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May/June 1977

ECONOMIC PERSPECTIVES

Business insights

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ECONOMIC PERSPECTIVES

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Business insights

Federal spending lags expectations

Federal government spending has been running substantially below forecasts since the beginning of January. Although the most recent Congressional target for spending during fiscal 1977 (ending September 30) was set at $417 billion, actual spending during the January-March quarter was at an estimated annual rate of $398 billion.[1]

This shortfall in spending since January 1 is in marked contrast to what occurred during the first quarter of fiscal 1977 (October-December 1976) when spending was at an estimated annual rate of $413 billion.[2] This rate was in line with the level set in the Second Congressional Budget Resolution, $413.1 billion, passed September 16, 1976. That resolution established the spending target in effect prior to President Carter's request for changes in the budget dated February 1. The Third Budget Resolution was passed by Congress on March 3, 1977 to accommodate the new Administration's request for additional stimulus to the economy.

Rerun of 1976

The current shortfall in federal government spending repeats the experience of the second and third quarters of 1976. Then, too, federal spending dropped substantially below expected rates. As a result total spending during fiscal 1976 was $366 billion instead of the expected $374 billion. During the second quarter of 1976 (the final quarter of fiscal 1976) the Office of Management and Budget (OMB) suggested that the lower than expected spending had occurred because of the change in timing of the fiscal year. Historically, federal agencies have accelerated spending toward the end of each fiscal year to prevent the lapse of spending authority. However, under the new budget procedure the timing of the fiscal year was changed. Fiscal 1976 was the last fiscal year ending June 30. The July-September quarter was scheduled as a transition quarter between fiscal 1976 and fiscal 1977, but spending plans had been made for the entire 15-month period from July 1, 1975, through September 30, 1976, rather than for the usual 12 months. OMB expected the shortfall in spending to be made up during the transition quarter, but this did not occur. Actual spending during the transition quarter was $95 billion instead of the $102 billion OMB predicted when the quarter began.

In October of last year the Congressional Budget Office (CBO) released an analysis of spending during fiscal 1976 and the transition quarter, and concluded that the shortfall in spending had occurred over a broad spectrum of agencies and departments. CBO suggested a number of reasons for the shortfall:

- Inflation was lower than had been anticipated when spending was planned.
- Interest rates and federal borrowing were both lower than forecast, lowering total interest costs.
- Sales of government assets (negative expenditures) exceeded plans.
- Several programs, particularly procurement for defense, proceeded slower than planned.
- Department budgets included larger-than-normal contingencies which had gone unused.

On April 22 OMB notified Congress that spending was lagging targets and stated that it now expects spending for fiscal 1977 to total

[1]U.S. Treasury data, adjusted for seasonal variation and trend.

[2]See note 1.

The Federal Budget—An Ongoing Process

The Congressional Budget Act of 1974 provides a formal calendar of steps in the development and control of the federal budget. This schedule extends from November 10, nearly a year before a particular fiscal year begins, until July 15 of that fiscal year, a span of 20 months. Some aspects of budget planning and control by both Congress and the executive branch, therefore, occur simultaneously for the current fiscal year and two succeeding years. The major deadlines in the calendar are listed below. Changes may be made at other times if necessary.

November 10 - President submits the "current services estimates" for the next fiscal year to Congress. This document provides estimates of budget authority and outlays needed assuming no change in programs or levels of activity.

January[1] - President submits "The Budget of the U.S. Government" to Congress. This document gives the Administration's detailed plan for the next fiscal year, including new and changed programs, tax changes, and the economic assumptions on which the plan is based. Proposed wording of each appropriations bill is included in an Appendix.

March 15 - Committees in each house of Congress submit reports to their respective budget committees giving suggested budget action in their areas of jurisdiction.

April 1 - Congressional Budget Office submits report to budget committees analyzing the impact of the budget on the economy and recommending an appropriate fiscal policy.

April 15 - Budget Committees in both houses report their proposed versions of "The First Concurrent Resolution on the Budget" recommending ceilings on authorizations and outlays, a floor for revenues, detailed allocations of spending by major functions, and, if needed, a change in the federal debt limit.

May 15 - Congress adopts "The First Concurrent Resolution on the Budget."

September[2] - Congress completes action on all bills providing budget authority.

September 15 - Congress adopts "Second Concurrent Resolution on the Budget."

September 25 - Congress adopts "Reconciliation Bill" to adjust previous legislation for conformity with second budget resolution.

October 1 - Fiscal year begins.

April 10 - President submits budget update requesting changes as needed for accommodating newly enacted programs, new proposals by the Administration, and changed economic assumptions, if any.

July 15 - President submits second budget update, if needed.

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[1]Fifteen days after Congress begins.

[2]One week after Labor Day.

$408 billion. This amount is in line with the average rate of spending during the first six months of the fiscal year, but even to reach this level will require a large increase in spending over the rate of the January-March period. OMB explained their lowered estimates for fiscal 1977 spending with several of the same reasons set forth in the CBO analysis of the overestimates of 1976. They added the same cautionary note they had underlined during 1976. Most of the unspent funds remain authorized, so that estimates of spending could swing from being too high to being too low in 1978 and later years. This is particularly true for fiscal 1978 since some of the stimulus provided by the President's plan for 1977 may not appear as actual spending until after 1978 begins.

Some observers have suggested that the change in the Administration may account for part of the lag in spending. Delays in filling second-level policy and administrative positions and in implementing programs of the new administration have resulted in spending based on the original fiscal 1977 budget submitted by President Ford in January 1976. That budget had called for spending of $395 billion for the fiscal year, over $20 billion less than the new Administration's proposal. Although President Ford raised his estimate of fiscal 1977 spending to $411 billion in the January 1977 budget message, this increase in planned spending did not show up in the actual spending in January, his last month in office. Since then departmental spending has remained at a restrained level while President Carter and his subordinates translated their plans into detailed action.

Difficulty in estimating what government spending will be has not been confined to the most recent two years. Furthermore, the tendency has been to regularly overestimate spending six months before the end of the fiscal year. Since fiscal 1970 the estimates made six months ahead have underestimated spending only twice, in 1970 and 1974. Forecasting the deficit accurately has proven to be even more difficult. OMB currently is engaged in a major effort to improve the quality of budget estimates. Unfortunately their task is made very difficult by the size of the numbers involved. An error of 1 percent in forecasting corresponds to an absolute error of over $4 billion.

Shortfall and the economy

During the current and the 1976 periods of government spending lags, government receipts remained roughly in line with expectations, so the shortfall in spending was accompanied by a corresponding decrease in the federal deficit. During fiscal 1976 and the transition quarter taken together, spending totaled $461 billion, $12 billion below the estimate of March 1976. The deficit for the two periods combined was $79 billion, about $14

Budget estimates and results

Fiscal year	First estimate[1]	Second estimate[2]	Final result
	(billion dollars)		
	a. Spending		
1970	194.3	195.0	196.6
1971	200.1	212.8	211.4
1972	229.2	236.6	231.9
1973	246.3	249.8	246.5
1974	268.7	274.7	268.4
1975	304.4	313.4	324.6
1976	349.4	373.5	366.5
Transition Q[3]	98.0	102.1	94.7
1977[4]	394.2	417.4	408.2 (est.)
	b. Surplus or deficit ( )		
1970	4.3	8.7	(2.8)
1971	2.0	(18.6)	(23.0)
1972	(11.6)	(38.8)	(23.2)
1973	(25.5)	(24.7)	(14.3)
1974	(12.7)	(4.7)	(3.5)
1975	(9.4)	(34.6)	(43.6)
1976	(51.8)	(76.0)	(66.5)
Transition Q[3]	(16.1)	(20.0)	(12.9)
1977[4]	(42.9)	(68.0)	(48.7) (est.)

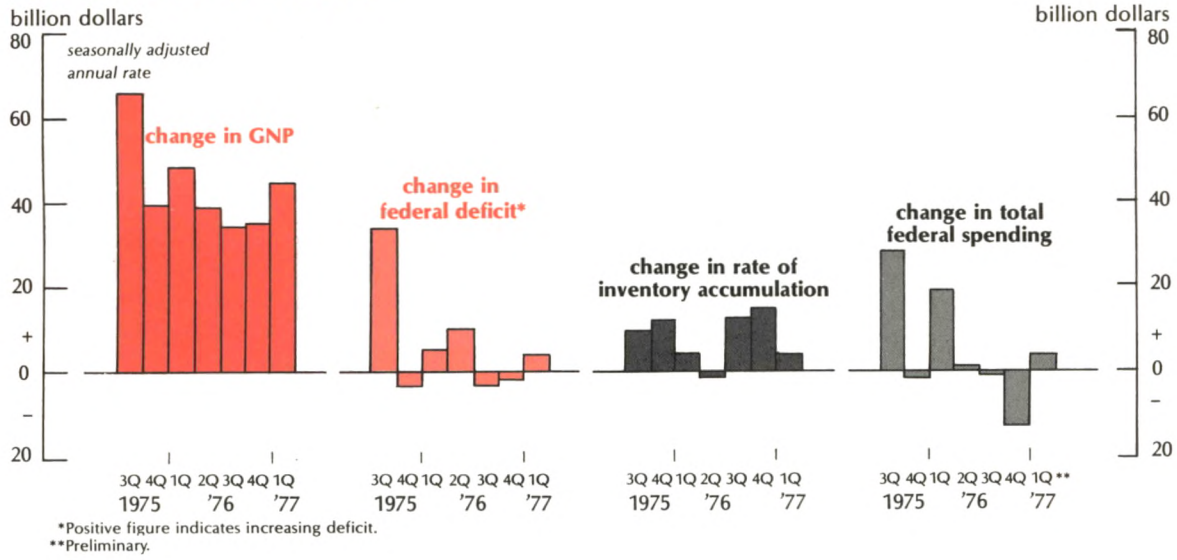
[1]Six months prior to the start of fiscal year.

[2]Six months after the start of fiscal year.

[3]For the transition quarter the first estimate was included in the 1977 Budget message. The second estimate was issued in the 1977 budget update on July 16, 1976 and was not changed during the quarter.

[4]The first estimate is the budget submitted by the Ford Administration. Because of the shift in the fiscal year this estimate was about nine months prior to the starting date rather than the six months for earlier years. The second estimate was submitted by the Carter Administration in the 1978 Budget revisions, issued February 22, 1977. The final result is the OMB estimate of mid-April.

