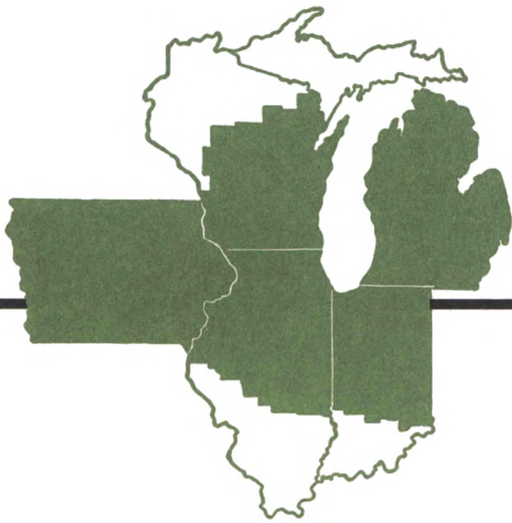
A review by the **Federal Reserve Bank of Chicago**

Business Conditions



1967 October

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Federal funds, how banks use the market

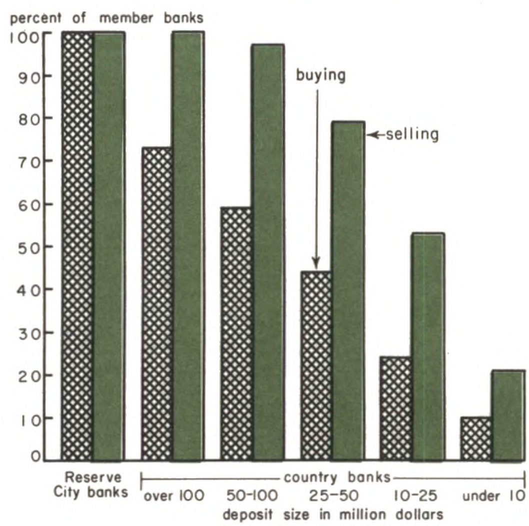
Of all the market instruments banks use to mobilize short-term money, *Federal funds* are the shortest and most flexible. A member bank in the Federal Reserve System with surplus funds in its reserve account can lend (sell) them to another bank that wants to borrow (buy) reserves. Unlike most other loans or asset adjustments, these transactions affect the cash positions of the participating banks immediately and are reversed the following business day.

Through these arrangements, a large amount of reserves is moved about within the banking system every business day. A selected group of the nation's major banks report daily transactions averaging well over 4 billion dollars, and the "Federal funds rate" is widely used as a barometer of money market pressures.[1] Most of the dollar amounts traded daily in the Federal funds market involve very large banks—those with deposits of more than a half billion dollars. Some of their operations are undertaken as accommodations to smaller banks that keep correspondent balances with them, providing a channel through which the smaller banks can gain access to the national money market.

Data reported to the Federal Reserve Bank of Chicago since last fall record the actual amounts of Federal funds purchased and sold daily by each member bank in the Seventh Federal Reserve District. This information provides an up-to-date indication of the extent to which banks of different sizes participate in this market, the overall effect of their transactions on the supply and demand for funds and the pattern of their activities through a six-month period.

These data confirm that as a source of cash to meet short-run needs, Federal funds are still mainly a tool of large banks. The data show, however, that the market constituted a very important investment outlet to smaller banks and that the flow of funds from the smaller banks was both significantly large and remarkably stable over the period studied.

Participation
in Federal funds market
drops sharply with bank size*



*Based on reports for January 5 to June 21, 1967

[1]Transactions reported daily by 46 banks are published with related reserve position items every month in the *Federal Reserve Bulletin*.

There were 995 member banks in the Seventh District in January 1967. The 26 largest banks in Chicago, Detroit, Milwaukee, Indianapolis and Des Moines are classified as Reserve City banks. All others are "country" banks. In the main, the country banks are smaller, although there are 33 with deposits in excess of 100 million dollars.

A total of 450 banks reported at least one transaction in Federal funds during the 12 biweekly country bank reserve periods in the first half of 1967. Included were all the Re-

What are Federal funds transactions?

Federal funds is a short term for *Federal Reserve funds*—deposits in Federal Reserve Banks. All member banks maintain such deposits, which serve as working balances as well as legal reserves.

Federal Reserve wire facilities can be used to transfer funds between two banks that have balances in Federal Reserve Banks. Such transfers are made constantly in the ordinary course of business.

Federal funds transactions are one-day loans of these balances, or claims to them, at specified rates of interest, that result in immediate adjustments in the cash positions of the banks involved.

The transactions can be negotiated directly between the participating banks, or through brokers. The seller instructs its Federal Reserve Bank to transfer the funds to the buyer on the day the loan is made, and the buyer repays the following business day by instructing the Federal Reserve to transfer the funds back to the seller.

Although Federal funds transactions are mainly unsecured overnight interbank loans, individual contracts can take other forms and occasionally involve nonbank participants. But all such transactions are basically the same: they permit a bank to acquire or dispose of immediately available funds.

