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District economy pushes ahead

Business activity in the Ninth district in recent weeks has exhibited a stronger than usual seasonal upturn. Construction activity is particularly strong, both in residential and other types of building. The volume of contract awards and new building permits is substantially up from a year earlier. The business recovery and subsequent expansion in the demand for steel is putting new vigor in the recently depressed iron ore mining regions of the district. This is verified by a big push so far this spring to produce and move ore from the iron ranges to the lower lake ports.

As might be expected, total nonagricultural employment is improving and particularly so in the construction and mining industries with increases of 5 percent and 9 percent, respectively, in March from year-ago levels. April figures are not yet available but further increases are anticipated on the basis of current operations in the steel industry at the national level.

Other indications of the upsurge in economic activity in the Ninth district compared with a year earlier are a 9 percent gain in adjusted department store sales and a 15 percent gain in bank debits during March.

District cash farm income continues to register gains over the same period a year earlier, reflecting last year's bumper crops and favorable crop and livestock marketings. However, the agricultural outlook is currently marred by the development

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this spring of drouth in much of the district. For example, winter wheat acreage abandonment in South Dakota is reported to be about 25 percent. Favorable future growing conditions for early planted small grains, however, could offset the disadvantage of the relatively dry winter and spring to this date.

The current district banking situation is characterized by a noticeable increase in the demand for bank loans, particularly commercial and industrial loans. A further increase in the demand for such loans is anticipated by many bankers as the business recovery proceeds. A relatively large number of district member banks have found it necessary in recent weeks to borrow from their Federal Reserve bank.

Summing up, a stronger than normal seasonal increase in business activity exists in the Ninth district this spring. The demand for credit has expanded. Bank deposits are up. Mining and construction activity are particularly strong, and spending, trade and employment trends all show modest improvement. The only sour note in the district's economic picture at the moment is the drouth situation and prospects for a smaller grain crop in 1959.

The following selected topics describe particular aspects of the district's current economic scene:

RETAIL SALES OUTLOOK BRIGHTENS

During the first quarter of this year, district retail sales did not expand as much as in the nation as a whole but the outlook for the second quarter is more favorable.

District department store sales in the first three months of this year showed a smaller percentage increase from a year ago than those in the nation. In January district sales were up 1 percent; in February, 10 percent; and in March, 5 percent as compared with comparable increases for the nation of 6 percent, 12 percent and 8 percent, respectively.

The registration of new cars also reveals a lag in the rise of district car sales. For the four states wholly in this district (Minnesota, Montana, North Dakota and South Dakota), registrations in January were down 5 percent and in February, up 9 percent from a year ago. In the nation, they were up 10 percent and 25 percent, respectively.

The Bureau of Census' sample of retail stores (which excludes sales of large retail chains) measures the sale of a wide variety of commodities. In the first three months, the increase in sales over last year in this sample of stores was also smaller in this district than in the nation. District sales for January were up 1½ percent and for February, 3 percent as compared with increases for the nation of 6 percent and 8½ percent, respectively.

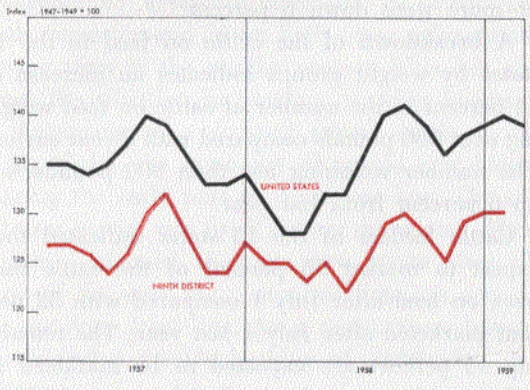
Despite the moderate nature of the 1957-58 economic recession in this district, retail sales as a whole declined sharply. In 1958, district department store sales just equaled the 1957 volume of receipts and in the nation, the index was up 1 percent. The registration of new cars in the four states wholly in this district for 1958 was down 18 percent from 1957 and in the nation, down 23 percent. In the Bureau of the Census' sample of retail stores, sales in 1958 were down 5 percent from 1957 and in the nation only 2 percent.

The outlook for district retail sales for the second quarter is more favorable even though the earlier Easter date 'siphoned' some of the usual April sales into the preceding month.