The 1976 GNP slowdown



*Positive figure indicates increasing deficit.
**Preliminary.

billion below the expected level. It is now estimated that the fiscal 1977 deficit will be about $20 billion less than the $68 billion forecast by OMB in the February budget revision message. Dropping of the rebate accounts for part of the reduced estimate of the deficit but about half the reduction results from lower-than-expected spending. Many economists believe that the lower-than-expected levels of government spending, and perhaps more important, the smaller-than-expected deficit contributed significantly to the slowdown in GNP growth which occurred during 1976. Other economists, however, suggest that the lag in government spending merely happened to coincide with an inventory adjustment following the big swing toward inventory accumulation which occurred in the first quarter of 1976. When the quarterly changes in GNP growth, government spending, and the changes in the rate of inventory investment are examined there are enough similarities to suggest impact from both government action and inventory adjustment were factors.

The two quarters with the lowest growth in GNP followed the two quarters of slowdown in federal spending with a one-quarter lag, and the more rapid growth during 1977-I followed two quarters of more rapid increase in federal spending. The size in the change of GNP changed from the previous quarter in the same direction as the change in rate of inventory accumulation in every quarter since 1975-III except the last quarter of 1976. The change in the size of the deficit from quarter to quarter does not show any clear relationship with the changes in GNP.

Regardless of the attitude toward the importance of the shortfall in government spending during 1976, most observers look upon the current shortfall as a favorable factor for the economy for the rest of 1977. The lower deficit accompanying the slower growth of spending suggests that interest rates will be lower than they otherwise might be, encouraging capital expansion by the private sector. Furthermore, the lower federal spending now means that the increases in spending over the next few years are added to a lower base. The chances for progressive reductions in the deficit are thus enhanced.

Morton B. Millenson

Banking insights

The truth about Member bank reserve deposits as a source of Federal Reserve Bank earnings

As everyone knows, appearances can be deceiving. This is nowhere more true than when a banker looks at the sources of Federal Reserve Bank earnings, as this brief note will explain.

Deposits to a commercial bank are the principal source of loanable funds and thus of earnings. The bank lends or invests the deposits of its customers. Those deposits entail costs since they must be paid for either in interest or in services. A member bank must keep deposits in the District Federal Reserve Bank to satisfy legal reserve requirements. The Fed in turn uses these deposits to buy Government securities that provide the bulk of its earnings. Right? Wrong!

The simple assumption that Federal Reserve Banks operate like commercial banks with the funds provided by "customer" deposits is a great source of confusion and of no small amount of irritation to commercial bankers who feel the Fed earns a huge profit by the use of their money and pays most of it to the Treasury. But the very essence of central banking is that increases in central bank assets *provide* new funds to the banking system, *creating* the reserves which in turn support growth in commercial bank deposits and credit.

The Federal Reserve does not have to have a single penny of deposits in order to buy securities or otherwise extend credit. Rather, its liabilities, including member bank reserves, result from increases in its assets. Perhaps this can be most easily illustrated in the case of a Reserve Bank loan to a member bank. This transaction is simple. The Reserve Bank's loans increase and the proceeds of that loan are credited to the member's reserve deposit account. (See T-accounts, section A.) Clearly, the loan gave rise to an increase in the reserve deposit.

When the Fed buys securities from a nonbank securities dealer the process is less direct but the effect is the same. It does not use cash derived from a member's deposits to make payment. Rather, it credits the reserve deposit account of the dealer's clearing bank, and the clearing bank, in turn, credits the demand deposit account of the securities dealer. (See T-accounts, section B.)

The receiving bank, however, does not necessarily distinguish this deposit from any other cash item that flows through its customers' accounts every day. The bank does know that of the net inflows that increase its deposits a specified percentage of the resulting credits to its balance must be kept as required reserves—the bank cannot lend or invest it all. But it is easy to overlook the fact that without the Fed's action in buying securities, the bank would not have received the dealer's deposit at all.

What if there is no net addition to total deposits and reserves by the Fed but merely a shift of deposits from one bank to another?

A. When a member bank borrows $100,000 from the Fed

Federal Reserve Bank				Member bank			
Advances to member bank	+ 100	Member bank reserve deposits	+ 100	Reserve balance at F.R. Bank	+ 100	Bills payable to F.R. Bank	+ 100

B. When the Fed buys $100,000 of U.S. Government securities

Federal Reserve Bank		Member bank	
U.S. securities + 100	Member bank reserve deposits + 100	Reserve balance at F.R. Bank + 100	Securities dealer's deposit + 100

The receiving bank must hold part of that inflow too in its reserve with the Fed. In this case total reserves of the banking system have not been altered but merely transferred from the paying bank's reserves. In other words, as deposits move from bank to bank, the reserve base that supports them shifts too, although the proportion frozen as reserves may change if the funds move to a bank that, because of its size, has higher or lower reserve requirements.

Actually, a glance at changes in the combined balance sheets of the Federal Reserve Banks over the last 10 years shows that much of the proceeds of FR credit (mostly via purchases of U.S. securities) have been passed through commercial banks to the public in the form of currency. Reserves initially supplied by the Fed are absorbed as banks convert them into currency as demanded by their customers. Member bank reserves increased only $5 billion net. (See table.) Partly because of reduced reserve requirements, these reserves have supported an increase in deposits at member banks of more than $300 billion.

Dorothy M. Nichols

Most of the reserves supplied by Federal Reserve credit over the past 10 years were absorbed by increased currency demands of the public

Change, end of 1966 to end of 1976

	(billion $)
Federal Reserve assets:	
Gold certificates and SDRs	– 1.0
U.S. securities	+55.1
Advances to member banks	– .1
All other	+ 8.2
TOTAL	+62.2
Federal Reserve liabilities and capital accounts:	
Federal Reserve notes outstanding	+44.4
Member bank reserve deposits	+ 5.4
U.S. Treasury deposits	+10.0
All other	+ 2.4
TOTAL	+62.2

Bank participation in the residential mortgage market

Residential mortgage loans are important long-term investments for commercial banks in periods of declining interest rates. When business loan demand is strong, bank funds flow into the shorter-term business loans and banks are less willing to make mortgage loans. However, when credit conditions ease and short-term interest rates decline, the usual lagged response by banks is to step-up their residential mortgage lending activities.

Residential mortgage interest rates are currently above banks' short-term loan rates and above their rates reported on business term loans of comparable size.[1] In 1974 business loan rates were more than 250 basis points above mortgage loan rates. Since reaching a cyclical peak in 1974, business loan

[1]Federal Reserve Board quarterly survey of interest rates charged by banks on business loans.

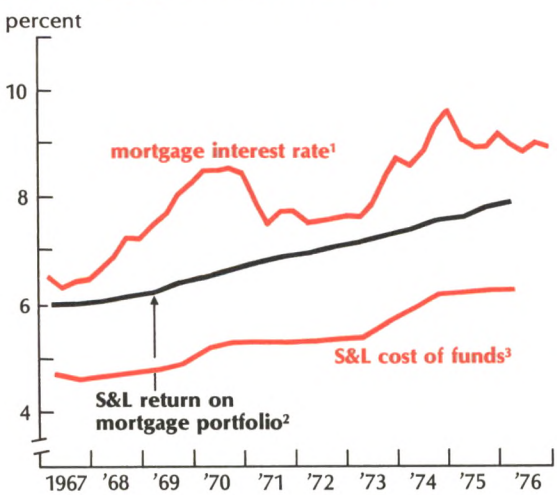
rates have dropped more than 300 basis points, but mortgage loan rates are down less than 100 basis points.

The positive spread of mortgage interest rates over the business loan rate suggests a continuation of the expansion of residential mortgage loans at commercial banks into 1977.

Limiting factors of mortgage rate movements

Savings and loan associations (S&Ls) are the major source of residential mortgage loans. From 1967 through 1976 S&Ls accounted for an annual average 70 percent of the increase in residential mortgage loans held by depository institutions. The percentage varied, however, from 56 percent in 1967, when credit conditions eased, to 90 percent in 1975, when conditions were unusually tight. Commercial banks' 20 percent average annual increase over the same time period ranged from 32 percent in 1967 to 1 percent in 1975.

The upward trend in S&L cost of funds has limited declines in mortgage interest rates



¹HUD series—first mortgage contracts on new homes.

²Interest earned on mortgages as a percent of average mortgage balances net of loans in process.

³Interest and dividends paid on savings, FHLB advances, and other borrowed money during period as a percent of average savings and borrowings.

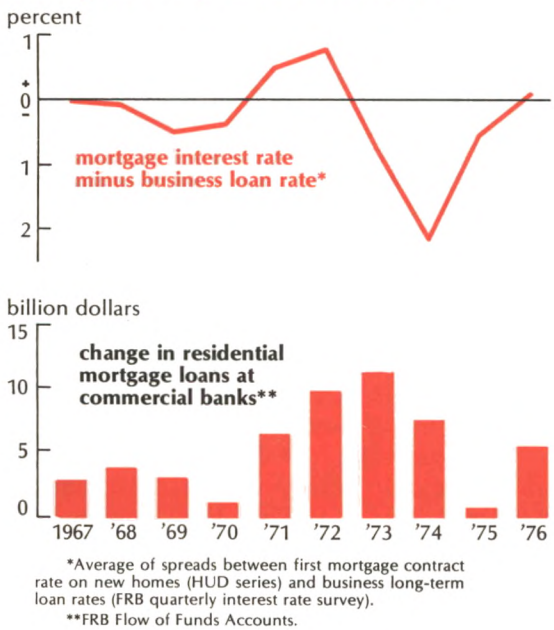
The domination of the residential mortgage market by S&Ls means that their cost of funds tends to limit any decline in mortgage interest rates. The cost of funds at S&Ls has been rising since 1967, with the rate of increase accelerating during periods of sharply rising market interest rates. In the interim periods, when credit conditions have eased, the cost of funds leveled off but did not decline. Contract mortgage interest rates on new loans have declined after reaching new highs at cyclical peaks but not to the previous low levels. At the troughs of the interest rate cycles in 1967 and 1972, mortgage interest rates were about 180 to 200 basis points above the average cost of funds at S&Ls. Currently, the average quoted mortgage interest rate of 8.80 percent is about 240 basis points above the S&L cost of funds.

The increase in residential mortgage interest rates during periods of credit restraint is limited by usury rate legislation and growth in consumer disposable income. Usury rates have been raised in many states in accordance with the rising trend in mortgage interest rates but nevertheless continue to constitute an effective upper limit to any sharp rise in residential mortgage interest rates. Consumer disposable income generally increases slowly over the long term. As the source of funds for repayment of residential mortgage loans, it thus limits the demand for mortgage funds and any short-term increase in mortgage interest rates.

