



Business Conditions

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Liability management has played an important role in enabling the banking system to finance the nation's credit needs. But individual banks that practice it need a sound image as well as the ability to pay competitive rates.

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There have been an increasing number of multibank holding company formations in Iowa, Michigan, and Wisconsin. How these have altered the degree of banking concentration in the states can be assessed in terms of aggregate and local market concentration levels.

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Liabilities that banks manage

Liability management, an innovation that many banks adopted in the past decade to gain a greater measure of control over their own growth patterns, has come under increasing scrutiny by bank managements, supervisors, and customers. As the term implies, liability management entails the ability to control the amount of funds acquired through certain types of deposits or borrowings. It enables a bank to make desired loans and investments without selling other assets or depending on customer deposit inflows to provide the needed funds. Control is achieved by keeping interest rates on these liabilities competitive with returns available on alternative investments. In financing the asset expansion of the past 15 years, "managed" interest-bearing liabilities of commercial banks rose more rapidly than demand deposits, savings deposits, or capital—the traditional raw materials of banking. Major types of bank liabilities, some of the principal characteristics associated with each, and the amount on the books of the large banks in major cities at the end of 1974 are indicated on page 4.

While all liabilities can be managed to some degree, negotiable certificates of deposit (NCDs) and nondeposit instruments are most generally associated with the concept of liability management. For the same reasons that the practice developed, it is likely that management of liabilities will continue to play an important role in banking if the industry is to maintain its position as a supplier in the credit markets.

Why the concern?

Heavy reliance on liability management was a factor in the liquidity problems that culminated in the failure of a few large banks last year. These failures demonstrated that a bank's ability to roll over some liabilities can be severely impaired as a result of developments, such as unusual losses, that shake the public's confidence in the soundness of the institution. Should confidence be lost, the magnitude of the problem—the amount of funds that would flow out of the bank and how fast they would be lost—would depend largely on the degree to which the bank relied on short-term uninsured liabilities, especially those owed to parties having little knowledge of the bank's basic condition. To the extent such outflows exceed holdings of assets with equally short maturities, a liquidity crisis may arise.

Liquidity problems associated with liability management stem more from characteristics such as the maturity of the instrument and the holder's relationship to the bank than from whether the liability is classified as a deposit or debt. There are likely to be both volatile and stable funds in each category. For example, funds acquired via the sale of a \$2 million NCD to a large corporate investor who is not a loan customer and does not normally keep working balances with the bank may be more difficult to retain at maturity than an equal amount of federal funds purchased from correspondent banks. (Federal funds transactions are interbank loans of im-

Liabilities of Major U.S. Banks as of June 1, 1975

<u>Type¹</u>	<u>Reserve required</u> (percent)	<u>Interest rate constraint</u> (percent)	<u>Maturity</u>	<u>Other factors affecting use</u>	<u>Outstanding²</u> Dec. 31 1974 (billion dollars)
Demand deposits	7½-16½	Prohibited	On demand	Serve as holders' working balances and as compensation to bank for services.	\$185.2
Savings deposits	3	5	Can require 30 days notice	No minimum amount; no specific maturity; ownership restricted.	58.5
Time deposits less than \$100,000	3-6	5½-7½	3 mos.-6 yrs.	\$1,000 minimum required for rates over 6½ percent; banks may set more restrictive conditions.	42.7
Negotiable CDs over \$100,000	3-6	Suspended	Min. 30 days	Well-developed secondary market.	93.0
Other time deposits over \$100,000	3-6	Suspended	Min. 30 days	May be converted to negotiable form at option of holder.	33.9
Eurodollar borrowing	4	None	No limit	Cost related to foreign interest rates.	3.6 ³
Fed funds purchased and borrowing from banks	None	None	Fed funds, 1 day; other, no limit	May be purchased only from banks (and S&Ls) and U.S. agencies.	} 44.3
Repurchase agreements on Treasury and U.S. Agency securities	None	None	No limit, 1 day or more	Bank must own securities; interest payable for periods less than 30 days.	
Capital notes and debentures	None	None	Min. 7 yrs.	\$500 minimum; included in capital for some purposes; subject to borrowing limits.	n.a. ⁴

¹Deposits insured to \$40,000; other liabilities not insured.

²Liabilities of major U.S. banks totaled \$490 billion on December 31, 1974, including liabilities for outstanding bankers' acceptances, mortgage indebtedness, and other liabilities not shown separately.

