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Chapter Author: David T. Kresge

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DAVID T. KRESGE
University of Alaska

The Impact of Monetary Policy on the Allocation of Bank Credit

ABSTRACT: The purpose of this study is to examine, using individual bank data, the relationship between banking structure and short-run changes in the allocation of bank credit during the period from mid-1965 through the end of 1967. The three major structural factors considered are: (1) branching characteristics, (2) bank size, and (3) urban-rural location. ¶ The effects of sharp changes in monetary policy during the 1965-67 period tended to be concentrated on particular groups of banks and on particular types of borrowers. First, branching characteristics in a given region apparently influenced the banks' relative ability to attract funds. In the first half of 1966, unit banks, especially the larger ones, found that deposits which were subject to effective interest rate ceilings (savings deposits and demand deposits) were particularly vulnerable to the effects of disintermediation. Without branch offices, the unit banks seemed unable to offer as effective nonprice competition as the other types of banks. Also, the large unit banks held unusually large correspondent balances, which were withdrawn. ¶ In the second half of 1966, the banks in extensive branching areas lost large amounts of time deposits when the interest rate ceiling prevented them from replacing maturing certificates of deposit (CD's). Other banks, having fewer CD's outstanding, were not as severely affected. The bank in moderate branching areas showed relatively strong deposit growth throughout the period. Because this group of banks is less homogeneous, the regions served by moderate

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branching systems were not subject to the concentrated impacts of particular monetary policy instruments. ¶ During the study period, there was also a major reallocation of funds as the result of the high priority given to commercial and industrial loans by the very large banks in urban areas. As monetary conditions tightened in 1966, these banks shifted funds from Government and municipal securities into business loans. Loans to financial institutions and to brokers and dealers were reduced. Consumer loans and residential mortgages were given much smaller allocations of loanable funds and, in some cases, were actually reduced. In reallocating their available funds, the groups of large banks all behaved in very similar fashion. Differences in branching structure did not seem to influence significantly the observed response patterns. ¶ Thus, much of the impact of changes in monetary policy was concentrated on the large, urban banks. The two extreme forms of branching structure (unit banking and extensive branching) proved particularly vulnerable to deposit fluctuations caused by specific policy instruments, such as interest rate ceilings. The large banks responded to tight money during the 1965-67 period by shifting a disproportionate share of funds into business loans, while loans to the household sector were restricted. Since the areas with extensive branch banking are also served primarily by a small number of very large banks, these areas were greatly affected by the allocational effects of changes in monetary policy. Because the large, extensive branching banks are concentrated in the Far West and Northeast, urban households in those regions found that bank credit was extremely restricted during the 1965-67 period. Banks in those regions reallocated a substantial portion of their lending from consumer loans and residential mortgages into commercial and industrial loans. The areas served by rural banks or by small urban banks were relatively insulated from the allocational impact of short-run policy actions.

[1] INTRODUCTION AND SUMMARY

At present, relatively little is known about the relationships between banking structure, monetary policy, and the short-run changes in the allocation of bank credit. It has long been recognized that the structural characteristics of a commercial bank seemingly play a major role in determining the behavior patterns of the bank. There are a number of observable differences related to differences in bank size, geographic location, and branching characteristics. For example, loan-asset ratios tend to be substantially higher in the large urban banks in states with extensive branch banking (see Appendix Table 2). Moreover, previous studies have

shown that both size and branching characteristics have a significant impact on the cost of bank operations.¹ There is also some indication that banking structure affects the pricing of bank services, although the evidence in this regard is less conclusive.²

In all, it seems clear that banking structure is a significant factor influencing the decision process in an individual bank, affecting, in turn, the allocation of credit throughout the banking system. However, this observation, as supported by the evidence cited above, is primarily applicable to the long-run or steady-state situation. Yet, under the financial conditions prevailing in recent years, the short-run effects may be of overriding importance. When the Federal Reserve is pursuing an active monetary policy—and particularly if this policy results in a “credit crunch”—it is the immediate availability of credit that really matters. This is the case, because, in the long run, the nonbank elements of the financial system can adjust to compensate for major imbalances in the allocation of bank credit, whereas, in the short run, these counterbalancing adjustments may not be practicable.

The purpose of the present study is to examine the relationship between banking structure and short-run changes in the allocation of bank credit. Unlike studies based on more aggregate data, the findings here are derived from observations on individual banking units. By using individual bank data, it is possible to examine the response to changes in monetary policy as regards the allocation of funds among types of banks, classes of borrowers, and regions of the country. Because of the interactions among the structural factors involved, the separate effects could not be distinguished without using the microdata employed here. The three major structural factors considered are: (1) branching characteristics, (2) bank size, and (3) urban-rural location. The data used cover the period from mid-1965 through the end of 1967. The financial conditions prevailing during this period offer an opportunity to study the allocational impact of changes in monetary policy which is, perhaps, unique. In particular, during the first half of the year, the “credit crunch” of 1966 illustrates the effects of competitive bidding for time deposits under a sharp tightening in monetary policy. During the second half of 1966, the data show the effects of a continued tight monetary policy accompanied by effective interest rate ceilings on time deposits.