At the close of each reserve period (a period in which average reserves must at least equal the percentage of average deposits required by law) all Seventh District member banks report their Federal funds purchases and sales to the Federal Reserve Bank of Chicago. These reports supplied the statistical evidence used in this article. The banks report their transactions according to the following instructions for the preparation of official reports of condition:

> Include as Federal funds sold (bought) . . . all transactions involving the disposition (acquisition) of immediately available funds for one business day only, at a specified rate of interest . . . .
>
> Include all transactions through credits (debits) to new or existing balances due from a correspondent bank (due to depositors) when such transactions otherwise meet the above definition.
>
> Include all sales (purchases) that meet this definition that are made with other commercial banks, Government securities dealers, foreign agencies, and any other firm, institution or organization. However, transactions with (borrowings from) a Government securities dealer which are secured by Treasury securities or any other form of security issue should not be classified as a Federal funds sale (purchase).
>
> Do not include in this item any sales (purchases) under contracts which are specifically written to mature in two or more business days, or require advance notice to terminate. But all continuing contracts, which are defined as those which remain in effect for more than one day but have no specified maturity and do not require advance notice to terminate, should be included.

serve City banks, all the country banks with deposits of more than 100 million dollars and all but 3 percent of country banks with deposits between 50 and 100 million dollars.

Participation declined with bank size, especially with respect to the purchase of funds. Among the smallest banks (those with deposits of 10 million dollars or less) only 10 percent purchased funds, while 21 percent reported funds sold during the period. Half the District's member banks are in this smallest size category.

The number of District country banks reporting Federal funds transactions this year is nearly twice the number estimated three years ago. The entrance of more banks into the market reflects several factors, including greater knowledge of the market, its greater accessibility and greater incentives to use it.

In recent years both rising costs and the higher interest rates available on all types of investments have encouraged smaller banks to move toward more efficient management of their cash and fuller use of available resources. At the same time, fewer liquid assets and strong loan demands have increased the need for a reliable way to obtain short-term funds. Even more important perhaps is the increased willingness of some large banks to buy or sell Federal funds as a service to correspondents and to deal in smaller amounts than the traditional 1 million dollar minimum trading unit. A few country banks reported transactions as small as $25,000.

In addition, small sales have been facilitated through the practice of some city correspondents transferring part of the deposit balance of country banks (the part exceeding the amount required for clearing operations and as a compensation for correspondent services) to bills payable accounts on which interest is paid. Although this bookkeeping transfer does not actually increase the available funds of the "buying" bank, it has the effect of retaining funds that might otherwise be drawn away. Such transfers can be made for nonmember as well as member banks, but they are not handled through reserve accounts held at the Federal Reserve. They are, nevertheless, considered Federal funds transactions.

District has net inflow . . .

During the first half of 1967, Seventh District member banks bought an average of 850 million dollars a day in the Federal funds market, while their gross sales averaged 730 million dollars—a net daily average inflow of 120 million dollars. Eight large city banks with transactions included in the published series accounted for 630 million dollars of the purchases and 220 million of the sales.

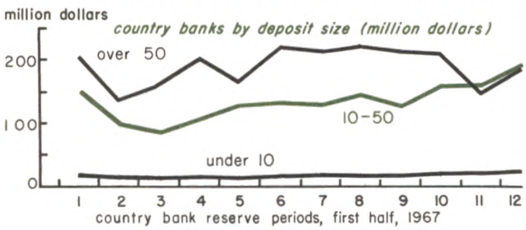
The high concentration of purchases and sales at a few banks is partly a function of the size of these banks. (They account for more than a third of the deposits of all member banks in the District.) But it also reflects the role these banks play as intermediaries in the

Daily average transactions
in Federal funds, January 5 to June 21, 1967

Seventh District member banks	Total banks	Purchases	Sales	Net purchases
	(number)	(million dollars)		
Reserve City banks				
Largest Chicago	5	545.0	180.7	364.3
All other	21	262.3	168.9	93.4
Country banks by deposit size (million dollars)				
Over 100	33	15.6	110.4	−94.8
50-100	73	18.0	111.2	−93.2
25-50	117	6.1	84.8	−78.7
10-25	247	2.4	57.6	−55.2
Under 10	499	2.1	18.4	−16.3
All banks	995	851.5	732.0	119.5

Large city banks
had net purchases of funds throughout first half of 1967 . . .

. . . while country banks had net sales



*Daily averages for two-week periods.

Federal funds market—acting as both buyers and sellers on any given day but with a net position for the reserve week that is presumably in accord with their own needs.

On an average day between January and June, the five largest banks in Chicago together absorbed 364 million dollars through Federal funds transactions. Other Reserve City banks were also net buyers of funds. Together, all Reserve City banks accounted for nearly 95 percent of gross purchases and about half the total sales. The average net amount of funds they acquired from the market was equal to about a fourth of their aggregate required reserves. The net purchases of a few banks exceeded their required reserves, on the average.

Sales by country banks of all sizes, on the other hand, were substantially greater than purchases, with a daily net of 338 million dollars of funds supplied to the market during the six-month period. A considerable portion of these funds probably was sold to purchasers elsewhere in the District. Unlike the giant money market banks, individual country banks do not normally operate on both sides of the market at the same time. Some, however, are purchasers or sellers at any time, depending on their needs.

. . . although most banks sell

While District banks in the aggregate absorbed more funds from other areas than they supplied to them, only a small number of banks used the market as a source of funds. Of the 424 country banks that reported some activity in the Federal funds market, less than half indicated they had acquired funds through this channel. Most of those that acquired Federal funds reported purchases on less than ten days out of the 168 days studied—including Saturdays, Sundays and holidays on which transactions remained outstanding from the previous business day. Nevertheless, 19 country banks were in the market exclusively as buyers, and 11 of them were banks with total deposits of less than 10 million dollars.

