on savings and small time deposits in 1970, 1973, and 1978.<sup>3</sup> Each revision was a reaction to declining deposit growth resulting from rising market interest rates. The first revision occurred in January 1970 following the sharp rise in market interest rates in 1969. The 1970 revision established three separate maturity categories of small time de-

---

<sup>3</sup> It should be emphasized that this discussion applies only to **small** time deposits less than \$100,000. The Regulation Q ceilings on large time deposits greater than \$100,000 were removed in June 1970 for maturities from 30 to 90 days and removed in May 1973 for longer maturities. Also, this discussion ignores some minor changes in ceiling rates on small time and savings deposits. Revisions of Regulation Q ceiling rates are summarized in the **Federal Home Loan Bank Board Journal** and the **Federal Reserve Bulletin**.

posits. Ceiling rates for banks were set at 5 percent for time deposits of maturity up to a year, 5½ percent for 1- to 2-year maturities, and 5¾ percent for maturities of 2 years and over. The goal of this graduated rate structure was to lengthen the average maturity of deposits at banks and the thrift institutions, in order to reduce the potential for large scale withdrawals in periods of rising interest rates.

The ceiling rate for bank savings deposits was raised to 4½ percent. The ceiling for thrifts was set at 5 percent, thereby reducing the savings deposit differential to 50 basis points. The differential in all time deposit categories was maintained at 25 basis points.

When interest rates rose sharply and deposit growth rates plummeted in 1973, Regulation Q was again revised. Although the design of the July 1973 revision followed the lines of the 1970 revision, the changes were more substantial. The 1973 revision raised the commercial bank interest ceiling on pass-book savings from 4½ percent to 5 percent and raised the ceiling rate on time deposits with maturities of 90 days to 1 year from 5 to 5½ percent. The 1- to 2-year category was changed to 1 to 2½ years and its ceiling rate was raised from 5½ to 6 percent. In addition, two new categories were established to replace the "greater-than-two" year category. These new categories were 2½ to 4 years and 4 years or more. The 2½- to 4-year category was allowed a 6½ percent ceiling rate while the 4-year category initially carried no ceiling at all. Deposits in the latter category were widely dubbed "wildcard" deposits.

Because the wildcard deposits had no ceiling rate, banks and the thrift institutions could compete for them freely. This fact, in conjunction with the declining growth rate of deposits at the thrift institutions during this period, fostered the belief that the wildcard deposits were responsible for a massive shift in deposits from the thrift institutions to the banks.<sup>4</sup> As a result, in November of 1973 ceiling rates of 7¼ percent at banks and 7½ percent at the thrift institutions were placed on these deposits.

The differential on all time deposit categories was left at 25 basis points in the 1973 revision of Regulation Q, with the exception of the 1- to 2½-year category, whose differential was set at 50 basis points. The savings deposit rate ceiling at the thrift institutions was raised only to 5.25 percent, thereby

<sup>4</sup> In retrospect, there appears to be little evidence that the wildcard deposits resulted in a significant shift of small time deposits from the thrifts to banks. See Kane [6].

further reducing the savings deposit rate differential from 50 to 25 basis points.

In December 1974 yet another maturity category was established, for deposits with a maturity of 6 years or more. The ceiling rate for such deposits was set at 7½ percent at banks and 7¾ percent at the thrift institutions. A final revision, in 1978, will be discussed later in this article.

This brief history of Regulation Q raises a number of questions. For example, how do Regulation Q ceiling rates affect the growth of small time and savings deposits at banks and the thrift institutions? How successful was the substantial 1973 revision of Regulation Q in diminishing the threat of disintermediation? How has the rate differential affected the relative growth of deposits at banks and the thrift institutions?

Table 1a  
PERCENTAGE OF BANKS PAYING  
CEILING RATES ON NEW DEPOSITS

	Savings	180 Days to 1 Year	1 to 2½ Years	2½ to 4 Years	4 to 6 Years	6 Years or More
July 31, 1973	63.9	67.3	80.3	86.3		
October 31, 1973	76.1	81.2	92.3	95.4		
January 31, 1974	79.0	87.1	95.8	96.4	56.6	
April 30, 1974	80.8	89.5	96.6	97.6	62.1	
July 31, 1974	82.7	89.5	97.1	97.7	69.8	
October 31, 1974	83.7	90.5	97.4	97.9	74.5	
January 31, 1975	84.9	93.0	97.8	98.0	78.5	96.8
April 30, 1975	85.5	91.4	94.9	97.5	79.7	93.6
July 31, 1975	86.4	92.7	96.5	98.1	81.7	95.1
October 31, 1975	87.8	93.2	96.5	97.7	82.7	93.9
January 31, 1976	88.5	91.7	97.2	98.7	83.5	95.9
April 30, 1976	89.1	92.3	97.4	98.3	83.2	94.8
July 28, 1976	86.6	92.6	96.1	97.6	85.4	91.5
October 27, 1976	84.7	91.6	96.3	97.1	84.3	95.2
January 26, 1977	83.9	89.2	94.5	97.1	80.0	91.7
April 27, 1977	84.4	87.0	91.9	92.6	77.6	87.4
July 27, 1977	84.6	91.2	95.6	94.7	79.3	93.9
October 26, 1977	86.1	92.2	95.4	97.2	81.9	91.8
January 25, 1978	86.0	91.1	96.9	97.5	86.1	93.3
April 26, 1978	86.3	91.8	96.9	95.7	85.9	93.8

Notes: (1) Prior to the April 1975 survey the data are for "percent paying highest 50 basis point bracket" rather than "percent paying ceiling rates." However, the difference between the two series is generally less than 2 percentage points.

(2) In the July 1976 survey the sampling technique was changed. These changes are described in the December 1976 issue of the Federal Reserve Bulletin.

(3) Prior to the July 1976 survey all data are for "individuals, partnerships and corporations (IPC)." Subsequently, the savings category shown is for "individuals and nonprofit organizations" while all other categories are for "other than domestic government units."

Source: Federal Reserve Bulletin.

**Some Survey Results** Since the 1973 revision of Regulation Q, the FHLBB has conducted semi-annual surveys on the amounts outstanding of and the rates paid on the various categories of savings and small time deposits at savings and loan associations. Similar surveys, on a quarterly basis, of commercial banks have been conducted by the Federal Reserve since 1967. The information provided in these surveys is useful in answering the questions posed above. The survey data, collected from various issues of the *Federal Home Loan Bank Board Journal* and the *Federal Reserve Bulletin*, is presented below.

*The Rates Paid* The first set of survey information is the rates paid on the various categories of small time and savings deposits. The percent of banks paying the Regulation Q maximum rate is shown in Table Ia and the percent of savings and loan associations is shown in Table Ib.<sup>5</sup> Table Ia shows that most banks have paid the ceiling rates on all categories of small time and savings deposits since the new ceilings were instituted in 1973. For some banks, however, there was a lag before the high market rates of 1974 induced them to move to the new ceiling rates. In 1976 and 1977 some banks moved away from the ceiling rates in reaction to lower market interest rates, but most remained at the ceilings. When market interest rates moved higher in the second half of 1977 and the beginning of 1978, those banks that had lowered their rates returned to the ceiling rates.