To establish a reference point from which to examine short-run changes, this article first discusses some of the factors leading to differences in long-run portfolio composition. It then describes how the different types of banks deviate from their steady-state balance in response to short-run changes in monetary policy. Monetary policy is viewed as affecting the allocation of bank credit through three channels: (1) it affects the supply of funds and the banks’ ability to attract deposits; (2) it causes banks to

change the allocation of available funds between loans and investments; and (3) it causes banks to reallocate loanable funds among different types of loans.

The results of the study show that the effects of sharp changes in monetary policy during the 1965–67 period were not transmitted evenly throughout the system; but tended to be concentrated on particular groups of banks and on particular types of borrowers. First, branching characteristics in a given region apparently influenced the banks' relative ability to attract funds. In the first half of 1966, unit banks, especially the larger ones, found that deposits which were subject to effective interest rate ceilings (savings deposits and demand deposits) were particularly vulnerable to the effects of disintermediation. Without branch offices, the unit banks seemed unable to offer nonprice competition as effective as that of the other types of banks. Also, the large unit banks held unusually large correspondent balances, which were withdrawn.

In the second half of 1966, the banks in extensive-branching areas lost large amounts of time deposits when the interest rate ceiling prevented them from replacing maturing certificates of deposit (CD's). Other banks, having fewer CD's outstanding, were not as severely affected. The bank in moderate-branching areas showed, perhaps by default, relatively strong deposit growth throughout the period. Because this group of banks is less homogeneous, the regions served by moderate-branching systems were not subject to the concentrated impacts of particular monetary policy instruments.

During the period encompassed by the study, there was also a major reallocation of funds as the result of the high priority given to commercial and industrial loans by the very large banks in urban areas. As monetary conditions tightened in 1966, these banks shifted funds from Government and municipal securities into business loans. Loans to financial institutions and to brokers and dealers were reduced. More significant for public policy was the fact that lending to the household sector was also curtailed to accommodate business loan demand. Consumer loans and residential mortgages were given much smaller allocations of loanable funds and, in some cases, were actually reduced. In reallocating their available funds, the groups of large banks all behaved in very similar fashion. Differences in branching structure did not seem to influence significantly the observed response patterns.

Rural banks, and to a lesser extent the small banks in all areas, were largely insulated from the short-run impact of the sharp changes in monetary policy. Except for seasonal fluctuations, their deposits grew fairly steadily and there were no major reallocations among different types of assets.

In summary then, much of the impact of changes in monetary policy was

concentrated, at least in the short run, on the large, urban banks. The two extreme forms of branching structure (unit banking and extensive branching) proved particularly vulnerable to deposit fluctuations caused by specific policy instruments, such as interest rate ceilings. During the 1965–67 period, the large banks responded to tight money by shifting a disproportionate share of funds into business loans, while loans to the household sector were restricted. Since the areas with extensive-branch banking are also served primarily by a small number of very large banks, these areas were greatly affected by the allocational effects of changes in monetary policy. Because the large, extensive-branching banks are concentrated in the Far West and Northeast, urban households in those regions found that bank credit was extremely restricted from 1965 through 1967. Banks in those regions reallocated a substantial portion of their lending from consumer loans and residential mortgages into commercial and industrial loans. The areas served by rural banks or by small urban banks were, of course, affected by long-run monetary growth but were, at least during this period, relatively insulated from the allocational impact of short-run policy actions.

[2] THE DATA BASE

The data used in this study are derived from the call reports of each of the 13,300 commercial banks in the country. The reports were turned in to the Federal Deposit Insurance Corporation (FDIC) semiannually (June and December) and cover the period 1965–67. Each report contains information on about 125 balance sheet items for the bank in question.

To examine the structural factors outlined above, the banks are cross-classified on the basis of size, branching characteristics, and urban or rural location. Appendix Table 3 gives the data on the number of banks and total assets in each group of banks. As shown there, the classification scheme uses nine size classes and three branching groups. The smallest size class contains those banks with deposits of less than \$5 million and the largest size class consists of banks with deposits in excess of \$500 million. An urban bank is defined as one located in a standard metropolitan statistical area (SMSA). All other banks are termed rural banks. As defined here, the term rural is somewhat of a misnomer, since few banks in this class are located in truly rural areas. They are instead located in the smaller cities and towns outside the SMSA's.

Branching characteristics are defined on the basis of observed differences in state branching structure, not solely on differences in state branching laws. Using this approach, New York, for example, is classified as an extensive-branching state despite the fact that it does not permit

statewide branching. Although New York restricts branching privileges, its major markets are so dense that it still has over five and one-half times as many branch offices as banks. On the other hand, a state like Utah, with rather limited markets, has less than two branches per bank, even though it permits statewide branching. Utah is therefore classified as a moderate-branching state. The overall criterion used is that a state with an average of more than four branches per bank is classified as an extensive-branching state; a state with fewer than one-tenth as many branches as banks is a unit banking state; and all other states are classified as having moderate branching. The distinction between branching banking and unit banking may be blurred in some states as a result of the operation of bank holding companies. The available data cannot be used to examine this factor separately but it should be kept in mind in interpreting the results in the unit banking states. The states in each group are listed in Appendix Table 4. In applying the branching classification to an individual bank, the bank is grouped according to the characteristics of the state as a whole. The rationale for this is that the bank's behavior will be influenced by the general market structure within which it operates. It would be expected, for example, that a unit bank in an extensive-branching state would behave differently from a comparable bank in a unit banking state.