Except for the large city banks, most participants sold funds much more frequently than they bought them, with most of the sellers in the market at least a fourth of the time. Sixty country banks reported sales on more than 150 days.

As might be expected, the aggregate dollar amount of transactions by small banks did not add greatly to the overall activity. Banks with deposits less than 50 million dollars—85 percent of the District's member banks—accounted for only 22 percent of the funds

Frequency of transactions
in Federal funds market,
January 5 to June 21, 1967*

Seventh District member banks	Largest Chicago banks	Other Reserve City banks	Country banks by deposit size (million dollars) Over 50	10 - 50	Under 10
	(number of banks)				
Total member banks	5	21	106	364	499
Banks reporting purchases on					
No days	0	0	41	252	449
1-10 days	0	0	29	67	32
11-25 days	0	5	18	29	9
26-100 days	0	4	11	15	5
101-150 days	0	1	4	0	2
Over 150 days	5	11	3	1	2
Banks reporting sales on					
No days	0	0	3	142	394
1-10 days	0	0	3	17	16
11-25 days	0	0	6	16	9
26-100 days	0	10	42	107	40
101-150 days	1	6	39	54	21
Over 150 days	4	5	13	28	19

*A total of 168 days, including Saturdays, Sundays and holidays on which transactions were outstanding.

Range of individual bank transactions
in Federal funds, January 5 to June 21, 1967

Seventh District member banks	Daily average* largest amount Purchased	Sold	Single day amounts purchased Lowest	Highest	Single day amounts sold Lowest	Highest
			(thousand dollars)			
Reserve City Banks						
Largest Chicago	216,508	65,981	100	495,800	150	384,600
All other	78,009	24,316	70	120,000	100	75,000
Country banks by deposit size						
(million dollars)						
Over 100	7,531	20,836	100	20,800	100	60,000
50-100	4,620	6,414	50	12,200	100	22,300
25-50	792	5,063	30	7,500	50	13,000
10-25	379	2,511	100	2,600	100	4,500
Under 10	282	1,324	50	1,500	25	1,800

*Average of 168 days including Saturdays, Sundays and holidays on which transactions were outstanding.

sold and an insignificant share of funds purchased.

Small banks that were active, however, occasionally reported large transactions relative to their size. Purchases as large as 1.5 million dollars on a single day were recorded for banks with deposits less than 10 million dollars, and while most small banks that bought funds did so infrequently, a few reported purchases nearly every day of the period. In a few cases, the daily average amount acquired was equal to nearly twice the bank's required reserves.

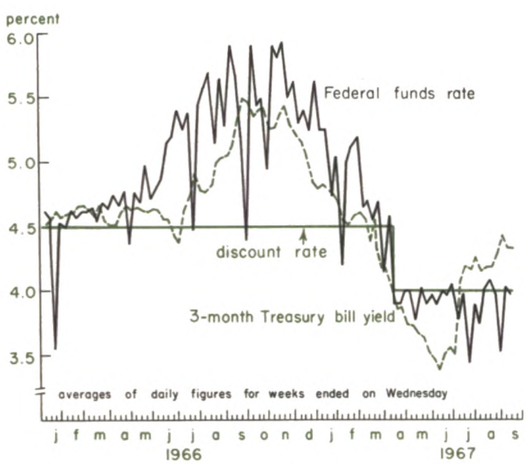
There were 22 banks with average daily sales of funds in the first or second quarter greater than 10 percent of their total deposits at the close of last year. Most of these had less than 10 million dollars in deposits. In a few cases, up to a fifth of deposit funds were invested in overnight loans to other banks.

For the most part, banks with relatively heavy sales were in the market almost continuously, often selling the same amount day after day for extended periods. For these banks, the market is not merely an adjustment mechanism through which to offset temporary imbalances between available funds and customer credit needs but an alternative to investments in securities or loans.

Why do banks invest such substantial sums for only one day at a time, when they could buy securities with equivalent yields? Not all bank managers are motivated the same, of course, but two factors of considerable importance earlier this year were the pattern of interest rates and the relatively low level of bank liquidity.

Because of the strong demand for Federal funds by large city banks, the interest rate remained high relative to the yield on Treasury bills and other short-term Government securities. On only 12 of 120 business days covered did the three-month bill yield exceed the effective Federal funds rate.[2] Moreover, earnings on Federal funds in 1966 had been very high. The effective rate averaged 5.11 percent for the year compared with a market yield of 4.85 percent on three-month bills. Although the differential is smaller when calculated on the basis of investment yield on bills, costs for buying and selling bills are greater than for Federal funds and liquidation of bills before maturity involves some risk of loss due to price declines. Federal funds loans are second only to cash in providing liquidity; they can be renewed or not every day as the seller chooses.

Rates paid for Federal funds exceeded yields on 3-month bills from mid-1966 to mid-1967



Stability over time

The positions of Seventh District banks as buyers and sellers in the market remained quite stable throughout the first half of the year. Country banks supplied funds in each of the 12 biweekly reserve periods, and the amount supplied by the smaller banks gradually rose. Fluctuations in net sales were greater for the larger country banks, reflecting the activity of the few fairly large country banks that occasionally buy or sell substantial amounts of funds.