The rate-setting behavior of savings and loan associations, shown in Table Ib, has been similar to that of banks. Most savings and loan associations have paid the ceiling rates in all maturity categories, except the 90-day to 1-year category. On average only 40 percent have paid the maximum rate on that category. As in the case of banks, some savings and loan associations moved away from the ceiling rates on longer term maturities when market interest rates declined in 1976 and 1977, and then returned to the ceiling rates when market rates subsequently rose.

Because the majority of both thrifts and banks paid the maximum rates on the various categories of small time and savings deposits throughout the 1973-1978 period, these rates can be used as a measure of the yields available on such deposits during that period. Chart 1 shows the differentials between the ceiling rates on small time deposits at banks and

<sup>5</sup> Survey data are also collected on percent of deposits paying the maximum rate. The comments in this section would also apply if the data were shown on that basis rather than on the basis of percent of banks.

Table 1b  
**PERCENTAGE OF SAVINGS AND LOAN ASSOCIATIONS PAYING CEILING RATES ON NEW DEPOSITS**

	Savings	90 Days to 1 Year	1 to 2½ Years	2½ to 4 Years	4 to 6 Years	6 Years or More
September 30, 1973	86.9					
March 31, 1974	90.7	37.8	72.3	80.2	66.2	
September 30, 1974	92.5	38.5	77.3	82.8	90.8	
March 31, 1975	93.7	39.7	81.2	84.0	88.4	58.8
September 30, 1975	94.0	40.8	82.6	85.0	91.1	60.9
March 31, 1976	94.7	41.1	83.8	85.2	87.7	59.2
September 30, 1976	95.3	41.2	84.8	85.4	85.7	56.1
March 31, 1977	94.9	37.4	80.3	81.2	72.3	44.7
September 30, 1977	95.7	40.0	84.7	84.3	84.7	55.1
March 31, 1978	96.8	43.3	88.3	87.2	93.6	77.7

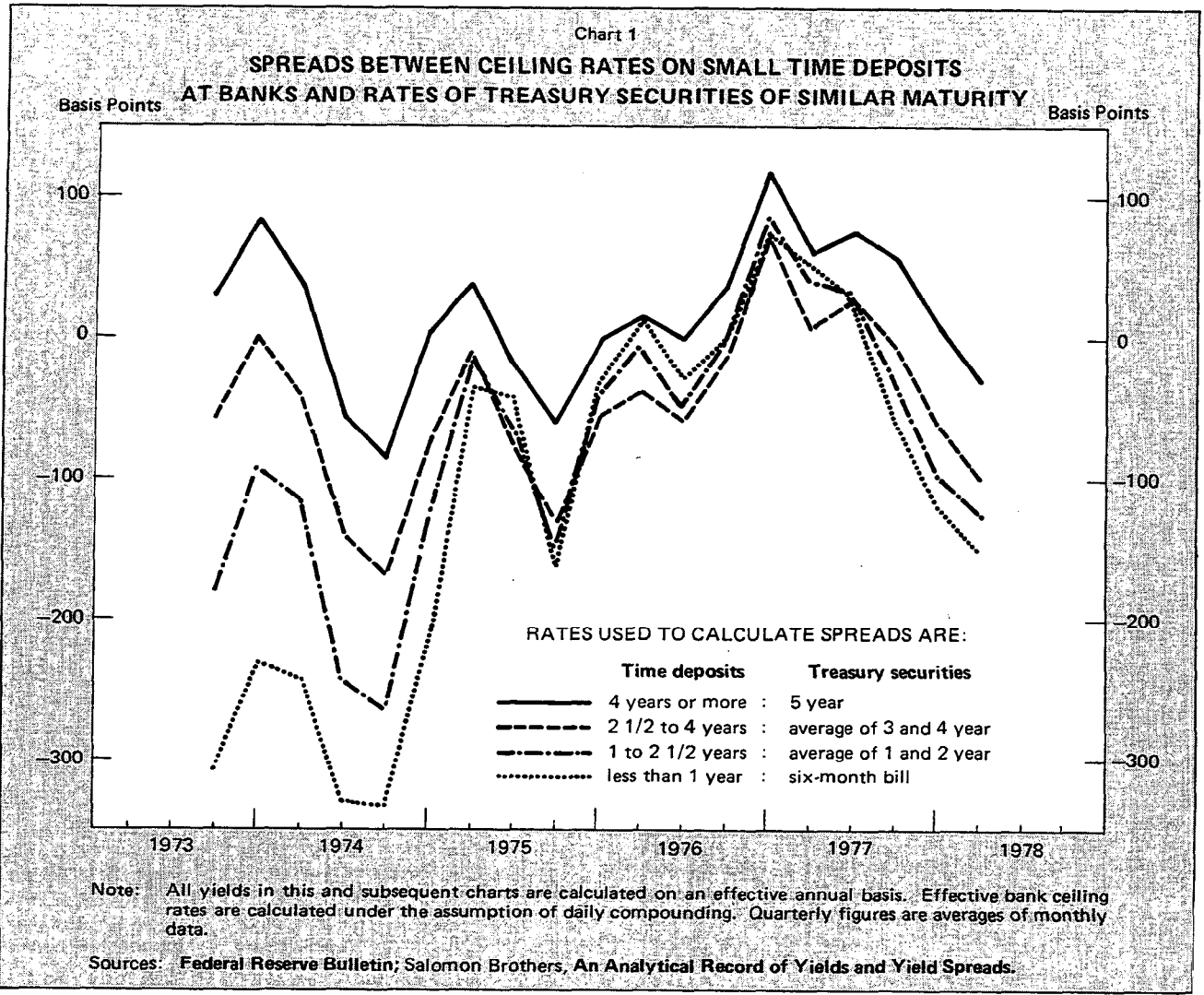
Source: Federal Home Loan Bank Board Journal.

rates on Treasury securities of comparable maturity. The chart illustrates that the attractiveness of a particular maturity category can change greatly over time. In addition, the relative attractiveness of the various categories of small time and savings deposits varies substantially as the yield curve on market instruments changes. Finally, the chart shows that the yield on the 4-year or over category has been the most attractive relative to market rates ever since it was created in 1973.

*Movement in the Deposit Categories* Tables IIa and IIb summarize the information from the surveys on the amounts of the various categories of small time and savings deposits outstanding at banks and savings and loan associations. Table IIa shows the amounts outstanding and percentage of the total for five categories of bank deposits, namely savings deposits and time deposits with original maturities of 30 days to 1 year, 1 to 2½ years, 2½ to 4 years, and 4 years or more.

Charts 2 and 3 use the bank survey data from Table IIa to plot the quarterly movements of (1) savings deposits plus time deposits of less than 1-year maturity and (2) time deposits of maturity of 4 years or more. (Together these constituted 86 percent of total bank small time and savings deposits in the April 1978 survey.) The movement of the differentials between Regulation Q ceiling rates and market interest rates shown in Chart 1 is helpful in understanding the behavior of these deposits.

Chart 2 compares the spread between the bank ceiling rate on 90-day to 1-year deposits and the 6-month Treasury bill rate to the movement in



savings plus time deposits less than 1-year at banks. The chart shows that quarterly movements in these deposits have varied over a wide range of -\$1 billion to +\$14 billion primarily in response to wide swings in short-term market interest rates around the Regulation Q ceiling rate. A noteworthy aspect of the behavior of the short-term deposits shown in Chart 2 is the sharp drop in the growth that accompanied a relatively small negative spread in late 1977. This sharp drop can be attributed to the run-off of highly interest sensitive short-term funds that had accumulated over the previous year-and-a-half when short-term yields on money market instruments fell below Regulation Q ceilings.