³Gross amounts due to own foreign branches; does not include Eurodollars borrowed directly or other reservable Eurodollar borrowings.

⁴Included in capital accounts of \$34 billion.

mediately available funds, maturing on the next business day.) An NCD that matures the next day and federal funds purchased have the same potential volatility. But federal funds purchased from correspondent banks often represent a service to a customer—providing an easy way to fully invest funds already on deposit at the buying bank. The service aspect is especially important when amounts purchased are less than money-market denominations since the seller lacks alternative outlets for liquid investment. Yet, an NCD is a deposit, while federal funds generally are considered borrowed funds.

While funds “purchased” in the money markets do tend to be more volatile than the deposits of local business and household customers, the observer cannot make this distinction on the basis of the published categories of bank liabilities. The risk of sudden outflows is greatest for very short-term, uninsured, large denomination liabilities in the hands of holders who can shift quickly into other assets. But nearly all bank liabilities have to be purchased in one way or another. Even customers do not keep funds with the bank except for the service or interest credit that they expect to receive in return. Banks have to pay competitive rates on consumer time deposits and offer corporate customers an incentive to keep excess working balances in the bank instead of seeking other investments.

The necessity for banks to compete actively for loanable funds reflects the closer management of cash positions by bank customers. Short-term interest rates roughly doubled in the decade of the Sixties, greatly increasing the opportunity cost of holding nonearning cash balances. As corporations and individuals shifted funds not needed for transactions into interest-bearing instruments, demand deposits at banks failed to keep pace with the demand for bank loans. Meanwhile, bank holdings

of securities that could be sold to provide funds for lending had been reduced to near minimum levels—either because sales would have entailed heavy losses or because remaining holdings were needed as collateral for public deposits. In this environment many banks—especially those whose deposits were held by large and financially sophisticated corporate customers—tailored their liabilities to retain and attract funds that would otherwise move into money market instruments.

Thus, despite some potential for sudden outflows, a large proportion of certain liability items, such as NCDs or repurchase agreements (RPs) that are often identified as purchased money, can be as stable as the more traditional sources. Indeed, they represent the same type of funds that would have been held as demand deposits 15 or 20 years ago. Some banks, however, stepped far outside existing customer relationships by bidding for money market funds through brokers. It is clear that there are limits to the ability of a bank to support asset growth with funds acquired in the money markets. These limits are not the same for all banks. Investors do pay attention to the capital position of the institution issuing the obligation, especially where no collateral is involved. Many of the large banks that increased their liabilities rapidly during the past 15 years—whether in the form of deposits or borrowings—used up much of their capacity for expansion on their existing capital base. However, in times of uncertainty investors tend to favor the very largest and best-known institutions on the assumption, whether or not justifiable, that size is synonymous with safety. Smaller banks may have to pay a premium for money market funds. The vast majority of the nation’s small banks do not have access to the money market at all, but their deposit customers may be somewhat less interest sensitive.

Determining the mix

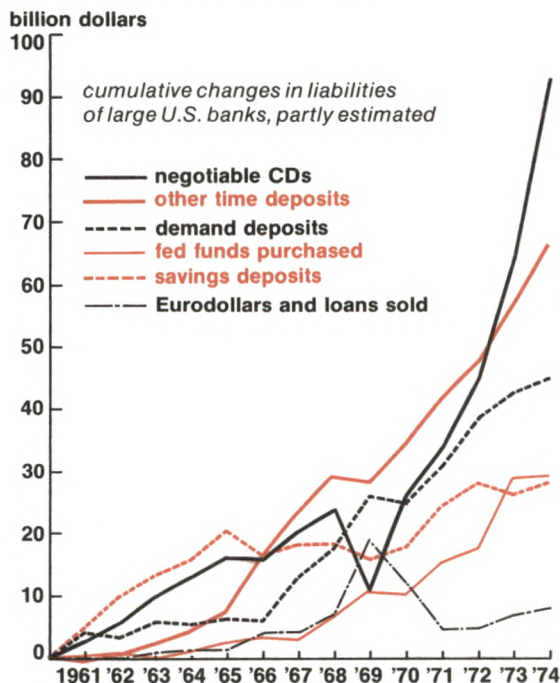
The structure of liabilities that has emerged as a result of bank competition for loanable funds over the past decade reflects several distinguishable, but interrelated factors. The most important are regulatory constraints, relative costs, projected needs, and investor preferences.

