

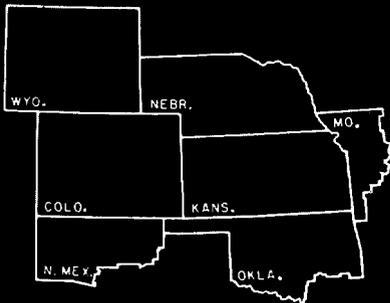


monthly review

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Credit Union Growth
In Perspectivepage 3

Treasury Deposits and the
Money Supplypage 14



FEDERAL RESERVE BANK OF KANSAS CITY

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CREDIT UNION GROWTH IN PERSPECTIVE

By *Peggy Brockschmidt**

On September 7, 1976, the American Bankers Association filed suit to stop federally chartered credit unions from offering a check-like instrument called the share draft. The introduction of the share draft has generated awareness within the financial community and among the general public of credit unions, which had been ignored for many years because of their small size in comparison with other financial organizations. The rapid growth of credit unions over the past decade, combined with their unique position as cooperative financial institutions, has prompted George Mitchell, a former Governor of the Federal Reserve System, to forecast that credit unions—rather than savings and loan associations or mutual savings banks—will be the toughest competitors of commercial banks within the next 5 to 10 years.

This article looks at the history of the credit union—an institution which is solely oriented toward the consumer, both as saver and borrower. The unique aspects of the credit union vis-a-vis other financial institutions are examined, as well as its current position in consumer savings and lending markets and its potential for future expansion.

BACKGROUND

Simply stated, a credit union is a nonprofit cooperative association of people with a

*Carl M. Gambs, financial economist, advised in the preparation of this article.

common bond which accepts shares from its members and makes loans to them. An individual applies for membership and purchases an initial share, generally valued at \$5 to \$10. This entitles the member to apply for loans, to vote in elections of officials, and to participate in the committees formed to run the credit union. The earliest credit unions were organized in Germany in the mid-1800's as self-help societies (as opposed to charitable institutions) set up to encourage thrift in the working classes and to provide credit on reasonable terms. The first credit union in the United States was organized in 1908.

Credit unions can be chartered under the laws of 46 states or under the Federal Credit Union Act of 1934. Wyoming, South Dakota, Alaska, and Delaware have no chartering provision. State chartered credit unions are usually regulated by the state's department of financial regulation, along with banks and savings and loan associations. Federally chartered credit unions are regulated by a separate regulatory agency, the National Credit Union Administration (NCUA). In 1975, 56 per cent of all credit unions were federally chartered and 44 per cent were state chartered.

A Federal share insurance program similar to the deposit insurance of the Federal Deposit Insurance Corporation and Federal Savings and Loan Insurance Corporation was unavailable to credit unions until 1970 when the National Credit Union Share Insurance

Credit Union Growth in Perspective

Fund was established under the administration of the NCUA. The maximum amount insured is **currently** \$40,000—the same limit used by the FDIC and FSLIC. All Federal credit unions were required to obtain deposit insurance and qualified state credit unions were allowed to join. By yearend 1975, 30 per cent of all state credit unions with about half of state credit union assets were federally insured. Many states require insurance through either Federal or state systems.

Because no regulatory body provides a lending service analogous to the Federal Reserve discounting function, credit unions have formed cooperative organizations to provide this function. These central credit unions provide a source of investment and borrowing for credit unions, act as "clearinghouses" for funds which one credit union lends directly to another, and make loans to credit union officials, who until recently were prohibited from borrowing from their own credit unions.

COMMON BOND

When a group decides to organize a Federal credit union, it is required to show that it has "a common bond of occupation or association" or is "within a well-defined neighborhood, community, or rural district." As few as seven people can obtain a charter, although the potential membership must be larger. Occupational credit unions make up by far the largest portion of credit unions—about 81 per cent of all Federal credit unions. Of these, 36 per cent are in manufacturing, 15 per cent are

in service industries—mainly hospitals and schools—and another 15 per cent are in government. The stability of the sponsoring occupational organization, and in most cases the **financial** aid provided by the organization, has enabled these credit unions to survive and grow for many years, so their average size is higher than the average size for other types of credit unions. Associational credit unions make up another 15 per cent of Federal credit unions. These include religious groups, labor unions, and fraternal and professional organizations. The remaining 4 per cent have been organized under a residential bond—half in rural communities and half in urban areas.

The common bond is one of the most important concepts in the credit union movement. No other financial institution begins its life with such restrictions on its growth. A commercial bank, for example, may face limits on the number or locations of its offices, but there are no restraints on its depositors or borrowers. Common membership bonds, particularly if they are based on economic association, can pose problems because the changes in saving and **borrowing** habits may be highly correlated across the credit union membership. Layoffs, strikes, or poor income years for a plant or an occupational group can cut savings inflows or cause outflows, as well as increase loan demand. Alternatively, overtime and high income years can boost savings inflows and cut loan demand. Plant closings or relocations can also put a quick end to the credit union because of the loss of the field of membership.

While the common bond requirement continues to limit the geographic area served as well as potential membership, rules for eligibility have been liberalized over the years. Originally, the common bond was considered to be "that preexisting condition which causes the members of a group to associate together, be extensively acquainted with the other members of the group, have common interests and

¹ Many of the facts in this article pertain primarily to Federal credit unions. Except for slight differences in legal restraints, state chartered credit unions are very similar to federally chartered credit unions. However, some states—Wisconsin is a prime example—have much looser common bond requirements. As a result, credit unions in these states are more likely to be organized under state charters.

Table 1
AVERAGE SIZE OF FINANCIAL INSTITUTIONS
December 31, 1975

	<u>Number</u>	<u>Total Assets</u>	<u>Average Size</u>
Credit unions	22,871	\$ 38.2 billion	\$ 1.7 million
Commercial banks	14,630	958.4 billion	65.5 million
Savings and loan associations	4,964	338.4 billion	68.2 million
Mutual savings banks	475	121.0 billion	254.7 million

SOURCE: Federal Reserve System, NCUA.

purposes, and be able and willing to work together to accomplish group objectives." The emphasis has now shifted away from association and acquaintance of the members to economic feasibility—"persons of related interests and purposes . . . could be expected to effectively operate a credit union." Minimum potential membership requirements have been raised and looser definitions of occupational entities, such as shopping centers and office buildings, have been used to allow formation of credit unions. Separate branches of various national organizations have been allowed to join together to form an eligible associational group, and the maximum population of a town allowed to organize a residential credit union has been raised. An ineligible group is now primarily defined as one that has been organized to provide a field of membership.

The liberalization of the common bond criteria by Federal and state authorities has been criticized by bankers and other **financial** executives. They contrast the relative ease and small investment required to **begin** a credit union with the time and large sums of money involved in starting a bank. Also, **critics** argue that once a credit union becomes large, it becomes more a business than a cooperative organization. They say credit unions should then be required to split into smaller credit unions or convert to banks.