Commercial bank holdings

Commercial bank holdings of residential mortgage loans expand more rapidly when mortgage interest rates exceed rates available on other investments. This occurs primarily when business loan demand declines and credit conditions ease. The expansions and contractions of residential mortgage loans at commercial banks have generally lagged the peaks and the troughs of this yield spread by about four quarters. The spread reached a maximum in the second quarter of 1972 and the growth of residential real estate loans at commercial banks was largest in the second

Peaks in commercial bank mortgage lending activity have lagged peaks in the mortgage-business loan interest rate spread by about one year



*Average of spreads between first mortgage contract rate on new homes (HUD series) and business long-term loan rates (FRB quarterly interest rate survey).

**FRB Flow of Funds Accounts.

quarter of 1973. Similarily, the largest negative spread was reached in the third quarter of 1974, and residential mortgage loan holdings actually contracted during the third quarter of 1975. As business loans declined and rates were reduced in 1975 and 1976, residential loans again became relatively attractive and commercial banks expanded their portfolios of these loans accordingly.

Recent changes in the spread between mortgage interest rates and business loan rates suggest a continuation of the expansion of real estate loans at commercial banks in 1977. After the spread changed from a negative 216 basis points in 1974 to a negative 54 basis points in 1975, bank holdings of residential loans rose $5.5 billion in 1976 compared to only $.8 billion in 1975. The change in the spread to a positive 8 basis points in 1976 would, based on the four-quarter lag, portend continued growth of residential mortgage loans at commercial banks during 1977 from existing commitments.

Eleanor Erdevig

Twentieth century trends in farmland values

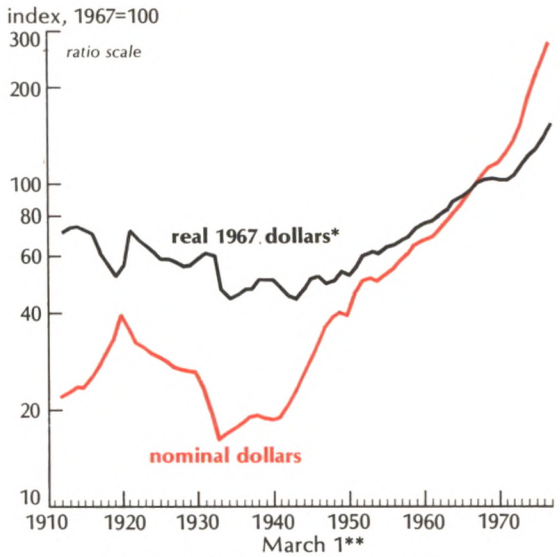
Farmland values have exhibited unprecedented increases in recent years. Nationwide, the compound annual rate of increase in farmland prices has been on the order of 16.5 percent during the past five years. The value of an asset appreciating at this rate doubles every four and a half years. If this rate of increase were to persist until the end of the century, land currently valued at $1,000 per acre would be worth $33,535 per acre in the year 2000. If the rate were to drop to one-half the level experienced during the past five years, the value of that same land would rise to "only" $6,192 per acre by the year 2000.

Frequent reports cite farmland transaction prices at several thousand dollars per acre, although nationwide the average was about $450 per acre at the beginning of 1977. Farmland is a very heterogeneous resource, however. The quality—and therefore the price—of farmland varies greatly, depending upon raw productive capacity, tillability, topography, improvements, location, etc. A wide range in price is often experienced even within short distances. Nevertheless, virtually all classes of farmland have appreciated rapidly in recent years, with more productive areas generally pacing the trend. Reflecting the latter point, surveys conducted by the Federal Reserve Bank of Chicago indicate farmland prices in the Seventh District portions of Illinois have appreciated at a compound annual rate of 25 percent during the past five years, followed closely by 22.5 percent annual rates achieved in Indiana and Iowa. In comparison, the compound annual rate of increase in Michigan and Wisconsin—where land is less productive—has been roughly 14 percent over the past five years.

The widespread rapid gains in land prices have heightened the interests of both farmers and investors in acquiring farm property. At the same time the downtrend in farm income since 1973 has raised concerns among lenders and investors about whether the momentum of the current boom has carried land prices beyond the income-generating capability of the property. Unfortunately, there can be no definitive response to such concerns without a clear perspective of what the future holds. But viewing the current land boom within its historical perspective does provide some interesting insights.

The twentieth century history of farmland values contains three striking features. Perhaps foremost is the unprecedented increases that have occurred since 1972. The doubling of farmland prices during the past five years (while rising at a compound annual rate of 16.5 percent) has been only remotely paralleled by two other boom periods—both occurring during highly inflationary war periods. During the five years

Both nominal and real farmland values register unprecedented gains in 1970s



*Deflated by index of prices paid by farmers for family living items.
**Since 1975 the index is computer as of February 1.

ending in 1920, farmland values rose at a compound annual rate of 11 percent. Similarly, the compound annual rate of increase during the five years ending in early 1947 was 12 percent.

The second striking feature is the remarkably consistent uptrend in farmland values that occurred between the Depression low and the onset of the current boom. This uptrend was marred only by single-year declines in 1938, 1949, and 1953. The rise was also remarkably consistent in that farmland values doubled in each of the three 13-year periods between the 1933 low and the 1972 onset of the current boom. This consistency was roughly equivalent to a compound annual rate of appreciation of 5.5 percent.

The pronounced downtrend following the World War I boom is the third striking feature of the twentieth century trends in farmland values. The downtrend was noteworthy both for its duration—13 consecutive years—and for its steepness—60 percent between the 1920 peak and the Depression low of 1933. Recovery from the Depression low required 16 years—including the World War II boom period—before land values returned to their earlier peak.

Farmland values adjusted for inflation add an interesting dimension to the historical perspective of the current boom. In essence, the adjustment reflects the "real value of farmland," or in this case the "purchasing power" of an acre of farmland in terms of goods and services bought by farmers in 1967.

The demand for farmland in part reflects its value as a hedge against inflation. The general downtrend in real land values during most of the first half of this century, however, indicates land, at best, was only a partial hedge against inflation. Conversely, the uptrend since the mid-forties indicates the appreciation in land values has markedly exceeded inflation. The uptrend in real land values since the mid-fifties has been extremely consistent, marred only by slight dips in 1970 and 1971.

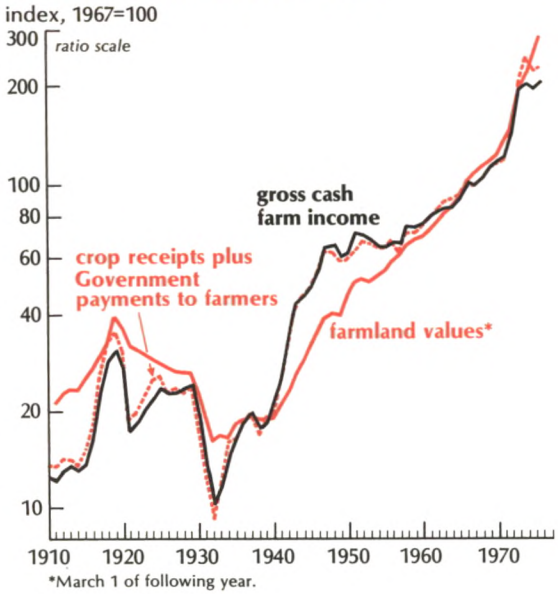
The corollary between the current land boom and the World War I and World War II booms is lost in the measure of real land values. The rise in land values during the current boom has markedly exceeded the high rates of inflation, pushing the real value of farmland up 42 percent during the last five years. Conversely, relatively high inflation rates during the World War I boom dragged real farmland values well below their 1914 peak—a peak not again surpassed until 1960. Similarly, the high inflation rates during the World War II boom roughly equaled the escalation in land prices, resulting in generally flat farmland values when adjusted for inflation. Interestingly, the low point of the century for real farmland values occurred in 1943.

Farm income and land values

A major factor underpinning the demand for farmland is the income expected to be generated by the land. There are numerous measures of farmers' income, reflecting differing aspects of the farming business or sources of income. Some of the more common measures of farmers' earnings—including gross farm income, net farm income, and off-farm earnings of farm operator families—are depicted in the two charts on the next page.

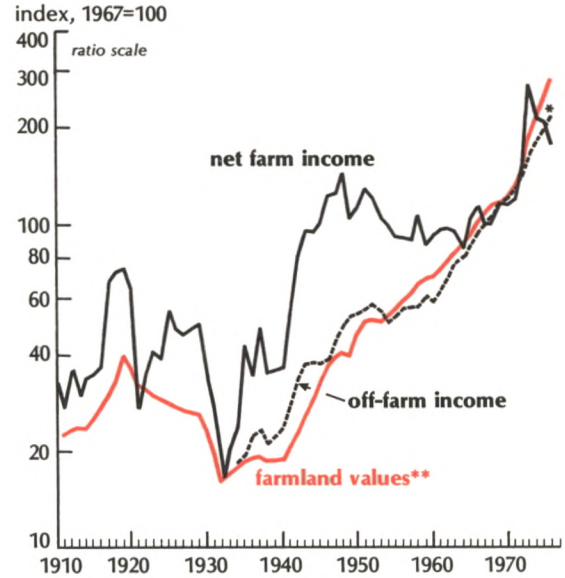
Not suprisingly, year-to-year changes in farm income (gross or net) do not track particularly closely with changes in farmland values. The overall trends are similar, however. The simultaneous slide in land values and income following the World War I peak is self-evident. Also, the three major land booms during the current century have coincided with surging levels of gross and net farm income. However, the relative rise in farm income measures in recent years has not been as great as the income gains experienced during the previous two booms. In contrast, the gains in land values have been much greater during the current boom. Moreover, in light of the leveling off in farm income in recent years, the rise in land values during the current boom has significantly exceeded the rise in farm income. Judging from past relationships, this supports the concern of whether the current boom has carried land prices beyond the level justified by farm earnings.

The escalation in land values continued despite a leveling in gross farm income . . .



*March 1 of following year.