The number of banks participating in the market at any one time was also stable. Among the large country banks—nearly all of which sold funds sometime during the six-month period—more than three-fourths reported transactions during every two-week reserve period. Even among the smallest banks, where only a fifth were in the market at all, at least 60 percent of the "active" banks were in the market every reporting period and at least a third reported sales every day.

The pattern of activity was not as regular for large city banks. While the amounts purchased varied greatly from day to day and week to week, the large banks as a group absorbed funds throughout the six months. While nearly half of them were net sellers, sales were persistently smaller in amount than purchases, reflecting heavy demands for funds by the largest banks.

Whether the 1967 experience is typical of longer periods cannot be determined on the basis of these data alone. But comparison of the activities of large banks with information available from the national series on Federal

[2]The rate paid on the largest volume of transactions reported by the Federal Reserve Bank of New York.

funds (where the five largest Chicago banks are shown as a separate category) suggests that the variation in the net position of these banks was probably smaller than normal in the first six months of 1967.

The national series, which goes back to 1959, shows that at times these banks have been on the sales side of the market for extended periods. A case in point is the experience during August and September of this year, when the large Chicago banks averaged net sales of 200 million to 300 million dollars a day. Preliminary tabulations for other banks during this time indicate increased net purchases by District Reserve City banks other than the big five and a sharp reduction in the net amount of funds sold by larger country banks. This was also a period when yields on short-term Governments moved above the Federal funds rate.

Short-run variation in sales

The amount of funds sold by country banks on a single day varied from a minimum of 225 million dollars to a maximum of 500 million. It is often assumed that the impact of country bank sales on the market is affected by the timing of their Federal funds transactions—that heavier sales late in the two-week period contribute to the ease in overall reserve availability that often develops toward the close of the period.

However, the daily sales figures for Seventh District banks do not indicate that reserve surpluses were regularly channeled into the Federal funds market at any particular time during the two-week period. In the first quarter of 1967, 48 percent of country bank sales were made in the first week of the average period and 52 percent were made in the second, with the distribution remarkably even within these periods.

Nevertheless, the volume of sales appears to drop sharply around the end of each month. This may be associated with the monthly pattern of float that tends to reduce the deposits of country banks toward the end of the month, when the amount of uncollected items is low. In the short run, country bank sales do not appear to be influenced significantly by the attractiveness of the Federal funds rate relative to the yield on Treasury bills. Recent experience clearly shows, however, that the larger banks reduce their

Percent of banks buying or selling Federal funds in periods of various lengths, January 5 to June 21, 1967

Seventh District member banks	Banks buying Federal funds: During 6-month period	During any two-week period: Minimum	During any two-week period: Maximum	On any day: Minimum	On any day: Maximum	Banks selling Federal funds: During 6-month period	During any two-week period: Minimum	During any two-week period: Maximum	On any day: Minimum	On any day: Maximum
	(percent of banks)					(percent of banks)				
Reserve City banks										
Largest Chicago	100	100	100	100	100	100	100	100	60	100
All other	100	62	90	52	81	100	67	90	33	76
Country banks by deposit size (million dollars)										
Over 100	73	24	42	6	27	100	85	97	33	82
50-100	59	18	27	3	18	97	78	86	37	68
25-50	44	9	25	1	13	79	59	71	24	59
10-25	24	4	10	0	4	53	33	41	13	32
Under 10	10	2	4	1	3	21	13	16	8	13

Distribution of Federal funds sold by District country member banks in an average reserve period*

Business day	Over 100	50-100	25-50	10-25	Under 10	All country banks
	Average proportion sold on each business day — Country banks by deposit size (million dollars)					
	(percent)					
1	9.7	8.0	9.1	8.7	8.9	8.8
2	10.5	10.2	10.4	10.7	10.0	10.4
3	10.5	9.3	9.8	9.8	9.8	9.8
4	8.6	10.3	9.9	9.8	10.4	9.6
5	9.0	9.5	9.2	9.8	9.6	9.3
(First wk.)	(48.3)	(47.3)	(47.4)	(48.2)	(48.7)	(47.9)
6	9.5	9.4	10.2	9.8	10.2	9.7
7	9.6	10.2	10.8	10.9	11.8	10.3
8	11.5	11.1	10.6	10.3	10.3	11.0
9	10.9	11.9	11.0	10.5	10.4	11.1
10	10.3	10.3	9.1	9.8	9.6	10.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Based on business day transactions only, beginning with first Thursday and ending with second Wednesday of two-week reserve periods in six reserve periods in first quarter of 1967.

sales of funds when the differential is negative for any sustained period.

Demand factors for city banks

Although aggregate country bank transactions are an important element in the market, major shifts in the supply-demand conditions of Federal funds mainly reflect changes in demand by big city banks. It is not unusual for buyers among the 46 banks in the national series to acquire a net of more than 3 billion dollars a day from the market. Individual banks may switch from net buyers to net sellers, and at times a large part of the total volume of transactions is between reporters in the 46-bank group. Nevertheless, many large banks tend to remain on one side of the market or the other for fairly long times.

Shifts from one side to the other have an important impact on the flow of funds and on the structure of rates in the money market. An individual bank can shift positions in response to changes in credit demand or deposit flows. Or, a change in a bank's position in the market can reflect other developments that have changed its liquidity position, such as the issuance of a block of CDs.