CONTRASTS WITH OTHER FINANCIAL INSTITUTIONS

There were 22,871 credit unions in operation with total assets of \$38.2 billion at yearend 1975. As shown in Table 1, the mean size of a credit union is quite small compared to other financial institutions--only \$1.7 million in assets, compared to a commercial bank average of \$65.5 million. This mean is pushed up greatly by the few credit unions with large assets, as is the commercial bank mean. However, the vast majority of credit unions are very small: over 85 per cent of all credit unions had assets of less than \$2 million at yearend 1974, though they controlled only 24 per cent of all credit union assets.

Credit unions also differ in that they receive many subsidies—direct and indirect—from their sponsoring organizations and their members. Officers serve without salary (except for the treasurer) and free office space, clerical help, payroll deduction services, etc., are often provided. Differences in subsidies exist within the movement, however. Subsidies are more available to smaller credit unions than to larger ones. Occupational credit unions generally receive more subsidies than do associational groups and both receive more than do residential **groups**.

A more fundamental difference exists because the credit union is a cooperative

Credit Union Growth in Perspective

association. Stock institutions—commercial banks and stock savings and loan associations—have a primary obligation to their stockholders. Mutual savings banks and mutual savings and loan associations have a primary obligation to their depositors. Credit unions, however, have obligations to both their shareholder-owners and their borrower-owners. A larger dividend rate necessitates a higher rate on loans, while lowering the cost for borrowers reduces the return for savers. Theoretically, the interests of the two groups should **balance**.²

Credit unions also differ because of their nonprofit nature. They pay no Federal taxes—a great irritant to other financial **institutions**—and generally pay little state tax except for real property taxes. Their cooperative nature, and probably their small size, has so far left them free of taxation, but if credit unions win broader powers, their tax-exempt status may be threatened. Other financial institutions argue that depositor-owned mutual savings banks have been taxed for many years and that, on grounds of equity, credit unions should also be taxed.

Federal credit unions had a 1975 net income of \$168.3 million after operating expenses and dividends were subtracted from gross income. Of this net **income**, 80 per cent was allocated to reserves while the remainder was retained in undivided earnings accounts. **Assuming** that taxation would have **caused** no change in behavior, estimates of Federal tax liabilities can be made.

If all reserve allocations would have been considered an allowable deduction for tax purposes and the 1975 corporate tax rate (20 per cent on the first **\$25,000** of income; 22 per cent on income of **\$25,000-\$50,000**; and 48 per cent on the remainder) would have been applied, Federal credit unions would have paid

² For a fuller discussion of this issue, see Mark Flannery, *An Economic Evaluation of Credit Unions in the United States*. Federal Reserve Bank of Boston, Research Report 54, 1974.

Federal income taxes of \$8 million. Using the more realistic assumption that deductions for **additions** to bad debt reserves would have been treated similarly to those at savings and loan associations and mutual savings banks, Federal credit unions would have paid an estimated \$24 million in Federal income taxes.³ The resulting tax burden on 1975 credit union income would have been about 14 per cent.

CREDIT UNIONS AND CONSUMER SAVINGS

The distribution of liabilities at Federal credit unions is shown in Table 2—a similar breakdown for all state credit unions is unavailable. About 87 per cent of a credit union's liabilities come **from one source**—members' savings. This heavy concentration in one type of liability could pose special problems but in recent years savings at credit unions have risen faster than at other financial institutions.

Table 2
DISTRIBUTION OF LIABILITIES
AT FEDERAL CREDIT UNIONS
December 31, 1975

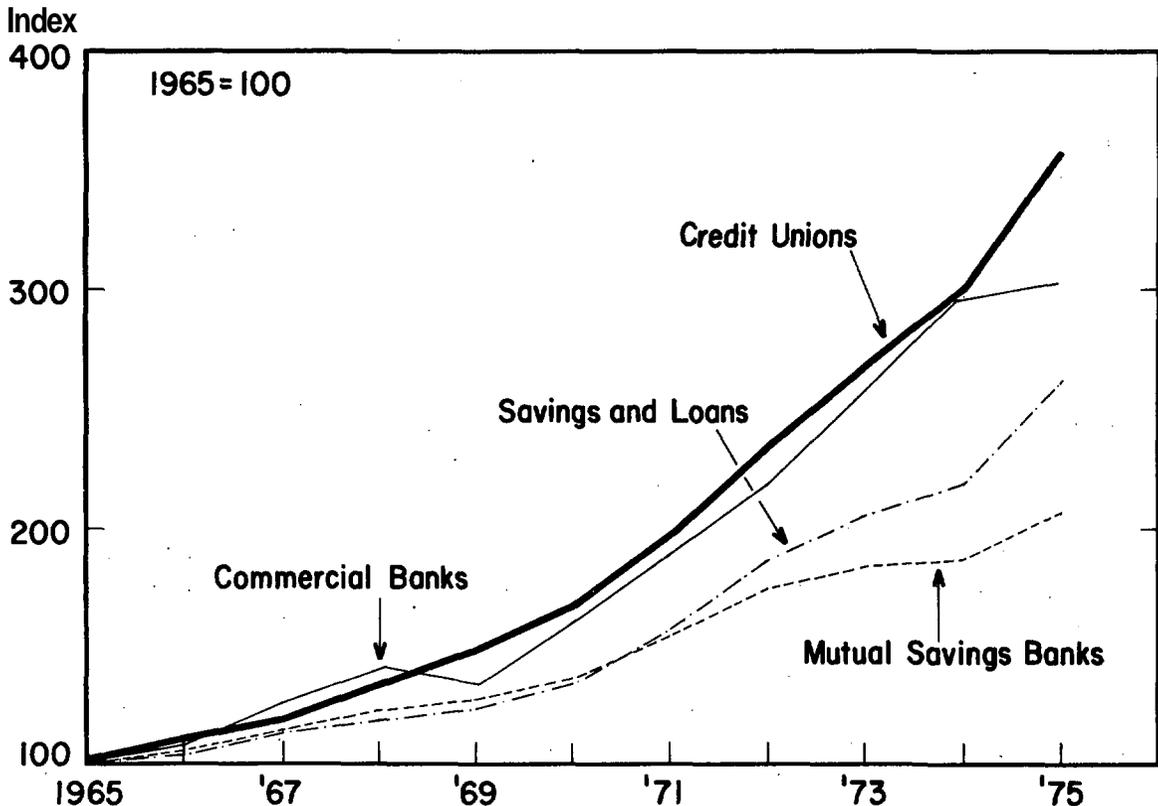
Shares	86.7%
Certificates of indebtedness	2.5
Other notes payable	1.5
Reserves and undivided earnings	6.4
Other liabilities	2.9
Total liabilities	100.0

SOURCE: NCUA, 1975 Annual Report.

As Chart 1 illustrates, credit union shares nearly quadrupled in the decade ending in 1975. During the same period, time and savings deposits at commercial banks rose at a slightly lower rate and savings and loan associations and mutual savings banks grew much less rapidly. During the 10-year period,

³ This treatment does not apply the 6 per cent limit on the ratio of bad debt reserves to loans at mutual savings banks and savings and loan associations to credit unions. Other possible deductions from taxable income are also ignored.

