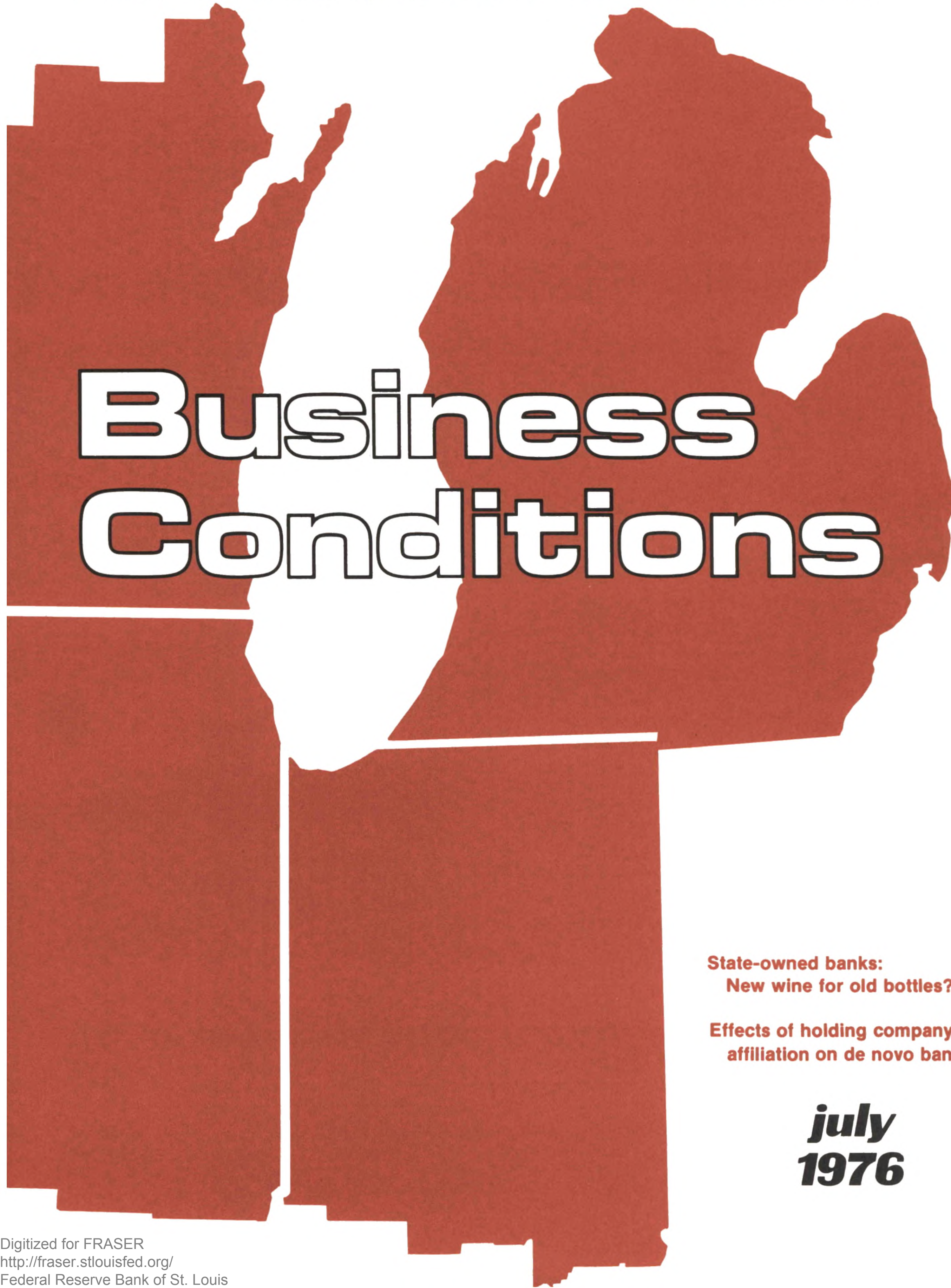
an economic review by the Federal Reserve Bank of Chicago

Business Conditions



State-owned banks:
New wine for old bottles?

Effects of holding company
affiliation on de novo banks

july
1976

Contents

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State-owned banks: New wine for old bottles?

What experience and history teach is this, that peoples and governments never have learned anything from history, or acted on principles deduced from it.

Georg Wilhelm Friedrich Hegel

Allocation of credit has caused perennial conflicts and controversies ever since the founding of our republic. Dissatisfaction with the market system's allocation of credit has brought forth demands for increased government control, planning, and intervention in the allocation of credit. Advocates contend, in general, that the private market economy—through the price mechanism—either has failed to or will not allocate sufficient credit and other resources toward certain "socially desirable investments" (e.g., housing, students, farmers, small businesses, and state and local governments). Others contend that any effort by the government to alter the allocation of credit has in the past—and would in the future—disrupt and destabilize the financial community; furthermore, the social costs of these efforts would exceed the benefits and would be "administrative nightmares."