As can be seen in Figure 1, the branching groups tend to be concentrated in specific geographic regions. The states with extensive branching are located on either the East Coast or the West Coast. In terms of deposits, the group is, of course, dominated by New York and California. The unit banking states are located predominantly in the midwestern portion of the country. The only major unit banking state outside that region is Florida. The other important unit banking states are Illinois, Texas, Minnesota, and Kansas. Because of the geographic clustering of branching structures, any factors which affect the distribution of funds among branching types also affect the distribution among regions of the country.

The data in Table 1 and Appendix Table 3 clearly illustrate the high degree of interaction among the structural characteristics. Perhaps the outstanding feature is the extent to which extensive-branching states are dominated by a small number of very large banks. In the extensive-branching states in 1965, the average bank size was \$123 million in deposits, and the thirty-five largest banks (those with deposits over \$500 million) held over three-fourths of all bank deposits. The average bank size is much smaller under both unit banking and moderate branching. In unit banking states, nearly half of all deposits are held by banks with less than \$50 million in deposits; the average bank size is only \$12 million in deposits. The moderate-branching states have half of their funds in banks with less than \$100 million in deposits; average bank size is \$18 million in deposits.



FIGURE 1 Geographic Distribution of Branching Groups

Rural banks play a much larger role in those states with restrictions on branching. Rural banks hold over 25 per cent of the deposits in states with unit banking or moderate branching, whereas, in the extensive-branching states, less than 6 per cent of deposits are in rural banks. Needless to say, the rural banks in all states are relatively small banks. The average deposit level is only \$6 million and nearly half of all rural bank assets are held in banks with deposits of less than \$10 million. In contrast, the average deposit level among urban banks is over \$60 million, and over half of all urban bank assets are held in banks with deposits in excess of \$500 million.

[3] BANK BEHAVIOR PATTERNS: THE STATIC CASE

Before examining the banks' adjustments in response to changes in monetary policy, it is useful to outline some of the factors which influence a bank's long-run portfolio balance. It is particularly helpful to trace how the different types of banking structure might be expected to lead to differences in the composition of a bank's portfolio. Initially, it will be assumed that each structural characteristic can be analyzed as an independent factor. Thus, the probable impact of each factor will be examined, at first, under the condition that all other factors are held constant. This is undoubtedly an oversimplification; and in the last part of the analysis, some of the possible interaction effects will be considered.

TABLE 1 Distribution of Bank Deposits, June 1965 (per cent)

Size classes (\$ Millions)	Unit Banking						Extensive Branching				Moderate Branching				All Branching Groups					
	Urban		Rural		Urban and Rural		Urban		Rural		Urban and Rural		Urban		Rural		Urban and Rural		Urban and Rural	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Under 5	2.2	9.2	11.4	0.3	0.5	0.8	1.3	6.3	7.5	1.1	4.8	5.9	1.1	4.8	5.9	1.1	4.8	5.9	1.1	4.8
5-10	3.5	7.2	10.7	0.4	0.8	1.2	2.1	7.0	9.0	1.8	4.7	6.5	1.8	4.7	6.5	1.8	4.7	6.5	1.8	4.7
10-20	6.3	5.8	12.1	0.9	0.9	1.8	3.8	6.9	10.7	3.3	4.3	7.6	3.3	4.3	7.6	3.3	4.3	7.6	3.3	4.3
20-30	4.9	2.3	7.2	0.9	0.6	1.5	3.0	2.9	5.8	2.6	1.9	4.5	2.6	1.9	4.5	2.6	1.9	4.5	2.6	1.9
30-50	6.7	1.4	8.1	1.2	0.7	1.9	4.3	2.5	6.8	3.7	1.5	5.2	3.7	1.5	5.2	3.7	1.5	5.2	3.7	1.5
50-100	8.8	0.5	9.4	2.4	1.1	3.5	6.8	1.8	8.6	5.6	1.2	6.8	5.6	1.2	6.8	5.6	1.2	6.8	5.6	1.2
100-250	9.5	—	9.5	6.1	0.9	7.0	12.7	0.6	13.3	9.4	0.6	10.0	9.4	0.6	10.0	9.4	0.6	10.0	9.4	0.6
250-500	8.4	—	8.4	4.9	0.5	5.4	14.3	—	14.3	9.3	0.2	9.5	9.3	0.2	9.5	9.3	0.2	9.5	9.3	0.2
Over 500	23.1	—	23.1	77.0	—	77.0	24.1	—	24.1	44.0	—	44.0	44.0	—	44.0	44.0	—	44.0	44.0	—
All sizes	73.5	26.5	100.0	94.0	6.0	100.0	72.1	27.9	100.0	80.8	19.2	100.0	80.8	19.2	100.0	80.8	19.2	100.0	80.8	19.2
Average size (\$ Millions)	30.1	4.6	12.3	231.3	14.6	122.7	50.1	6.8	18.0	62.7	6.2	22.9	62.7	6.2	22.9	62.7	6.2	22.9	62.7	6.2