As shown in Chart 3, time deposits of maturity of 4 years or more have also varied with the attractiveness of that category's yield spread, although the variation has been much narrower than for short-term deposits. The sharp decline in inflows of the

4-year maturity during the July-October 1977 period can be attributed to the run-off of the wildcard deposits issued four years earlier. A large amount of these wildcard certificates at banks were shifted to the thrift institutions in response to the 25 basis point differential available at those institutions.<sup>6</sup>

The survey data in Table IIa is also useful in tracking trends in the overall composition of small time and savings deposits. The table shows that the percentage of total small time and savings deposits with an original maturity of 4 years or more rose from 1.4 percent in July 1973 to 19.1 percent in April 1978. The proportion in 2½- to 4-year deposits changed little over the 1973-78 period while the proportions in 1 to 2½ years and 30 days to 1 year declined. The proportion of the total in savings

<sup>6</sup> About \$27 billion of the wildcard deposits were sold in 1973. Of these, about one-third were issued by banks.

Table IIa

## ORIGINAL MATURITY OF SMALL TIME AND SAVINGS DEPOSITS AT COMMERCIAL BANKS

(\$ millions)

	Savings		Less Than 1 Year		1 to 2½ Years		2½ to 4 Years		4 Years or Over		Total
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	
July 31, 1973	124,086	54.4	42,963	18.8	48,170	21.1	9,841	4.3	3,203	1.4	228,263
October 31, 1973	124,217	54.1	38,944	16.9	45,543	19.8	11,576	5.0	9,506	4.1	229,786
January 31, 1974	126,175	53.4	38,638	16.4	45,037	19.1	13,262	5.6	12,954	5.5	236,066
April 30, 1974	129,928	53.6	37,592	15.5	42,670	17.6	14,391	5.9	17,592	7.3	242,173
July 31, 1974	131,701	53.6	36,107	14.7	41,006	16.7	15,326	6.2	21,364	8.7	245,504
October 31, 1974	132,449	53.7	34,621	14.0	38,744	15.7	15,865	6.4	24,895	10.1	246,574
January 31, 1975	135,856	53.5	34,628	13.6	37,240	14.7	17,365	6.8	28,752	11.3	253,841
April 30, 1975	144,250	53.9	36,329	13.6	36,203	13.5	18,568	7.0	32,450	12.1	267,800
July 31, 1975	151,965	54.1	37,443	13.3	35,872	12.8	19,500	6.9	35,956	12.8	280,736
October 31, 1975	154,282	54.0	37,262	13.0	35,397	12.4	20,318	7.1	38,603	13.5	285,862
January 31, 1976	165,470	54.7	38,424	12.7	36,006	11.9	20,453	6.8	42,070	13.9	302,423
April 30, 1976	178,190	55.7	40,019	12.5	36,093	11.3	19,357	6.0	46,399	14.5	320,058
July 28, 1976	180,698	56.2	39,773	12.3	33,008	10.3	18,690	5.8	49,281	15.3	321,450
October 27, 1976	187,506	55.8	41,761	12.4	34,002	10.1	18,402	5.5	54,098	16.1	335,769
January 26, 1977	199,028	56.5	42,620	12.1	33,979	9.6	17,646	5.0	59,090	16.8	352,363
April 27, 1977	206,416	56.5	43,062	11.8	34,077	9.3	18,119	5.0	63,556	17.4	365,230
July 27, 1977	210,081	56.4	43,895	11.8	34,207	9.2	18,768	5.0	65,804	17.7	372,755
October 26, 1977	211,928	56.9	41,492	11.1	34,601	9.3	18,539	5.0	66,132	17.7	372,691
January 25, 1978	213,184	56.7	41,296	11.0	33,977	9.0	18,463	4.9	68,864	18.3	375,782
April 26, 1978	216,622	56.6	39,743	10.4	34,075	8.9	19,181	5.0	72,948	19.1	382,569

Notes: (1) Data exclude domestic government units.

(2) In the July 1976 survey the sampling technique was changed. This created a discontinuity in the quantity data. The effect on the "percent of total" calculations, however, appears negligible.

Source: Federal Reserve Bulletin.

Table IIb

## ORIGINAL MATURITY OF SMALL TIME AND SAVINGS DEPOSITS AT SAVINGS AND LOAN ASSOCIATIONS

(\$ millions)

	Savings		90 Days to 2½ Years		2½ to 4 Years		4 Years or Over		Total
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	
September 30, 1973	103,451	49.3	95,996	45.8	2,740	1.3	7,504	3.6	209,691
March 31, 1974	104,600	47.4	82,724	37.5	6,680	3.0	26,782	12.1	220,786
September 30, 1974	102,763	46.0	65,679	29.4	9,351	4.2	45,702	20.4	223,495
March 31, 1975	109,399	45.7	52,306	21.9	11,671	4.9	65,789	27.5	239,165
September 30, 1975	116,819	45.1	47,921	18.5	13,774	5.3	80,678	31.1	259,192
March 31, 1976	124,557	44.0	48,956	17.3	14,046	5.0	95,501	33.7	283,060
September 30, 1976	129,885	42.9	49,778	16.4	13,485	4.5	109,824	36.2	302,972
March 31, 1977	136,813	41.5	52,748	16.0	14,061	4.3	126,145	38.3	329,767
September 30, 1977	142,457	40.3	54,494	15.4	14,562	4.1	141,549	40.1	353,062
March 31, 1978	146,252	39.3	53,996	14.5	14,942	4.0	157,085	42.2	372,275

Note: The FHLBB collects the deposit data on the basis of rate paid rather than term-to-maturity. The assumptions used to construct this table are that certificates with a rate equal to or less than a 6.50 percent rate are in the 90-day to 2½-year category; certificates with a rate from 6.51 to 6.75 are in the 2½- to 4-year category; and certificates with a rate greater than 6.75 are in the 4-year or over category. Because of the way in which the data are collected, no attempt was made to separate the 90-day to 1-year and 1- to 2½-year categories.

Source: Federal Home Loan Bank Board Journal.