Chart 1
INDEX OF TIME AND SAVINGS DEPOSITS
1965-75



the credit unions' share of all time and savings deposits rose from 2.9 to 3.8 per cent.

Since the number of credit unions rose only slightly over this period, the growth came from expansion of existing organizations. In addition, growth at the largest credit unions was even faster than for the movement as a whole. The 50 largest credit unions in 1969 grew over the next 5 years at an annual rate of 17.6 per cent, while other credit unions rose at a 14.6 per cent annual rate. The supposed weakening of the common bond as credit unions become larger does not appear to have affected share growth.

The "average" member of a credit union has savings of a little over \$1,000 but this can be a

somewhat misleading average since many members maintain only a minimum balance generally \$5—to be able to borrow. In 1975, 77 per cent of all Federal credit union accounts held under \$1,000, but these accounts accounted for only 13.2 per cent of all shares. Since the introduction of share insurance in 1970, the percentage of larger accounts has doubled. In 1975, 5 per cent of all accounts (with 47.7 per cent of all shares) had balances greater than \$5,000. While share insurance certainly helped open up this new source of funds, it has also increased the possibility of disintermediation during high interest periods, since large blocks of funds could be invested in Treasury bills or bank certificates.

Credit Union Growth in Perspective

A credit union can have trouble attracting and retaining interest-sensitive funds because of the limited form in which it can accept savings. No fixed maturity certificates are allowed for Federal credit unions—only a passbook-type account is permitted.' Under Federal regulations and some state regulations, credit unions may only issue **shares**, which are somewhat analogous to equity capital in a corporation in that the return on these savings (termed "dividends") is not guaranteed at a specific rate, as is the interest paid on savings accounts at commercial banks and savings and loan associations. However, laws in some states allow credit unions to issue **deposits** with a guaranteed return which is sometimes higher than the dividend rate on shares. These deposits must be paid out before shares in case of liquidation. So far, these deposits have been little used. They **amount** to about 10 per cent of total savings in the states where they are permitted. But deposits have grown more rapidly than shares in recent years and may become more important as a way of competing for funds.

One option which credit unions have used in the past to hold interest-sensitive funds is borrowing. They can issue certificates of indebtedness (**CI's**) to any source, including their members, and have no ceiling interest rate on these certificates. These **CI's** are, to some extent, a substitute for the savings certificates offered at other financial institutions. Certificates of indebtedness, which were virtually nonexistent prior to 1969, amounted to 2.5 per cent of all liabilities in 1975.

The main reason that credit unions are able to retain funds when other financial institutions are suffering from disintermediation is that the dividend ceiling on shares is higher than the interest rate ceiling for deposits in savings

accounts at banks and savings and loan associations. The Federal credit union dividend ceiling was 6 per cent for many years and was raised in 1973 to 7 per cent, while passbook ceilings for banks and savings and loans are 5 and 5 1/4 per cent, respectively. Only bank or savings and loan certificates of over \$1,000 and with a maturity exceeding 4 years have a Regulation Q ceiling above 7 per cent. By yearend 1975, half of all Federal credit unions paid dividend rates of 6 per cent and over. The gap between the actual rate paid on savings (as opposed to the stated rate) is slightly narrower because most credit unions pay on minimum balance during the payment period—often the quarter or a longer period—while most other institutions pay on a day-of-deposit-to-day-of-withdrawal basis.

Credit union officials have long been concerned about their future ability to compete for consumer deposits if they would not be able to offer accounts on which funds could be drawn through a check or a check-like instrument. Only credit union statutes in four states specifically authorize third party payments, and the Federal provisions and most state laws are silent on this question. In August of 1974, the NCUA granted three Federal credit unions temporary authority to begin offering share drafts—payable through drafts which would be drawn on the member's interest bearing share account. These credit unions were joined by two state credit unions in a 6-month pilot program. After the end of that program, additional credit unions were allowed to offer share draft accounts. As of August 1976, nearly 300 credit unions were offering share drafts through a Credit Union National Association (CUNA) program and around 90,000 accounts had been opened. In addition, 30 to 40 credit unions outside the CUNA program were also offering share drafts.

The clearing process used by credit unions differs somewhat from that used for bank checking accounts. Members' drafts go through

⁴ The **NCUA** on December 17, 1976, proposed a regulation that would allow credit unions to pay higher dividend rates on funds held for at least 90 days, although the rate could not exceed 7 per cent.

the normal clearing process until they reach the bank through which the drafts are payable. The bank photocopies the drafts and sends the information electronically to the credit union data processor. The data is then transmitted to the credit union and itemized statements are sent periodically to the member. These statements, together with the duplicate simultaneously created when the draft is written, are the legal equivalent of a cancelled check. By truncating the transmission of the drafts at the payable through bank, the transaction costs are reduced. Also, because interest is generally paid on the minimum balance, the effective yield on the accounts is much below the stated yield.⁵

The American Bankers Association, several state bankers associations, and individual banks have recently filed suits asking that credit unions be prohibited from offering share draft accounts. The suits were filed on the grounds that there is no legislated authority for share drafts to be offered and that they are an intrusion into the banking business. If these legal actions are successful, credit unions may still be able to obtain the legislation necessary to continue share draft programs.

In any event, other programs have been established tying in conventional checking accounts at commercial banks with an added feature enabling account holders to write overdrafts against their credit union accounts. A Seattle bank has introduced such a program. Three state credit union leagues and two other groups allied with state leagues have bought or are seeking to buy banks to offer these accounts.

CREDIT UNIONS AND CONSUMER LENDING

Most of the assets of a credit union are consumer loans. However, some funds must be

invested in liquid assets—typically U.S. Government securities and Federal agency securities—to provide a cushion for temporary imbalances of savings inflows. Also, investments in shares in savings and loan associations or other credit unions are permitted. At yearend 1975, **20.1** per cent of all assets were in these more liquid assets. Small amounts go to members for business loans and to other credit unions.