The large, continuous participants in the money market have many means available through which to match their cash inflows and outflows. Federal funds are clearly well suited to adjusting for day-to-day fluctuations in deposits and credits. At the same time, continuous net purchases can provide a substantial core of funds over longer periods, though at varying costs. Or, money expected to be needed to meet near-term loan demand can be sold on a day-to-day basis pending such demand.

The choice at any time is likely to be related to 1) the cost and availability of other sources of money and 2) expectations of future trends both in these elements and in loan demand. In a period when interest rates are expected to rise, some banks may prefer to pin down the funds they think they will need for sometime in advance. When money is expected to get cheaper, they may finance "short" to avoid being committed to unnecessarily high costs.

On the other hand, uncomfortably low liquidity can increase a bank's willingness to pay a bit more for longer-term funds. Legal and regulatory barriers can also limit the alternatives at times. In mid-1966, for example, Regulation Q ceilings on time deposit interest rates effectively barred banks from bidding for CD money.

The high rates on Federal funds throughout 1966 and the first half of 1967 reflected strong demands from major banks that could be attributed to a combination of factors:

- Early in 1966, heavy customer credit demands combined with the reduced ability to bid for time deposits (as the rates paid reached statutory ceilings) to sharpen the search for other sources of money.

- The ability of banks to gain funds for new loans by selling assets was severely limited by the shortage of securities in their portfolios that were not pledged against public deposits.
- Continuous borrowing at the discount window to satisfy loan demand was not considered an appropriate use of Federal Reserve credit.

Federal funds purchased, like other borrowings but unlike deposits, are subject to neither regulation of interest rate nor reserve requirements. By paying high rates on overnight money, the large banks were able to draw funds from the rest of the banking system. Such transactions do not, of course, increase the lending capacity of the banking system as a whole, except to the extent that large banks maintain a higher proportion of their resources in loans than do small banks.

Waning credit demands and easier monetary policy in the late fall and winter of 1966-67 saw little abatement in the demands of large banks for Federal funds. Rates dropped sharply but by less than yields on some other money market instruments. Not until after midyear—when many big banks had rebuilt a substantial amount of liquidity, regained and surpassed their previous peak levels of outstanding CDs and were receiving net loan paydowns—did they reduce their purchases markedly.

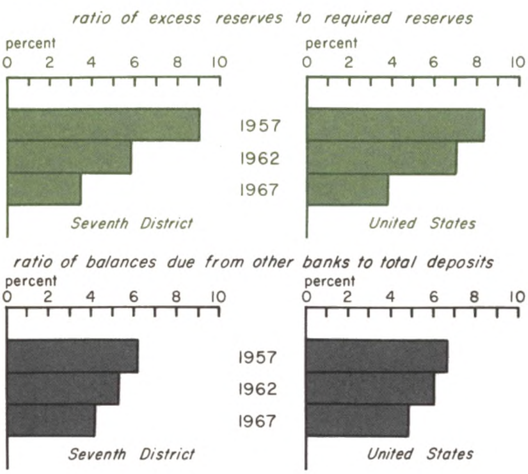
Less idle cash

The rate may weaken with lessened demand by large banks, but there appears little risk that small banks will find their correspondents deaf to offers of overnight money. In the competitive efforts to increase or just to retain the deposit balances of other banks, most large correspondent banks accept the purchase of excess funds as an important part of the correspondent service package.

As more and more smaller banks have sought ways to stay more fully invested, cash balances held with correspondents have been pared to the amounts considered necessary to compensate for services used. While the absolute amount of "due from" balances of country banks has continued to grow over the past ten years, it represents a declining proportion of their deposits. Meanwhile, the ratio of excess reserves to required reserves has been reduced nearly two-thirds.

The ability of small banks to acquire Federal funds in significant amounts is less certain. Although District reports indicate a few cases of nearly continuous purchases, most large banks appear to frown on the practice of their country correspondent's borrowing overnight money, except to cover very short-term needs. Nevertheless, it seems

Country banks
show relative decline
in cash assets over past decade



reasonable to expect that a broadening market and continued competition for bankers' balances will further widen the two-way channel for funds between large and small banks, especially in times when monetary conditions are relatively easy.

A more basic reason for the paucity of the buying activity of most country banks may stem from the distribution of credit demands. Most small banks are probably always in "surplus" situations, with deposit growth tending to outpace credit demands in the areas they serve. But in some cases, such surpluses may result from local bankers failing to recognize and satisfy credit needs in their communities.

In any case, recent experience has proved Federal funds a reliable—though sometimes costly—source of money for large banks, even in periods of monetary restraint. Such purchases have tended to redistribute both reserves and credit toward the money centers but in a form that allows quick recall by individual banks.

Shifts in District farming

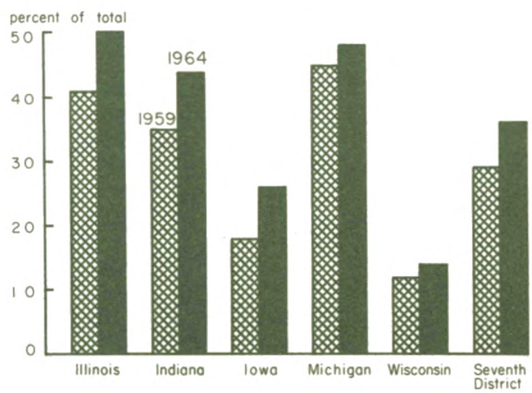
Strong rise in grain production

One of the more significant of many recent changes in Midwest farms has been the shift from production of livestock and livestock products to cash grain farming.