It now appears that farm income in this district will continue at a high level during the second quarter and, thereby, support a large volume of retail sales. For January and February, farm income was 4 percent above a year ago. And the income should hold up well as more of the large inventories on farms, carried over from 1958, are marketed during the second quarter. However, a decline in farm income may occur during the latter half of this year as was forecast by the U. S. Department of Agriculture.

Nonfarm employment is rising steadily which

Department store sales*



*Three month moving average

adds to the aggregate buying power even though unemployment remains high in some localities. In March such employment in this district was 1 percent above a year ago and the outlook is for a strong seasonal rise during the second quarter.

Employment in iron ore mining, which has been very low, began to rise rapidly in the latter part of March. The record output of steel has depleted iron ore stocks at steel mills. Some mills in the Chicago area have been receiving ore by rail from the Marquette and Mesabi ranges to carry them over until regular shipments by boat are received. Thus, the opening of the navigation season on the Great Lakes was urgently needed to replenish the stocks at the steel mills.

In construction, district employment rose sharply in March and was 9 percent higher than a year ago. With the large amount of contracts awarded in past months, construction activity is expected to rise materially during the spring months.

In addition to more individuals being added to payrolls, wages and salaries are rising at a time when living costs have been quite stable which gives consumers extra buying power. Average weekly earnings in manufacturing in February were up significantly from a year ago: in Montana, $94.56 from $85.56; in Upper Michigan, $80.33 from $72.58; and in Minnesota, $91.44 from $85.08. In iron ore mining, the increase in average weekly earnings was even larger: in Upper Michigan, $129.83 from $98.30; and in Minnesota $105.08 from $94.16.

CROP CONDITIONS

Mid-April reports on crop conditions indicated with few exceptions a general lack of moisture throughout the district. Moisture deficiencies were reported to be general throughout South Dakota, North Dakota and Minnesota with the exception of the Red River Valley area. In Montana severe moisture deficiencies were reported only in the northeastern section of the state, and in a few other widely scattered areas.

Field work got underway earlier than usual this year because of the dry spring. As of mid-April small grain seeding was nearing 50 percent completion in much of the district.

Winter wheat crop reports indicate that about one-fourth of the seeded acreage will be abandoned in South Dakota. In Montana the crop stands vary from fair to good in most areas; winter kill is expected to be about average.

MONEY SUPPLY CHANGES IN MARCH

The seasonally adjusted money supply increased $1.1 billion in March, according to a preliminary report of the Federal Reserve Board. The money supply includes both pocketbook and checkbook money that is not owned by banks or the U. S. government. In March, seasonally adjusted currency gains accounted for only $100 million of the $1.1 billion money supply gain. The balance was in demand deposits adjusted.

March money supply figures ordinarily reflect the financial turbulence associated with tax payment deadlines of corporations, and, therefore, the one-day money supply figure for March may not be a good representation of the average money supply for the period. This interpretation is borne out by the fact that one major component of the

money supply—member bank demand deposits other than interbank and U. S. government—declined $1.1 billion on a daily average basis in March in contrast to an average March decline of $110 million in the preceding ten years.

In the Ninth district, average demand deposits other than interbank and U.S. government deposits dropped $40 million in March compared with an average drop of $20 million in the like period of each of the preceding ten years.

CATTLE ON FEED INCREASE

The April 1 U. S. Department of Agriculture estimate of the number of cattle on feed in the 13 major feeding states indicates an increase of 8 percent above a year ago. Minnesota and South Dakota, the Ninth district states included in this group, reported increases of 7 and 3 percent, respectively.

Cattle on feed estimates have recently been expanded to 21 states and now include the four full Ninth district states. There were 783,000 cattle on feed in the four states on April 1.

CATTLE ON FEED

	April 1
Minnesota	402,000
North Dakota	91,000
South Dakota	250,000
Montana	40,000
Total	783,000

Cattle on feed in the 13 states declined 4 percent between January 1 and April 1; this is in line with the drop of a year ago, but below the declines of earlier years. Placements of cattle on feed in the 13 states during the January-March quarter this year were 4 percent above first quarter placements a year ago; during the same period marketings of fed cattle were 7 percent above year-earlier marketing.