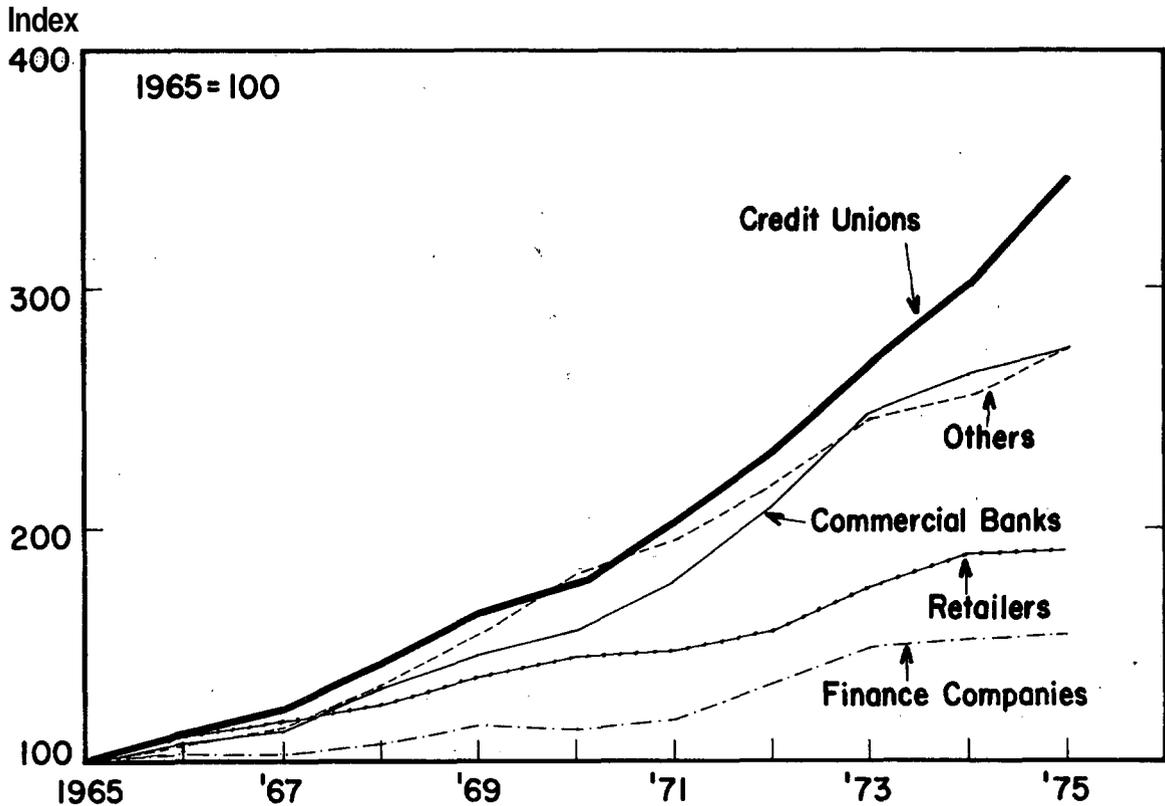
Federal credit unions' loans have a 10-year limit on maturity, as do many state chartered credit unions, and any secured loan is limited to **10** per cent of the credit union's capital. Because of these limitations, most credit unions are effectively excluded from the mortgage market. State chartered credit unions in **30** states do make some mortgages—but only 5 per cent of loans in these states were secured by real estate.

Credit unions are now the third largest consumer instalment lender—behind banks and finance companies. While credit unions held only a small proportion—4 per cent—of time and savings deposits at yearend 1975, they held 16 per cent of the dollar amount of consumer instalment loans. Moreover, just as savings deposits at credit unions have grown faster than these deposits at any other financial intermediary in the last decade, credit union consumer loans have also grown at a faster pace than those of any other lender. (See Chart 2.) Loans at credit unions are three and one-half times their 1965 level, and registered very strong gains in 1974-75, when consumer loan increases at other lenders were very small. This increase has come without the use of credit cards, which account for much of the increase in consumer loans at commercial banks and retailers.

In the process of their growth of the last **20** years, the credit unions have increased their share of instalment loans from 6 to **16** per cent, but the purposes of credit union loans have been little altered. Loans at a sample of credit

⁵ CUNA Research Division, *Share Drafts vs. NOW Accounts*. Credit Union Research Bulletin No. 192, Madison, Wisc., April 1976.

Chart 2
INDEX OF CONSUMER INSTALMENT LOANS
1965-75



unions were studied by the NCUA in 1956, 1961, and 1968-74. In all these years, the distribution was quite similar to the 1975 sample. Roughly one-third of the consumer loans are for purchases of cars. Other durable goods loans for furniture, boats, mobile homes, etc., make up another 14 per cent and repair and modernization loans account for 12 per cent. Personal loans, which make up the other 39 per cent of credit union loans, are made for a wide variety of reasons, including vacations, education, medical expenses, debt consolidation, taxes, and insurance. Medical loans and debt consolidation loans have decreased in

importance while other categories have increased.

Just as credit union savings growth has been helped by the higher dividend ceiling rates, loan growth has been fostered by lower loan rates. The credit union is limited to an annual rate of 12 per cent (or 1 per cent per month) on the declining balance—including the cost of credit life insurance and other charges—while other lenders have higher limits, exclusive of any charges, on most consumer loans. The cost of credit life insurance generally represents about 50 basis points of credit union rates. Lower rates are generally charged for fully

secured loans (such as auto loans) and higher rates for smaller, unsecured loans. In addition, many credit unions pay interest refunds if net income is sufficient. The most common interest refund is **10** per cent of interest paid.

The average December **1974** credit union new auto loan rate was **10.34** per cent. Excluding the **50** basis point cost of credit insurance, the rate comparable to those at other institutions would have been approximately **9.84** per cent. During that same month, banks' direct loans on new cars carried an interest rate of **11.62** per cent, and finance companies purchased auto paper at a **13.10** per cent rate. For personal loans, the rate differential was greater—rates were **11.56** per cent at credit unions, **13.60** per cent at banks, and **21.11** per cent at finance companies.⁶ In December **1972**, the gap between credit union rates and rates charged by other lenders was much smaller because interest rates at banks and finance companies were approximately **100** basis points lower while credit union rates were only **25** basis points lower. Rates at other lenders are higher and fluctuate more with other market rates while credit union rates appear to be lower and more constant.

What enables the credit union to offer a lower loan rate? One of the reasons financial institutions were initially reluctant to enter the consumer loan market was the high fixed cost of making such loans. With a short-maturity, small-amount loan, the interest rate required to recover such costs was extremely high. It appears that credit unions, because of some of the characteristics mentioned earlier, have lower fixed costs than other lenders. The cost of collecting information on the applicant is lowered because of a credit union official's personal knowledge of the borrower or because of a previously established customer relationship. During the life of the loan,

⁶ Interest rates for credit unions are from the NCUA; other interest rates are from the Board of Governors of the Federal Reserve System.

clerical costs in the processing of monthly payments are incurred. Because of the subsidized nature of most credit unions—free clerical assistance, office supplies, etc.—these costs are reduced. Payroll deduction for the purpose of paying off the loan also reduces collection costs for occupational **CU's**. As the credit union increases in size, both costs may increase—personal knowledge of applicants will become more difficult and subsidies will decline. Additionally, about three cents of every dollar of bank operating income goes to pay state and Federal income taxes, but tax exempt credit unions avoid that expense.

Consumer loans typically have a higher default rate than do other loan categories. Defaults and delinquencies mean that the financial institution incurs two types of costs—the cost of attempting loan collection and the charge-off of the uncollected balance on the loan. The cooperative nature of the credit union should improve the individual's incentive to repay his loan. Credit unions can also utilize group pressure to encourage repayment. Loan losses for all Federal credit unions have amounted to **0.32** per cent of the dollar amount of total loans, while the comparable figures for commercial banks and consumer finance companies are **0.43** and **2.38** per cent, respectively.⁷ Since loan loss rates generally decline as a credit union increases in size, this allows larger credit unions to make up for their disadvantages in information and processing costs.