Branching vs. Unit Banks

A bank with branches seems to have two major operational advantages relative to a unit bank. First, the branch bank can pool funds from different areas; and second, it can provide certain types of services to its customers that unit banks cannot. By pooling funds from several cities or regions, the bank may be able to reduce the net variation in deposits and in loan demand. However, this factor will be important only to the extent that the regions included in the branching system have significantly different economic characteristics. If the regions exhibit similar cyclical and seasonal changes in economic activity, pooling will do little to reduce deposit and loan fluctuations.

On the other hand, the branch bank's ability to provide superior customer service is invariably a major factor affecting its behavior pattern. A key service provided by a branch bank, in contrast to a unit bank, is locational convenience. Previous studies have shown that branch banking provides customers with substantially more bank offices than does unit banking.³ The advantage of branch banking is particularly marked in the larger metropolitan areas, where the convenience of branch banking should assist a bank in attracting savings deposits and in granting consumer loans and residential mortgages. Thus, other things being equal, as compared with a unit bank, a branching bank would be expected to obtain a greater proportion of its funds from savings deposits and would invest more of its assets in consumer loans and residential mortgages.

Large vs. Small Banks⁴

Since there is no evidence of significant technological diseconomies of scale in banking, it is apparent that large banks possess several advantages relative to small banks. First, small banks are largely excluded from a major segment of the commercial loan market. Both regulatory constraints and prudent management put limits on the amount which a bank can lend to a single borrower. The credit needs of a large, national corporation may easily exceed the lending limit of a small, or even moderate-sized, commercial bank. As a result of their wider lending opportunities, the larger banks can be expected to put a greater proportion of their funds into commercial loans.

The larger banks possess a similar advantage in obtaining funds through the use of large denomination negotiable certificates of deposit (CD's). Since the development in the early 1960s of a secondary market for CD's, these deposits have become an important source of funds for large commercial banks. Because such deposits are highly sensitive to changes in interest rates, banks are able, through moderate increases in rates, to attract additional CD's to meet an increase in loan demand. Since the bulk of the CD's are in large denominations, small banks operate at a serious disad-

vantage in this market. Even moderate-sized banks have to pay an interest premium relative to the rates paid by the money-market banks, because CD's issued by smaller, lesser-known banks are less salable in the secondary market.

Finally, a large bank has a greater ability to borrow funds and to influence the supply of certain types of deposits in order to offset fluctuations in other types of deposits. The units of trading on the federal funds and Eurodollar markets are so large as to inhibit participation by smaller banks. The CD market, due to its high interest elasticity, can be used to compensate for fluctuations in other types of deposits. As has been discussed above, here too the larger banks possess an advantage relative to the smaller ones. These factors make it possible for large banks to operate with fewer secondary reserves than small banks.

Urban vs. Rural Banks

The most obvious difference between the two groups is that a rural bank would be expected to do much more agricultural lending than would an urban bank. Conversely, the urban bank would probably have somewhat greater opportunity for commercial and industrial lending. Since its customers tend to be dispersed over a relatively wide area, the rural bank is also likely to be less consumer oriented than the urban bank. The rural bank cannot offer the same degree of customer conveniences, and the market it can reach is more restricted. Hence, the rural banks would attract fewer savings deposits and would make fewer consumer loans and residential mortgages.

It is also possible that the behavior pattern of a rural bank will differ from that of an urban bank because of inherent differences in the basic preferences of either the bank's management or the bank's customers. It is, for example, often suggested that rural banks are more "conservative" than urban banks. This presumably would imply that a rural bank would have greater secondary reserves, a lower loan-deposit ratio, a higher capital-asset ratio, and so on. On the other hand, the deposits of the rural bank may be more stable due to the relative inaccessibility of alternative uses of the depositors' funds. By reducing the variance in deposits, this factor would permit the rural bank to hold fewer secondary reserves, i.e., to behave less "conservatively." In all, though it is quite conceivable that there will be behavioral differences between urban and rural banks, it is not possible through a priori reasoning to determine the net effect of the differing preferences. This is a matter which can only be explored empirically.

Interactions among Structural Factors

There are several instances in which the factors discussed above do not act independently but, instead, interact significantly with each other. Perhaps

the outstanding example of this is to be found in the relationship between branching restrictions and bank size. In this case, the connection between the two factors is the result of a direct causal relationship. One of the principal motives for a bank to establish branches is to promote the growth of the bank. In those states where branching is permitted, the banking system tends to be dominated by a small number of very large banks. Thus, in comparing a unit banking system with an extensive-branching system, one is likely to be comparing a system composed of numerous small banks with a system concentrated in a few large ones.