While deposits are still by far the major source of funds, the composition of deposits has changed. At the end of 1974 all deposits accounted for 81 percent of total footings of all commercial banks and 88 percent of all liabilities. Excluding the largest banks, deposits accounted for 86 percent of assets and 94 percent of liabilities. There is no way to tell what proportion of those deposits represent the working balances and savings from local communities—the kind of funds traditionally associated with hard core stability. But most nondeposit and money market-type deposit liabilities are issued by the large banks. For the 75 banks with assets of \$1 billion or more, the deposit component excluding NCDs is probably around 50 percent of assets, compared to 61 percent for all larger banks. Moreover, a significant portion of the *increase* in their assets over the past decade was financed via increases in money market-type liabilities (see chart).

Regulating liabilities

Bank liabilities in the form of deposits constitute a major portion of the nation's money supply, and as such, have always been highly regulated to protect the public interest. In managing its liabilities, a bank is restricted to the issuance of instruments permitted under federal and state statutes and regulations. The rules set limits in terms of maturity, denomination, rate of interest, insurance status or creditor preference, and permitted holder. Deposits at most banks are subject to reserve re-

NCDs were the major source for growth at big banks



Negotiable CDs: negotiable certificates in denominations of \$100,000 and over.

Other time deposits: time deposits other than savings and large negotiable CDs.

Demand deposits: collected demand deposits minus deposits due from banks.

Fed funds purchased: purchases net of sales of fed funds to banks plus securities sold under agreements to repurchase plus borrowings other than Eurodollars and from Federal Reserve Banks.

Eurodollars and loans sold: gross liabilities to banks' own foreign branches and Eurodollars borrowed directly plus loans sold outright.

quirements and interest rate ceilings based largely on maturity and denomination. Other liabilities are exempt from these restrictions but closely constrained with respect to the "lender," allowable collateral, or overall "borrowing limits" relative to capital stock and surplus.

While not all banks are subject to the same regulations and laws, federal statutes and Federal Reserve System regulations governing operations of national and state member banks and

parallel interest rate constraints on insured nonmember banks have had the most important effects on the overall structure of bank liabilities.

The distinction between deposits and debt liabilities has become increasingly fuzzy. A number of bank liabilities currently are defined as deposits for purposes of reserve requirements or interest rate ceilings, or both. Demand deposits are deposits against which checks are drawn. They are subject to higher reserve requirement ratios than time deposits, and these ratios are higher for large banks. Payment of interest is prohibited on domestically owned demand deposits. Demand deposits are the traditional source of bank funds, and they accounted for 72 percent of total commercial bank deposits in 1960—before the era of liability management. By year-end 1974 the share had fallen to 42 percent. Individuals and businesses hold almost three-fourths of the dollar volume of demand deposits, presumably to cover transactions needs and to pay for banking services. Because banks cannot pay interest on these accounts, they cannot control the volume.

Time deposits include savings deposits, time certificates of deposit, and open accounts. Savings deposits do not have a specific maturity and are subject to the lowest interest rate ceiling and the lowest reserve requirement. Ownership is restricted to individuals, certain nonprofit groups, and public bodies. (An exception to the general rules permits payment of maximum time deposit interest rates on savings deposits of public bodies.)

Time certificates of deposit may be negotiable or nonnegotiable instruments payable on a certain date not less than 30 days after the date of deposit. Reserve requirement percentages vary by maturity and bank size, and interest rate ceilings vary by maturity but currently apply only to deposits in denominations of less than \$100,000.

Time deposits provided the avenue for the initial thrust toward bank competition for funds in the early Sixties. With the development of a secondary market for NCDs of \$100,000 or more, the outstanding amount of these obligations, which provided corporations an alternative to Treasury bills and commercial paper as an outlet for surplus cash, reached \$18 billion within five years. Concurrently, most banks, both large and small, were aggressively promoting savings and smaller-denomination time deposits in competition with other banks and thrift institutions.

Legal ceilings on rates paid were raised several times to permit banks to continue to attract funds in the face of rising market interest rates. But as the economy showed signs of overheating in 1966 and again in 1969, the ceilings were held down to dampen the pace of expansion in bank credit. Unfortunately, this approach not only reduced inflows of loanable funds but turned them into outflows—the process that has come to be known as “disintermediation.” Most severely affected were the large banks with heavy dependence on NCDs. Faced with this barrier to sources of funds that had come to be the major base for growth, banks quite naturally moved to developed sources that were free from such restrictions via the issue of nondeposit instruments.