The number of cattle on feed for less than three months as of April 1 in the 13 states was estimated to be 6 percent above a year ago; the number on feed for a period of three to six months was up 10 percent, while those on feed six months or more were down 6 percent.

A breakdown of the cattle on feed in the 13 states by weight groups indicates an increase of 14 percent in the number of cattle on feed weighing over 900 pounds compared with a year earlier. The number weighing less than 900 pounds was up 6 percent from last year.

Cattle feeders in the 13 states indicated they expect to market 55 percent of the cattle they have on feed after July 1 compared with 52 percent marketed after July 1 last year. The remaining 45 percent are expected to be marketed as follows: 13 percent in April, 16 percent in May, 16 percent in June.

CONSTRUCTION ACTIVITY IS UP

The amount of contracts awarded in the Ninth district during the first quarter of this year continued at a very high level. The awards made to contractors are almost the equivalent of new orders placed with manufacturers. In January the amount totaled 54 percent more than a year ago. In February, the increase was only 7 percent but an exceptionally large amount of awards was made in February 1958. In March, the increase in awards again was 12 percent above that of a year ago.

Despite the deep frost line in this region, which was an obstacle to excavation, contractors began to rehire their workers during the first part of March. District employment in construction rose significantly between mid-February and mid-March and in the latter month was 9 percent higher than a year earlier.

Much of the increase in the amount of awards let during the first quarter was for residential building. The expansion in home building is also reflected in the number of dwelling units authorized by permit. As compared with a year ago, the number of units authorized by permit in January in this district was up 54 percent; in February, 25 percent; and in March, 59 percent.

The increase in units authorized in the district's metropolitan areas—Minneapolis, St. Paul, Duluth, Superior and Sioux Falls—was substantially larger than in the smaller centers. This has also been the situation in previous housing booms.

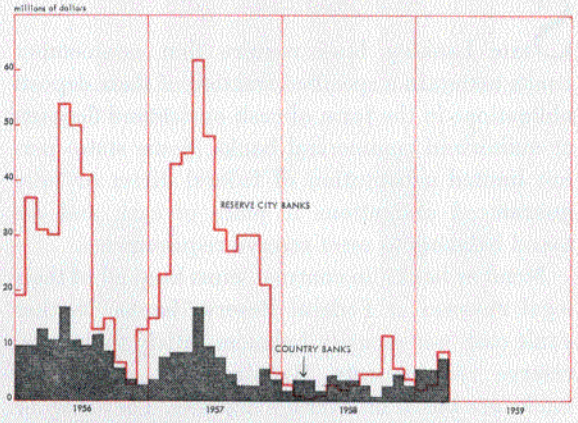
According to a cursory survey made in the Twin Cities, the inventory of unsold new houses during the early part of April was low. The sale of new houses was brisk during the winter. Many builders planned to make new starts after the first of the year but postponed them on account of the deep frost line. As a result, there has accumulated a sizable backlog of orders for new houses.

In the Twin Cities, the preponderance of building is again in the lower-priced bracket. Many builders are concentrating on houses in the $13,000 to $15,000 range. There is also a noticeable increase in the number of multiple dwelling units under construction.

DISTRICT BANKING DEVELOPMENTS

City bank data for the four weeks ended April 15 disclose an increase of total loans amounting to $26 million—considerably more than the $11 million gain registered in the same weeks last year. Most of the difference is accounted for by business loans which rose $25 million in the four-week period this year and only $12 million a year earlier. Real estate loans rose $1 million in the recent four weeks in contrast to no change a year earlier. The pattern displayed in the recent four-week period—faster loan growth than a year ago—is also visible in comparisons with year end 1958. Not only did total loan growth in the first quarter of 1959 compare with a decline last year but at more than $26 million the growth was larger than in any of the previous three years. In particular, this year differed with last in regard to business loans which were up much faster in the first quarter this year than last. Total deposits fell $103 million at the reporting banks this year in contrast to a decline of only $87 million last year. All but a million of the difference is explained by the virtual lack of time deposit growth this year. Last year such deposits rose $15 million in the first quarter.

Daily average member bank borrowings from the Minneapolis Federal Reserve Bank



In the last half of March, 44 country banks borrowed at the Federal Reserve Bank of Minneapolis. This was the largest number of country banks to borrow in a half month period since June of 1957. The *amount* of country bank borrowing in March was also the largest since June of 1957 and, at $8 million, was a third larger than in February.