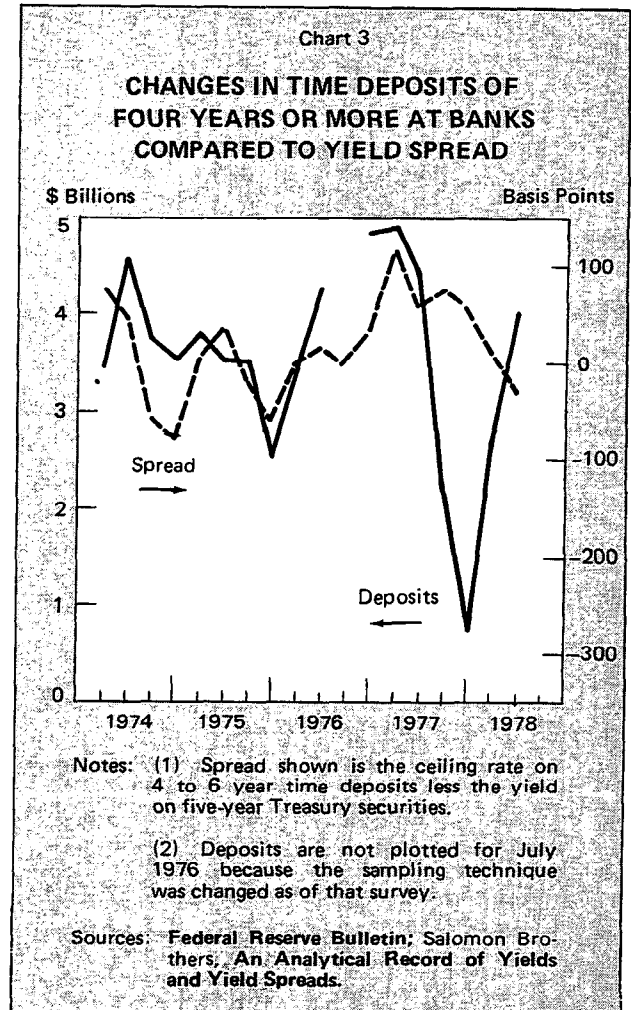
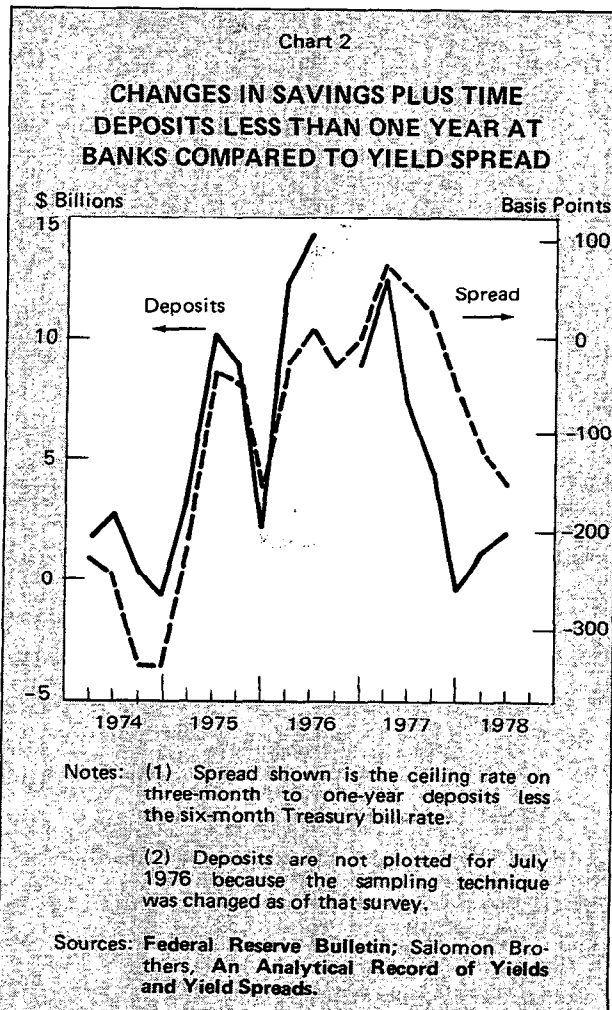
deposits rose slightly on net from mid-1973 through early 1978.

Table IIb shows roughly the same breakdown for small time and savings deposits at savings and loan associations. Time deposits with an original maturity of 90 days to 1 year and 1 to 2½ years are combined in one category because of the way the data are collected by the FHLBB.<sup>7</sup> The table shows that the trends in the composition of small time and savings deposits have been similar to those at banks, although there are some significant differences. The savings component of total savings and loan association deposits fell from 49.3 percent in the September 1973 survey to 39.3 percent in the March 1978 survey. Another difference is that time deposits with an original maturity of 4 years or more had risen to 42 percent of total small time and savings deposits by March 1978.

<sup>7</sup> See note, Table IIb.

Table IIb also demonstrates that the pattern of movement of the categories at S&L's as market interest rates have changed has been similar to the pattern at banks.

*The Maturity Profiles* The survey data in Tables IIa and IIb are on the basis of original maturity. The FHLBB also collects data on current time-to-maturity of outstanding deposits at savings and loan associations. These data, summarized in Table III, provide the best information on the impact of the 1973 Regulation Q revision on the maturity of outstanding deposits. Table III shows that in the first half of the five-year period there was a steady decline in the proportion of deposits highly vulnerable to disintermediation, i.e., savings deposits plus time deposits maturing in less than 1 year. When short-term rates fell below Regulation Q ceiling rates in 1976 and 1977, however, the resulting huge inflow of short-term deposits had the effect of actually raising the overall proportion of deposits especially vulner-



able to disintermediation. This shows up clearly in Table III. The ratio of savings and small time deposits maturing in less than a year to total small time and savings deposits dropped steadily from 74.7 percent in the March 1973 survey to 63.2 percent in the September 1975 survey. Subsequently, however, the ratio rose to 66.7 percent in the September 1977 survey. The March 1978 survey shows a drop back to 63.6 percent in this ratio following the withdrawal of interest sensitive short-term deposits from S&L's in reaction to rising market interest rates.

The Federal Reserve surveys do not collect data on the current maturity of outstanding deposits. However, it was shown earlier that the proportion of total bank small time and savings deposits with an original maturity of at least 4 years had risen only to 19.1 percent by April 1978. Furthermore, it was shown that the proportion in savings deposits actually rose slightly over the period covered in Table IIa. Consequently, it can safely be concluded that the bank ratio of savings plus small time and savings deposits maturing in less than a year to total small time and savings deposits declined significantly less over this period than did the S&L ratio.

*The Impact of the Ceiling Rate Differential* The survey data are also useful in assessing the impact of the differential between the ceiling rates at thrifts versus banks. From the September/October 1973 surveys to the March/April 1978 surveys, savings deposits at banks rose \$92.4 billion, while savings deposits at S&L's only rose \$42.8 billion, despite the 25 basis point differential favoring S&L's. As a result, the proportion of savings deposits at banks to total savings deposits at banks and S&L's rose from 54.6 to 59.7 percent. Over the same period, however, small time deposits of original maturity of 4 years or more rose \$63.4 billion at banks and \$149.6 billion at S&L's. Consequently, the percentage of small time deposits of 4 years or more at banks to the total of those deposits at banks and S&L's combined was only 31.7 percent at the end of the period. While small time deposits of original maturity of less than 4 years declined at both banks and S&L's over the period, the proportion of the total at banks rose from 49.3 to 57.4 percent.

As noted, the rationale for the differential favoring S&L's is that it is necessary to offset the inherent competitive advantage that banks have in offering a wide variety of financial services. On the one hand, the survey data appear to support this rationale with respect to regular savings accounts, which typically involve several transactions over time. In fact, the survey data indicate that the 25 basis point differ-

Table III  
**MATURITY OF OUTSTANDING SMALL TIME  
 AND SAVINGS DEPOSITS AT  
 SAVINGS AND LOAN ASSOCIATIONS**

(Percentages)

	Savings	Maturing Within 1 Year	Maturing in 1 to 2 Years	Maturing After 2 Years	Savings + Maturing Within 1 Year
March 31, 1973	50.4	24.5	21.4	3.7	74.7
September 30, 1973	48.8	27.8	16.2	7.2	76.6
March 31, 1974	46.5	27.8	9.8	15.8	74.3
September 30, 1974	46.0	23.5	7.9	22.6	69.5
March 31, 1975	45.7	18.7	6.8	28.8	64.4
September 30, 1975	45.1	18.1	7.6	29.3	63.2
March 31, 1976	44.0	17.5	13.3	25.2	61.5
September 30, 1976	42.9	19.0	15.7	22.4	61.9
March 31, 1977	41.5	24.3	13.6	20.6	65.8
September 30, 1977	40.3	26.4	10.6	22.6	66.7
March 31, 1978	39.2	24.4	7.9	28.5	63.6

Source: Federal Home Loan Bank Board Journal.

ential has been insufficient to offset the advantage banks have in competing for savings deposits. On the other hand, the survey data clearly do not support the need for a 25 basis point differential on the ceiling rate for small time deposits of 4 years or more, which involve only one transaction at the beginning of a four- or six-year period. The differential has apparently induced most savers to place these deposits at the thrift institutions.