. . . and a decline in net farm income

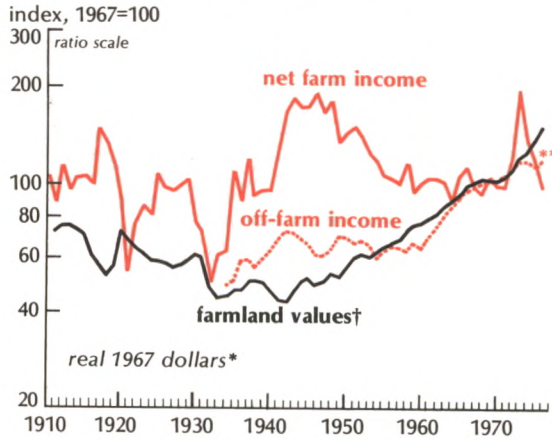


*Estimate.
**March 1 of following year.

The relationship between farm income and land values during the fifties and early sixties poses an interesting diversion in the historical perspective; a diversion which may also underlie the current apparent inconsistency between gains in land values and income. With the exception of 1953 farmland values trended steadily upward during the fifties and early sixties. In contrast, gross cash farm income was relatively flat and net farm income trended irregularly lower. The downtrend in net income about offset the decline in farm numbers, holding net income per farm comparatively flat during this period. Apparently, the sharp and consistent increases in off-farm earnings—particularly since the mid-fifties—was a major factor permitting farmers to bid land values steadily higher. In the mid-fifties off-farm earnings of farm operator families were equivalent to only one-half of net farm income. By the mid-sixties off-farm income equaled net farm income. And during the past two years off-farm earnings have substantially exceeded the high levels of net farm income. Moreover, the growth in off-farm earnings among the largest farms during the past decade has substantially exceeded that for all other sizes of farms.

A comparison of real farmland values and real earnings is striking in two respects. On the one hand trends in real net farm income since the Depression bear little resemblance to trends in real farmland values. In terms of the purchasing power of net farm income, the most prosperous farm income years occurred during the 1941-53 period. During this span real farm income exceeded $15.5 billion annually, a level surpassed in only four other years—1917, 1918, 1973, and 1974—since 1909. Despite this extended period of peak performance in real farm earnings, real land values, although trending irregularly higher, registered only nominal gains. Between 1953 and 1972, however, real farm income trended irregularly lower, while real farmland values were generally rising steadily. And with respect to trends since 1972, the issue about whether land prices have risen to levels unjustified by net farm earnings is vividly evident when both measures are adjusted for inflation. Last year real net farm income was roughly equal to the level experienced in 1967

Net farm earnings drop sharply when adjusted for inflation, while farmers' real off-farm earnings continue upward



*All measures are deflated by the index of prices paid by farmers for family living items.
**Estimate.
†March 1 of following year.

and the tenth lowest in the past 40 years. On a per farm basis, real net income was up only 15 percent from the 1967 level. In contrast, real farmland values were more than 50 percent above the 1967 level.

The other striking feature in the above chart is the similarity between trends in real farmland values and real earnings of farm operators from off-farm sources, particularly since the mid-fifties. While the similarity may reflect more of a coincidental rather than a causational relationship, it clearly adds support to the thesis that nonfarm earnings have contributed to farmers' aggressive bidding for farmland.

Debt servicing requirements

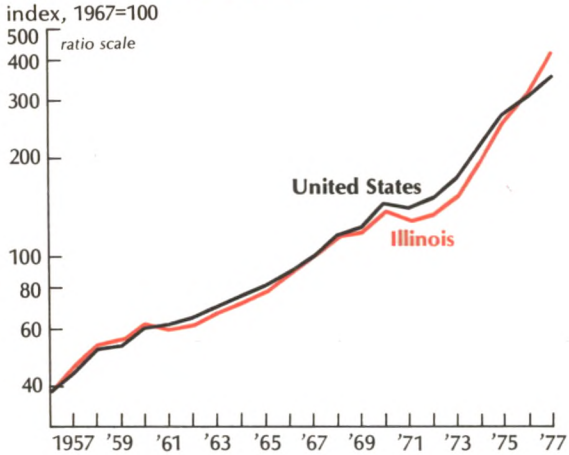
The surge in farmland values has reemphasized the longstanding concern about the debt servicing capacity of high-priced land purchases. This issue is addressed in the following two charts, first by indicating the rapid uptrend in principal and interest payments associated with financing a land purchase annually. Secondly, the trend in annual principal and interest payments is related to an "expected" annual market value measure of the output from an acre of land.

The average per acre dollar value of farmland multiplied by the debt-to-purchase price ratio for farm real estate transfers provides a rough approximation of the per acre debt assumed annually by purchasers of farmland. For each year the principal and interest payments reflect the annual payment that would be required to repay the debt incurred on an acre of farmland purchased that year, assuming a fully amortized 25-year mortgage with equal annual payments and with interest rates comparable to that charged by Federal Land Banks at the beginning of the year.

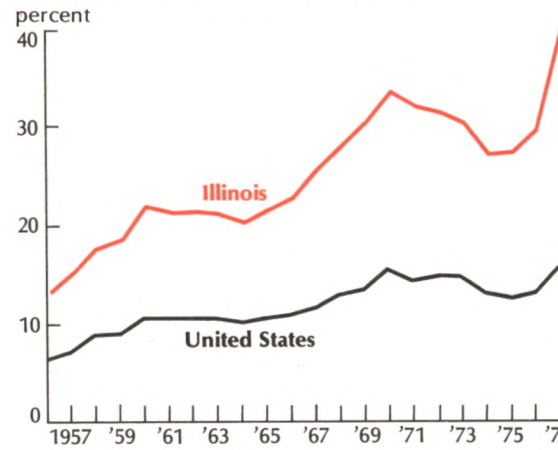
Annual principal and interest (P&I) payments have increased faster than land values since the mid-fifties, reflecting the general uptrend in both mortgage rates and the debt-to-purchase price ratio in farm real estate transfers. The proportion of purchase price financed has averaged about 76 percent in recent years, as opposed to 70 percent in the mid-sixties and 60 percent in the mid-fifties.

Annual P&I payments may have moved to a new high with respect to the per acre cash income that could be expected from raising corn, particularly in Illinois. The annual P&I payment for an average acre of Illinois farmland purchased during the early sixties was equivalent to just over 20 percent of the gross receipts that could be expected from raising corn. A general uptrend during the latter part of the sixties—reflecting rising interest rates and (in 1970) blight reduced yields—resulted in a 1970 peak of 34 percent. The proportion of gross income required to repay debt actually trended downward during the first half of the seventies—reflecting lower interest rates (initially) and higher grain prices. Nevertheless, the sustained uptrend in land values the last two years and lower corn prices have pushed the ratio of P&I payments to cash receipts to a new high of around 40 percent in Illinois. The ratio is now seven percentage points above the previous 1970 peak and about double the levels typically experienced during the early sixties.

Rapidly increasing principal and interest payments . . .



. . . absorb a much larger proportion of cash receipts



The derivation of the principal and interest payment for any given year is based on the amount of debt incurred in purchasing an acre of land, i.e., the average per acre dollar value multiplied by the national average debt-to-purchase price ratio. The analysis assumes a 25-year fully amortized mortgage with equal annual payments and an interest rate equivalent to the average charged by federal land banks at the beginning of the year. In the right-hand chart the annual principal and interest payment is expressed as a percent of the "expected" returns from raising an acre of corn. The "expected" return is the average of the per acre yields during the preceding three years multiplied by the average of corn prices received by farmers for the past three years.

Farm real estate debt

The twentieth century relationship between farmland values and farm real estate debt, on balance, has been nearly parallel. Both trended sharply higher during the first two decades, but then declined for several years. For the past three decades both land values and real estate debt have risen sharply.

The World War II years provided one notable exception to the relationship between farmland values and outstanding farm real estate debt. In contrast to the World War I boom and that of recent years, the World War II boom in farmland values was accompanied by a paydown in farm real estate debt. With the availability of new capital goods to the private sector greatly curtailed by the diversion to war-related manufacturing demands, farmers converted their soaring net incomes into debt repayments. By the beginning of 1946 outstanding farm real estate had fallen to a 31-year low. The paydown probably contributed, indirectly, to the sustained uptrend in land values during the fifties and early sixties when farm incomes were trending lower. Farmers had demonstrated they could handle large amounts of debt, and their earlier paydown had generated a considerable "credit reserve."

The availability of mortgage financing is another major factor supporting the demand for farmland. Farmers may obtain credit from numerous sources including individual sellers, institutional lenders, and "other" lenders. Historically, individuals have provided the bulk of financing for farm transfers. In recent years individuals have accounted for around two-fifths, while institutional lenders accounted for roughly one-half.

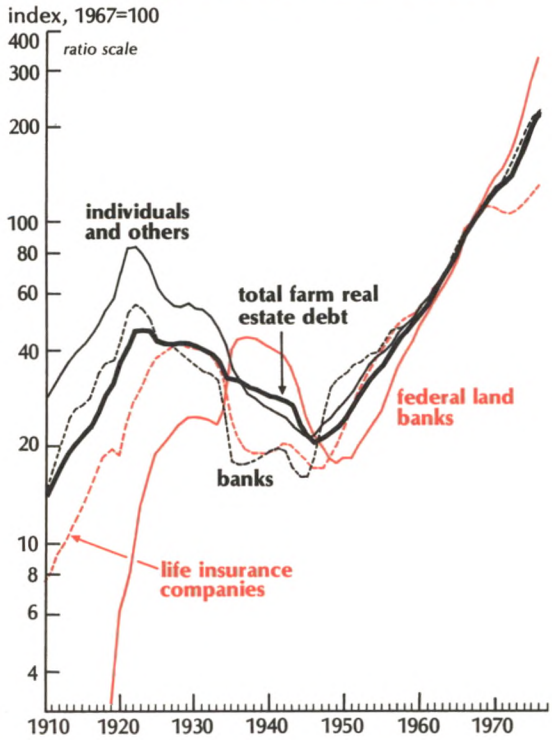
Among institutional lenders commercial banks have consistently provided about one-tenth of the annual credit extended to finance farm real estate transfers. This consistency however, has not prevailed among life in-

surance companies and federal land banks (FLBs). In the mid-sixties life insurance companies were the leading institutional holder of farm mortgage debt, typically providing about one-fifth of the annual volume of credit extended to finance farm real estate transfers. In contrast, FLBs provided about one-tenth. In the intervening years, the roles have been completely switched. Life insurance companies have responded to restrictive usury ceilings and alternative investment opportunities by reducing their share to less than one-tenth in recent years. On the other hand, FLBs now account for about 30 percent of the much larger annual volume of credit extended to finance farm real estate purchases.