The methods most frequently discussed for altering credit flows may be placed in the following broad categories: (1) policies directed toward altering the overall *price* of credit (various tax and subsidy programs), (2) selective credit controls intended to limit and/or allocate the *quantity* of credit available (ceilings or quotas), and (3) the development and *alteration of financial institutions* to achieve a more effective allocation of funds to the "priority sectors."

This article focuses upon the third category, dealing primarily with a particular class of financial institution—state-owned banks. These are defined as banks owned, controlled, and operated by a state government. Currently, and to the surprise of many, there is one such institution in the United States—the Bank of North Dakota.[1]

Recently, two bills directed toward the establishment of a state-owned "public bank" were considered by the Banking Committee of the New York State Assembly.[2] Among other things, this proposed institution would perform the following functions: (1) depository for public monies, (2) underwriter of obligations of state and political subdivisions, (3) lender primarily on an intrastate basis, and (4) provider of a "yardstick" by which the performance of conventional banking institutions could

[1]Furthermore, public attention has most recently been directed to the general issue of state involvement in banking in light of the problems experienced by the Farmers Bank of the State of Delaware, 49.3 percent of its stock being owned by the State of Delaware.

[2]Assembly Bills 6531 and 6532, 1975.

be measured. Similar legislation is pending in the Canadian province of British Columbia, and two California State Senators have recently requested that a feasibility study be made concerning the establishment of a state-owned bank in California.

Rationale behind state involvement in banking

State involvement in and ownership of banking institutions in the United States dates back to the late 1700s, varying between the extremes of minimal involvement to complete ownership and operation prior to the Civil War. However, almost all states—even though they did not actively participate in banking—either reserved the right to or were required by the state constitution or statutes to subscribe to a portion of the stock in newly organized banks.[3] Motives for state involvement in banking were numerous, but major reasons included:

- Profits. Since banks were a source of considerable profits, it was believed that profits derived from state participation in banking activities could eliminate, or at least reduce, the burden of state taxes.
- "Favored borrower." By owning and operating banks, the state assumed it would be able to borrow on better terms than elsewhere.
- Public depositories. Many state-owned banks were to function as depositories of state funds and to act as fiscal agents for the states.
- Public confidence. Due to widespread public concern and distrust of banks during this period, state ownership was thought to be a means of preventing the establishment of privately owned banks whose policies might be antithetical to the public interest.
- Provider of capital. Particularly in the southern and western regions of the country, the lack of private capital with which to finance agricultural and industrial development provided an impetus for state ownership of banks as a means of providing the needed capital. Several banks were established for the purpose of lending to agriculture and promoting internal improvement projects (e.g., canal and railroad development) within the states.
- "Relief institutions." A number of state-owned banks were established to ensure that credit would be extended to those persons who were unable to obtain it elsewhere, with the particular mission of providing relief to debtors.

Results of early state ventures into banking

By the end of the Civil War most of the states had removed themselves from active participation in banking. (See box for a capsule history of many of the state-owned banks.) In general, history reveals that state ventures into banking proved to be a costly experiment. While results varied from state to state, some general insights can be derived from the historical experience. Although state ownership was not the main cause of the failure (or success) of these institutions, the most conspicuous examples of failure occurred when the state had a free hand in the bank's affairs. In many instances the bank was controlled by incompetent political appointees who were subject to special interest group pressures and who used the bank to grant or deny political favors. These political appointees frequently had little regard for basic and sound banking principles.

At the outset both the state legislature and taxpayers approved of the state becoming a banker since they foresaw the profits arising from such a venture as a step toward achieving a taxless society.

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[3]D.R. Dewey, *State Banking Before the Civil War* (Washington: United States Government Printing Office, 1910), p. 33.

Upon formation, however, the objectives of various special interest groups began to conflict. On the one hand, the state and taxpayers had a desire and a goal to make the bank profitable. In so doing, bank profits would provide needed state revenues and lessen tax burdens. On the other hand, the state and the bank's debtors wanted to use the bank to achieve "higher social goals," such as providing relief, developing resources, promoting internal improvements, etc. As a result, the "higher social goals" meant that the state-owned bank was to be sacrificed to its debtors. As soon as an economic or political crisis was at hand, "relief" was called for, which meant that the bank's debtors were to be relieved of their obligations to the bank. In the case of many of the state-owned banks, failure resulted when the state simultaneously attempted to live off the bank and plunder it.[4]

In light of numerous examples of state-owned bank failures and few examples of successes, it is instructive to examine the background and results achieved by the one remaining state-owned bank in the United States—the Bank of North Dakota.