The survey data is ambiguous concerning the impact of the differential on competition for small time deposits of original maturity of less than 4 years. As indicated, the banking sector's share of these deposits has risen over the survey period. A large percentage of S&L's, however, has not paid the maximum rate on small time deposits of less than 1 year. (See Table Ib.) Therefore, the increased bank share of these deposits can not necessarily be attributed to an insufficient ceiling rate differential.

*Summary of the Survey Data* Before turning to the aggregate data, it may be useful, as a preliminary, to summarize the major conclusions of the Federal Reserve and FHLBB surveys:

- (1) Most banks and S&L's kept their rates at the Regulation Q ceiling rates throughout the 1973-78 period. However, the proportions of banks and S&L's paying the ceiling rates varied somewhat in response to movements in market interest rates.



(2) Since the 1973 revision of Regulation Q, the fastest growing category of small time and savings deposits at both banks and S&L's has, on average, been deposits of 4 years or more in original maturity.

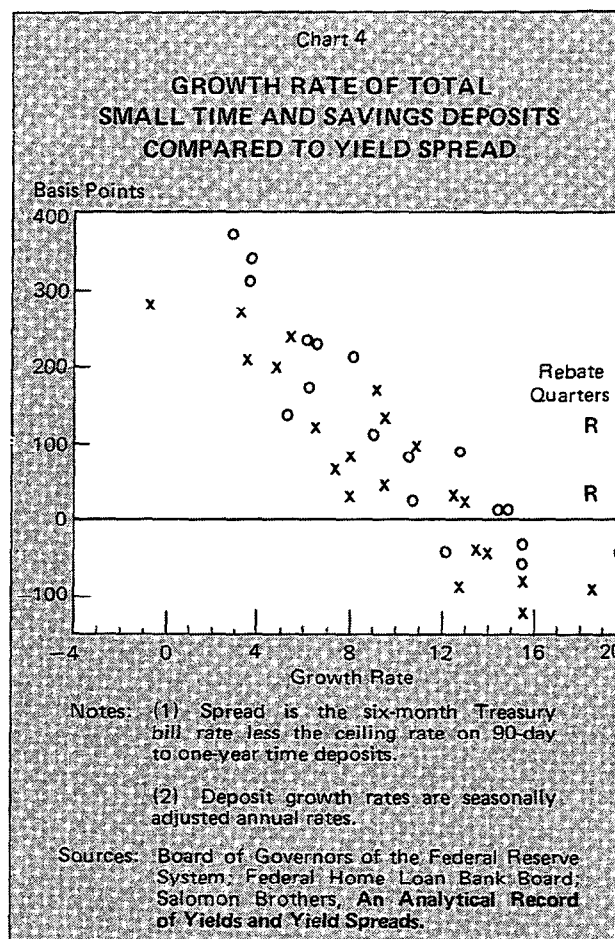
(3) When short-term money market rates fall to or below Regulation Q ceiling rates, the depository institutions experience large inflows of highly interest sensitive short-term funds, which are subsequently withdrawn when market rates rise. Consequently, movements of market interest rates above and below the Regulation Q ceilings (especially ceilings for short-term maturities) have continued to cause wide swings in inflows of small time and savings deposits.

(4) Since the 1973 revision of Regulation Q, there has been a moderate decline in the proportion of small time and savings deposits at S&L's maturing within 1 year. While survey data on current maturity are not collected in the Federal Reserve surveys, it appears that the proportion of small time and savings deposits at banks maturing within 1 year has declined significantly less than at S&L's.

(5) The 25 basis point differential that the thrift institutions can pay on small time and savings deposits has not offset the advantage of banks in the competition for savings deposits. The differential has, however, given the thrifts a competitive advantage in the sale of long-term certificates.

**The Aggregate Data** Chart 4 compares the quarterly growth rates of total small time and savings deposits at both banks and thrift institutions to the spread between the six-month bill rate and the ceiling rate on 90-day to 1-year deposits.<sup>8</sup> The "X's" show the growth rates from 1968 II through 1973 II, while the "O's" show the growth rates from 1973 III through 1978 II. Over the period shown in Chart 4, there was a fairly stable linear relationship between the growth rate of small time and savings deposits and the yield spread. A demand equation based on this relationship is estimated in the Appendix to this

<sup>8</sup> The aggregate commercial bank small time and savings deposit series used in this section was calculated by subtracting a series on large time deposits greater than \$100,000 constructed by the Board of Governors from total time and savings deposits. The aggregate small time and savings deposits series for the thrift institutions includes all time and savings deposits, because data on large time deposits at S&L's are not available prior to 1976. As of the end of 1977, however, large time deposits constituted only 2.4 percent of total S&L deposits. Consequently, the bias in comparing the movement in the two series is quite small.



article. A major exception to the relationship occurred in the second and third quarters of 1975, when the tax rebates boosted deposit growth rates to higher levels than would have been expected given the behavior of market interest rates at the time. These quarters are indicated on the chart.

Chart 4 shows that yield spreads in favor of deposits have resulted in very large quarterly growth rates. Conversely, large yield spreads (as high as 3 percentage points) in favor of money market instruments have resulted in a negative growth rate of small time and savings deposits only once during the period. To appreciate this aspect of the behavior of the growth rate of total small time and savings deposits, it is useful conceptually to divide depositors into two groups, those who are sensitive to interest rate movements and those who are not. There is evidence that the two groups correspond roughly to large savers and small savers.<sup>9</sup> Investors in the

<sup>9</sup> Evidence supporting this view is provided in an article by Goldman [4] based on a survey of the behavior of savings balances by size at 25 S&L's during the 1974 period of disintermediation.

latter group have not been interest sensitive primarily because they have had limited access to money market instruments.

When yield spreads are favorable to small time and savings deposits, there is a large inflow of funds, especially short-term, from interest rate sensitive investors. Hence, relatively modest positive spreads between Regulation Q rates and Treasury bill rates have generally resulted in high growth rates of small time and savings deposits. On the other hand, when the spreads turn negative, interest sensitive funds return to the market. However, investors who are not interest sensitive continue to put money into deposits. As a result, the growth rate of small time and savings deposits has almost always been positive despite the behavior of the interest sensitive group of depositors.

*Impact of the 1973 Regulation Q Revision* Chart 4 provides no indication of a decrease in the sensitivity of small time and savings deposits to movements in short-term interest rates following the 1973 revision of Regulation Q. That is, the relationship between the growth rate of small time and savings deposits and the spread between the bill rate and the Regulation Q ceiling rate appears very similar in the 1968 II - 1973 II and 1973 III - 1978 II periods. This is consistent with the survey data, which showed only a small decline in the latter period in the proportion of small time and savings deposits maturing within one year. Furthermore, the regression equation reported in the Appendix provides additional support for this observation. Therefore, it is reasonable to conclude that at least through 1978 II, the 1973 revision of Regulation Q did not reduce the sensitivity of the growth rate of small time and savings deposits to movements in short-term market rates relative to Regulation Q ceiling rates.