To the extent that an extensive-branching system is dominated by a few large banks, these banks may possess a certain degree of monopoly power, which will influence the performance of the system. However, it is not at all clear whether extensive branching produces an increase or a decrease in bank concentration and market power; it depends on what is considered the relevant market for bank services. In a national or local market, branching may reduce concentration; whereas in a state or metropolitan market, branching can increase concentration.⁵ Furthermore, the evidence currently available indicates that changes in concentration ratios over the observed range have very minor effects on bank performance.⁶ The possible impact of differences in market power is not considered as a separate factor in the present study.

It was pointed out above that a unit bank is restricted in providing banking services to the household sector. It would seem that this factor would assume much greater importance for a large unit bank than for a small one. Thus, one would expect to find the differences between unit and branch banks particularly notable in the larger size classes. On the other hand, a small bank in a branching region will not necessarily behave in the same way as a small bank under unit banking. Even though, in the former case, the small bank is likely to be a unit bank, it is subject to competition from the branches of the larger banks in the system. This is especially true of a small bank in an urban branch-banking area. A small bank under unit banking is much less exposed to competition from larger banks. Even in the very small size classes, this factor may cause some differences in behavior patterns between banks in unit- and branch-banking regions.

[4] BANK PORTFOLIO COMPOSITION IN 1965

If the structural factors discussed above do, in fact, exert a significant influence on bank behavior, this should be subject to empirical observation as differences in the composition of bank portfolios. By looking at these differences at a given point in time, one can obtain a rough

indication of the long-run, or steady-state, impact of the structural factors. The information presented in this section will be used subsequently as a reference point in analyzing the relationship between bank structure and the short-run allocation of bank credit.

Sources of Funds

In examining the various sources of funds, the most marked differences are in the banks' ability, or willingness, to acquire savings deposits. Unit banks obtain a relatively low proportion of their funds from savings deposits; large banks have fewer savings deposits than small banks; and, in most cases, rural banks have fewer than urban banks (see Appendix Table 1 for illustrative data).⁷ It is interesting to note that within each size class, urban unit banks hold substantially fewer savings deposits than urban extensive-branching banks, but in the aggregate, the urban unit banks hold a greater proportion of savings deposits. This is an instance in which, in the aggregate data, the effects of differences in size have more than offset the impact of differences in branching structure.

In most instances, the patterns for demand deposits are merely the mirror images of the results for time and savings deposits. Generally, demand deposits provide a larger proportion of funds for unit banks, large banks, and rural banks. However, if one is interested in the sources of loanable funds, the fact that the proportion of gross demand deposits increases with the size of the bank is somewhat misleading. When demand deposits are adjusted by subtracting reserves and cash items in the process of collection, the proportion for these adjusted demand deposits does not increase with the size of the bank.

In addition to the above-mentioned differences in the types of deposits, the various groups of banks show some significant differences in the types of depositors. First, there are the deposits held by other commercial banks. These correspondent balances are generated by the smaller banks making deposits at the larger urban banks with which they have dealings. Such deposits provide the small banks with liquidity, and at the same time, compensate the larger banks for the services they provide. The outstanding feature of the correspondent balances is their importance for the large banks in unit banking states. These banks obtain some 12 per cent of their total funds from correspondent balances, as contrasted with only 6 per cent for comparable banks in other states. The banks in unit banking states seem to have compensated for the lack of branches by having developed a much more extensive system of correspondent relationships.

The proportion of funds supplied by the deposits of state and local governments also varies widely among the groups of banks. Under all three branching structures, the smaller banks receive a larger proportion of their funds from state and local deposits than do the larger banks. It is interesting

that in comparable size classes, the rural banks do as well as, or slightly better than, the urban banks.

The remaining source of bank funds is capital, which includes capital issues, surplus, undivided profits, and capital reserves. The capital ratios are very similar for all groups of banks—except that the smallest banks (deposits less than \$5 million) hold appreciably more capital than other banks. To the extent that a high capital ratio is indicative of more conservative behavior, this finding would support the contention that the managers of small banks tend to be more cautious than their counterparts in the larger banks. However, the capital figures do not support the contention that rural banks are more conservative than urban banks. If anything, the rural banks have lower capital ratios.

Secondary Reserves and Bank Lending

As shown in Appendix Table 2, large banks hold far fewer Government securities than do the small banks. Under all three branching structures, the proportion of assets held in Government securities is less than half as large for the large banks (over \$500 million) as it is for the small banks (under \$5 million). There is also some tendency for the banks in extensive-branching states to hold fewer Government securities than the banks in other states. The impact of branching structure is, however, much less pronounced than is the effect of differences in size. The evidence does not support the contention that rural banks consistently invest a relatively large portion of their funds in secondary reserves. It is true that in the aggregate, rural banks hold a larger proportion of Government securities than do urban banks, but this mainly reflects the difference in the average size of the urban and rural banks.

It can be argued that municipal and agency securities are also liquid assets and should be included, at least in part, in secondary reserves. Since these securities are held more extensively by the larger banks, their inclusion would reduce the impact of the size factor. Nonetheless, the qualitative results would remain the same, even with the definition of secondary reserves expanded to include municipal and agency securities. For example, in unit banking states, secondary reserves would still decline from 32 per cent of assets for the smallest banks to 23 per cent for the largest banks.