The Bank of North Dakota

From 1915 to 1920, brought on largely by the pressures of World War I, the demand for agricultural products and industrial goods increased. Since agriculture was becoming increasingly mechanized, farmers required more credit to purchase machinery and to buy and improve land. In the western states a scarcity of deposits made it difficult for private banks to extend sufficient credit to meet the demands of agriculture. Although rural banks were, on average, heavy borrowers from the city banks, there was a growing outcry that the city banks were draining money from the rural areas.[5] Economic instability and unmet credit demands fostered demands for political action to remedy the situation.

Due to the scarcity of credit in North Dakota, farmers in the state became deeply indebted to the banks in Minneapolis, which—they argued—were charging inordinately high interest rates on both short- and long-term loans; even at these high rates the farmers could not be assured of securing credit. Lacking faith in the ability of the market system to allocate sufficient credit to agriculture, the Non-Partisan League committed itself to organizing a state-owned bank in North Dakota to be the "people's bank," both in terms of ownership and service.[6]

Proponents of the bank believed that it would retain funds locally and would extend credit to farmers on real estate mortgages. Also a "banker's bank," it would furnish credit and provide clearing services, thus making local banks less dependent upon banks in Minneapolis and other urban centers.

Early in 1919 the North Dakota legislature authorized the incorporation of the Bank of North Dakota, intending it to be an institution to promote economic development within the state, as was clearly stated in the Bank of North Dakota Act:

> For the purpose of encouraging and promoting agriculture, commerce and industry, the State of North Dakota shall engage in the business of banking, and for that purpose shall, and does

[4]William Graham Sumner, *A History of Banking in the United States*, vol. 1: *A History of Banking in All the Leading Nations* (New York: The Journal of Commerce and Commercial Bulletin, 1896), p. 315.

[5]Charles S. Popple, *Development of Two Bank Groups in the Central Northwest* (Cambridge, Massachusetts: Harvard University Press, 1944), p. 73.

[6]Almost 100 years earlier (1820) the State of Kentucky had formed the state-owned Bank of the Commonwealth of Kentucky (popularly known as the "Peoples Bank"). Relief objectives, corrupt management, and currency depreciation forced the Bank of the Commonwealth of Kentucky to cease its lending activities ten years later.

Historical highlights of state-owned banks: 1792-1861

Massachusetts

Just as it had been the first state to use paper money, Massachusetts was the first state to become directly involved in banking activities. In 1792 the Commonwealth of Massachusetts subscribed for one-third ($400,000) of the capital stock of the Union Bank at Boston. The Union Bank was made the depository for Commonwealth funds, and the Commonwealth continued to acquire additional shares in the bank until 1812 when it sold its interest in the bank, which had proven to be a good source of revenue for the state.

Vermont

In 1806 the State of Vermont established itself as an innovator in American banking history by chartering the first bank to be completely owned and controlled by a state. Called the Vermont State Bank, it was formed without specific capital and, as such, became known as the "first great state paper money machine." The bank and its two branches received all state funds; all bank profits were paid to the state; and the state pledged its faith and credit to redeem the bank's obligations.

In 1807 the Vermont State Bank was placed in a monopoly position by the legislature, which enacted a law prohibiting bank notes from other states from entering Vermont for the purpose of making loans. In 1812, brought on by loan losses and credit impairment, legislative action was taken to close the institution. Final settlement of the bank's affairs was completed in 1845; the bank's losses were estimated to be about $200,000.

South Carolina

In 1812 South Carolina formed the first entirely state-owned bank in the South. Known as the Bank of the State of South Carolina, it acted as the state's fiscal agent, paid interest on the state debt, and provided banking services for residents of the state. The legislature elected the bank's president and twelve directors. By 1830 the bank had been instrumental in paying a portion of the principal of the state debt, and in 1838 it played an active part in obtaining money in Europe to finance the rebuilding of Charleston, which had been destroyed by fire.

The Bank of the State of South Carolina was one of a limited number of banks which did not suspend specie payments during the Panic of 1837; it survived the Civil War only to succumb to Reconstruction politics and was placed in receivership in 1870. During most of its history the bank was apparently well managed and profitable and served as a model for other states desiring to establish state-owned banks.

Kentucky

In 1820 the Kentucky legislature chartered, for a 20-year period, the Bank of the Commonwealth of Kentucky explicitly for the purpose of "relief of the distress of the community." Notes issued by the bank were not made legal tender, but pressure was brought to bear upon creditors who refused to accept these notes. The legislature elected the president and twelve directors. The bank's notes depreciated soon after issue, and by 1830 the bank ceased to loan money (partly due to lack of borrowers). The charter expired in 1841 and several years were necessary to settle the bank's affairs.