With some time lag, the banking authorities gradually changed the regulations to prevent circumvention of interest rate constraints, but did not completely cut off the banks' access to money market funds or cripple the mechanism through which reserves are redistributed within the banking system. Promissory notes, which banks began to issue in 1966, and which are identical with CDs in many respects, were brought under the deposit definition along with any other obligation “issued or undertaken . . . as a means of obtaining funds to be used in its banking business.” Excepted from this

definition, and thus remaining free from the rate ceiling and reserve requirements applicable to deposits were (1) interbank borrowings, which include federal funds transactions; (2) sales of Treasury and U.S. agency securities under repurchase agreements; and (3) capital notes with maturities of seven years or more (or that meet certain other criteria).

Two other avenues used heavily in the 1969 period of monetary restraint were Eurodollar borrowings (mainly funds obtained by domestic banks through their foreign branches) and commercial paper sold by bank holding companies and channeled to the subsidiary banks via the purchase of loans. Funds acquired through these arrangements amounted to nearly \$20 billion at the end of 1969. Both these sources remained free of interest rate ceilings but were made more costly by the application of reserve requirements.

Reliance on nondeposit liabilities declined when interest rate ceilings ceased to inhibit deposit growth, either because market rates fell below ceilings or because the ceilings were raised or suspended. All ceilings on deposits of \$100,000 or more were eliminated by the spring of 1973 and despite the sharp increases in market interest rates in the ensuing 15 months, expansion in NCDs offset the weakness in consumer-type deposits and continued to supply funds for loan expansion, although at high costs both in terms of rates paid and higher reserve requirements assessed on increases in these obligations. Later adjustments in regulations gradually reduced the advantages attached to the use of certain liabilities. For example, differences in reserve requirements against time deposits, funds acquired through holding company commercial paper, and foreign borrowings are now relatively minor. Recent adjustments have encouraged longer maturities by applying lower reserve requirements to CDs issued for six months or more.

But some important differences between deposits and other liabilities that banks manage persist. Time deposits must remain on deposit for a minimum of 30 days; nondeposit instruments are not so restricted. There is no reserve requirement or deposit insurance assessment on purchases of federal funds, repurchase agreements, or notes and debentures. But federal funds can be bought only from domestic banking offices (defined to include thrift institutions) and federal agencies; repurchase agreements require specific types of collateral; notes must carry maturities of at least seven years and are subject to borrowing limits.

Demand and supply

Within this complex regulatory framework banks can determine the mix of their managed liabilities. Differences in costs stemming from regulatory treatment are reflected to some extent in the rates offered on various instruments. An important element affecting the composition of these liabilities at any given time is a bank's forecast of its needs for loanable funds. If strong loan demand is foreseen for three to six months ahead, the bank might prefer to provide for those needs by issuing CDs with maturities of 180 days or more. In general, strong loan demand is often consistent with expectations of rising interest rates—adding to the desirability of obtaining the needed funds at current rates for a relatively long period of time. In fact, most bankers do pay attention to achieving a considerable degree of correspondence between the maturities of the assets and the liabilities they are putting on their books, and a large portion of outstanding 90-day CDs finances 90-day loans. On the other hand, expectations of falling interest rates tend to induce banks to borrow shorter than their commitments in order to reduce their average cost of funds.

Just as important to the money manager, however, is the type of funds available. In this area, too, it is necessary to meet the needs of the customer—whether a depositor with a surplus balance or an unknown money market investor. To offer long maturities when investors want to stay short will either fail to attract funds or require a high interest premium.

On any given day the banker will normally accommodate a variety of customer preferences within the framework of the bank's needs. Thus, the bank may purchase federal funds from correspondent banks who find that this outlet provides both greater liquidity and, when short-term interest rates are high, a better average return than securities. A state fund which holds deposits in the bank may have \$100,000 available for two days before it has to be paid out. Under an RP the bank sells a Treasury note to the state and buys it back for delivery two days later at a predetermined higher price that establishes the yield to the state. Loans or municipal obligations from the bank's portfolio cannot be sold in this manner because such transactions are deposits for purposes of the rules governing rate ceilings, and a two-day term places it in the demand deposit category on which interest payments are prohibited.

Banks as intermediaries

One reason for the extensive set of regulations governing banks is that expansion of bank credit generates new money, and unrestrained monetary growth generates price inflation. But in addition to being money creators, banks—like other financial institutions—are intermediaries, that is, they channel the public's savings into investments.