The proportion of cash receipts from crops marketed in the Seventh Federal Reserve Districts states increased from slightly less than 29 percent in 1959 to about 35 percent in 1964, based on the Census of Agriculture. Although there were fewer farms in 1964 than in 1959, the number of farms on which grain was a major source of income increased sharply both in number and as a proportion of the total of all farm types.

This shift in type of farm was especially evident in Illinois, Indiana and Iowa—the Corn Belt states of the District—but it also occurred in Michigan and Wisconsin. The proportion of cash grain farms (farms deriving 50 percent or more of their cash receipts from the sale of such grains as corn, small grains and soybeans) increased in Illinois from 38 percent of all farms in 1959 to 48 percent in 1964, from 20 percent to 28 percent in Indiana and from 18 percent to 24 percent in Iowa.

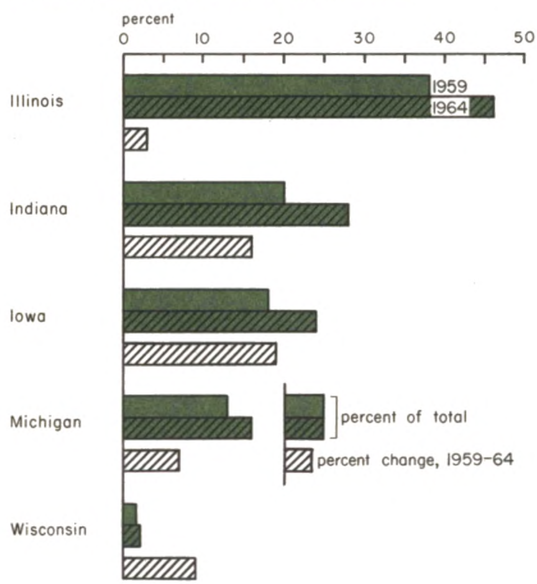
Rise in crop receipts reflects shift to cash grain farming



At the same time, dairy farms and meat animal farms declined in most District states, both in actual numbers and as a proportion of all farms. In Wisconsin, the nation's leading dairy state, dairy farms declined about 14 percent in number and from about 66 percent of all farms in 1959 to 62 percent in 1964. Dairy farms dropped about 20 percent in Michigan, but because of the equally sharp decline in other types of farms there, the proportion of dairy farms remained nearly the same. Almost all the decline, however, was confined to farms with small herds—the number of cows per acre actually increasing slightly in Michigan and Wisconsin.

Fruit and vegetable farms, although accounting for only a small percentage of all farms, are important in some specialized areas, especially along Lake Michigan. These farms increased somewhat relative to other types in Michigan and Wisconsin but declined or showed little change in the Corn Belt states. Poultry farms, also of minor importance compared with all farms, declined in number in all District states, though they gained slightly relative to other farms in Illinois and Indiana.

Cash grain farms increase



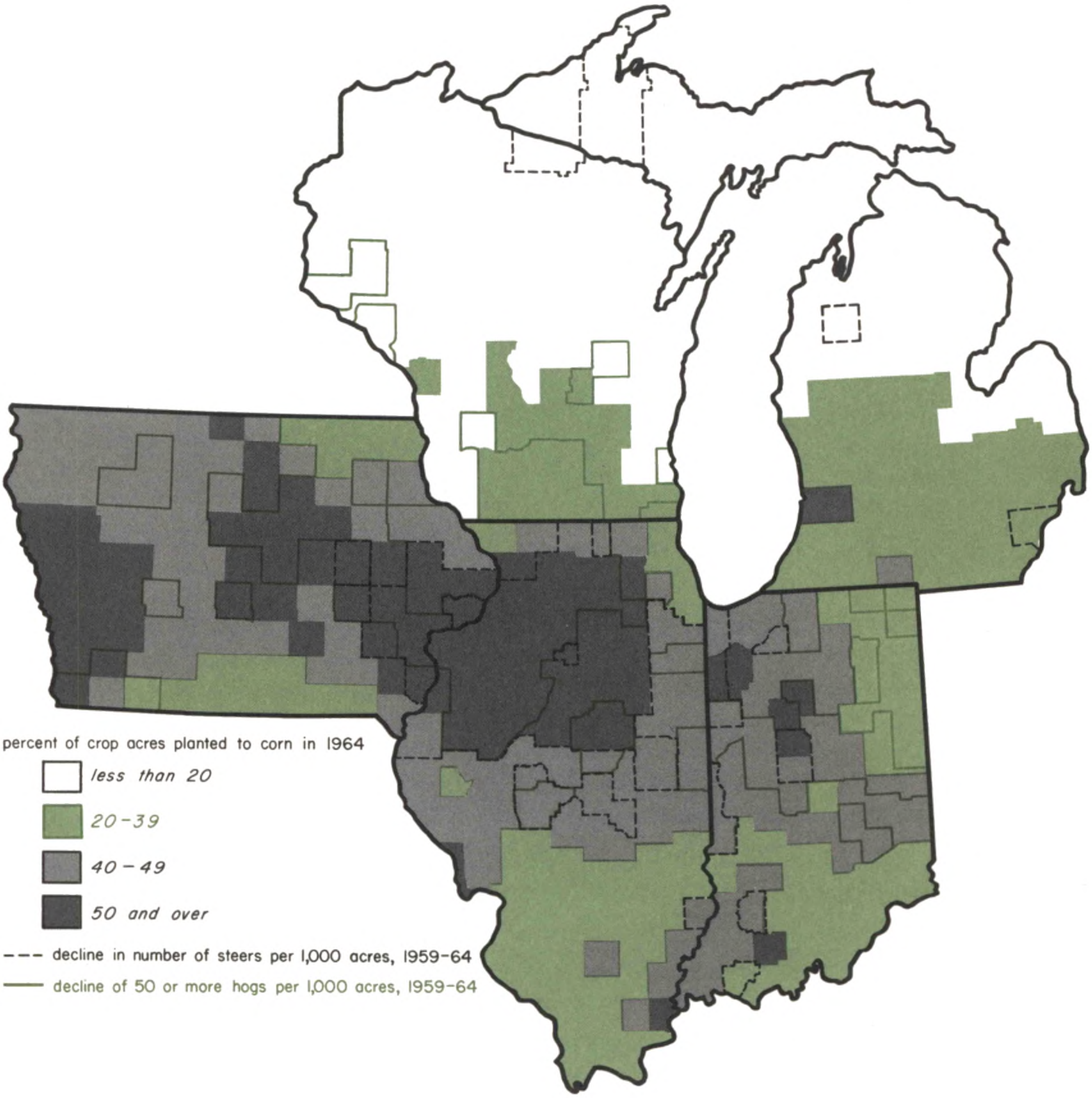
The number of meat animal farms also dropped sharply during 1959-64—down one-fourth or more in each Corn Belt state. Somewhat smaller declines in Michigan and Wisconsin reflected the more limited farming alternatives in those states.