*Disintermediation: Banks Versus Thrift Institutions* The FHLBB and Federal Reserve survey data reviewed earlier showed that, compared to banks, thrift institutions have a larger proportion of their total small time and savings deposits in long-term certificates and a smaller proportion in savings deposits. Accordingly, the percentage of small time and savings deposits especially vulnerable to disintermediation was somewhat lower at the thrifts than at banks. In view of the survey data, one might expect total small time and savings deposits to hold up better at the thrifts than at banks in periods of rising interest rates. Do the aggregate data support this expectation?

This question is difficult to resolve for several

reasons. First, there were several other events in recent years affecting the relative growth rates of small time and savings deposits at banks and thrift institutions. Foremost among these were the sale of the wildcard deposits in 1973, two-thirds of which were sold by the thrift institutions, and the maturing of these wildcard deposits in 1977. A large part of the maturing wildcard deposits at banks were shifted to the thrift institutions and, perhaps, to other investments. As a result, the growth of small time and savings deposits at banks, compared to thrifts, declined in the second half of 1977.

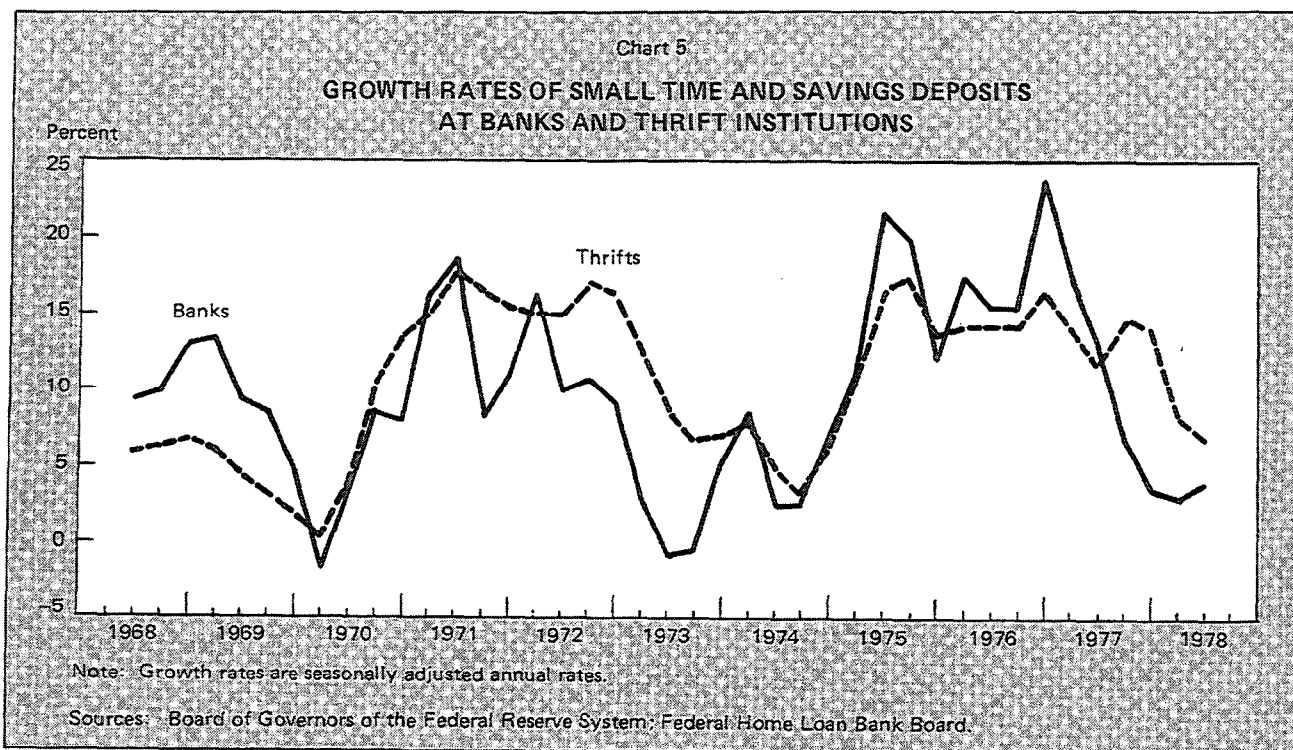
The second problem in comparing the interest sensitivity of demand for small time and savings deposits at the two sectors is that over the earlier part of the period the large commercial bank time deposit data, used to construct the small time deposit series, are probably not of very high quality.<sup>10</sup> A third relatively minor problem is that while large time deposits greater than \$100,000 have been removed from the bank data, a small amount of large time deposits remains in the thrift data.

Chart 5 compares the growth rates of small time and savings deposits at commercial banks and the thrift institutions. Clearly, the growth rates have moved together over the past ten years. There appears, however, to be some tendency for the thrift growth rate to fluctuate less in response to changing interest rates in the latter half of the period. From 1973 through 1978 the growth rate of small time and savings deposits at banks varied over a -0.9 to 24.2 percent range, while the comparable range at the thrift institutions was only 3.7 to 17.4 percent. Therefore, short of a firm conclusion, the aggregate data appear to support the view that the growth rate of small time and savings deposits at the thrifts has been slightly less interest sensitive over the last five years than the growth rate at commercial banks. In any case, the similarity in the behavior of the two growth rates is much more striking than the difference.

**The 1978 Revision of Regulation Q and the Emergence of Money Market Funds** In 1977 and early 1978 market interest rates rose to levels equaling or surpassing Regulation Q ceilings. At a result, the growth rate of small time and savings deposits

---

<sup>10</sup> The large time deposit data used in this study is based on actual survey data beginning in 1973. From 1968 through 1972, however, it is constructed on the assumption that the ratio of large time deposits to negotiable CD's at weekly reporting banks was stable. The Board of Governors is in the process of constructing a new large time deposit series using some survey data in the earlier period.



declined sharply. The regulatory response was predictable: Regulation Q ceilings were again adjusted. Two changes were made as of the beginning of June 1978. The first change established a new category of time deposits having a maturity of 8 years or longer. The ceiling rates on this category were set at  $7\frac{3}{4}$  percent for banks and 8 percent for the thrift institutions.

The second and more dramatic change in Regulation Q was the introduction of 6-month "money market certificates" with ceiling rates tied to the average return in the weekly auction of 6-month Treasury bills. Banks are allowed to offer the average auction rate on these certificates. The thrifts are allowed to pay  $\frac{1}{4}$  of a percentage point higher, the usual differential.<sup>11</sup> The minimum denomination for the new certificates is \$10,000, the same as the minimum denomination of bills at the weekly Treasury auctions.

In the past, Treasury securities have been the major investment alternative for those depositors whose demand for small time and savings deposits has been sensitive to the movement in market interest rates. By providing this group of savers with the alternative of receiving a yield competitive with the Treasury bill rate, money market certificates should

<sup>11</sup> For a detailed description of the actual yield calculation for the money market certificates see Kasriel [7].

work to raise the growth rate of total small time and savings deposits consistent with any given market rate.