Tennessee

In 1820 the Bank of the State of Tennessee was incorporated "for the purpose of relieving the distress of the community and improving the revenue of the state." The bank was designated as the state's depository and its Board of Directors was appointed by the legislature. Mismanagement and irregularities in the bank's lending policies resulted in its closing in 1832, with some loss to the state.

In 1838 the State of Tennessee chartered, for 30 years, another Bank of the State of Tennessee to provide relief and a sound currency, and to assist commerce, education, and public works. The conflicting goals of providing relief and supporting internal improvements led to the bank's demise in 1866.

Illinois

The Illinois Constitution of 1818 specified that there should be no banks in the state except a state bank and its branches. In response to widespread financial distress, and over the objections of the Governor of Illinois, the State Bank of Illinois—"an institution for relief of individual distress" and founded wholly on the credit of the state—was established in 1821. The bank's head office was at Vandalia, then the state capital, with branches in four other cities. The legislature exercised complete control over the bank's operations and elected the president and six directors of the head office. The bank was the sole depository of state funds.

From the beginning the bank's operations proved to be a serious burden on state finances. Problems arose primarily from two factors—inept management by political appointees and the liberal attitude which the state took toward the bank's debtors. The bank's charter expired in 1831 at which time the state was forced to borrow $100,000 to wind up the bank's affairs. Total monetary loss to the state was estimated to be $400,000; however, this does not reflect the loss incurred by private individuals nor the damage to the state's credit standing.

Alabama

The Alabama Constitution of 1819 specified the establishment of one state bank with branches. In 1823 the Bank of the State of Alabama was chartered "to provide for the safe and profitable investment" of public funds, an objective it failed to achieve. The state was the sole stockholder, and the General Assembly elected the president and twelve directors. The bank's charter expired in 1845, its history clouded by loan losses and political scandal. In 1867 the state constitution was amended to prohibit the state from being a stockholder in any bank.

Georgia

Under pressure from agricultural interests the State of Georgia in 1828 established the Central Bank of Georgia for the purpose of "making loans upon terms more advantageous than has heretofore been customary." The Governor chose the directors, and the bank acted as the state's fiscal agent. Financial loss preceded the bank's closing, its affairs not being terminated until about 1856.

Indiana

The Indiana Constitution of 1816 was unique in the sense that it was the first state constitution to explicitly prohibit the establishment of banks, with the exception of a state bank with branches. In 1834 the State Bank of Indiana was incorporated for a period of 25 years. In part, the bank was organized to "encourage the development of the agricultural resources of the state" and to act as the state's fiscal agent. It was a tightly knit federation of banks under the general supervision of a Central Board at Indianapolis. The state held 50 percent of the stock, elected the president and four of the seven directors of the main bank at Indianapolis, and shared in the appointment of each branch was managed by local shareholders. Local control, mutual liability, and stringent supervision by the Central Board—not characteristic of other state-owned banks—proved to be key factors in the success of the bank, along with its existence as a pure monopoly within the state. The bank weathered the Panic of 1837, and when it wound up operations in 1857, it had paid regular dividends with the state realizing a net profit of about $3.5 million. Constructive achievement displayed by the State Bank of Indiana served as an example that other states followed.

Arkansas

In 1836 Arkansas, following the example set by South Carolina, incorporated the Bank of the State of Arkansas. The president and twelve of the directors were appointed by the state legislature. The bank acted as the depository for state funds and was required to loan these funds throughout the state. Due to a combination of economic, political, and bank management factors, it was closed in 1842 and the State of Arkansas was left with a $5 million debt as a reminder of its banking experience. The Arkansas Constitution was amended in 1846 to prohibit *any* banking institution from being established in the state.

hereby, establish a system of banking owned, controlled and operated by it, under the name of the Bank of North Dakota.

The bank was to have a capital stock of $2 million to be subscribed for entirely by the state. In its early years instances of mismanagement, involvement in foreclosures on real estate loans, and political manipulation of the bank's affairs weakened public confidence in the institution. By 1924 the bank's operating losses were estimated at about $1.8 million.[7] Some confidence in the bank was regained during the 1930s when it supported the market for local government obligations.

From this rather dismal beginning the Bank of North Dakota has evolved into the largest commercial bank in the state. As of year-end 1975 its total deposits amounted to approximately $311.7 million, representing about 11.9 percent of the state's total commercial bank deposits. The bank's aggregate net operating earnings over its 56-year history had amounted to approximately $90.9 million.

From its inception the bank did not enter into direct competition with other commercial banks within North Dakota. Today it operates largely as a trust fund for public deposits and as a clearing house for many state institutions. The bank receives all of the deposits of the state agencies—as well as about 30 percent of the deposits of political subdivisions other than the state—and a limited amount of demand and time deposits from individuals. It also acts as a correspondent bank for many small unit banks within the state. All of the bank's deposits are state guaranteed.