The ratio of secondary reserves held by a bank is often used as an indicator of how aggressively, or cautiously, that bank utilizes the funds available to it. Another, perhaps more direct, measure of the bank's utilization of funds is the proportion put into loans. This criterion reveals higher utilization for the larger banks, though in the extensive-branching states the increase is very slight. In all size classes, the banks in the extensive-branching states have a higher proportion of funds in loans than

the banks in other states. The rural banks have lower loan-asset ratios in the smallest banks, but this difference does not carry over into the other size classes.

In general, the data indicate that a greater proportion of funds are loaned out by large banks and by banks in states with extensive-branching systems. Particularly conservative lending policies are pursued by the smallest rural banks. In addition to these broad differences in total bank lending, the various groups of banks display substantial differences in the composition of lending. The next sections will examine the differences in the allocation of funds to three major categories: commercial and industrial loans, residential mortgages, and consumer loans.

Commercial and Industrial Loans

There are two outstanding features in the data on commercial and industrial loans. First, funds devoted to these business loans increase sharply with the size of the bank. The large urban banks devote 20 to 30 per cent of their total assets to this single category of loans. The small banks do far less business lending, and the small rural banks have only 5 to 10 per cent of their assets in such loans.

The second major point concerns the impact of branching structure. Among the small and medium-sized banks, the unit banks typically do somewhat more business lending than the moderate-branching banks and less than the extensive-branching systems. However, in the largest size classes, the unit banks concentrate very heavily on commercial loans. Since much of the lending by this group involves national firms, it is unlikely that the difference in behavior patterns can be attributed to differences in the local demand for loans. The phenomenon is more reasonably explained by differences in alternative lending opportunities available to banks of various types. The unit banks simply do not have ready access to the markets for other loans, such as residential mortgages and consumer loans.

Residential Mortgages

The market for residential mortgages is to a large extent localized. The unit bank, operating from a single geographic location, labors under a severe handicap. The result, as shown in Appendix Table 2, is that unit banks are able to grant relatively few residential mortgages. This effect persists through all size classes and shows up in the rural banks as well as in the urban ones. In the largest size class, the unit banks place only 2 per cent of their funds in residential mortgages, as compared with 8 per cent for the banks with less restricted branching.

Consumer Loans

Consumer loans illustrate the interaction between the size factor and the impact of branching restrictions. Since even in the absence of branching restrictions, small banks serve a limited geographic area, the restrictions have a relatively minor impact. On the other hand, for the larger unit banks, the inability to have local loan offices is a serious constraint. The detailed data show that for the size classes above \$30 million in deposits, the unit banks consistently grant fewer consumer loans than the branching banks. It is interesting to note that in the larger size classes, it is the moderate-branching states, not the extensive-branching ones, that have the highest proportion of consumer loans.

[5] MONETARY POLICY AND THE ALLOCATION OF BANK CREDIT IN 1965-67

The portfolio characteristics described in the previous section provide a reference point from which to judge the impact of short-run changes in monetary policy. The issue here is whether bank responses to short-run changes differ appreciably from the expected long-run adjustments. A closely related question is whether the response patterns differ among the different types of banks. Differences in response patterns would have important policy implications, since they would produce reallocations of bank credit among different classes of borrowers and among different regions of the country.

If the banking system were experiencing steady growth under stable monetary conditions, one would expect to find the major portfolio components growing at approximately equal rates. A constant monetary policy would be represented by reasonably steady growth in the monetary base at a rate proportional to the growth in the general economy. A short-run change in monetary policy would then appear as a significant deviation from this steady growth path in the reserve base. When monetary policy alters the rate of growth in the reserve base, this necessarily produces a corresponding change in the growth of aggregate bank credit. A neutral bank response can be defined operationally as one in which all portfolio components are adjusted proportionally. That is, all portfolio items grow (or decline) at the same rate as the rate of change in total bank credit. For an individual bank or group of banks, a neutral response is one in which total credit for the group changes at the same rate as aggregate bank credit, and all portfolio components for the group move proportionally. Note that a neutral response does not imply that all types of banks react in the same fashion. In fact, under a neutral response, the static differences among the

various types of banks would persist indefinitely. As used here, a neutral response is simply a fixed reference point. It is a base from which to measure changes in the allocation of bank credit.

The extent to which the actual bank response patterns differ from the neutral pattern can be measured by comparing the differentials in the growth rates for the various types of bank lending. Employing the same reasoning, the impact of monetary policy upon the bank's sources of funds can be observed by comparing the growth rates in the different types of deposits. However, in this section no attention will be given to the bank's deposits. The primary concern will be to outline the observed changes in monetary policy and to demonstrate that these changes did, in fact, have substantial, nonneutral effects upon bank lending decisions, and thus upon the allocation of bank credit during the 1965-67 period. The following section will examine the factors which caused this reallocation.