The increased role of FLBs in financing farm real estate transfers in recent years is reflected in the rapid growth they have experienced in outstandings. During the land boom of the past five years farm real estate debt held by FLBs rose at a compound annual rate of 18.5 percent, outstripping the growth rate in total farm real estate debt by about 9 percentage points and the growth rate in farmland values by about 2 percentage points. At the beginning of this year the $18.5 billion in farm real estate debt held by FLBs accounted for one-third of all farm real estate debt and was virtually equal to the combined portfolios of the three other major institutional lenders (banks, life insurance companies, and the Farmers Home Administration).

Gary L. Benjamin

Federal land banks pace rise in outstanding farm real estate debt



Measuring the international value of the U.S. dollar

Since early 1973, after more than a quarter-century of relative stability that prevailed under the postwar Bretton Woods international monetary system, the value of the U.S. dollar in terms of foreign currencies has been changing daily. It has been fluctuating in response to the supply and demand conditions in the foreign exchange markets within the framework of a system of floating exchange rates of major currencies. In this environment measuring the "international value" of the dollar has become a somewhat confusing task. Financial pages of newspapers have been periodically headlining a "precipitous drop" in the value of the dollar on certain foreign exchange markets, while at the same time reporting its "strengthening" in others. These events have invariably left interested but "uninitiated" laymen confused as to the "real" international value of the currency. In an effort to contribute to a better understanding of these issues, and in response to many inquiries that the Federal Reserve Bank of Chicago has received on this topic, the following article presents a survey of various measures of the international value of the dollar.

Single currency value measurement

The most common measure of the international value of a particular currency is its exchange rate in terms of other currencies. The exchange rates are usually expressed either in terms of a number of units of a foreign currency required to buy one unit of a particular currency or in terms of number of units of a particular currency necessary to buy one unit of a foreign currency. For example, the exchange rates of the dollar in the New York market at noon on February 15, 1977 were as follows:

Currency	U.S. cents per unit	Number of units per U.S. dollar
British pound	170.55	.5863
Canadian dollar	97.65	1.024
German mark	41.60	2.402
Franch franc	20.11	4.972
Japanese yen	.3522	283.93

The foreign exchange quotes (or the "spot rates" as they are sometimes called) are important for traders, investors, and anybody who wishes to purchase a particular currency to make payments abroad. They reflect the "state of the market" at any one point in time. However, because of the differences in scale in the absolute values of currencies, direct comparison of the patterns of movements in the exchange rates of two or more currencies over time is difficult. To facilitate such a comparison, the changes in the value of the currencies are sometimes measured in relative terms by means of indexes: The exchange value of a particular currency in terms of another currency at a particular point in time is taken as a base (i.e., equal to 100), and the exchange rates at subsequent points in time are expressed as percentages of that value. For example, if the exchange rate of the German mark in terms of the U.S. dollar was .2732 dollars per mark in the base period, April 30, 1971, and .4160 on February 15, 1977,

NOTE: This article is a reprint of the Supplement to *International Letter*, No. 320, April 1, 1977, Federal Reserve Bank of Chicago. Copies of the Supplement are available from the Bank's Public Information Center.

then the value of the mark in terms of the dollar at those two points in time would be expressed as 100 and 152.3, respectively. A graphic tracing of such computations for several currencies is shown in Chart 1.[1]

Any "base period" can, of course, be chosen in computing an index, depending on the intent of the measurement. Regular sources usually choose as a base one of the following several dates that represent "milestones" in the evolution of the international monetary system:

May 31, 1970, to designate a point in time just prior to the first major change in the postwar international monetary system—the "floating" of the Canadian dollar in June 1970.

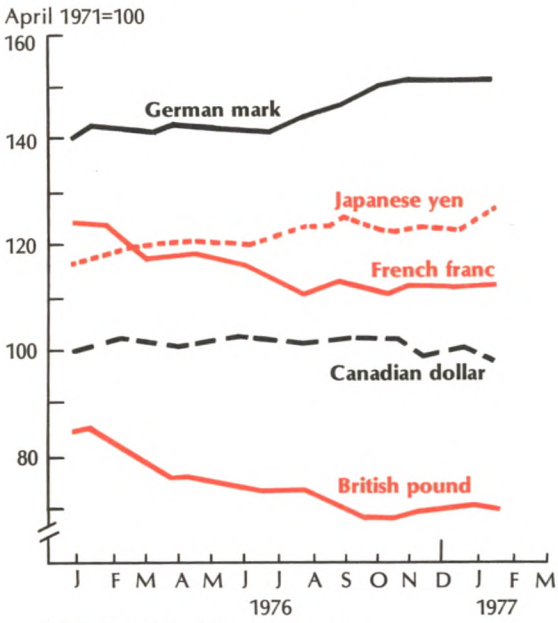
April 30, 1971, a date just prior to the onset of massive foreign exchange markets pressures that, in early May of that year, forced readjustments in the exchange values of a number of major currencies and ultimately culminated with the abandonment of the gold exchange international monetary standard in August of that year (see *International Letter*, Nos. 13 and 27).

December 1971, to mark the reestablishment of "fixed" exchange rates of major currencies at new values (including the devaluation of the U.S. dollar by 7.89 percent in terms of gold and of varying percentages in terms of major currencies; see *International Letter*, No. 45) agreed upon at an international monetary conference held at the Smithsonian Institution in Washington.

February 15, 1973, as a point in time immediately following another formal realignment of the exchange value of major currencies on February 12 (including a 10 percent devaluation of the U.S. dollar; see *International Letter*, No. 105) and immediately preceding the adoption of a floating exchange rate system by major countries on March 19, 1973.

[1]The charts, together with the data entering the computation of the indexes, are published in a monthly report, "Measures of Exchange Rate Change in the U.S. Dollar," compiled by the U.S. Department of Commerce, Bureau of International Economic Policy and Research. Indexes of dollar prices of several major currencies are published periodically on the back pages of the *International Letter*.

Chart 1. Simple indexes of the value of several foreign currencies in terms of the U.S. dollar



SOURCE: U.S. Department of Commerce.

The exchange values of the dollar in terms of individual foreign currencies, expressed either in absolute or in relative terms, often move in opposite directions due to independent and often conflicting influences on the individual exchange rates. For example, as Chart 1 shows, while over the past year the value of the dollar has been declining in terms of the German mark and Japanese yen, it has been rising in terms of the French franc, the Canadian dollar, and the British pound. Such divergent movements make it impossible to form an objective judgment on the direction of the changes in the "overall" international value of any one currency.

Composite indexes of value

Various methods have been used to overcome the difficulties in arriving at an overall measure of value, arising from the divergent movements in the value of a single currency in terms of other currencies. One such method has been the construction of indexes based on *simple averages of values* of a single currency in terms of several other currencies over time. For example, between mid-April

1971 and mid-February 1977 the value of the U.S. dollar declined 34.3 percent in terms of the German mark and 21.1 percent in terms of the Japanese yen, and increased 150 percent in terms of the Brazilian cruzeiro; a simple average composite index based on the changes in the value of the dollar in terms of these three currencies would show an increase of 31.5 percent in the dollar's value.

Simple average composite indexes provide a better indication of overall changes in the international value of a currency than indexes based on individual currencies. However, they, too, suffer from a serious shortcoming. These indexes fail to differentiate between the relative importance of individual currencies entering the index and thus present (as in the example above) a somewhat distorted measure of an overall change in the value of a currency.

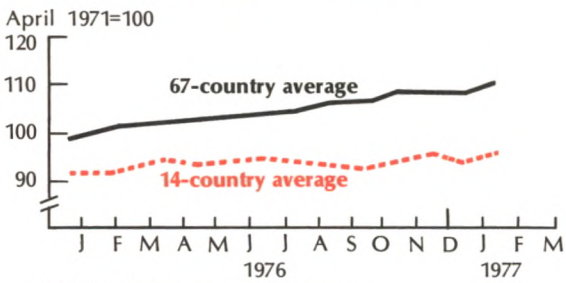
To eliminate the problem, several *weighted average indexes* have been developed. In constructing such indexes, each currency entering the index is assigned a different weight depending on its relative importance. The nature of the weights usually varies depending on the intended use of the index. For example, if the intended purpose is to measure the changes in the competitiveness of the country's goods on the world markets, the changes in the value of that country's currency in terms of the currencies of its trading partners over time are weighted by the historic relative shares of that country's exports to these countries. To use the above example, where the value of the dollar was measured by a simple average index, in computing an export-weighted average, the 34.3 percent decline in the value of the dollar in terms of the German mark would be weighted by the relative share of U.S. exports going to Germany (5.2 percent in 1975), the 21.1 percent decline in terms of the Japanese yen by 9.6 percent, and the 150 percent increase in terms of the Brazilian cruzeiro by 3.1 percent. The resulting index would show a 4.7 percent increase in the value of the dollar between mid-April 1971 and mid-February 1977, rather than the 31.5 percent increase indicated by the simple unweighted average index.

Two such export-weighted indexes, one based on relative shares of U.S. exports of manufactured products to 14 major industrial countries and the other based on a broader sample of 67 countries, are shown in Chart 2.

The impact of changes in the value of the country's currency on the overall cost of that country's imports is usually measured in terms of an index that uses relative import shares as weights. These relative weights are applied to the percentage changes in the value of foreign currencies in terms of the domestic currency.[2] Two indexes of these average weighted values of several foreign currencies in terms of the U.S. dollar are shown in Chart 3.

Several indexes that take into consideration the impact of the changes in the currency values on the country's overall trade flows have also been computed. To the extent that

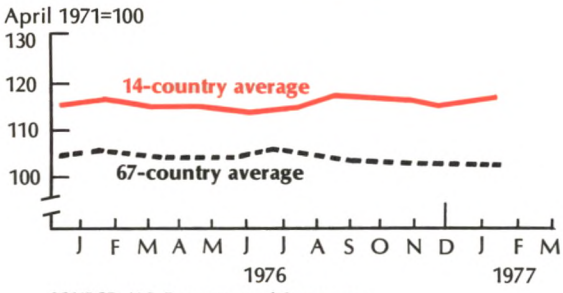
Chart 2. Export-weighted indexes of the value of the U.S. dollar in terms of foreign currencies



SOURCE: U.S. Department of Commerce.