Law prohibits the bank from making private and commercial loans, except Veterans Administration (VA) and Federal Housing Administration (FHA) guaranteed home loans and federally insured student loans. These loans, as of year-end 1975, represented about 53 percent of the bank's total loans, which amounted to $119 million. With total deposits of $311.7 million the bank's loan-to-deposit ratio is about 38 percent, somewhat lower than the loan-to-deposit ratio for private commercial banks in the state. This low ratio is explained in part by the nature of the bank's public deposits and its commitment to the safety of public deposits.

The bank derives approximately 38 percent of its total operating income, which amounted to about $25.4 million in 1975, from interest on loans. Interest expenses accounted for about 91 percent of the bank's total operating expense, which was $17 million at year-end 1975. The ratio of total operating expense to total operating income in 1975 was 66.6 percent, which is above average compared to private commercial banks of similar size.

Commencing during the 1940s the bank became an active underwriter for bond issues of the state's political subdivisions. The bank has been criticized for its policy of holding tax-exempt securities since it pays no income tax. However, the management contends that the policy is both efficient and economically sound since many of the issues are so small as to preclude public bidding.

The question of whether the Bank of North Dakota has been an effective institution for fostering economic development within the state remains to be answered. On the surface it appears that the extent of development fostered by the bank is less than proportional to its size. Concern over the safety of its public deposits and the need to remain highly liquid has caused the bank to hold a large portion of its earning assets in a low risk, low return form. The trade-off between low risk and high return tends to hamper developmental potential.

[7]Warren M. Persons, *Government Experimentation in Business* (New York: John Wiley and Sons, Inc., 1934), p. 188.

Although the Bank of North Dakota was established, in part, to make agricultural loans available on a reasonable basis, it makes no direct farm loans; presently, its major contribution in supplying farm credit lies in the purchase of federally insured Farmers Home Administration (FmHA) loans and participations in agricultural loans made by other banks. To a certain extent the objectives of the bank were supplanted by the establishment of federal agricultural lending institutions and regulations which have expanded the alternative sources of agricultural credit.

State-owned banks: pitfalls and advantages

The history of state-owned banks reveals that in almost all cases the banks were established with the belief that existing financial institutions were not adequately meeting the financial needs of the state and/or the public. To fill the void, the states became bankers. With some notable exceptions their existence was short-lived; and, more often than not, they did not achieve their desired objectives.

On at least two recent occasions the Bank of North Dakota has been cited as a "valid historic precedent" which "proves that a state government can efficiently and effectively manage a banking institution." On the other hand, one might well cite the record of the Bank of the State of Arkansas or the State Bank of Illinois as establishing a "valid historic precedent." States considering the establishment of state-owned banks should be aware of both the pitfalls and the advantages that may be derived from bank ownership, as discussed below.

Proponents of state-owned banks assume that the state will be the recipient of profits (if any) currently being derived from public funds held by private financial institutions. As such, it is contended that the profits derived from the state-owned banks will make the institutions self-supporting and will create no additional costs for the state. Carried one step further, profits derived from bank ownership will serve to lessen the overall state tax burden on the general public. Opponents, however, contend this line of reasoning is fallacious in at least two respects. First, an accounting must be made for the opportunity cost of funds employed. That is, the state must weigh the rate of return on investing scarce state resources (monetary as well as nonmonetary) in a state-owned bank against the rate of return these resources would yield in all other possible endeavors, both public and private. Second, opponents contend no empirical evidence supports the assumption that a profitable state-owned bank would necessarily cause a reduction in state tax burdens. For example, North Dakota's tax receipts per $1,000 of personal income are about 9 percent above the national average. Although not sufficient grounds upon which to reject, neither is it sufficient grounds upon which to accept the hypothesis that the establishment of state-owned banks will ensure a reduction in state tax burdens.

Proponents also contend that the establishment of a state-owned bank would allow the state to pool its financial resources so as to achieve economies of scale and efficiencies with respect to their allocation and earning potential. Opponents insist that the benefits derived from pooled resources may be less than the costs involved. Also, evidence indicates that economies of large scale are slight once a bank approaches the $10 million deposit size and are exhausted beyond the $50 million deposit level. By concentrating the majority of its financial resources in one institution, the state will forego the safety that arises out of the distribution of public funds among numerous financial intermediaries.[8] Pooling of deposits increases a state's financial risk exposure[9] and reduces its financial flexibility by preventing it from obtaining the highest possible yield on invested funds consistent with reasonable safety of principal. Furthermore, any financial institution which relies heavily upon state and local funds will experience large fluctuations in deposits due to the seasonal nature of state revenues and expenditures. Private commercial banks are able to compensate for these seasonal trends by diversifying their deposit base. Lacking a similarly diversified base, state-owned banks will be constrained in achieving their next major goal, that of allocating credit toward "socially desirable investments."