CHANGE OF COUNTRY BANK LOANS AND DEPOSITS IN MARCH

	All banks	Borrowing banks
Loans	+1.48%	+2.75%
Deposits	+ .50%	—4.38%

According to month end reports, total deposits of all country member banks in the district rose slightly in March while at banks which borrowed during the month a deposit loss of more than 4 percent was reported. Similarly, the banks which borrowed reported that loans rose by twice the proportionate increase of total loans at all country member banks in the district.

Nonmember bank reserve requirements

State banking laws require that nonmember banks maintain a specified fraction of their deposit obligations in the form of cash or demand deposits at authorized commercial banks. Some states permit limited substitution of federal direct or fully guaranteed obligations in place of cash and demand balances to meet reserve requirements.

Member banks, in contrast, must keep all of their legal reserves at Federal Reserve banks. Neither vault cash nor security balances satisfy their legal reserve requirements. Requirements of member banks are based on average deposits. They may be satisfied by keeping average reserve balances at or above the specified level. On any one day the reserves of a member bank may fall below the average needed to satisfy the requirements so long as the balance is high enough on other days to offset it. Nonmember banks that fail to meet reserve requirements each day, on the other hand, are prohibited from making additional loans until their deficit is eliminated. And continued violations may result in liquidation by a state appointed receiver.

Both member and nonmember banks follow the same basic formula in defining demand deposits for the purpose of figuring reserve resquirements. They adjust total deposits by subtracting (1) their own balances at other banks excluding their legal reserve balances and (2) cash items in the process of collection. Only minor variations from this definition of demand deposits for reserve purposes are present in the banking laws of most district states.[1]

By subtracting balances due from other banks, a 'deposit-owning' bank's legal reserve requirement is reduced in proportion to the associated increase in legal reserves at a 'deposit-owing' bank. By subtracting cash items in the process of collection from gross demand deposits, banks that are collecting checks drawn on other banks are not required to maintain legal reserve balances on the same funds for which another bank is already maintaining reserves.

Unlike member bank requirements at present, nonmember banks can fully satisfy legal reserve regulations by holding cash in their own banks.[2] But nonmember banks in general satisfy most of their legal reserve requirements by maintaining demand deposits at authorized reserve depositary banks. State banking authorities must approve such reserve depositary banks. Ordinarily they must maintain higher reserve balances than are required of the nondepositary banks. They must also have a satisfactory amount of capital and may be required to belong to the Federal Reserve System.

In Michigan capital requirements for reserve depositaries vary with the size of the city in which the reserve depositary bank is located, and in Montana reserve depositaries must have more than $100,000 in capital. North Dakota law requires that legal reserve funds be kept in an approved bank located in a commercial center or in the Bank of North Dakota, a state-owned nonmember bank that is authorized to clear checks and rediscount loans for banks electing it as their reserve depositary.

To varying degrees all of the reserve depositary

[1] In South Dakota demand deposits secured by lawfully pledged assets may also be deducted.

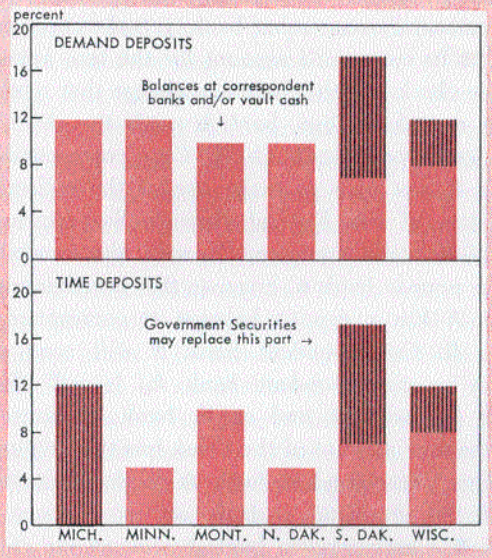
[2] The United States Congress is considering a bill under which the Federal Reserve Board could permit member banks to do the same.