[2]The magnitude of the percentage change in the value of each currency in terms of domestic currency is, of course, different from the percentage change in the value of domestic currency in terms of a foreign currency. In the example cited in the text, as the value of the dollar in terms of the mark declined 34.3 percent between April 1971 and February 1977, the value of the mark in terms of the dollar rose 26.8 percent in the same period. Changes in values of a currency in terms of foreign currencies are typically used for export-weighted indexes because such changes better reflect the changes in the prices of a country's goods to foreign purchasers due to exchange rate changes. Changes in the values of foreign currencies in terms of domestic currencies are typically used for import-weighted indexes because they reflect the changes in the prices of foreign goods to domestic consumers.

Chart 3. Import-weighted indexes of the value of foreign currencies in terms of the U.S. dollar



SOURCE: U.S. Department of Commerce.

the concept of the "overall international value" of a currency is of interest as a measure of the overall international standing of a currency (including the changes in the currency's purchasing power abroad and in the competitiveness of the country's goods on the international markets), such indexes represent probably the closest approximation of that concept.

The **Reuters Currency Index** is computed and published daily by the London-based international news service. In constructing the index, changes in the value of nine foreign currencies[3] in terms of the U.S. dollar from the December 1971 base are weighted by the sum of exports and imports to and from the United States in 1970-71, expressed as a fraction of total U.S. trade in that period. Exchange rates as quoted each day at noon in London are used for all currencies except the Japanese yen, in which case Tokyo's market closing rates are used.

The **Morgan Guaranty Index**, computed and published by the Morgan Guaranty Company in New York, weighs changes in the value of the U.S. dollar in terms of each of 15 foreign currencies[4] from May 1970, December 1971, and February 1973 bases by the relative share of U.S. exports to and imports from these countries. Exchange rates as quoted in New York at noon and trade figures for the 1974-75 period are used in the computation. A geometric average of the export-weighted and import-weighted values is then computed to produce the index of the value of the dollar.[5] Similar computations are made for each of the currencies against the remaining currencies, weighted by respective trade flows in computing the value index for each of the currencies.

Multilateral trade-weighted indexes

To meet the needs of professional analysts of international trade developments, several indexes have been developed that take into consideration secondary and tertiary impacts of currency value changes on the trade flows of a country. The theoretical underpinning of such indexes is the proposition that changes in the value of a country's currency vis-a-vis other currencies affect not only the bilateral trade of that country vis-a-vis these countries, but the entire matrix of trade flows between all countries. For example, when the Japanese yen and German mark appreciate in value relative to the U.S. dollar, the volume of U.S. imports from Japan and Germany will tend to decrease (as a result of consumer response to the now higher prices of these countries' goods in terms of the dollar), and the U.S. exports to these countries will tend to rise (as a result of the now lower prices of U.S. goods in terms of these currencies). These propositions are implicitly taken into consideration in construction of the bilateral trade-weighted indexes previously discussed. The multilateral trade-weighted indexes consider an additional proposition, namely, that the rest of the world's trading countries will find German and Japanese goods relatively more expensive than U.S. goods, and that as a result, they will tend to shift their purchases to U.S. goods.

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[3]The currencies of Japan, the United Kingdom, Germany, France, Italy, Belgium, the Netherlands, Switzerland, and Sweden.

[4]The currencies of countries shown in footnote 3 *plus* Canada, Spain, Austria, Denmark, Norway, and Australia. The currencies of the same countries less Spain are used for the computation of the U.S. Department of Commerce 14-country indexes discussed above.

[5]The Morgan Guaranty Index is widely used and is reported daily in the financial pages of a number of newspapers, including *The Wall Street Journal*.

Changes in the international value of the U.S. dollar
(as of February 15, 1977)

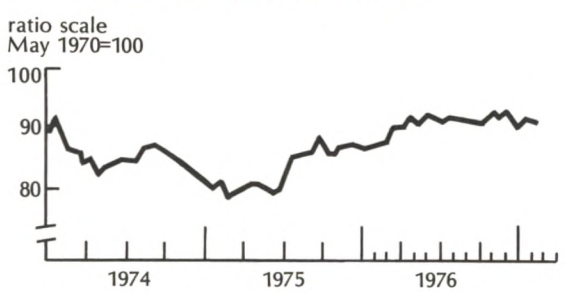
Percentage change in value since:	As measured by: U.S. Department of Commerce: Index based on U.S. imports from 14 countries*	Index based on U.S. imports from 67 countries*	Index based on U.S. exports to 14 countries	Index based on U.S. exports to 67 countries	Reuter's Index	Morgan Guaranty Index	FRB Index	CIA Index	IMF Index
	(percent)					(percent)			
May 1970	n.a.	n.a.	n.a.	n.a.	n.a.	-10.8	- 9.5	n.a.	-11.9**
April 1971	+17.0	+ 2.7	-4.4	+10.6	n.a.	n.a.	n.a.	n.a.	n.a.
December 1971	+ 6.6	- 2.8	+ .4	+11.7	- 7.1	- 1.2	n.a.	n.a.	n.a.
February 1973	- 3.3	- 7.9	+ 6.9	+16.7	n.a.	+ 4.8	n.a.	+ 6.03	n.a.

*Based on value of foreign currencies in terms of the U.S. dollar.

**Average of the daily changes in the month of February.

One such index is constructed by the **Office of Economic Research of the U.S. Central Intelligence Agency**. In computing this index, the changes in the value of the dollar against each of the 16 major foreign currencies are weighted by the sum of each country's exports to and imports from the other 15 countries, divided by the total trade of the 16 countries. Another, still further refined index is constructed by the **International Monetary Fund**. The index combines the exchange rate changes from the May 1970 base in each of the Fund's 128 member countries' currencies relative to 20 major world currencies with weights derived from the Fund's econometric Multilateral Exchange Rate Model. The weights take into consideration the sensitivity of the response of each country's trade flows to price changes (i.e., the price elasticities), as well as the feedback effects of exchange rate changes on the domestic costs and price changes.

Chart 4. Trade-weighted index of the average value of the U.S. dollar in terms of 10 major currencies



SOURCE: Board of Governors of the Federal Reserve System.

The **Federal Reserve Index of Currency Values** is computed by the Board of Governors of the Federal Reserve. In this index changes in the value of the U.S. dollar since May 1970 in terms of the currencies of 10 countries[6] are weighted by the ratio of each foreign country's worldwide exports plus imports to the worldwide exports plus imports of all the sample countries for the year 1972. Exchange rates used for the computation are the noon buying rates in the foreign exchange market in New York. Indexes are constructed for each currency, and a composite weighted average index of all these currencies is constructed for the dollar (see Chart 4).[7]

Conclusion

In a fundamental sense, a currency derives its "value" from the multiplicity of goods and services it buys. Thus, the term

[6]The currencies of countries shown in footnote 3 *plus* Canada.

[7]This chart together with charts showing composite weighted-average indexes for several foreign currencies are periodically shown on the back of the *International Letter*.

"value of a currency"—whether it is used in a domestic or an international context—is an abstract concept, and the results of an effort to translate it into a simple, precise figure, or a series of figures that purport to measure changes in the currency's value over time, must be interpreted with great care. The nature of the elements entering into the construction of an index, the process by which they are combined, and the selection of the "base period" from which the changes are measured all influence the results. As the table shows, the various indexes discussed in this article produce widely divergent and seemingly contradictory indications of the movement of the exchange value of the U.S. dollar over time. Which of these is accepted as "the best measure" of the direction of the movement ultimately depends on the end-purpose of the measurement. For, it is that end-purpose that determines the appropriateness of any one procedure in constructing the measure—and its results.

Joseph G. Kvasnicka

Increasing competition between financial institutions

The combined forces of regulatory, technological, and general economic changes are causing the financial services provided by commercial banks, savings and loan associations (S&Ls), mutual savings banks and credit unions to blend together. Commercial banks are diversifying their assets toward higher percentages of mortgages and consumer loans, and thrift institutions are seeking authority to diversify their loan structures. Moreover, mounting pressures are working toward, and have partially succeeded in, changing the authority of thrifts to include third-party payment accounts similar to commercial bank demand deposits. As a result of this increased similarity these institutions are becoming more directly competitive with each other.

This article inquires into the structure of commercial banks and thrift[1] institutions at the national, state, and local levels and explores the development of increased competition between these institutions as they become more homogeneous in their product lines.

Structural reform

Since the early 1960s formal studies have indicated that some restructuring of the financial system would be desirable and helpful in promoting national economic objectives. The reform concept has been supported by every independent study group that addressed the subject, from the Commission on Money and Credit in 1961 to President Kennedy's Committee on Financial Institutions in 1963 (the Heller report), the Hunt Commission in 1971, and more recently, the Financial Institutions and the Nation's Economy (FINE) study in 1975. In general, the recommended reforms would make commercial banks and thrifts more homogeneous with respect to services rendered to the public, thereby, it is argued, promoting operating efficiency, better allocation of financial resources, and increased competition.

The FINE study proposals were resisted by numerous groups—including government regulatory bodies as well as financial industry groups—and new legislation in the industry never emerged from the banking committees of the House of Representatives and the Senate in 1976. The Financial Institutions Act of 1976, which would have given demand deposit powers to all thrifts and would broaden their loan powers, was debated in the House Banking, Currency, and Housing Committee and was eventually defeated in May 1976. A strong attack against the bill by the commercial banking sector and a general lack of public interest and support were apparently responsible for the bill's demise.

Three piecemeal reform bills that were introduced in the Senate Banking, Housing, and Urban Affairs Committee met a similar fate. Committee resistance was greater than expected and all three were tabled in September 1976.

In contrast, the financial institutions themselves have been making substantial strides toward homogeneity by working within current statutes and pushing their interpretations to the limit, even into the courts. Moreover, a number of financial statutes at the state level have been changed recently to

[1]The term, thrifts, is herein defined to mean savings and loan associations, mutual savings banks, and credit unions.

favor broader powers for the thrifts. Third-party payments accounts similar to commercial banks' demand deposits—negotiable orders of withdrawal (NOW)—are being used by mutual savings banks and savings and loan associations in states where statutes permit. These NOWs are drafts depositors can write against interest-bearing savings accounts. (The state of Illinois has adopted a law permitting state-chartered savings and loan associations to issue noninterest-bearing accounts—NINOWS.) In addition, many credit unions may now issue share drafts, which are similar to NOW instruments, and current legislative proposals would significantly expand their asset powers to include a wider range of loans to customers. These and other proposed changes are evidence that the financial institutions' environment is one of dynamic change and the trend toward increased homogeneity will most likely continue.