*Money Market Mutual Funds* While the introduction of money market certificates is a development that should decrease disintermediation, another recent development should work to *increase* disintermediation. This development is the emergence of the money market mutual fund as a major financial market institution. Money market mutual funds were established in reaction to the high interest rates of 1973-74. Many small investors were prevented from obtaining high market yields during that period because they lacked sufficient funds to meet the minimum purchase requirement for Treasury bills, let alone the much larger minimum requirements typical of other money market investments.<sup>12</sup>

As of mid-1978 there were over 50 money market mutual funds offering shares in portfolios of various types and combinations of money market instruments. Because the assets of these funds are short-term, the yield on shares in them tends to follow the yield on current money market instruments with a fairly short lag. Minimum purchase requirements

<sup>12</sup> According to two recent studies, Pyle [8] and Hendershott [5], the loss in interest to the small saver as a result of binding Regulation Q ceilings in the three-year period 1973-75 was \$6 to \$9 billion.

are frequently only \$2500 and sometimes as low as \$1000. Consequently, money market mutual funds offer the opportunity to obtain money market yields to those small investors who previously were unable to purchase money market instruments. As market interest rates in the latter part of 1977 and in 1978 rose relative to Regulation Q ceilings, the purchase of money market mutual fund shares expanded sharply. About \$1 billion were purchased every two months during the first eight months of 1978. The level outstanding as of August was \$7.9 billion.

*Implications for Deposit Growth* The net effect on disintermediation of money market certificates and money market mutual funds cannot be assessed with certainty. However, in view of the huge amount of funds that have shifted from the deposit institutions into the Treasury market in past periods of high interest rates, it seems likely that the positive effect of money market certificates will dominate the negative effect of money market funds. If so, the growth rate of total small time and savings deposits will be less variable than in the past. One conclusion that can be made with a fair amount of certainty is that without the 1978 revision of Regulation Q, the rapid growth of money market mutual funds would have caused the growth of small time and savings deposits to fall even more in periods of rising market rates than it had in the past.

What is likely to be the relative impact of the money market certificates on the behavior of small time and savings deposits at banks versus the thrift institutions? On the basis of the survey data examined earlier, it can be expected that, due to the 25 basis point differential, these certificates will have a greater impact on deposits at thrifts than at banks. The very limited amount of data available as of this writing supports this expectation. Federal Reserve data indicate that in the three months following the introduction of the certificates, commercial banks sold \$7.8 billion, while savings and loan associations and mutual savings banks sold \$14 billion and \$5 billion, respectively. The net impact on the growth rate of small time and savings deposits was also clearly greater at the thrift institutions. The average annual rate of growth of small time and savings deposits at the thrift institutions was 7.4 percent in the six months ending May 1978. In the following three months the annualized growth rate at these institutions rose to 11.4 percent. The growth rate at banks, however, only rose from 5.1 to 5.3 percent in the same period.

The expectation that thrifts will benefit more than banks from the money market certificates assumes

that the thrifts will offer them at the maximum rate. It is possible that at certain market interest rate levels many thrifts, because of the long-term maturity of their assets, would no longer be willing to offer the ceiling rate. In such a case, the relative impact of the certificates on banks versus thrifts may well shift toward banks.

**Large Time Deposits as a Response to Disintermediation** Total time deposits include large time deposits, defined as those greater than \$100,000, as well as the smaller time and savings deposits that have been discussed to this point. Regulation Q ceilings on these large deposits were suspended in June 1970 for maturities of 30 to 90 days and in May 1973 for all other maturities. The surveys discussed earlier showed S&L's with only \$10.8 billion of these large time deposits in March 1978, while commercial banks had \$164.9 billion in April of that year.

Since the early 1970's, sales of large time deposits by banks in periods of high interest rates have more than offset declines in inflows of small time and savings deposits.<sup>13</sup> In fact, while there is a strong negative correlation from 1972 through early 1978 between the growth rate of small time and savings deposits and spreads between market rates and Regulation Q ceilings, there is actually a positive correlation between the growth rate of *total* time and savings deposits and market rates and those spreads.

Until recently the thrift institutions had not raised a significant amount of funds through large time deposits. Recent FHLBB surveys, however, show that from September 1977 through March 1978, S&L's raised \$2.2 billion dollars, or 10.5 percent of their net increase of total deposits, through large time deposits. This was the highest percentage on record and indicates that some thrift institutions are increasing the use of large time deposits not subject to Regulation Q ceilings as a response to disintermediation.

**Regulation Q and the Monetary Aggregates** To the extent that the 1978 revision of Regulation Q decreases the interest sensitivity of small time and savings deposits at banks and thrift institutions, the

<sup>13</sup> The inverse relationship between the growth of small time and savings deposits and the growth of large time deposits is shown in Cook [3].

<sup>14</sup> The correlation coefficient between the growth rate of small time and savings deposits and the spread between the 6-month bill rate and the ceiling rate on 6-month certificates was  $-.69$  from 1972 I through 1978 I. The correlation coefficient between the growth rate of total time and savings deposits and the spread was  $+.26$  over the same period.

relative growth rates of the monetary aggregates in periods of high market interest rates will be affected. In particular, the growth rates of the broader aggregates will be higher relative to the growth rate of  $M_1$ . Consequently, a given  $M_1$  policy rule will result in a more rapid growth rate of the broader aggregates in expansionary periods. This has become a cause of concern among those who believe the broader aggregates are more appropriate intermediate targets for monetary policy than  $M_1$ .

Even among the broader aggregates, relative growth rates are likely to be affected by the money market certificates. In particular, in periods of high market rates, the certificates probably will raise the growth rate of  $M_5$  relative to the growth rate of  $M_4$  and also the growth rate of  $M_3$  relative to  $M_2$ .<sup>15</sup> This will occur because  $M_5$  and  $M_3$  include small time and savings deposits at both banks and the thrift institutions, while  $M_2$  and  $M_4$  only include those deposits at banks. Hence, small time and savings deposits are a larger component of  $M_3$  than of  $M_2$  and a larger component of  $M_5$  than of  $M_4$ .<sup>16</sup>

**Summary** This article has examined the impact of Regulation Q ceiling interest rates on the behavior of small time and savings deposits at banks and the thrift institutions. It has attempted to show the close relationship that exists between movements in market interest rates around these ceilings and movements in small time and savings deposits. This relationship shows up clearly in the Federal Reserve and Federal Home Loan Bank Board survey data as well as in the aggregate deposit data. The relationship between the aggregate growth rate of small time and savings deposits and movements in short-term interest rates relative to Regulation Q ceiling rates appears quite

<sup>15</sup>  $M_2$  equals  $M_1$  plus small time and savings deposits at banks plus large time deposits at banks other than negotiable CD's at weekly reporting banks;  $M_4$  equals  $M_2$  plus those large time deposits not included in  $M_2$ , about half of the total; and  $M_3$  equals  $M_2$  plus time and savings deposits at the thrifts plus credit union shares.  $M_5$  equals  $M_3$  plus negotiable CD's at weekly reporting banks.

<sup>16</sup> Specifically, the interest elasticity (a measure of the responsiveness to a change in interest rates) of any of the monetary aggregates equals a weighted average of the elasticity of its components, where the weight assigned each component is its proportion of the total aggregate. If the impact of the money market certificates on the interest elasticity of small time and savings deposits at banks and the thrift institutions is the same, then the interest elasticity of  $M_3$  would decrease relative to that of  $M_2$  simply because the share of small time and savings deposits in  $M_2$  is less than that in  $M_3$ . If the interest elasticity of small time and savings deposits drops more at thrifts than at banks as a result of the certificates, then the interest elasticity of  $M_3$  would decrease even more relative to  $M_2$ .

stable over the 1968-78 period. In particular, there appears to have been no decrease in the sensitivity of the demand for small time and savings deposits to movements in short-term interest rates following the 1973 change in Regulation Q.