These lower loan loss rates at credit unions occur despite a higher level of delinquencies. At credit unions, **3.8** per cent of the number of loans are **2** months or more delinquent, which

⁷ The credit union loss rate is a 5-year average of losses divided by yearend 1974 outstandings and is taken from NCUA statistics. The bank loss rate is the same ratio and is from the *Functional Cost Analysis—1974 Average Banks*. The consumer finance rate is a 5-year average of the ratio of net charge-offs to average net outstandings for 1969-74. The figures are taken from Robert Morris Associates, *Statement Studies*. 1973 and 1975.

Credit Union Growth in Perspective

is three times the delinquency rate at commercial banks, twice the rate at sales finance companies, and only slightly below the consumer finance company rate.⁸ Credit union borrowers may feel that credit union loan repayment has a lower priority than other bills. Alternatively, credit unions may be more adept at convincing delinquent borrowers to repay or may be more willing to renegotiate a loan rather than write it off.

The lower loan rates available on consumer instalment loans, particularly in the personal loan area, offer a powerful inducement for those eligible to borrow at a credit union to do so. The desirability of borrowing at a credit union also probably encourages consumers to put at least a portion of their savings into the credit union until or after they need to borrow.

THE FUTURE GROWTH OF CREDIT UNIONS

The rapid increases in consumer credit and savings held at credit unions raise questions about their ability to sustain such growth in future years. With a continuation of the 14 per cent growth rate of credit unions over the last decade, the assets of the credit union movement would double every 5 years. Many credit union officials argue that continued growth depends upon expansion of the powers of credit unions. Others contend that expansion of powers, like the liberalization of the common bond principle, will result in an erosion of the traditional purposes of the credit union—"promoting thrift among its members and creating a source of credit for provident and productive purposes."

⁸ Figures are as of December 31, 1974. The credit union rate is taken from the 1974 NCUA *Annual Report*. The bank delinquency rate is 1.19 per cent and is taken from the AVA *Delinquency Bulletin*. Sales and consumer finance company rates are 2.36 and 3.96 per cent, respectively, and are taken from Robert Morris Associates, *Statement Studies*. 1975.

Credit unions are starting to become involved in electronic funds transfer systems (EFTS) in which payments would be made by electronic instructions rather than by paper instruments, such as a check. Direct deposit payroll systems are being introduced which transfer funds from the employer's bank to the financial institution of the employee's choice. Formerly, the credit union was the only institution able to take advantage of this automatic transfer of funds for both regular savings and loan payments. Also, direct deposit systems reduce the importance of a convenient location for depositing funds.

As a result of EFTS developments, credit unions see the new share draft programs as critical for their future growth. If third party payment cannot be made from the share account, the flow of funds into the credit union would probably be reduced because withdrawals would be inconvenient. The difficulty most credit unions have had in attracting directly deposited Social Security checks emphasizes this problem. The approximately 350 credit unions which now offer share drafts and the many others which are considering offering them have taken an important first step toward securing a steady flow of savings dollars. Should this power be taken from them, or limited to only a small portion of all credit unions, the ability of credit unions to sustain their growth might be impaired.

In addition to involvement in direct deposit systems (and the more general use of automated clearinghouses), credit unions have also begun to enter into the use of automated tellers and point of sale terminals. A few credit unions, either singly or in conjunction with other financial institutions, have offered their members the use of these systems, but several difficulties are apparent. Most credit unions have too few members to effectively utilize such systems alone and if systems were shared with other financial institutions, credit unions could suffer from transfers of funds to institutions

offering broader services. Automated teller machines operated by other institutions are another example of the reduction in the convenience advantage which many credit unions once had over other institutions.

While these newer aspects of a changing payments system are open to credit unions, albeit to a limited extent, another more developed area has so far been closed to them. Credit unions do not offer credit cards. Both national bank card systems have made initial steps toward including credit unions in their membership if regulators will allow them to join. However, there are two major problems under existing regulations. First, Federal and many state credit union laws require that each **takedown** from a line of credit be separately approved by the loan committee. Naturally, this would make the use of credit cards impractical. More importantly, most credit card operations are only marginally profitable at an 18 per cent interest charge. It is difficult to see how any credit union, even with some of the cost reductions mentioned earlier, could break even on its operations with an interest rate ceiling of 12 per cent.

Many credit unions have also expressed interest in gaining a larger share of the home mortgage market, a field now prohibited to all Federal and many state credit unions by their 10-year limit on loan maturity. Even if this limit were removed, limits on maximum loans to any one member would restrict the number

of credit unions able to offer mortgage loans. Nonetheless, mortgage lending could prove useful in investing funds more permanently for those credit unions with imbalances between their savings flows and consumer loan demand.

The past development of credit unions resulted from their fortuitous position in the rapidly expanding consumer savings and lending markets, and was probably aided by the introduction of the share insurance program. In the future, as the convenience advantage which credit unions once possessed diminishes, the expansion of credit unions will depend in large part on the responsiveness of legislators and regulators to requests for expansion of credit union powers. Also, the more rapid recent growth of the largest credit unions compared to that of the others may be an indication of a future dichotomy in the credit union movement. On the one hand, most credit unions may continue to be limited financial institutions holding members' savings and making consumer loans but restrained by the common bond requirement from expanding greatly. On the other hand, the larger, more innovative credit unions with broader fields of membership may move quickly into third party payments and mortgage loans as these areas open to credit unions. These organizations are likely to **grow** more rapidly. As they become more like other institutions, though, they might also be subject to taxation and some of the other burdens of **profit-oriented** institutions.

TREASURY DEPOSITS AND THE MONEY SUPPLY

By Mary Hamblin*

The narrowly defined money supply, **M1**, was **subject** to unusually wide fluctuations during 1976. Most observers recognize that short-term changes in **M1**—**which** includes privately held currency and demand deposits—are sometimes erratic. Nevertheless, the recent volatility in **M1** has caused concern among those who use this measure to gauge the Federal Reserve's monetary policy intentions.

Some observers say that fluctuations in deposits held by the U.S. Treasury contribute to fluctuations in **M1**. They argue that an inverse relationship exists between the two series in that changes in Treasury deposits result in changes in the opposite direction in **M1**. When the Treasury makes payments to the public, Treasury deposits decline and private demand deposits increase. Since private demand deposits are included in **M1** and Treasury deposits are excluded, the declines in Treasury deposits are accompanied by increases in **M1**. Similarly, payments from the public to the Treasury produce declines in **M1** and increases in Treasury deposits.

Experience sometimes supports the argument that **M1** and Treasury deposits are inversely related. For example, in the week of September 15, 1976, Treasury deposits fell \$3.7 billion and seasonally adjusted **M1** rose \$4.7 billion. Furthermore, in the following week, Treasury

deposits increased and **M1** decreased. However, during each of the first two weeks of September, both Treasury deposits and **M1** declined, suggesting that an inverse relationship does not always hold.