Liability management has permitted the banking system to maintain the extent of its participation in the intermediation function, while remaining responsive to

the demand deposit and interest rate impact of monetary control actions. Corporations, individuals, and local units of government in the aggregate, have a huge amount of funds available between inflows and outflows of cash that can be tapped by borrowers. But its ownership is constantly changing. These funds will be invested, either directly in obligations of borrowers or through financial institutions. An unanswered question is how much of this flow can best serve the economy's needs by being allocated to borrowers through bank loans and investments.

Data from the Federal Reserve's *Flow of Funds* analysis show a sharp contrast in the effects of tight money on the intermediary role of commercial banks in 1966 and 1969, when CD rate ceilings were held below market rates, compared with 1973-74 when these ceilings were suspended. Credit market funds advanced by banks dropped from 41 percent of total funds raised by nonfinancial sectors in 1965 to 26 percent in 1966, and from 40 percent in 1968 to 20 percent in 1969. By contrast, this share rose from 42 percent in 1972 to a peak of 46 percent in 1973 before dropping back to 35 percent in 1974. The reduction last year reflected the adoption of restrictive loan policies as well as a reduction in business demand for short-term credit in the second half.

The ability of the banking system to maintain or expand this share in the future will depend heavily on the ability of individual banks to further increase their managed liabilities. There are no guidelines that can adequately signal what may be excessive reliance on managed liabilities by any given bank. Because of the already high degree of capital leverage in many of the nation's largest banks and their efforts to improve asset quality and liquidity, however, the pace of expansion is likely to slow until the capital base can be broadened.

Jean L. Valerius

Bank holding companies— concentration levels in three district states

The growth of multibank holding companies continues to cause concern among some segments of the banking community. In the Seventh Federal Reserve District multibank holding companies are a legally sanctioned form of business organization in Iowa, Michigan, and Wisconsin. Pressures currently exist to permit some form of multibank organizations in Indiana and Illinois.

There are convincing arguments on both sides of the multibank holding company issue. Those who support the multibank form of organization argue that it benefits the public through economies of scale and other synergistic effects. On the other hand, independent bankers argue that multibank holding companies produce corporations unresponsive to the needs of the individual customer and the local community.

Multibank holding companies grow by acquiring banks and assimilating them into a single corporate organization. The proliferation of multibank structures in a given geographic area—and the consequent elimination of independent banks—could increase the concentration of banking resources and may lessen competition.

Has the increasing number of multibank holding companies in Iowa, Michigan, and Wisconsin altered the degree of banking concentration in these states? To answer this question, it is helpful to look at the concentration effect from two viewpoints: 1) aggregate concentration, which analyzes concentration on a statewide basis; and 2) local market concentration. The aggregate concentration measure is of less importance than the

local market measure because it gives only a superficial view of the extent of competition within a state and ignores the composition and structure of local markets. Overall, as a banking market becomes more concentrated, price flexibility and level of competition between banks in the market decline.

Aggregate concentration

For purposes of this article, aggregate concentration in a state is defined as the percent of the total commercial bank deposits that are held by the five largest banking organizations in a state—either individual banks or bank holding companies. (The number five is arbitrarily selected.) If a bank holding company that is one of the five largest banking organizations in the state were to acquire an additional bank, aggregate concentration would increase. If a bank holding company that is not among the five largest banking organizations were to acquire an additional bank, it would have no effect upon aggregate concentration. The aggregate concentration measure is inadequate in this respect.

By the end of 1973 all five of the largest banking organizations in Iowa, Michigan, and Wisconsin were either one-bank or multibank holding companies. To view the trend of aggregate concentration in these states, the period 1957-74 is used (the Bank Holding Company Act was passed in 1956). As shown below, over this period aggregate concentration has remained fairly constant within the three states mainly because smaller banking

organizations have demonstrated the competitive ability to maintain their share of total state deposits:

	<u>1957</u>	<u>1961</u>	<u>1968</u>	<u>1974</u>
	<i>(percent)</i>			
Iowa	20.8	19.2	17.4	19.8
Michigan	52.9	50.0	48.4	47.6
Wisconsin	31.5	33.3	31.9	33.4

Note: As of December 31.

Multibank holding companies are currently active in all three states, but this has not always been the case. Iowa had only limited multibank holding company activity before 1972, when state banking statutes were liberalized. In Michigan, where bank holding companies have been extremely active, bank holding companies were illegal until the statutes were changed in 1971. Wisconsin has a history of bank

holding company activity dating back to the 1920s.