In addition, proponents claim that public funds placed in private financial institutions are loaned out for both interstate and intrastate, as well as international purposes. By centralizing its financial resources in a state-owned bank, a state has the ability to extend credit on an *intrastate* basis and can channel this credit toward certain "socially desirable investments" in order to combat unemployment, credit discrimination, and other social problems. Opponents argue that the history of state-owned banks indicates such an institution, over the long run, would be unable to maintain, as a major objective, the allocation of credit to "socially desirable investments." Furthermore, once the state assumes the role of banker, it will be faced with the problems confronting private commercial banks, such as controlling risk exposure, maximizing returns on investments, and ensuring adequate liquidity and capital. The process of channeling its resources primarily toward "socially desirable investments" will at the very least necessitate a trade-off between risk and return. A major problem to be resolved will be the identification of socially desirable investments. Assuming that investments can be agreed upon to the mutual satisfaction of all parties involved, the transaction costs (for example, the need for elaborate and time-consuming studies to determine demand functions without being able to observe a market) must be weighed against the hoped-for increase in public benefits arising out of the nonmarket solution for the allocation of resources.

Last, but not least, proponents contend that the state-owned banks will serve as a "yardstick" by which the performance of private commercial banks can be measured. Opponents maintain such institutions would be encumbered with political administration, would be tax exempt, and would be generally insulated from the rigors of competition from other financial institutions; thus they would be of little or no value as "yardsticks."

In the final analysis the decision concerning the establishment of a state-owned bank must be made on the basis of the social costs and benefits anticipated for such an institution. Only if there are net public benefits to be derived from such an institution should the states seriously consider employing scarce financial resources. In making their decision the states might well consider Samuel Clemens's remark concerning the cat who inadvertently sat on a hot stove lid: "She will never again sit down on a hot stove lid; but also she will never sit down on a cold stove any more." Clemens concluded, "We would be careful to get out of an experience only the wisdom that is in it—and stop there."

David R. Allardice

[8]A case in point is the Farmers Bank of the State of Delaware, the sole depository for state funds. Loan losses of about $17 million in 1975 necessitated actions on the part of the state and the FDIC to protect $140 million in state funds on deposit with the bank.

[9]Delaware's "high exposure" to risk due to its more than $100 million of uninsured deposits in the Farmers Bank has been cited as a contributing factor in the recent lowering of the rating of the state's general obligation bonds to single-A from single-A-1.

Effects of holding company affiliation on de novo banks

The growth of bank holding companies (BHCs) in recent years has had a significant impact upon the banking system. By mid-1976 holding companies controlled around one-fourth of all commercial banks in the United States and more than two-thirds of total commercial bank deposits. As recently as year-end 1970, these proportions were about one-fifteenth and one-sixth, respectively.

Bank holding companies are regulated by the Board of Governors of the Federal Reserve System. The Bank Holding Company Act of 1956 (as amended) requires Board approval of all acquisitions of banks by corporations. These acquisitions are evaluated according to specific criteria in the act related to financial and managerial factors, competition, and convenience to and needs of the public. Regulators are in constant need of timely, factual data (and analysis of the data) in order to help them find the most satisfactory middle ground when confronted with decisions involving bank holding company acquisitions and other bank structure issues.

As more banks join the ranks of bank holding companies, the influence of banking structure upon bank performance, competition, and other public benefit considerations continues to be vigorously debated. Proponents of BHCs argue that more efficient operations and other public benefits result from the BHC form of organizational structure than from a system of unaffiliated independent banks. This contention is based upon the belief that beneficial synergistic effects occur in a multitiered corporate structure. Another contention is that large-scale economies are at work in an expanding and growing bank holding company system.

This study examines the possible differences in performance characteristics between independent banks and de novo banks organized by BHCs. De novo banks formed by BHCs were examined, as opposed to existing banks acquired by BHCs, in the belief that de novo banks would more accurately reflect the operating philosophy of the parent. Previous studies have analyzed the performance of established banks affiliated with BHCs, i.e., banks with a history of many years of independent operations prior to acquisition. However, the acquired bank, in such cases, often retained the same management after acquisition. Also, many multibank holding companies allow established bank subsidiaries to operate autonomously with relatively little management interference from the holding company parent. Consequently, the operating philosophy of acquired banks often does not change significantly for some period of time. The use of de novo banks should increase the likelihood that the true operating philosophy of the holding company's management would surface in the study results. (See Box A.)