Monetary Policy during 1965-67

In 1965, the economy was in the fifth year of continuous expansion and was operating at nearly its full productive potential. The unemployment rate was approaching the full-employment target of 4 per cent. During the expansion, prices had remained remarkably stable, and the Federal Reserve had been able to expand credit sufficiently to accommodate the increase in economic activity. But then, in late 1965, the Vietnam escalation produced severe inflationary pressure, and, in the absence of any major fiscal restraint, monetary policy was tightened substantially. In December 1965, the Federal Reserve signaled this change by raising the discount rate from 4 per cent to 4½ per cent. Of equal importance, the maximum allowable interest rate on time deposits was raised from 4½ per cent to 5½ per cent. This meant that during the first half of 1966, banks were able to use CD's and similar instruments to compete effectively for loanable funds. Certain types of banks, especially those experiencing strong loan demands, were able to bid funds away from other banks and from other types of financial intermediaries.

During the second half of 1966, inflationary pressures continued to mount and monetary policy became extremely tight. In addition to a severely restrictive open-market policy, the Federal Reserve imposed limits on the interest rates which banks would pay on the various types of time deposits. The permissible rates were actually lowered on the small-denomination and short-term time deposits. Ceiling rates on other time deposits, and in particular on CD's, were maintained at 5½ per cent. In the face of the general rise in market interest rates, CD's rapidly lost their competitive position. Banks which in the first part of the year had used CD's to expand their lending now found that they were losing funds due to their inability to "roll over" the maturing CD's.

Following the "credit crunch" of 1966, monetary policy was sharply eased in early 1967. As the reserve base expanded and interest rates generally declined, banks were able to rebuild a somewhat more normal portfolio position. However, under an expansionary fiscal policy, inflation continued to accelerate, and by midyear interest rates had again begun to rise. The second half of 1967 was the beginning of another period of increasingly restrictive monetary policy.

Total Bank Lending

For present purposes, the data from 1966 are particularly interesting, because of the sharp contrast between the two halves of the year. Loan demand was very strong throughout, but during the first half, banks were able to compete aggressively for loanable funds, whereas during the second half, the interest rate ceilings precluded effective competition. These changes in financial conditions were accompanied by some pronounced changes in the pattern of bank lending. In those states with unit banking, the amount of credit extended during the first half of 1966 lagged substantially behind the expansion in the banking system as a whole. Aggregate bank lending increased at an annual rate of nearly 11½ per cent, while in unit banking areas the increase was just over 8 per cent (see Table 2). In terms of dollar amounts, if unit banks had increased lending at the national average rate, loans at those banks would have increased by \$2.5 billion in the first half of 1966. The actual increase was only \$1.8 billion. By this estimate, there was a reallocation of bank credit of \$700 million during that six-month period. Whatever the causes of this reallocation, the impact seems to have been quite widespread among the unit banks. Of the twelve states with unit banking, nine showed an increase in lending which was below the national average. Every size class of unit bank, except the very smallest (deposits less than \$5 million), expanded lending at a below-average pace. Unit banks in both urban and rural locations made relatively few loans, although the pace at the urban banks was particularly slow, falling nearly four percentage points below the national average.

In the second half of 1966, the situation was markedly different. With the use of interest rate ceilings to restrict competition, the major impact of monetary policy seemed to be shifted to the urban banks in extensive-branching states. Bank lending in these states increased at an annual rate of less than 3 per cent (see Table 2). The banking system as a whole was lending at more than twice that pace. This represented a reallocation of more than \$1.2 billion in bank credit away from the extensive-branching areas.

Despite the sharp change in monetary policy, bank lending in the first half of 1967 followed almost the same pattern that it had assumed in the

TABLE 2 Total Bank-Lending Rate of Change at Annual Rates (per cent)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All banks	14.4	11.4	5.8	5.8	10.8
Urban	14.8	11.4	5.0	4.4	11.4
Rural	12.4	11.4	9.0	12.6	8.2
Unit banking	14.4	8.2	7.2	7.8	9.6
Urban	15.2	7.6	6.8	6.2	10.2
Rural	12.4	9.4	8.4	13.2	7.8
Extensive branching	13.5	12.2	2.8	2.4	12.6
Urban	13.6	12.4	2.6	2.2	12.8
Rural	12.6	11.2	6.8	8.4	11.0
Moderate branching	15.4	12.4	8.2	8.0	9.6
Urban	16.4	12.4	7.4	6.2	10.4
Rural	12.2	12.6	9.8	13.2	7.8

second half of 1966. In the aggregate, bank loans increased at a rate just under 6 per cent, while loans in extensive-branching areas increased less than half as much. In fact, in urban extensive-branching areas, bank loans increased only 2.2 per cent. Although in the aggregate, monetary policy was much less restrictive at this time, the effects of the previous "credit crunch" seem to have carried over into 1967.

The other significant change in the allocation of bank credit is the consistently strong growth in bank loans within the moderate-branching areas. From the end of 1965 to mid-1967, moderate-branching banks expanded loans by 15 per cent, while the other types of banks increased loans by only 10 per cent. During this period, over 20 per cent, or nearly \$2¼ billion, of the new lending by moderate-branching banks was attributable to the shift of funds from other areas.