Given these different backgrounds, it might be expected that Wisconsin's aggregate concentration would have increased significantly over time. Aggregate concentration in Michigan shows a general decline, but because of the prolific expansion of bank holding companies since 1971, it might be expected that the 1974 percentage would be higher, not lower, than for previous periods.

Statewide aggregate concentration in banking can change drastically over time, but this has not been the case in the three district states. Moreover, it is possible for a large increase to occur in aggregate concentration without similar increases occurring in local banking markets. For example, a multibank holding company that expands throughout a state by acquiring

Iowa

<u>Banking districts</u>	<u>"H" ratios: all banks as if nonaffiliated</u>	<u>"H" ratios: adjusted for holding company affiliation</u>	<u>Holding company effect</u>	<u>Percent change</u>
98 districts total	.255	.259	.004	1.5
31 districts with multibank holding company activity	.216	.230	.014	6.5
67 districts with no multibank holding company activity	.273	.273	.000	0.0
7 urban districts	.206	.207	.001	0.5
91 rural districts	.259	.263	.004	1.5

In 1972 the Iowa banking statutes were liberalized to allow multibank holding companies greater freedom to expand. As of December 31, 1974 there were 144 bank holding companies in Iowa and 11 were multibank institutions. The holding companies controlled 178 of the 664 commercial banks (26.8 percent), and their aggregate deposits totaled \$4.4 billion, about 42 percent of total commercial bank deposits in Iowa.

The increase in concentration caused by bank holding company acquisitions has been minimal. The average H ratio for all 98 banking districts is .259 and the holding company effect is .004, an increase in concen-

tration of 1.5 percent. This increase took place within four of Iowa's 98 districts, one urban and three rural.

Of Iowa's 98 banking districts 31 experienced some multibank holding company activity; i.e., all bank subsidiaries of Iowa's 11 multibank holding companies are located in these districts. The H ratio of these 31 districts is .230 and, as a subgroup of the total districts, they show the greatest holding company effect (6.5 percent). It is notable that the 31 districts have less banking concentration than the 67 districts where no multibank holding company activity has occurred.

banks in several different markets would not cause increased concentration in specific locally defined markets; however, if this multibank holding company were one of the five largest banking organizations in the state, statewide aggregate concentration would be increased. Alternatively, selected individual markets could become increasingly concentrated without changing statewide aggregate concentration.

Local banking markets

When a bank holding company wishes to acquire another bank, the holding company must first submit an application to the Board of Governors of the Federal Reserve System describing and justifying the acquisition. Each case is carefully analyzed in terms of its effects on competi-

tion and other important issues.

It is necessary to delineate the geographic area where competition actually occurs in order to determine the extent of competition between two or more banks. With a relevant banking market—or markets—defined, concentration ratios can be determined. Presumably, there is an inverse relationship between concentration levels and competition. It is generally held that the relevant geographic area is more local than an entire state. (The local nature of banking markets was made clear by the U.S. Supreme Court in *U.S. v. Philadelphia National Bank* in 1963, and was reiterated most recently in *U.S. v. Marine Bancorporation* and *U.S. v. The Connecticut National Bank* in June 1974.)

There are several ways in which banking concentration can be increased within a local market. Bank mergers increase

Michigan

<u>Banking districts</u>	<u>"H" ratios: all banks as if nonaffiliated</u>	<u>"H" ratios: adjusted for holding company affiliation</u>	<u>Holding company effect</u>	<u>Percent change</u>
78 districts total	.425	.427	.002	0.5
36 districts with multibank holding company activity	.316	.322	.006	1.9
42 districts with no multibank holding company activity	.517	.517	.000	0.0
16 urban districts	.269	.270	.001	0.4
62 rural districts	.465	.467	.002	0.4

As of December 31, 1974 there were a total of 47 bank holding companies in the state, 19 of which were multibank companies. Bank holding companies in Michigan controlled 99 of the 347 commercial banks in the state (28.5 percent), and aggregate deposits were 21.5 billion, about 73 percent of the total commercial bank deposits in the state.

Increased concentration of banking resources in Michigan caused by bank holding company acquisitions has been nominal. The average H ratio for all 78 banking districts is .427 and the holding company effect is .002, an increase in concentration of

only 0.5 of a percentage point. This increase occurred in only four of Michigan's 78 banking districts, three urban and one rural.