Minimum reserve requirements for district nonmember country banks

The level of required reserve ratios for nonmember country banks varies considerably from state to state in the district. A uniform requirement of 17.5 percent on time and demand deposits exists in South Dakota but only 7 percent of total deposits need be held as cash and demand balances. The remainder can be security balances. Wisconsin, similarly, requires 12 percent of total deposits be held as reserve balances but security balances will satisfy one-third of the requirement. In Michigan, banks must keep 12 percent of total deposits in reserve balances but time deposit requirements can be satisfied in full by security balances.

Minnesota has established a straight 12 percent requirement on demand deposits and 5 percent on time deposits, legal reserves being either vault cash or demand deposit accounts at reserve depositary banks. North Dakota nonmember banks must maintain reserve balances equal to 10 percent of demand deposits and 5 percent of time deposits. Montana requires cash and demand deposit reserves equal to 10 percent on both demand and time deposits.

Michigan and North Dakota authorize the state banking authority to double the minimum rates if necessary to curb excessive credit. Minnesota authorizes increases up to the legal ratios applying to comparable member banks.



banks for nonmembers perform such central banking functions. For example, these banks aid in the collection of checks for their bank customers. This is especially important for the nonpar banks, which charge a fee to pay checks drawn on their depositor's accounts. Prior to the establishment of the Federal Reserve System, which provided an easy means to make bank-to-bank payments, transferring funds to an out-of-town bank involved sending currency or a draft on a correspondent bank. In either case, some expense was involved and therefore checks would be remitted at less than their face amount. The difference, frequently termed 'exchange,' was pocketed by the remitting bank to cover actual payment expenses.

But after the establishment of the Federal Reserve System, member bank reserve funds could be transferred anywhere in the country without cost. Therefore, Congress required that any check collected through the Federal Reserve must be paid at par.[3] Since the direct services of the Federal Reserve collection system are not open to nonpar banks they turn to their correspondents and legal reserve agents—ordinarily large Federal Reserve member banks—which provide a clearing and collecting service for them.

Consider two simple illustrations of the nonpar check collection procedure. Suppose city correspondent bank **A** is the reserve depositary for nonpar bank **a** and city correspondent bank **B** has a

[3] This does not prevent a par bank from charging a depositor the cost of collecting a check for which it obtains deferred availability credit.

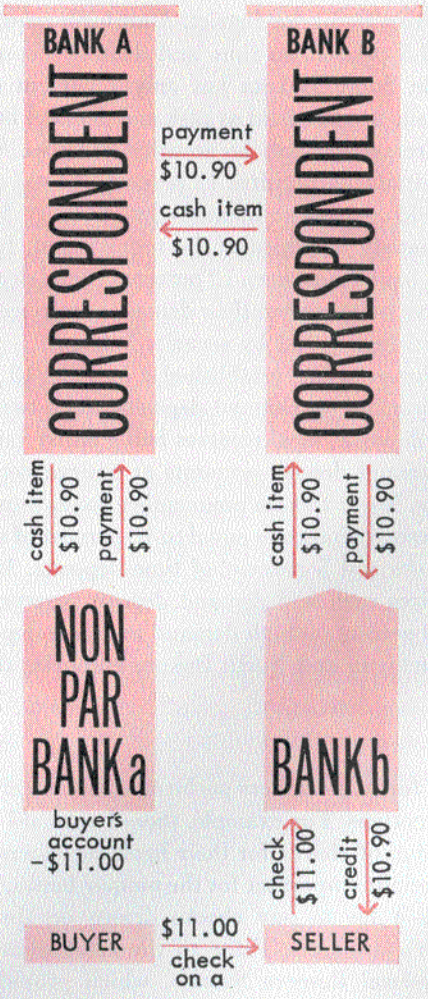
demand obligation to bank **b**. One of nonpar bank **a**'s customers draws a check to the order of one of bank **b**'s customers. Bank **b**, which might be either a member or nonmember bank, gets the check and credits its customer's account for the face amount of the check less the exchange charge that nonpar bank **a** makes. Then, bank **b** sends the check to city correspondent bank **B**. City correspondent bank **B**, not able to make use of the collection facilities of the Federal Reserve System, must establish some common tie with the remitting bank, nonpar bank **a**. Suppose that correspondent bank **A** has a deposit balance at correspondent bank **B**. Correspondent bank **B** will send the check to correspondent bank **A**. It will debit bank **A**'s account and credit bank **b**'s account for the face amount of the check less the exchange charge. Correspondent bank **A** might alternately remit by drawing a draft on its account at bank **B**. Correspondent bank **A** will get the check drawn on bank **a** and forward it to bank **a** after debiting its deposit account. Alternately, bank **a** might remit by draft after getting the check.