This article examines the relationship between changes in Treasury deposits and the narrowly defined money supply. Broader money supply measures, such as **M2**, are not treated. It seems reasonable that the relationship between Treasury deposits and these broader measures would be weaker than between Treasury deposits and **M1**. The first section of the article discusses in general terms the nature of the relationship between Treasury deposits and **M1**. The next section examines changes in Treasury deposits and **M1** on a weekly, monthly, and quarterly basis. The article then discusses the concept of including Treasury deposits in **M1** as a means of reducing the volatility of **M1**.

TREASURY DEPOSITS, **M1**, AND OPEN MARKET OPERATIONS

The Treasury's operating balance includes two types of accounts—tax and loan accounts at commercial banks and demand accounts at Federal Reserve Banks. Tax and loan accounts are maintained primarily to receive tax revenues and proceeds from Treasury security sales. These funds are transferred to the Treasury's accounts at the Federal Reserve according to a predetermined schedule. Treasury deposits at the Federal Reserve are

*J.A. Cacy, research officer, advised in the preparation of this article.

the general account of the Government from which disbursements are made. This dual system of accounts was developed to reduce the destabilizing effects of large shifts in Treasury deposits on bank reserves and to reduce the need for Federal Reserve open market operations.¹

Changes in total Treasury **deposits**—reflecting changes either in deposits at the Federal Reserve or in tax and loan accounts—are normally accompanied by changes in **M1** unless offset by the Federal Reserve or by other factors. Apart from offsetting factors, increases in Treasury deposits are accompanied initially by equal declines in **M1**, while declines in Treasury deposits are accompanied by increases in **M1**.² For example, Government payments, such as salaries, reduce the Treasury's balance at the Federal Reserve. When salary checks are deposited in private checking accounts, **M1** increases by the amount of the decline in the Treasury's balance. Conversely, when the public purchases U.S. Government securities or remits taxes, and pays by drawing down private demand accounts, **M1** drops and the decline is matched by an increase in Treasury tax and loan accounts.

The direct association between changes in Treasury deposits and **M1** may be offset by Federal Reserve open market operations. An offset is more likely for changes in deposits at the Federal Reserve than for tax and loan accounts. That is because fluctuations in deposits at the Federal Reserve are among the "technical factors" that open market operations tend to offset. Such operations are needed to stabilize bank reserves because

¹ Peggy Brockschmidt, "Treasury Cash Balances," *Monthly Review* (Federal Reserve Bank of Kansas City, July-August 1975).

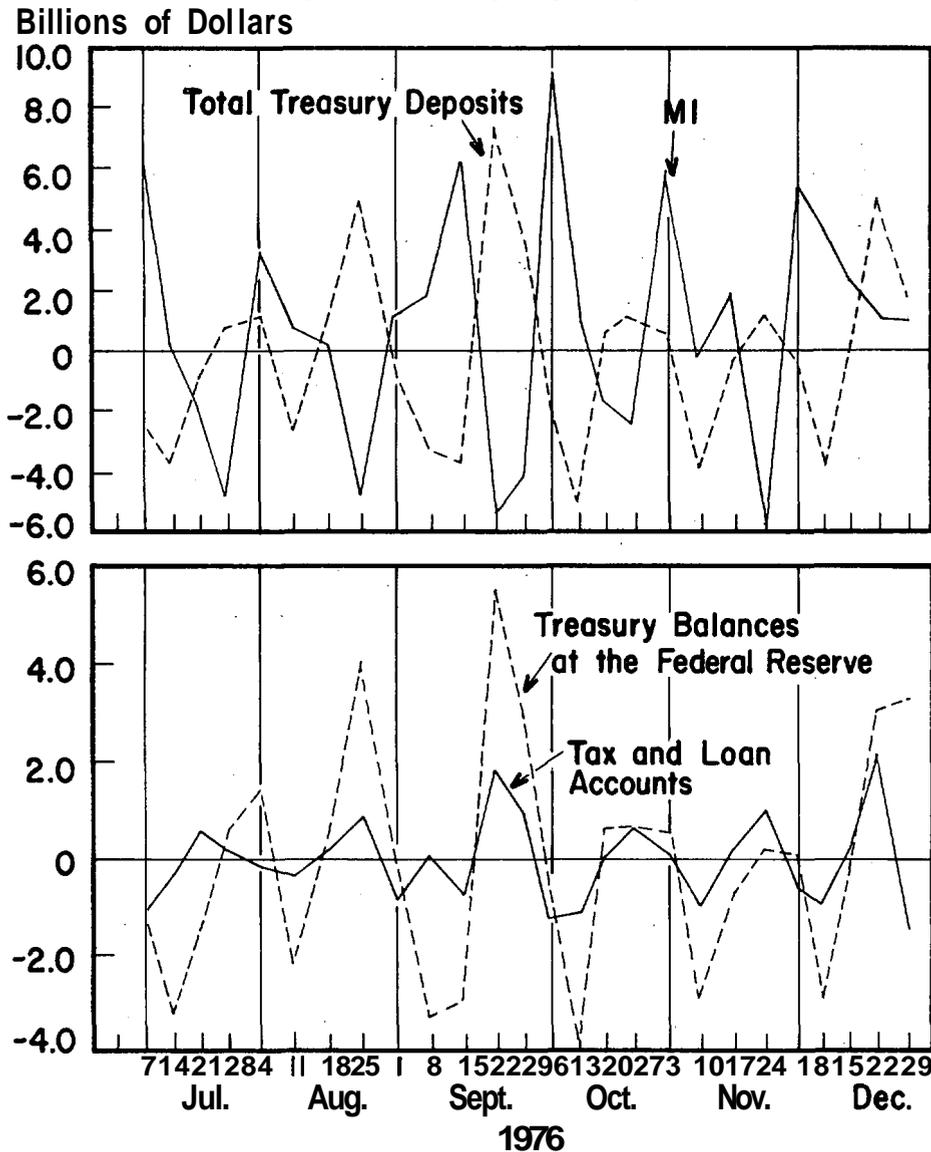
² As discussed in the following paragraph, the increase in Treasury deposits, unless offset by the Federal Reserve, will cause bank reserves as well as **M1** to decline. The decline in reserves, in turn, would result in a decline in **M1** beyond the initial amount.

increases in Treasury deposits at Federal Reserve Banks are accompanied by declines in reserves, and declines in these deposits are accompanied by increases in reserves. For example, when the public deposits checks drawn on the Treasury's account at the Federal Reserve, bank reserves increase and the Treasury's account declines. Similarly, when the Treasury transfers funds from tax and loan accounts at commercial banks, reserves decline and the Treasury's balance at the Federal Reserve increases. These changes in reserves tend to be offset by open market operations. Thus, for example, when Treasury deposits at the Federal Reserve increase and bank reserves decline, the Federal Reserve tends to buy U.S. Government securities, which increases reserves and thereby offsets the impact on reserves of the rise in Treasury deposits. Similarly, when Treasury deposits decline, the Federal Reserve tends to sell securities.