Industry developments

Commercial banks and thrifts are similar in some respect in that the bulk of the liability side of the balance sheet of each institution consists of public deposits yielding interest. In the case of thrifts all time and savings deposits—excluding NINOWs—yield interest to the depositors. In addition to time and savings deposits commercial banks are permitted to issue demand deposits, the principal vehicle of our national payments mechanism. With the exception of a few states where mutual savings banks may issue demand deposits, only commercial banks enjoy this privilege. By law, commercial banks may not pay explicit interest on demand deposits, but current debate on this issue suggests elimination of the restriction.

The financial community faces many obstacles to the efficient allocation of credit due to legislative and regulatory constraints. For example, Regulation Q (under which the Federal Reserve in conjunction with other regulatory agencies sets the maximum allowable interest to be paid on time and savings deposits) deposit rate ceilings at times have caused financial institutions to lose deposits when market interest rates have risen above regulated interest levels. When this kind of interest disparity has occurred, the public has shifted funds out of time and savings accounts into higher yielding market instruments. This process, known as "disintermediation," has been particularly severe in the case of mutual savings banks and savings and loan associations, causing serious shortages of funds in the housing market in 1966, 1969, and 1974.

Continuing technological advances in the finance industry are necessitating substantial changes in the operations of all financial institutions. Wire transfer of funds and electronic bookkeeping have become commonplace in many areas of banking. As a result, mounds of labor intensive paperwork have been eliminated. A comprehensive nationwide network of electronically linked banks is foreseen for the future. The new system is evolving under the general name of electronics funds transfer system (EFTS). Innovators of EFTS foresee continued elimination of labor-intensive paper handling with increased speed in transactions and reductions in operating costs.

Many local and regional innovative electronics funds transfer systems are in operation. For example, in February of this year the Iowa Transfer System acclaimed itself the first operational statewide banking network; this network involves about 550 out of the 661 Iowa banks and has the capability of switching on-line transaction messages between participating banks and performing daily settlements proceeding through the Federal Reserve System.

Increased use of magnetic bank cards and EFTS hardware will tend to reduce the growth of demand balances held at commercial banks and blur the distinction between demand deposits and interest-bearing deposits as consumers are able to transfer funds instantaneously from interest-bearing accounts to demand accounts. Moreover, as the issuance of third-party instruments—NOWs and share drafts—by thrifts becomes more widely permitted the primary distinc-

tion now enjoyed by commercial banks will disappear. Regulatory change will be induced as technological advances continue to exert pressures in the marketplace.

Industry competition

Traditional analyses of competition within the financial industry segregate commercial banks, mutual savings banks, savings and loan associations, and credit unions into separate "lines of commerce." For example, in bank merger and holding company acquisition cases, the Supreme Court has decreed that "commercial banking" is a relevant line of commerce to be used in analyses of competition. However, the assertion that the different and many services offered to the public by commercial banks constitute only one distinct service, or a distinct bundle of services, called "commercial banking," is not intuitively appealing nor realistic. Many distinct product lines of financial services are offered by different kinds of firms within the financial industry. Commercial banks most certainly compete with thrifts for deposits and certain types of loans. Moreover, from the point of view of the thrift institutions, commercial banks are full, 100 percent competitors offering virtually the same services to the public.

On the liability side of the balance sheet commercial banks compete with all thrifts for time and savings deposits, but compete only with other commercial banks for demand deposits (although NOW instruments and share drafts offered by thrifts currently offer effective competition in a few states).

On the asset side of the balance sheet the competitive structure is significantly more diverse among the depository institutions. Commercial banks can offer a full spectrum of loans whereas thrifts are restricted, by law, to offering certain specialized types of loans. Furthermore, other closely related financial entities, such as finance companies, retail outlets, life insurance companies, and government-supported finance agencies, are important asset competitors for both thrifts and commercial banks.

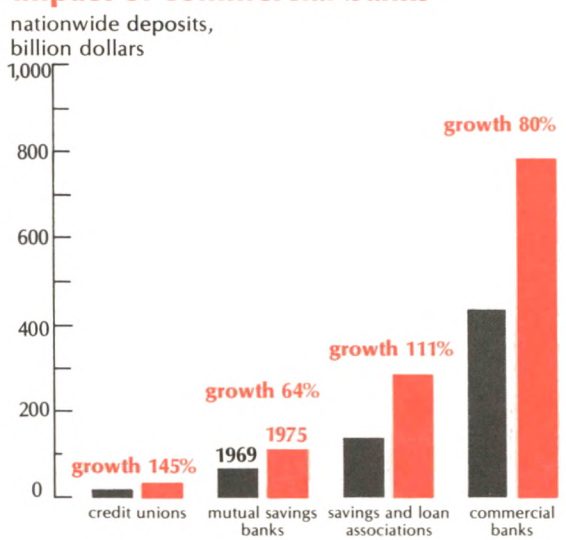
Commercial banks have a competitive advantage by being able to offer a "full line" of financial services to the public, as opposed to the restricted range of services being offered by the thrifts, i.e., the one-stop convenience at a commercial bank has definite customer appeal.

Credit unions are somewhat unique with respect to their customer base. They cannot compete in the public domain, but must restrict their customer solicitation to the membership of the organization with which the credit union is associated. This limited access to credit unions severely restrains their sizes, relative to other financial organizations. While credit unions operate with certain disadvantages, they do enjoy some advantages, such as subsidized office space and management, tax-free status, and the ability to pay higher interest on savings to depositors.

Nationwide analysis

Commercial banks hold, by far, the largest share of aggregate national deposits. At year-end 1975 banks held about 64.6 percent ($786 billion) of the nation's total ($1.2 trillion). The national market shares held by

The high growth of credit unions is overshadowed by the dollar impact of commercial banks



the four depository institutions have shifted slightly in the recent past. Since 1969 commercial banks and mutual savings banks have lost some market shares to savings and loan associations and credit unions. The commercial banks' share of total national deposits has decreased about 2.2 percentage points; and the share held by mutual savings banks decreased by about 1.2 percentage points. The shares held by credit unions and savings and loan associations increased 0.7 and 2.7 percentage points, respectively.

Deposit growth comparisons between the depository institutions show increases across the board. While commercial banks enjoy the dominant position by holding the vast majority of total deposits, their growth over the period 1969-75 has been less than that of either S&Ls or credit unions. Credit unions show the most impressive growth; however, the relatively large growth of 145 percent becomes less impressive when dollar amounts are viewed. The dollar aggregate increase in deposits over the 1969-75 period for credit unions has been only $19.9 billion as compared to a $350.7 billion increase for commercial banks. While growth has been less for commercial banks, the 62.2 percent share of aggregate deposit increases acquired by commercial banks more accurately reflects the dominant position of commercial banks among the four depository groups.

While the depository institutions all compete for time and savings deposits, the structure of asset-related competition is quite different and includes other types of financial institutions.

Aggregate deposit increases over period from 1969-75

	Growth in billions	Percent
Commercial banks	350.7	62.2
Savings and loans	150.5	26.7
Mutual savings banks	42.9	7.6
Credit unions	19.9	3.5
TOTAL	564.0	100.0

Analysis of instalment loans introduces finance companies and retail outlets as significant asset competitors of credit unions and commercial banks. The asset portfolio of credit unions is primarily composed of consumer instalment loans (for the most part S&Ls and mutual savings banks are not permitted to make instalment consumer type loans). Commercial banks are the primary and dominant competitors in the instalment loan market, holding nearly half of the total nationwide market. Note that both commercial banks and credit unions have increased their market shares at the expense of finance companies and retail outlets, shifting more of this specific loan market under the umbrella of depository institutions.

Nationwide aggregate instalment loans by lenders

	1965	1975
	(percent)	
Commercial banks	40.9	46.8
Credit unions	10.3	15.7
Finance companies	33.6	24.0
Retail outlets	13.8	11.3
Others	1.4	2.2
	100.0	100.0

SOURCE: *Federal Reserve Bulletin.*

The data here are aggregated as if the consumers of instalment loans were a homogenous group. This may not be the case and a caveat is in order. It is possible, for example, that a significant portion of finance company borrowers are in a different risk class—a low-risk instalment loan borrower would most likely be accommodated by *all* the lending institutions, but a high-risk borrower might be turned down by a conservative commercial bank yet be accommodated by a finance company, which typically charges higher interest

rates to accommodate the higher risk.[2]

Another major category of asset competition for depository institutions is mortgage lending. The asset portfolio of both mutual savings banks and S&Ls is composed primarily of mortgages (to a much lesser degree they also deal in property improvement loans). Their primary competitors for mortgages are commercial banks, life insurance companies, and federally supported agencies.

Nationwide aggregate mortgage loans outstanding on one- to four-family nonfarm homes

	1965	1975
	(percent)	
Savings and loans	44.3	40.6
Commercial banks	14.3	17.2
Mutual savings banks	14.1	10.3
Life insurance companies	13.9	4.0
Federally supported agencies	3.0	12.8
Others	10.4	5.1
	100.0	100.0

SOURCE: *Savings and Loan Fact Book, 1976.*

The data indicate that savings and loan associations and commercial banks significantly increased their market shares of mortgage loans during the 1965-75 period, mostly at the expense of life insurance companies and "others." Although mutual savings banks specialize in mortgages (and are operationally similar to S&Ls), their share of outstanding residential mortgages is much smaller. The reason for the smaller and declining market share of mutual savings banks is that they have significant representation in only about 10 states, all in the northeastern United States, and token representation in seven other states (for example, in the Seventh Federal Reserve District three mutual savings banks are located in Wisconsin and four in Indiana).

Further comparison of the depository institutions shows that credit unions—holding the least aggregate deposits of the four groups—far outnumber the other depository groups combined. And while continuous deposit growth has occurred within each group, the inverse is generally true with respect to total number of firms. (See table at top of next page.) Over the 1969-75 period the change in the number of institutions is negative for all groups except commercial banks. However, the competitive status of commercial banks is a special case because of the effect that the holding company movement has had upon the commercial banking structure. Although the number of commercial banks has increased over the period, the total number of banking organizations has decreased, following the trend of the thrift institutions.

Growth of depository institutions and the concomitant decline in the total number of firms in the industry implies that a concentration of financial resources is taking place. However, bona fide markets for the subject institutions are believed to be more local in nature. The U.S. Supreme Court has consistently expressed the relevance of local markets for commercial banks, and relevant markets for other depository institutions would, in all likelihood, be similar.