If correspondent bank **A** is a reserve depositary for both bank **a** and bank **b**, then checks follow a less complicated itinerary. Suppose one of bank **a**'s customers draws a check in favor of one of bank **b**'s customers. Bank **b** can collect the check simply by sending it to the common correspondent which will then credit bank **b**'s account and debit bank **a**'s for the face amount of the check less bank **a**'s exchange charge. Bank **a** might instead send a draft on its deposit account at correspondent bank **A** after obtaining the check directly from bank **b**.

Many nonmember par banks also make use of the clearing and collecting service provided by city correspondent banks. In servicing these banks, city correspondents can make use of the check collection facilities of the Federal Reserve.

As is true for member banks, reserve balances of the nonmember banks do double duty. They satisfy legal reserve requirements and provide a means for bank-to-bank payments. Checks drawn on nonmembers, including many par banks, are paid by debiting reserve accounts at or by bank drafts on a city correspondent bank. And city correspondent banks settle any differences among the accounts of their respective customers by transfers of their own reserve funds at Federal Reserve banks. In addition to collecting and clearing checks for their country correspondents, reserve depos-

Collection procedure for checks drawn on nonpar banks



itaries service investments, extend credit directly or by way of 'over lines' and supply currency and coin needs.

Money supply effects of nonmember bank reserve requirements

The key to the Federal Reserve's control of credit is its ability to supply or absorb member bank reserve balances by respective increases or decreases in its own credit. Providing member banks with additional reserves affords them the opportunity to expand credit and thereby the money supply. And absorbing reserves has the opposite effect.

Under certain circumstances the Federal Reserve may have to offset nonmember bank credit changes to avoid undue over-all credit expansion or contraction. These changes are, of course, simply one of many factors affecting the total monetary situation. Since member banks supply almost 85 percent of total bank credit, the Federal Reserve has ample leverage to affect over-all bank credit control and thereby the total monetary situation.

The first section of this article reported that nonmember banks, for the most part, maintain deposit balances at authorized commercial banks. In most cases, these reserve depositary banks belong to the Federal Reserve System and, as member banks, must maintain reserve balances on their deposits due to banks as well as on other deposits. Because nonmember bank legal reserves are held as deposit balances at member banks, two special situations may occur in the course of time that will affect credit conditions. Therefore these situations may necessitate offsetting action on the part of the Federal Reserve.

The first of these is a transfer of nonmember bank reserve funds from vault cash to balances at member banks. Such a transfer provides member banks with additional reserve balances which in turn permit a multiple expansion of member bank credit unless the Federal Reserve offsets it.

The second point is that deposit gains at nonmember banks which stem from deposit losses at member banks may provide nonmember banks with additional reserves and loanable funds without reducing the reserves and loanable funds of member banks. These two points will be clarified by the two following examples.

The first example will demonstrate that transfers of nonmember bank currency reserves to member banks, other factors remaining unchanged, will permit an expansion in the money supply. As the direct result of such transfers nonmember banks would own additional deposit balances at member banks while member banks in turn would have additional deposit obligations due to nonmember banks. The currency obtained by member banks would in all likelihood be shipped to the Federal Reserve for reserve balance credit which would enable them to expand their credit and thereby the volume of demand deposits and the money supply. And because of our fractional reserve banking system, this growth in member bank reserve balances could support a multiple expansion of credit. But, of course, in observing over-all credit conditions the Federal Reserve has the option to offset that credit expansion by a compensatory absorption of reserve balances.