Shifts within states were not even, but as might be expected, came in areas where the alternatives were presumably profitable. While hog production declined throughout most of the District, reflecting in part a cyclical downturn, the greatest declines were in the heavy corn producing areas. This area coincides roughly with the greatest concentration of hogs per acre. Hog production actually increased in some southern counties of Illinois and Indiana, an area of relatively light concentration of hog and corn production.

Cutbacks in beef production, too, were confined largely to the heavy corn producing areas. Although the number of cattle on farms increased overall in line with the cyclical upswing in cattle numbers, the number of steers per acre declined in northern and west central Illinois and in eastern Iowa. In the heavy corn producing areas of western Iowa, the number of steers increased, possibly reflecting the rapid increase in large feedlots and the growth of slaughter plant capacities in nearby areas. Steer numbers also increased in most counties of Michigan and Wisconsin, partly reflecting the shift from dairy to beef production on many small farms.

A variety of forces contributed to these developments, especially to the shift from the production of livestock to cash grain farming. Greater possibilities for mechani-

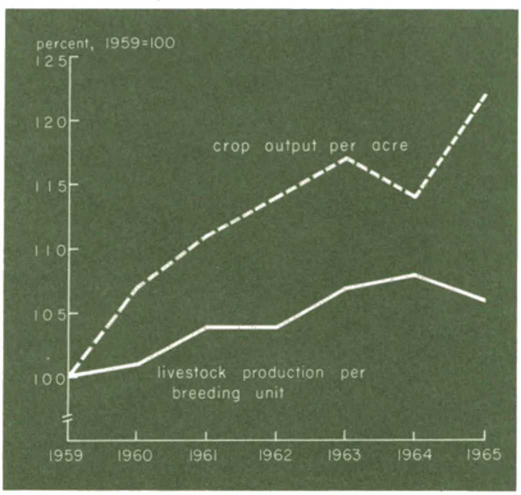
Livestock production has declined in heavy corn producing areas



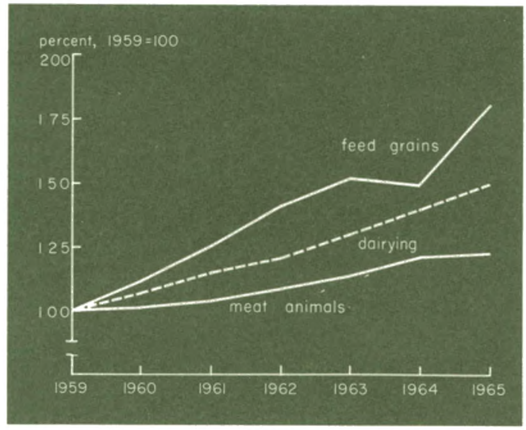
zation of grain farms than other farms have undoubtedly influenced the trend. Such field operations as planting, cultivation and harvesting have been increasingly mechanized, allowing crop farmers to do a given amount of work in less time. This, in turn, has often allowed them either to handle more acreage, intensify production or seek part-time employment off the farm—an opportunity not usually open to livestock producers.