Selected financial ratios were examined to determine possible performance differences between the holding company de novo banks and the independent banks with which they were compared, using two different methods of analysis. (See Boxes B and C for specific methodological information.)

Note: A copy of the complete study may be found in *Bank Structure and Competition*, 1976, Federal Reserve Bank of Chicago, or a single copy may be obtained by writing to the Research Department, Federal Reserve Bank of Chicago.

Box A
Bank sample selection

The sample of banks for this study was generated by selecting de novo banks formed by bank holding companies and then matching an independent bank to each de novo bank. Of the 152 new banks formed by BHCs during the 1965-75 period, 96 were paired with independent banks located in the same market area and generally of the same size and age, making the sample a total of 192 banks. The sample banks were located in 24 states. The same sample of banks was used in both methods of analysis.

Box B
Analysis #1: t-test of significance

Thirty-nine financial ratios were selected as performance proxies for each bank. Financial data from the Report of Condition and Report of Income for year-end 1974 were used to compute the 39 different financial ratios for each bank. The t-test of significance was used to test the hypothesis that the difference between the sample means of each ratio for each group of banks was not significantly different from zero. Ratios found significant using this statistical method are shown under Analysis #1 of the table.

The t-test methodology is the one most often used by previous investigators in similar studies, which generally analyzed a number of financial ratios of banks acquired by holding companies both before and after the date of acquisition. Significant differences in the financial ratios between the two time periods were attributed solely to the effect of holding company affiliation.

Problems associated with paired sampling techniques can lead to biases in the sample. Therefore, previous studies and this study can be faulted for possibly attributing more weight to holding company affiliation than was warranted by the data. Although each independent bank in the control group was *similar* in location, size, and age to the holding company bank with which it was paired, it could not be precisely the same. Consequently, differences which show up between the two groups of banks using this methodology cannot legitimately be attributed *solely* to holding company affiliation, but may be due to other factors as well. Analysis #2, a multiple regression technique, was undertaken in an attempt to explain more accurately differences in the ratios of the two bank groups.

De novo banks organized by BHCs were found to exhibit a number of characteristics different from independent banks in both their asset and liability structures as well as in costs and profitability. Financial ratios that emerged significantly different between the two groups of banks using the first method of analysis are exhibited under Analysis #1 in the table.

Initial analysis of the asset structure indicates that holding company banks hold less cash balances with other banks and less government agency securities; they sell a greater proportion of federal funds than independent banks. The data comparisons also suggest that holding company banks pay higher interest on deposits, have higher operating expenses, higher pension and employee benefit costs, higher "other expenses," and are less profitable than independent banks.

The methodology utilized in the initial analysis of the study has definite shortcomings because of problems associated with paired sampling techniques and the possibility of biases in the sample. Because of such shortcomings, a multiple regression model was used to separate the causes for performance differences more accurately. This different and more sophisticated statistical technique revealed that a number of these differences between BHC and independent de novo banks are *due to factors other than bank holding company affiliation.*

For example, the ratio in the table, "cash balances with other banks to cash items," indicates that the sample of

Significant ratio averages and t-values

Ratio	Average ratio in percent: BHC de novo banks	Average ratio in percent: Independent banks	t-value: Analysis #1[1]	t-value: Analysis #2[2]
U.S. Government securities / Total assets	11.65	15.36	-3.05[3]	-2.80[3]
Operating expenses / Operating income	99.48	88.02	+4.83[3]	+3.47[3]
Total operating expenses / Total assets	7.46	6.50	+4.50[3]	+3.27[3]
Employee benefits / Total assets	0.22	0.18	+3.06[3]	+2.99[3]
Employee benefits / Salaries & wages	14.00	12.10	+2.73[3]	+3.38[3]
Other expenses / Total assets	1.50	1.21	+3.38[3]	+2.35[4]
Net income / Total assets	0.26	0.69	-4.00[3]	-2.74[3]
Net income / Equity capital	3.73	7.89	-3.52[3]	-2.02[4]
Cash balances with other banks / Cash items	47.59	60.76	-3.41[3]	Not sign.
Federal funds sold / Total assets	11.59	8.17	+2.12[4]	Not sign.
Interest on deposits / Total time & savings deposits	7.56	6.68	+2.29[4]	Not sign.
IPC DD + T&S deposits / Total assets	69.18	72.81	-2.12[4]	Not sign.
IPC DD + T&S deposits / Total deposits	81.28	85.34	-2.33[4]	Not sign.
T&S deposits / Total deposits	45.29	49.15	-2.17[4]	Not sign.
Deposits of commercial banks / Total assets	1.99	0.41	+1.99[4]	Not sign.

[1]Analysis #1 is the result from using the t-test of significance statistical technique. See Box B.
[2]Analysis #2 is the result from using the multiple regression technique. See Box C.
[3]Significant at the 1 percent level.
[4]Significant at the 5 percent level.