The Federal Reserve's open market operations may affect **M1** as well as reserves and in this way prevent changes in Treasury deposits at Federal Reserve Banks from being accompanied by changes in **M1**. For example, suppose the Treasury's balance at the Federal Reserve declines and is initially accompanied by an increase in reserves and in **M1**. Assume though that the Federal Reserve responds to the decline in Treasury deposits by selling securities. If the public pays for the securities from private checking accounts, **M1** as well as bank reserves are reduced to their previous levels. In this case, open market operations have prevented the change in Treasury deposits at the Federal Reserve from being reflected in a change in **M1**.

Open market operations designed to stabilize reserves may not always negate the association between Treasury deposits and **M1** because the Federal Reserve has no direct control over how the public manages its funds. Thus, in the preceding example, suppose that when the Federal Reserve sells securities, the public pays

Chart 1
 WEEKLY CHANGES IN TREASURY DEPOSITS AND M1
 (Not Seasonally Adjusted)



for the securities by drawing down time or savings accounts rather than demand accounts. In this case, M1 is not reduced to its previous level and the change in Treasury deposits is reflected in a change in M1.

In brief, the direct association between changes in Treasury deposits may or may not be offset by Federal Reserve open market operations. Of course, the association could be offset or obscured by any of the many factors

other than open market operations that affect **M1**. For example, one such factor would be shifts by the public out of demand deposits and into time deposits. If offsetting factors do not completely obscure the association, however, a statistical correlation between the two variables would exist.

EMPIRICAL RELATIONSHIP BETWEEN TREASURY DEPOSITS AND M1

Not Seasonally Adjusted Data

An examination of the behavior of Treasury deposits and **M1** indicates that changes in the two series are statistically correlated to some extent. This is true at least for weekly not seasonally adjusted data. As shown in Chart 1, weekly changes in not seasonally adjusted Treasury balances tend to be inversely related to weekly changes in not seasonally adjusted **M1**. The existence of such a correlation appears to be associated with a strong seasonal pattern displayed by both Treasury deposits and **M1**. Treasury deposits tend to decline in the first part of each month due in part to payment of Government salaries and retirement benefits. In the last part of the month, Treasury deposits rise as revenues are received. **M1**, in contrast, increases in the first part of the month as salaries and pensions are deposited, then falls as funds are paid out.

These seasonal patterns in Treasury deposits and **M1** result in a statistically significant, although weak, correlation between the two series. In a regression using weekly changes in **M1** and changes in total Treasury deposits for the period 1971 through 1976, the coefficient of determination, **R²**, is .23. (See Table 1.) That is, in a statistical sense, the change in Treasury deposits during any week explains 23 per cent of the change in **M1** during the same week."

³ The correlation between weekly changes in total Treasury deposits and not seasonally adjusted **M1** is higher for recent years than for the earlier years of the 1971-76 period. In the 1974-76 period, for example, the **R²** is .29, compared with .13 in the 1971-73 period.

**Table 1
R²'S FOR REGRESSIONS OF
TREASURY DEPOSITS AND M1
(Not Seasonally Adjusted)
1971-76**

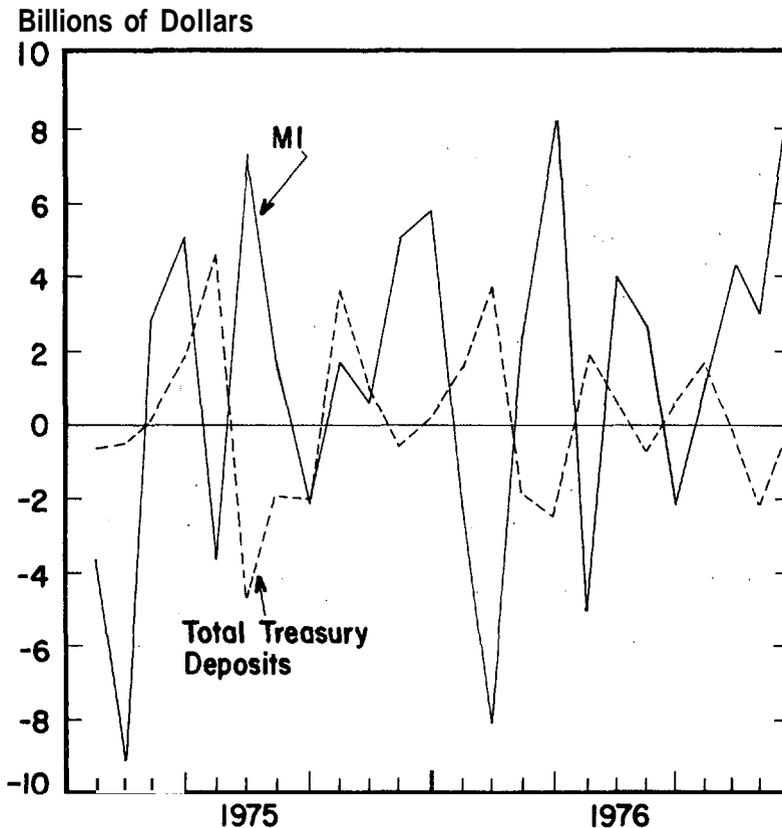
	Weekly Changes	Monthly Changes	Quarterly Changes
Total Treasury deposits	.23	.07	.06
Treasury deposits at the Federal Reserve	.17	.13	.10
Tax and loan accounts	.12	.00	.00

However, this does not necessarily mean that weekly changes in **M1** are the result of fluctuations in Treasury deposits. Weekly variations in both series reflect basic seasonal patterns and **M1** would retain its seasonal pattern in the absence of movements in Treasury deposits.

The statistical correlation between weekly changes in **M1** and total Treasury deposits is higher than between **M1** and changes in either of the two Treasury deposit **components**—deposits at the Federal Reserve and tax and loan account balances. The **R²** for changes in **M1** and deposits at the Federal Reserve is .17, while it is only .12 for tax and loan accounts. As may be seen from the bottom panel of Chart 1, both component series display the same general seasonal pattern over a month as total Treasury deposits. Since the bulk of the Treasury's funds is held in its account at the Federal Reserve, these deposits decline and increase according to the Treasury's receipt and payment pattern. Tax and loan accounts behave in much the same manner because they are transferred to the account of the Federal Reserve according to a predetermined schedule.

The lower correlation for weekly data between **M1** and the components than between **M1** and total Treasury deposits is not surprising. It is due in part to the fact that

Chart 2
MONTHLY CHANGES IN TREASURY DEPOSITS AND M1
 (Not Seasonally Adjusted)



some changes in the components offset each other. Such offsetting changes tend not to be associated with changes in **M1**. Thus, when the Treasury transfers funds from tax and loan accounts to deposits at Federal Reserve Banks, both components change but there is no associated change in **M1**.