Also, the development and adoption of other technological innovations have made the highly productive land in the Midwest more suited for intensive cropping. In past years, accepted cropping practices called for rotating row crops, such as corn and soybeans, with small grains and hay. These practices often encouraged a supplemental livestock program to make use of crops that could not otherwise be easily marketed. But in recent years special management practices, such as contour plowing and cultivation, have been used to control erosion. New hybrids have been developed that are resistant to

Crop production per acre shows sharp gain



Output per manhour increased rapidly for feed grains



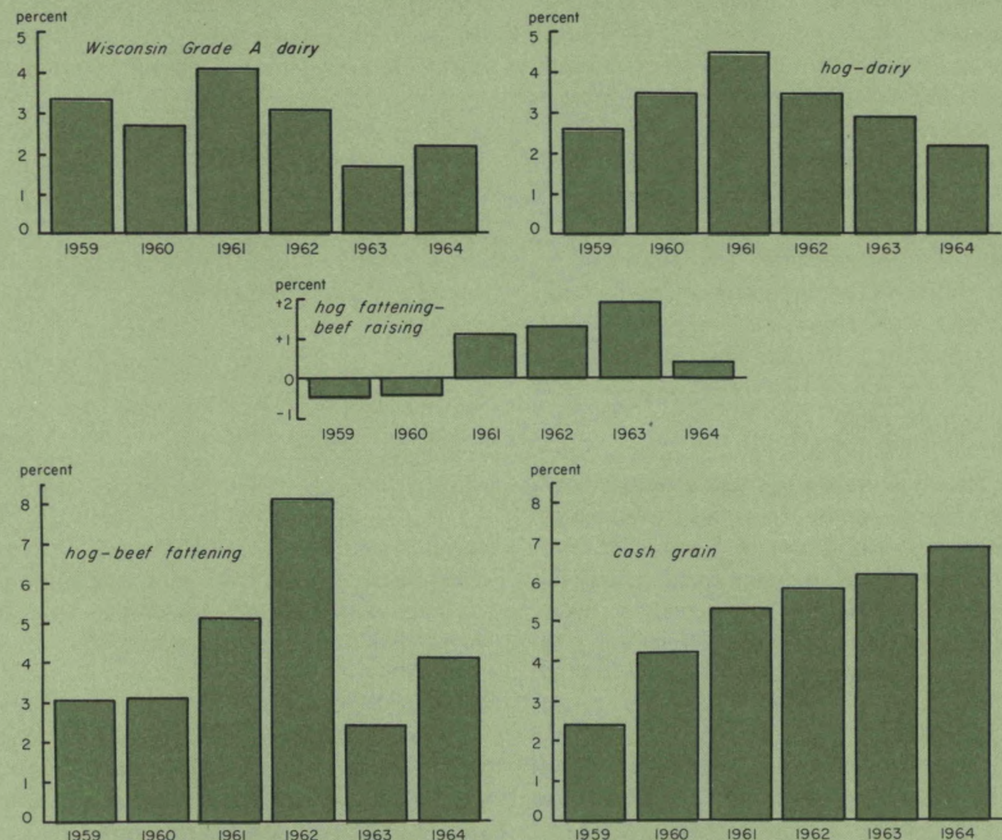
diseases and insects. New chemicals for weed and insect control have also aided in maintaining yields. Chemical fertilizers have been made available at a cost much less than the "cost" of growing legumes or producing fertilizer as a by-product of livestock production.

Primarily as a result of these developments, crop farmers have generally increased production more than livestock producers, relative to the land, labor and capital required. Crop production per acre, for example, rose about 14 percent during 1959-64. Corn production in the Midwest showed an even more dramatic rise—nearly 18 percent. Although the measure is not entirely comparable, livestock production per breeding unit increased only 8 percent.

The rapidly expanding productivity per worker on grain farms partly reflects increases in mechanization and per-acre yields. Production per man rose 80 percent for feed grains, compared with 50 percent for dairying and 23 percent on meat animal farms.

Returns on the capital of cash grain pro-

Cash grain farms experience steady rise in returns on capital



Note: Based on results of operation of typical or "representative" farms; labor was charged at average annual farm wage rate.

ducers in the Midwest also increased steadily throughout the period.While increased production and labor efficiency were partly responsible for the improved incomes of grain producers, Government price and income programs also helped boost the returns. Payments to crop producers in District states rose rapidly from 85 million dollars before the Agricultural Act of 1961 to 523 million in 1964. Where Government payments were equal to about 4 percent of cash receipts from the sale of crops in 1960, they had risen to 18 percent in 1964.

Reflecting the general improvement in the incomes of grain producers, returns averaged more than for other major types of farms. This undoubtedly encouraged farmers to shift away from lower income enterprises wherever possible. Returns to capital on representative cash grain farms in the Corn Belt, for example, averaged 5.1 percent during 1959-64, while Grade A dairy farms in Wisconsin returned only 2.8 percent, hog fattening-beef raising farms returned less than 1 percent and hog-beef fattening farms about 4.3 percent.

It is hard to say whether District farmers will continue to reorganize their operations in the direction they did in the early 1960s. Returns to livestock feeders and dairymen have improved markedly in the last two years. If it continues, this improvement would, of course, tend to moderate the extent of a further shift toward more extensive cash grain farming. The improvement in returns on livestock may have been only temporary, however, reflecting the very high prices of livestock in 1965 and 1966.

In any event, most of the other underlying factors contributing to the trend toward cash grain operations—such as the relative gains in production and labor efficiency and more opportunities for off-farm employment—are still present. This trend is likely to be extended further in areas more advantageously suited for crop production.

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