The second example will show that shifts in the distribution of demand deposits between member and nonmember banks will change the size of the money supply that given member bank reserve balances can support. To illustrate this point, assume that nonmember banks gain deposits at the expense of member banks. As noted in the first part of this article, nonmember banks keep reserve funds either as currency in their own vaults or as deposit balances at authorized commercial banks. If nonmember banks elect to keep their vault cash unchanged following their deposit gain, their reserve depositaries will experience a gain in deposits due to nonmember banks that just offsets the loss in their deposits due to nonbanks (individuals and governments). This is a critical point. Reserve depositaries, which are member banks for the most part, will not experience a loss of reserve funds as the result of the deposit shift. Rather their total de-

posits will remain unchanged as a result of the fact that deposits due to nonmember banks will increase by the same amount that deposits due to nonbanks will decrease. Now the significance of what happens is that the deposit shift will provide nonmember banks with additional reserve balances while it will not reduce the reserve balances of member banks. The extra reserves of the nonmember banks could support an expansion of their credit while concurrently member bank reserves could support as much credit as before the deposit transfer. In other words, member banks need not liquidate earning assets as the result of a transfer of demand deposits to nonmember banks. This is because they are the reserve depositaries of the nonmember banks and therefore lose no reserves. Thus, shifts in the distribution of nonbank deposits between member and nonmember banks affect the size of the money supply which a fixed amount of member bank reserve balances can uphold. Therefore, when nonmember banks gain deposits at the expense of member banks, credit conditions ease unless they are offset.

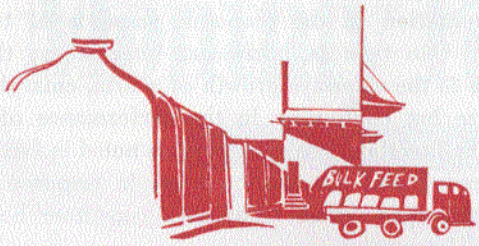
To summarize, the Federal Reserve with its general credit control tool of absorbing or supplying member bank reserve balances in order to bring about desirable credit conditions may have to offset changes in (1) the distribution of nonmember bank legal reserve funds between vault cash and demand deposits due from member banks and (2) the distribution of nonbank deposits between member and nonmember banks. When funds flow from nonmember bank vaults to balances at member banks, credit condition will likely change in such a way that the Federal Reserve must use open market operations or other ways to absorb some member bank reserve balances in order to maintain the existing volume of bank credit. And similar action is required when deposits flow from nonbank depositors at member banks to nonbank depositors at nonmember banks. Essentially, the Federal Reserve offsets undesired changes in the total money supply regardless of source by adjusting the total permissible amount of member bank deposits, the largest part of our money supply. Thus, changes in nonmember bank deposits are simply another factor which the Federal Reserve may have to offset in establishing credit conditions conducive to economic stability.

—WILLIAM G. DEWALD

Agriculture: industry in transition

Agriculture is in the midst of the most extensive and far-reaching technological revolution it has ever experienced. In the short period since 1940 crop yields per acre have increased 40 percent, productivity per animal breeding unit has increased 30 percent, and output per farm worker has more than doubled. While this is not the first such 'revolution' to hit agriculture, it is one of unprecedented rate and duration. The 'explosion' in agricultural productivity was triggered by the vast expansion in demand which followed the outbreak of war in Europe late in 1939; and to date

it continues unabated. The rising prices and incomes experienced during the early 1940's enabled farmers to make investments and adopt new production techniques that they had been unable



to afford during the depressed income years of the 1930's. Price supports which were raised during the 1940's also added fuel to the productivity fire. And, farmers continued the search to increase production per acre, per animal unit, per hour of labor.

The rise in productivity in agriculture has been the underlying factor causing the changes in farm size and farm numbers. For example, the number of farms in Minnesota has declined by 29 percent since 1940, while average farm size at 210 acres is 27 percent larger than the average Minnesota farm of 1940.

Simultaneously, the food processing and distribution industries, as well as firms supplying agriculture, have been making adjustments to rapid technological change. Investments in facilities have increased as firms have built new plants and renovated and enlarged old ones in an effort to adopt techniques that will reduce unit costs. Large scale units have replaced numerous small units in food retailing and some phases of product processing.

In food retailing, for example, average dollar sales volume per store tripled since 1940. Today one-tenth of the stores account for two-thirds of the retail food sales.[1] Large volume food retailers require supply lines that can furnish large volumes of quality products on a continual basis. The large volume requirements of the chain stores have enabled them to wield more buying power, and they have exerted more pressure on suppliers to follow far more exacting specifications on products delivered. Also the chains have been shifting from manufacturer and wholesaler brand labels to their own private labels on products. The chains want continuing supplies of high quality products to place under private label—an effort directed at tying the consumer to their own brand.