Thirty-six of Michigan's 78 banking districts have experienced some multibank holding company activity; i.e., all bank subsidiaries of Michigan's 19 multibank holding companies are located in these districts. The H ratio of these districts is .322 and, as a subgroup of the total districts, they show the greatest holding company effect (1.9 percent). However, it is notable that these 36 districts still have less banking concentration than the 42 districts where no multibank holding company activity occurred.

market concentration if both the acquiring and acquired banks are located in the same market since the acquired bank is eliminated as a banking organization (it usually becomes a branch of the acquiring bank) and the market share of the acquiring bank increases. A bank that opens several new branches within a given market (de novo branching) almost certainly will increase its share of banking deposits. Aggressive marketing techniques or innovations that attract deposits also could increase a bank's market share at the expense of its competitors.¹

For the purposes of this article, the focus is on increased concentration resulting when a multibank holding com-

¹The accumulation of banking resources under the umbrella of common stock ownership by private individuals, known as group-banking, can be a subtle form of market concentration. In states where multibank holding companies are prohibited, group banking is an effective substitute: there is no way to outlaw common ownership of banks by individuals.

pany acquires *more than one* bank in a *single* local market. From a concentration standpoint the effect of such acquisitions is essentially the same as in bank mergers—*independent* banking organizations are eliminated from the banking market.

To examine changes in local market concentration, the states first must be divided into locally defined geographic areas. The ideal solution would be to divide the states into the relevant banking markets as they exist in the real world. The complexity of delineating such areas, however, is beyond the scope of this study. As a convenience, county and multicounty areas are used as proxy markets. (The multicounty areas are urbanized Standard Metropolitan Statistical Areas or modified versions thereof.) These proxy markets are herein designated as "banking districts," *not* banking markets.

Wisconsin

Banking districts	"H" ratios: all banks as if nonaffiliated	"H" ratios: adjusted for holding company affiliation	Holding company effect	Percent change
67 districts total	.292	.295	.003	1.0
27 districts with multibank holding company activity	.206	.210	.004	1.9
40 districts with no multibank holding company activity	.349	.349	.000	0.0
7 urban districts	.156	.170	.014	8.9
60 rural districts	.307	.310	.003	1.0

Despite the state's long history of accommodating bank holding companies, Wisconsin holding companies control only 26 percent of the state's commercial banks. As of December 31, 1974 there were 65 bank holding companies in the state and of these 24 were multibank companies. Wisconsin's bank holding companies controlled 160 of the 620 banks in the state, and their aggregate deposits were \$7.7 billion, about 53 percent of the total commercial bank deposits in the state.

The increase in concentration of banking resources caused by bank holding company expansions has been minimal. The

average H ratios for all 67 banking districts of Wisconsin is .295 and the holding company effect is .003, an increase in banking concentration of only about 1 percentage point. This small increase took place in only six of Wisconsin's 67 districts, three urban and three rural.

Wisconsin's seven urban districts show the greatest increase in concentration because a large percentage of them experienced some holding company effect. However, the overall concentration level of the seven districts is very low, compared to the other subgroups or to H ratios in Iowa and Michigan.

The use of county boundaries is justified on the basis that many factors that determine political boundaries—e.g., rivers, lake shores, mountains, the existence of uniform laws and regulations, the central locations of most county seats—are coincident with the factors that determine the geographic limits of an economic banking market. It is also worth noting that the Board of Governors of the Federal Reserve System often defines “banking markets” in terms of county and multicounty areas in analyses of bank holding company applications.

A number of quantifiable measures have been used to determine the degree of concentration within a defined area. The easy-to-compute conventional ratio, used earlier to determine statewide aggregate concentration, is one such measure. However, it is not a totally satisfactory measure for analyzing local markets where *all* banks are to be considered. The Herfindahl ratio, although more difficult to compute than the conventional ratio, is considered superior to the conventional ratio because it does take into account *all* firms in the market (see box). An increase in the Herfindahl ratio (the “H” ratio) that is specifically caused by holding company activity is defined herein as the *holding company effect*, an effect that comes about only when a multibank holding company (or companies) acquires *more than one bank in a specific banking district*.

The three-state analysis

Bank holding companies in Iowa, Michigan, and Wisconsin, including one-bank holding companies, control a substantial share of all commercial bank deposits in those states. Iowa bank holding companies control about 42 percent of the state’s bank deposits; Michigan holding companies control about 73 percent of the state’s deposits; and Wisconsin holding companies control about 53 percent of the state’s deposits.