Box C

Analysis #2: multiple regression technique

Although a careful selection of the control bank sample (independent banks) should attribute differences in the financial performance ratios solely to holding company affiliation, the pair-bank sample cannot be perfect; other factors are present to cause performance differences between the bank ratios. The advantage of the multiple regression statistical technique is that it allows the individual contribution of selected independent variables such as bank size, location, age, holding company affiliation, Federal Reserve membership, and other variables to be measured independently and explain more accurately the ratio differences. Eight independent variables—shown in the regression model below—were selected because of their expected importance in explaining variations in the performance ratios.

The following multiple regression model was used:

$$R_i = a_{io} + a_{i1}H_j + a_{i2}F_j + a_{i3}S_j + a_{i4}A_j + a_{i5}G_j + a_{i6}B_j + a_{i7}C_j + a_{i8}M_j$$

where,

$i = 1 ... 39$ (financial ratios)
$j = 1 ... 192$ (bank sample)

and,

R = performance or financial ratio
H = bank holding company effect
F = Federal Reserve Bank membership
S = bank asset size
A = bank age
G = bank asset growth rate
B = branching restrictions
C = customer type
M = deposit size of banking market

Performance ratios which emerged significant, with respect to holding company effects, are shown under the Analysis #2 column of the table.

holding company banks held less cash balances with other banks than the sample of independent banks. This performance difference is more accurately explained by the relatively higher Federal Reserve Bank membership among holding company banks in the sample rather than by the influence of holding company ownership. Federal Reserve member banks cannot count cash balances held with other banks as legal reserves, whereas nonmember banks can.

The more rigorous analysis of the financial ratios using the regression method determined eight ratios to be statistically significant (see table). These eight ratios were included among the 15 ratios found to be significant in the initial analysis. Moreover, the results were consistent in that no new or different ratio emerged significant in the regression technique that was not included in the initial analysis. The regression results also indicate that de novo banks formed by holding companies hold less government securities in their asset structure, are less profitable, have higher costs with respect to employee benefits, have higher "other expenses," and have higher total overall operating expenses than similar independent banks.

Conclusions

Unlike previous studies, which included only existing banks acquired by bank holding companies, this analysis indicated that holding company banks have significantly lower profitability than independent banks. Proponents of the holding company form of banking organization might argue that holding company banks incur higher costs because they are more price competitive, they promote public benefits by paying higher interest on savings accounts, and they charge less for demand deposit accounts and/or maintain larger loan-to-deposit ratios than independent bank competitors. However, such an argument is not supported by the study results: the regression analysis indicates that ratios representative of the forgoing asserted public benefits are not significantly different between the two bank groups. The lower profitability for holding company banks appears to be the result of costs incurred in the two categories of 1) higher employee benefits and 2) higher "other expenses."

Because BHCs are usually the larger banking organizations within the industry, one would intuitively expect them to have employee benefit plans, which would be extended to their subsidiaries. Smaller independent banking organizations, on the other hand, would be expected to be less inclined to maintain sophisticated and costly employee benefit plans.

The cost category "other expenses" includes many diverse bank expenses. Information on specific cost items of a given bank within this category is not readily available. Thus, while the question as to why holding company banks have significantly higher expenses in this category is intriguing, the data limitation makes it impossible to answer. However, one could speculate that costs related to holding company structure and required to be reported in this category—such as retainer fees, legal and management fees, and fees paid to directors and members of committees and other related costs—could conceivably drain away profits from the holding company *banks*. On the other hand, one could speculate that holding company banks process a comparatively larger number of forged checks and have excess cash shortages—these items are also required to be reported in the "other expenses" category. The actual reasons for higher "other expenses" for holding company banks must be left to conjecture or to future investigators who wish to address this question empirically.

Recently, much emphasis has been paid to bank soundness as measured by a bank's capital ratios. Past claims by BHCs indicate that they have the potential to tap national financial markets and thereby act as a source of financial strength to their subsidiary banks. Given this supposed greater financial flexibility, one might expect that holding company banks would be significantly better capitalized than independent banks. This study turned up no significant difference between the two bank groups with respect to capitalization ratios. However, this result should be interpreted cautiously because only smaller subsidiary banks of BHCs—those between $5 million and $40 million in asset size—were included in the sample, which may not be representative of all holding company banks.

Results also show that the ratio "operating expenses to operating income" is significantly higher for holding company banks. This ratio is a generally accepted measure of operating efficiency in banks. Because this ratio is significantly higher for BHC banks, these findings run counter to claims by those holding companies which contend that the multibank structure of BHCs promotes internal efficiencies. The results of this study suggest that this is not the case and that independent banks may be more efficient than holding company banks.

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