A decreasing number of firms at the national level does not necessarily mean that concentration is actually increasing at the local market level. It is possible for increases in aggregate concentration to occur at either the national, regional, or state levels without similar increases occurring in local markets.

[2] A related question is whether or not instalment loans offered by the different financial institutions are true substitute goods. This is an empirically testable question using the theoretical tool of "cross elasticities of demand." However, the difficulty of data collection for this type of analysis renders the exercise beyond the scope of this article.

The theoretical tool, "cross elasticity of demand," can be used to determine if one product or service is in competition with and is a substitute for another. It is computed as follows:

$$E_{a,\,b} = \frac{\text{percent change in quantity demanded of product a}}{\text{percent change in price of product b}}$$

A positive cross elasticity between two products indicates that they are substitute goods to some degree and are therefore competitive products.

Nationwide growth comparisons of depository institutions

	Number of institutions 1969	Number of institutions 1975	Percent change
Commercial banking organizations*	13,035	12,779	- 2.0
Savings and loans	5,835	4,964	-14.9
Mutual savings banks	496	476	- 4.0
Credit unions	23,876	22,812	- 4.5
TOTAL	43,242	41,031	- 5.1

*Commercial banking organizations reflect the consolidating effect that bank holding companies have had upon the commercial bank structure; the number of individual commercial banks increased 7.1 percent over this period.

SOURCES: *Federal Reserve Bulletin; CUNA Yearbook; National Fact Book of Mutual Savings Banking; Banking and Monetary Statistics, 1941-70.*

For example, a multibank holding company that expands throughout a state by acquiring banks in several *different* markets would not cause increased concentration in any specific local market; however, statewide analysis would show an aggregate concentration increase due to the elimination of the acquired banks as individual competitors. Similar analysis can be extrapolated to regional and national levels.

State-level analysis

The competitive relationships between depository institutions can be more meaningful at the state level than at the national level. At the state level financial groups tend to be more homogeneous because each category of institutions must generally abide by the same state-imposed regulatory constraints (with some exceptions between state and federally chartered institutions) and face generally the same regional economic environment.

Of the five states represented in the Seventh Federal Reserve District, the Wisconsin financial structure seems to be most representative of financial institution national norms and is selected as the sample state from the Seventh Federal Reserve District to analyze in terms of changing competition between the depository institutions.

The State of Wisconsin displays a reasonably good cross section of liberal institutional operations. It has token representation of mutual savings banks (three), very representative operations of savings and loan associations and credit unions, and state law allows multibank holding company operations and limited branch banking. By contrast, the state of Illinois, the most structually restrictive of the five states in the District, does not allow multibank holding companies or mutual savings banks, and branch banking is severely restricted.

Wisconsin depository institutions vs. national norms
(year-end 1975)

	Number of depository institutions		Depository institution deposits	
	Wisconsin	Nationwide	Wisconsin	Nationwide
	(percent)		(percent)	
Commercial banks	44.0	34.1	68.6	64.6
Savings and loans	8.7	11.6	27.8	23.5
Credit unions	47.2	53.2	3.4	2.8
Mutual savings banks	0.1	1.1	0.2	9.1
TOTAL	100.0	100.0	100.0	100.0

SOURCES: *Federal Reserve Bulletin; CUNA Yearbook; National Fact Book of Mutual Savings Banking.*

In view of the continuing pressures toward regulatory changes and the penchant of thrift institutions to innovate close substitutes for demand deposits, the following question is pertinent: "What would be the effect on the deposit structure of depository institutions if a change in regulation gave demand deposit powers to the three groups of thrift institutions?" To evaluate this question, the following assumption will be made: the vesting of full demand deposit authority in all four depository institutions would bring about a shift in demand deposits out of commercial banks and into the thrifts until the share of demand deposits held by each group was equal to its current statewide total deposit share.

Under the foregoing assumption commercial banks in Wisconsin would lose, in the aggregate, about $1.7 billion of demand deposits, or 7.6 percent of total state deposits. Savings and loan associations would receive the lion's share, gaining about $1.5 billion in demand deposits; credit unions and mutual savings banks would reap nominal increases.

However, the shift in demand deposits away from commercial banks is, in all likelihood, grossly overstated, at least in the short run. All depository institutions have expertise in their respective areas of operation, and expertise in new areas of operations cannot be acquired rapidly. Moreover, the institution wih competitive advantages in each area of operation would concentrate on the maintenance of those advantages and thereby discourage entry by others. Customer loyalty would also tend to impede the demand deposit shift.

A recent study of NOW accounts in Massachusetts and New Hampshire suggests a demand deposit shift of about 1 percent from commercial banks to NOW accounts at thrifts after two years of NOW experience in those two states.[3] Commercial banks in these states also had NOW authority; thus, they competed with the thrifts for NOWs and the shift was relatively small. It seems likely that the deposit shift of 1 percent might have been less or totally insignificant if commercial banks had been paying interest on demand deposits.

The result of a deposit shift in Wisconsin as hypothesized herein would be a long-run extreme case and would probably never be reached due to the rigidities within each institutional area of operation. Moreover, it is intuitively plausible that a shift of deposits would be greatly diminished or insignificant if commercial banks were allowed to pay interest on demand deposits, issue NOW accounts, and/or pay the same rate as thrifts on time and savings deposits.

Local market effects

Contrary to standing Supreme Court dictum, it is generally believed that commercial banks and thrifts compete in certain product and service lines.[4] From the standpoint of thrifts commercial banks are 100 percent competitors because commercial banks offer many more product lines and services than do thrifts. An increasing homogeneity in the demand deposit category adds a new product line to thrifts (they would still view commercial banks as 100 percent competitors); however, commercial banks would view the change as a new group of demand deposit competitors infringing upon their monopoly rights.

In order to ascertain the competitive impact in a local market that would occur by

[3]John D. Paulus, "Effects of NOW Accounts on 1974-75 Commercial Bank Costs and Earnings," Staff Paper, Board of Governors of the Federal Reserve System, August 1976, pp. 6.

[4]In the case of *U.S. v. The Connecticut National Bank*, U.S. Sup. Ct., No. 73-767, June 26, 1974, the Supreme Court reaffirmed its position that commercial banking is a specific line of commerce and that commercial banks and mutual savings banks do not compete. However, it is common knowledge that most bankers view thrifts as competitors and that, most certainly, thrifts view commercial banks as competitors. Others are also beginning to view clearer distinctions of competitive product lines between the depository institutions. For example, in the Board's Order of February 22, 1977, the retention of Empire Savings, Building and Loan Association, Denver, Colorado, by the bank holding company, D.H. Baldwin Company, Cincinnati, Ohio, the Board agrees that ". . . banks and savings and loan associations are competitors in several product or service lines . . .."

allowing thrifts to issue bona fide or close substitutes to demand deposits, the Madison, Wisconsin, financial institutions market was selected. Dane County is a good approximation of the local Madison market, having a wide representation of financial institutions (except that none of the three mutual savings banks of Wisconsin are located there). The reasonableness of this market approximation is suggested by the facts that the city of Madison is located in the center of the county and acts as a financial center for the area, and that the Federal Reserve Board has defined Dane County as the relevant market for assessing the competitive effects of proposed bank acquisitions in the past.

Madison financial institutions market—approximated by Dane County, Wisconsin
(December 31, 1975)

Financial institutions	No. of firms	Deposits			Herfindahl index
		Demand	Total	Percent	
		(million dollars)			
Commercial banks	37	327.9	910.8	58.7	.089
Savings and loans	10	0.0	559.4	36.1	.317
Credit unions	51	0.0	80.5	5.2	.124
TOTAL	98	327.9	1,550.7	100.0	.072

Note: No mutual savings banks are located in Dane County.

SOURCE: Report of Condition: *Annual Report, Wisconsin Savings and Loan Associations*; *Annual Report, Wisconsin Credit Unions*.

Granting demand deposit-like powers to thrifts in the Dane County market would increase the number of competitors of commercial banks by 61 and would decrease concentration in the market as indicated by the aggregate Herfindahl Index of .072.[5] While this aggregate index does not appear very much lower than the Herfindahl Index of the commercial bank category (.089), it nevertheless indicates the potential for increased competition resulting from all institutions being permitted to offer demand deposit accounts.

In a market like the Madison market, where there are many competitors, the concentration index is expected to be low, and as new competitors emerge, declines in the index should also be small. However, in a market where fewer institutions compete, the magnitude of the deconcentration change would be much more significant. For example, in rural markets few (sometimes only one) commercial banks compete; if just one thrift institution emerged as a demand deposit competitor, the decrease in the concentration index would be substantial, indicating a highly favorable expected effect upon competition.

To allow demand deposits (or close substitutes) to be issued by thrifts as well as banks would make the public the immediate beneficiaries. A procompetitive change of this nature would give new alternative sources of checking account services to the public and, under current regulatory arrangements whereby thrifts are allowed to pay a quarter percentage point higher interest rate on time and savings deposits, consumers would gain the option of holding a checking and savings account at the same institution without sacrificing interest paid on savings deposits. However, if Regulation Q constraints are concomitantly abolished as suggested by the various commission studies and/or commercial banks are allowed to offer NOW accounts (supported by the Federal Reserve System), the interest rate differential between thrifts and commercial banks would probably disappear and the shift of customers to thrifts is likely to be minimal and dictated

[5]The Herfindahl Index is a numerical measure of market concentration. The index attains the maximum value of 1.0 where a single firm operates in a market and the value declines with increases in the number of firms, increases with rising inequality among any given number of firms, and vice versa. See the June 1975 issue of *Business Conditions*, "Bank holding companies—concentration levels in three district states," for further information on Wisconsin market concentration and a more detailed explanation of the Herfindahl Index.

by convenience of location. The number of firms offering checking account services to the public would be substantially increased and net public benefits would most likely result.

Summary and conclusions

The forces of change are causing the financial services of each depository institutional group to blend together. Commercial banks are making deeper inroads into consumer loan and residential mortgage markets. Also notable are innovative inroads by thrifts into close substitutes for demand deposits. Some demand deposit redistribution from commercial banks to thrifts will most likely occur as thrifts gain more demand deposit-like powers; however, any adverse effects upon commercial banks would not be catastrophic and the demand deposit shift would appear to be minimal to nil if deposit restrictions were made equal for all depository institutions.

In the aggregate the number of depository firms is decreasing. If this trend continues, concentration increases could begin to jeopardize local market competition; however, this trend will be offset somewhat as the thrifts gain expanded powers to enter into more financial product lines.

Jack S. Light