There are 144 bank holding companies operating in Iowa, 47 in Michigan, and 65 operating in Wisconsin. Despite a substantially greater number of bank holding companies in Iowa than either Michigan or Wisconsin, Iowa’s bank holding companies do not control a greater proportion of deposits than do holding companies in the other two states. Surprisingly, the state with the fewest bank holding companies, Michigan, has the greatest proportion of

Herfindahl Index

Among quantifiable methods developed to measure market concentration are the conventional ratios and the Herfindahl index. Concentration in banking is usually measured by the conventional ratio, which is the percent of deposits controlled by the largest bank or banks. For example, a three-bank ratio of .65 describes a market where the three largest banks hold 65 percent of the total market deposits.

A more sophisticated measure is the Herfindahl Index (H), expressed by the formula:

$$H = \sum_{i=1}^n S_i^2$$

where n = number of banks in the market, and S_i = market share of the i th bank.

The index attains the maximum value of 1.0 where a single firm operates in a market. The value declines with increases in the number of firms, increases with rising inequality among any given number of firms, and vice versa. Unlike the conventional ratios that measure the combined market share of an arbitrarily determined number of the largest firms in the market, the Herfindahl index takes into account all firms in a market, though it is more sensitive to the largest. Thus, to the extent that oligopoly or monopoly power is correlated positively with both fewness of sellers and inequality in their sizes, the Herfindahl index is a more optimum measure of market concentration than the simple percentage ratio.

In a five-bank market example, $H = (.40)^2 + (.20)^2 + (.15)^2 + (.15)^2 + (.10)^2$ where the largest bank holds 40 percent of total market deposits, the second largest bank holds 20 percent, etc.; then $H = .16 + .04 + .0225 + .0225 + .01 = .255$.

its deposits controlled by them. This simply indicates that larger banks are members of bank holding companies in Michigan than in Iowa or Wisconsin.

The percentage of banks controlled by bank holding companies in the three states is nearly the same. Bank holding companies control about 27, 29, and 26 percent of the total banks in Iowa, Michigan, and Wisconsin, respectively. The relative disparity in the percentages of total state deposits controlled by bank holding companies and the percentages of banks controlled is another indication of the higher percentage of larger banks that are members of bank holding companies.

Although the foregoing illustrates that bank holding companies have had a great impact upon the banking structure in the three states, their effect on local market competition has been slight at best. Careful analysis shows that the number of banking districts in which a holding company effect could be measured was surprisingly small. Banking concentration caused by holding company activity increased in only four of Iowa's 98 banking districts, in four of Michigan's 78 banking districts, and in six of Wisconsin's 67 banking districts. The holding company effect increased banking concentration in Iowa about 1.5 percent, in Michigan only 0.5 percent, and in Wisconsin about 1 percent.

The Herfindahl measure reveals that of the three district states, Iowa has the lowest level of banking concentration and Michigan has the highest. (For more detailed information on banking concentration, see the individual state statistics.) However, some caution should be exercised regarding comparisons among the three states because of differences in intrastate bank structures, the number and size of banking districts, population and demographic factors, and other minor variances. The primary difference helping to explain the concentration variances among the three states is their intrastate

bank structures: Michigan has a total of 347 banks (1,481 branches); Iowa has 664 banks (385 branches); and Wisconsin has 620 banks (326 branches).²

Summary and conclusions

The major insight of this study is that the holding company effect of multibank holding company expansion in Iowa, Michigan, and Wisconsin has been minor. Comparisons do show that there is more banking concentration in Michigan than in Wisconsin or Iowa. The differences are primarily due to different branching laws. On a statewide basis, a 1.5 percent increase has occurred in Iowa and 1 percent or less increases have occurred in Michigan and Wisconsin. The expansion of holding companies in the three states has contributed little to increased concentration in the proxy banking markets.

Most interested observers might surmise that the expansion of multibank holding companies would have had a substantial impact upon competition at the local market level. This assumption might well have been supported by the facts if bank holding company acquisitions were not subject to Federal Reserve Board approval. The negligible impact that holding companies actually have had on increased banking concentration in Seventh District states lends credence to the regulatory acumen of the Federal Reserve Board. Granted, the record indicates that the Board approves a great majority of holding company applications. However, it would be imprudent for a holding company to apply for expansion into an area where a high probability of denial exists. The Board's approval rate does not reflect the silent restraints imposed upon holding companies by the likelihood that the Board will deny acquisitions entailing significant anticompetitive effects.

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²*Federal Reserve Bulletin*, February 1975. Legally, Iowa banks have "banking offices" not branches.