Retailers have found it advantageous to integrate, or combine by ownership or contract, various stages of the production process in order to assure adequate supply lines to satisfy the needs of mass retailing. For example, the four largest national chains, doing about 18 percent of the total food store business, all own and operate bakeries, milk-processing plants, coffee-roasting plants, and numerous distributing warehouses. Three of these own and operate canneries and general manufacturing facilities for processing and packaging bulk products. Two own and operate egg exchanges and candling plants, and butter and cheese factories. At least one owns and operates laundries, bottling plants, poultry and meat dressing facilities, and produce-packing plants. The large chains have also integrated purchasing departments which operate as buying organizations in producing areas.[2] These examples in retailing deal only with integration through ownership—contractual arrangements are more widespread.

Firms in the food industry, in their efforts to satisfy the quantity-quality requirements of mass retailing, are to some extent finding a weak link in the marketing chain—and that is at the farm level. As a result, there have been numerous attempts with some success to coordinate the production of selected commodities more closely with the requirements of processors and retailers.

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[1] Mueller, Robert W., "1957 Grocery Store Sales," **Progressive Grocer,** April 1958.

[2] Collins, Norman R. and Jamison, John R., "Mass Merchandising and the Agricultural Producer," **The Journal of Marketing,** Vol. XXII No. 4, April 1958, p. 359.

The firms supplying products to agriculture have, through expanding markets and technological advance, likewise become large, highly organized firms. In the feed industry, for example, firms have invested heavily in expansion and in automation in order to increase volume and reduce per unit production costs. These firms are actively seeking ways to utilize their capital more fully—to wipe out wide seasonal production patterns and to capture an assured market. In order to achieve these goals they have turned to the livestock producers with financing and management arrangements, as well as, in some cases, risk-sharing arrangements in an effort to tie in an outlet for their products. The feed companies can, to the extent they make contractual arrangements to sell their products, reduce advertising and selling costs. However, they do incur some other costs of financing, risk-taking and management in their efforts to integrate livestock feeding programs into their feed production program.

The farmer, as noted earlier, has been fighting an uphill battle in this period of rapid technological advance. And he, too, in some cases finds advantages in integrating his operations with suppliers and processors. For example, the farmer who faces a capital limitation may be able to improve his income position by obtaining more liberal credit lines through an integrated production program of a feed supplier or a processor. This has been particularly true in the broiler and turkey industries where credit was not available from institutional sources in amounts necessary to finance efficient units. Also the farmer may find advantages in shifting some price and physical risks to the feed supplier or processor through an integrated production program. And, finally, the farmer may find benefit in the management aid extended through coordinating his production program with suppliers or processors.

Thus, in total, one of the basic driving forces bringing coordination or integration between firms in agriculture and allied fields is seen to be the very rapid technological advance that has been underway in recent years throughout the agricultural production, processing and marketing industries; integration is not the cause of these changes.

Integration defined

Integration in the economic sense is of two types. One type is horizontal integration; this refers to the sideways growth of a firm, enlarging in size but continuing in the performance of a specific function. The enlargements noted in farms, processing and distribution firms in response to changing production techniques constitute horizontal integration.

Vertical integration refers to the merging of successive stages of the production process under central ownership or control. The extension of control by food retailing firms into various phases of product procurement either by ownership or contract is vertical integration.

Vertical integration through both ownership and contract is not new in agriculture. Farmers' cooperative marketing organizations represent an extension of the farmer's control from the farm toward the consumer through ownership. Also in agriculture, contractual arrangements with processors in growing sugar beets and vegetable crops have existed for many years.

Although vertical integration is not new in agriculture, it is new to most livestock producers. Today increased interest arises on this topic of vertical integration because new types of contractual arrangements are emerging to integrate the flow of several livestock products at different stages of the production process between the farmer and the consumer.

What does vertical integration mean for agriculture? What is the impact of integration on Ninth district agriculture likely to be? While answers to these questions remain largely in the province of the future, it becomes increasingly clear that the trend toward integration will be an important force fashioning the face of agriculture in the years ahead.

—Arvid C. Knudtson