The 1978 revision of Regulation Q introducing money market certificates should work to decrease the sensitivity of total small time and savings deposits to market interest rates. However, other recent developments, especially the emergence of money market mutual funds, should have the opposite effect. While the net impact of these developments is uncertain, the evidence to date suggests that the growth of small time and savings deposits following the introduction of the money market certificates has been greater than in past periods of comparable spreads between money market rates and Regulation Q ceilings. To the extent that the money market certificates affect the interest sensitivity of total small time and savings deposits, the relative growth rates of the monetary aggregates in periods of rising interest rates will be different than in the past.

#### References

1. "Changes in Time and Savings Deposits at Commercial Banks." *Federal Reserve Bulletin*, various issues.
2. "Changes in S&L Savings Account Structure." *Federal Home Loan Bank Board Journal*, various issues.
3. Cook, Timothy Q. "The Impact of Large Time Deposits on the Growth Rate of  $M_2$ ." *Economic Review*, Federal Reserve Bank of Richmond, (March/April 1978), pp. 17-20.
4. Goldman, Thomas A. "Disintermediation under the Microscope." *Federal Home Loan Bank Board Journal*, (December 1975), pp. 13-15.
5. Hendershott, Patric H. "Deregulation and the Capital Markets: The Impact of Deposit Rate Ceilings and Restrictions against VRMs." Paper presented at "Deregulation of the Banking and Securities Industries: Impacts, Interactions, and Implications," a conference sponsored by the Center for the Study of Financial Institutions at the New York University Graduate School of Business Administration, May 18, 1978.
6. Kane, Edward J. "Getting Along Without Regulation Q: Testing the Standard View of Deposit-Rate Competition During the 'Wildcard Experience'." *The Journal of Finance*, (June 1978), pp. 921-932.
7. Kasriel, Paul L. "New Six-Month Money Market Certificates—Explanations and Implications." *Economic Perspectives*, Federal Reserve Bank of Chicago, (July/August 1978), pp. 3-8.
8. Pyle, David H. "Interest Rate Ceilings and Net Worth Losses by Savers." Comptroller of the Currency Research Workpaper 77-3.
9. United States Savings and Loan League. *Savings and Loan Fact Book*, 1966 and 1967.

## APPENDIX

### THE DEMAND FOR SMALL TIME AND SAVINGS DEPOSITS

This Appendix first estimates a demand equation for total small time and savings deposits. The equation is subsequently used to test the hypothesis that the introduction of longer maturity time deposits in 1973-74 succeeded in reducing the interest sensitivity of the demand for small time and savings deposits. The following stock adjustment model was specified in logarithmic form:

$$(1) \log STSD - \log STSD_{-1} = \lambda(\log STSD^* - \log STSD_{-1})$$

where STSD is the actual level of small time and savings deposits at banks and the thrift institutions and STSD\* is the public's desired level. The change in STSD in any period is specified as a function of the difference between the desired and actual levels of STSD and the speed of adjustment parameter  $\lambda$ .

The desired level of small time and savings deposits is specified as a function of the spread between the six-month bill rate and the maximum rate on three- to twelve-month certificates at banks (SPR) and GNP (Y):

$$(2) STSD^* = ae^{bSPR}Y^c$$

Substituting for STSD\* in the stock adjustment equation, we get

$$(3) \log STSD = \lambda \log a + b\lambda SPR + c\lambda \log Y + (1-\lambda) \log STSD_{-1}$$

This specification, which was chosen on the basis of the information in Chart 4, constrains the growth rate of small time and savings deposits to be a linear

function of the yield spread. The coefficient,  $c$ , is an estimate of the income elasticity of the demand for small time and savings deposits.

The regression results are reported in the Table. Equation (A) is the basic equation (3) above, Equation (B) adds dummy variables for the temporary impact of the tax rebates, REB, in mid-1975 on the holdings of small time and savings deposits. The equations are estimated using ordinary least squares. The coefficients all have the expected signs and are significant at the 5 percent level. In particular, the interest rate spread variable exerts the expected negative influence on the demand for small time and savings deposits and has a very high t-statistic. The speed of adjustment and income elasticity estimates will be discussed below.

The hypothesis that the interest sensitivity of the demand for small time and savings deposits changed in the latter half of the period was tested by adding the following variable to the equation:

$$Q = DUM \cdot SPR,$$

$$\begin{aligned} \text{where } DUM &= 0 && 1968 \text{ II to } 1973 \text{ II} \\ &= 1 && 1973 \text{ III to } 1978 \text{ I} \end{aligned}$$

If the coefficient of  $Q$  is positive and significantly different from zero, then the conclusion can be made that the interest sensitivity of the demand for small time and savings deposits is less in the latter half of the period. Equation (C) in the Table adds  $Q$  to Equation (B). The regression results show a coefficient of  $Q$  that is positive, but very small and not

#### REGRESSION RESULTS: THE DEMAND FOR SMALL TIME AND SAVINGS DEPOSITS

Dependent Variable	Constant	SPR	log Y	log STSD <sub>-1</sub>	REB	REB <sub>-1</sub>	Q	R <sup>2</sup>	SE	h
(A) log STSD	-.4152 (5.11)	-.0089 (12.81)	.2250 (5.02)	.8144 (21.07)				.9997	.0052	1.45
(B) log STSD	-.2866 (3.66)	-.0085 (14.10)	.1569 (3.65)	.8716 (23.66)	.0096 (1.99)	.0169 (3.48)		.9998	.0045	1.42
(C) log STSD	-.2659 (3.18)	-.0090 (10.59)	.1489 (3.34)	.8775 (23.15)	.0098 (2.02)	.0167 (3.42)	.0008 (.74)	.9998	.0045	1.45

Note: The spread is expressed in percentage points and the variables are measured in billions; t-statistics are in parentheses. The Treasury bill and deposit rates are both calculated on an effective annual basis.

significantly different from zero. Hence, they offer no support for the view that the 1973 changes in Regulation Q reduced the sensitivity of the demand for small time and savings deposits to movements in short-term rates relative to Regulation Q ceiling rates.

The speed of adjustment implied by the coefficients of  $STSD_{-1}$  are .186 in Equation (A), .128 in Equation (B), and .122 in Equation (C). The estimates of the income elasticity (the coefficient of  $Y$  divided by the estimate of  $\lambda$ ) are within a narrow range of 1.21 to 1.23. The estimates of the speed of adjustment and the income elasticity should be viewed with

caution since they are determined by the coefficients of  $\log STSD_{-1}$  and  $\log Y$ . These two variables are highly correlated over the period.

The last column in the Table reports Durbin's  $h$ -statistic, which is used to test for serial correlation in the presence of a lagged dependent variable. The hypothesis of zero autocorrelation can not be rejected at the 5 percent significance level. It can, however, be rejected at the 10 percent level. The equations in the Table were re-estimated using the Cochrane-Orcutt procedure. The coefficients all were very close to those reported in the Table. In particular the coefficient of  $Q$  was little changed.