The statistical correlation between changes in Treasury deposits and **M1** weakens as the time period is lengthened. Monthly changes in the two series generally move inversely to each other over a period of a year, but the pattern is not as clear-cut as it is on a weekly basis. (See Chart 2.) Using monthly changes for the 1971-76 period, the R^2 between the two series

is only .07, compared with .23 for weekly changes. The R^2 for monthly changes in deposits at the Federal Reserve in this case exceeded that of total Treasury balances. (See Table 1.) The R^2 for monthly changes in tax and loan accounts and **M1** is zero. On a quarterly basis, the R^2 between **M1** and total Treasury deposits is .06.

Treasury Deposits and Seasonally Adjusted M1

A major finding of the examination of unadjusted data is that a statistically significant correlation exists between weekly changes in **M1** and Treasury deposits. The seasonally

adjusted **M1** series, however, is the one most often used by the public. For this reason, the relationship between seasonally adjusted **M1** and Treasury deposits is examined. Since the correlation between not seasonally adjusted **M1** and not seasonally adjusted Treasury deposits reflects the common seasonal patterns in the two series and because seasonal patterns should not appear in seasonally adjusted **M1**, the statistical correlation between seasonally adjusted **M1** and not seasonally adjusted Treasury deposits would be expected to be quite low. This expectation is supported by the data, as the R^2 for the 1971-76 period between weekly changes in seasonally adjusted **M1** and Treasury deposits is only .08. The R^2 for monthly changes is .01 and the R^2 for quarterly changes is zero.

While seasonally adjusted **M1** and Treasury deposits are not closely correlated during the 1971-76 period, a fairly high statistical correlation for weekly data does exist for the year 1976 alone. Thus, the R^2 between weekly changes in seasonally adjusted **M1** and Treasury deposits for 1976 was .22. This compares with R^2 's ranging between zero and .04 for the years from 1971 through 1975. (See Table 2.)

The higher correlation for 1976 than for previous years is due in part to problems in properly accounting for seasonal factors in current data. In other words, some seasonal factors will remain in the seasonally adjusted data for 1976 until a revised set of seasonals are computed using data for 1976. The existence of seasonal influences in the 1976 seasonally adjusted **M1** series is indicated by the fairly high R^2 for 1976 compared with earlier years between weekly changes in seasonally adjusted **M1** and not seasonally adjusted **M1**. The R^2 for 1976 was .55 compared with R^2 's ranging from zero to .19 for the years from 1971 through 1975. (See Table 2.)

When the revised seasonally adjusted weekly **M1** data become available in early 1977, the

Table 2
 R^2 'S FOR WEEKLY REGRESSIONS:
TREASURY DEPOSITS AND
SEASONALLY ADJUSTED **M1,**
NOT SEASONALLY ADJUSTED **M1 AND**
SEASONALLY ADJUSTED **M1**
4 994-96

	Treasury Deposits and Seasonally Adjusted M1	Not Seasonally Adjusted M1 and Seasonally Adjusted M1
1971	.00	.00
1972	.00	.19
1973	.01	.00
1974	.04	.01
1975	.00	.10
1976	.22	.55
1971-76	.08	.18

correlation between the revised series and Treasury deposits will probably be significantly less than reported in this article. However, the correlation may yet exceed that of earlier years, as the correlation between not seasonally adjusted **M1** and Treasury deposits is somewhat higher for 1976 than for earlier years.⁴

INCLUDING TREASURY DEPOSITS IN THE MONEY SUPPLY

Several economists have argued that Treasury deposits should be included in the narrowly defined money supply.⁵ Some of the reasons for including Treasury deposits are that such deposits are closely related to GNP and

⁴ The R^2 for 1976 between weekly changes in total Treasury deposits and not seasonally adjusted **M1** is .32, compared with the .23 for the 1971-76 period. (See Table 1.)

⁵ Boris P. Pesek and Thomas R. Saving, *The Foundations of Money and Banking* (New York: Macmillan Co., 1968); Paul S. Anderson and Frank E. Morris, "Defining the Money Supply: The Case of Government Deposits," *New England Economic Review* (Federal Reserve Bank of Boston, March-April 1969); and "Banking Developments," *Business Conditions* (Federal Reserve Bank of Chicago, July 1973).

Table 3
STANDARD DEVIATIONS OF
WEEKLY CHANGES IN M1 AND
TREASURY DEPOSITS
(In Billions of Dollars)

	M1 (NSA)	M1 +Treasury Deposits (NSA)	M1 (SA)*	M1+Treasury Deposits (SA)*
1971	2.3	2.4	1.3	1.5
1972	2.6	2.5	1.2	1.4
1973	2.9	2.9	1.7	2.0
1974	3.3	2.9	1.4	1.5
1975	3.3	2.8	1.2	1.3
1976	4.0	3.4	2.0	2.0
1971-76	3.1	2.8	1.5	1.6

Both M1 and M1 + Treasury deposits were seasonally adjusted using the FARRSEAS seasonal adjustment program. Standard deviations for the Board of Governors' official seasonally adjusted M1 series were somewhat lower than those of the series used in this table.

they function identically to deposits held by the private sector. Arguments against including Treasury deposits are that such deposits do not represent money held by the public and they have little influence on the expenditures of the Federal government.

Another possible reason for including Treasury deposits in the money supply is that including them may reduce the volatility of M1. For not seasonally adjusted data, it appears that including Treasury deposits in M1 would reduce M1's volatility. Thus, the standard deviation--one measure of volatility--of M1 plus Treasury deposits is less than that of M1. For the 1971-76 period, the standard deviation of weekly changes in M1 plus Treasury deposits was \$2.8 billion compared with \$3.1 billion for M1. (See Table 3.) Furthermore, in most years of the 1971-76 period, M1 plus Treasury deposits had a lower standard deviation than

M1. The difference between the standard deviations appears to be growing and was rather large, \$0.6 billion, in 1976.

For seasonally adjusted data, the results of this study do not support the conclusion that including Treasury deposits in M1 would reduce the volatility of M1. In fact, in most years the standard deviation of seasonally adjusted M1 plus Treasury deposits was slightly more than for seasonally adjusted M1. (See Table 3.)

CONCLUSION

This study found that there is a statistically significant, although weak, correlation between weekly changes in Treasury deposits and changes in not seasonally adjusted M1. This relationship, however, disappeared when monthly or quarterly changes were examined. It was also found that weekly changes in seasonally adjusted M1 are not correlated with Treasury deposits, except in 1976.

The relatively high correlation for 1976 between Treasury deposits and seasonally adjusted M1 is due in part to problems in removing seasonal influences from current data. Due to these problems, weekly changes in Treasury deposits and seasonally adjusted M1 may be correlated until revised M1 data are available. For this reason, in analyzing current weekly seasonally adjusted money supply data, users should take into consideration weekly movements in Treasury deposits. On the other hand, because of the problems in deriving seasonal factors for current year data, as well as for other reasons, observers should be very careful when using weekly M1 data to help gauge the intentions of monetary policymakers.