Composition of Bank Lending

In addition to affecting the distribution of total bank credit, changes in monetary policy altered the way in which credit was allocated among different types of borrowers. During the 1966 "credit crunch," banks generally shifted their lending from the household sector to the business sector. Consumer loans,⁸ in particular, seem to have been very hard hit in this period. After increasing at an annual rate of nearly 10 per cent in the first half of 1966, consumer loans increased at less than 1½ per cent in the second half of the year (see Appendix Table 5). Among the urban banks, in areas with either moderate or extensive branching, there was actually a net decline in consumer loans (see Appendix Table 6). This is noteworthy, because consumer lending is usually regarded as an activity in which short-run adjustments are infeasible, owing to the high start-up costs. It is also worth observing that the moderate-branching banks made the sharpest cutback in consumer loans, even though these banks made the least drastic adjustments in the pace of total lending.

Bank lending in the form of residential mortgages was also significantly affected by monetary policy during this period. In this case, however, much of the impact seems to have been confined to the extensive-branching banks. Residential mortgages at these banks increased at a rate of less than 2 per cent during the last half of 1966 and then declined by more than that amount in the next six months. Thus, from mid-1966 to mid-1967, on balance, the extensive-branching banks withdrew funds from the residential mortgage market. In contrast, the banks in other areas supplied \$1.7 billion to this market. That is an increase of 8½ per cent, which closely matches the expansion in total lending by these other banks.

Throughout the period being studied, the funds that were shifted out of the household sector were being used primarily to sustain bank lending to business. Despite an extremely restrictive monetary policy, which included

some "jawboning" by the Federal Reserve to dissuade banks from making so many business loans, banks continued to expand commercial and industrial loans at nearly 10 per cent a year throughout 1966 and 1967 (see Table 3). Even during the "credit crunch" in the second half of 1966, these loans increased at a rate of more than 9 per cent. Within this general pattern, there were, however, a number of significant differences among the various types of banks. As would be expected, the emphasis on commercial loans was more pronounced among urban banks. Except for seasonal variation, the rural banks tended to expand their business loans at approximately the same rate as their total lending. Among the urban banks, the extensive-branching banks made the most radical reallocation of funds. From mid-1966 to mid-1967, when these banks were under great pressure as a consequence of monetary policy, commercial loans increased by \$3.4 billion, while all other loans were reduced by \$1.5 billion. Although the other types of urban banks also expanded commercial loans more rapidly than other loans, the reallocation of funds was not nearly as pronounced as that undertaken by the extensive-branching banks.

[6] FACTORS CAUSING THE REALLOCATION OF BANK CREDIT

In the preceding section, it has been shown that the changes in monetary policy during the 1965-67 period did, in fact, produce significant changes in the allocation of bank credit. The purpose of this section is to examine the mechanisms by which that reallocation was brought about, and to determine how certain classes of borrowers were able to obtain a disproportionate share of bank credit during a period of restrictive monetary policy. The three major elements to be considered are: (1) redistribution of bank deposits; (2) changes in the allocation of funds between loans and investments; and (3) reallocation of loanable funds among different types of loans. It is apparent that any of these factors, acting singly or in combination, could produce the observed changes in the pattern of bank lending.

Redistribution of Deposits

As has been pointed out in the earlier discussion of the static situation, there are some substantial differences in the mix of sources from which the different types of banks obtain their funds. Because of this, it is quite conceivable that changes in general monetary conditions can alter the distribution of funds among the various types of banks. In addition, the banks can themselves alter the distribution of funds by changing policy

TABLE 3 Commercial and Industrial Loans: Rate of Change at Annual Rates (per cent)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All banks	18.6	16.2	9.2	9.8	9.6
Urban	19.4	17.0	9.2	9.4	9.6
Rural	12.4	10.2	9.0	13.6	8.2
Unit banking	15.4	10.6	8.6	9.8	9.8
Urban	16.0	10.8	8.4	9.2	9.8
Rural	12.2	9.8	9.0	14.0	9.6
Extensive branching	22.4	17.4	10.0	8.6	9.8
Urban	22.8	17.6	10.4	8.4	10.2
Rural	12.6	11.8	2.8	13.6	2.8
Moderate branching	15.2	19.0	8.4	11.8	8.8
Urban	15.8	20.8	7.8	11.6	8.6
Rural	12.6	10.0	11.4	13.2	9.6

parameters such as interest rates, service charges, advertising, and so on. Unfortunately, using the present data, it is impossible to distinguish the exogenous changes in bank deposits from the induced changes. All that can be observed is the net effect of the various factors.

As shown in Figure 2, there were several major shifts in the pattern of deposit flows during the 1965–67 period. That figure shows how deposits in each branching group grew relative to the growth in the banking system as a whole. Since the aggregate deposit growth is largely controlled by Federal Reserve policy, what is relevant here is the relative, not the absolute, growth. The measure of deposits used is total deposits minus "cash," where cash consists of cash items in the process of collection, deposits with other banks, and reserves. The rationale for subtracting cash is to compensate for certain transient items and for funds which are not available for lending purposes. The resulting variable, adjusted total deposits,⁹ is an approximate measure of total loanable funds from deposit sources.

Three striking points are illustrated by the data in Figure 2: (1) the large relative decline in adjusted deposits at unit banks in the first half of 1966; (2) the extremely sharp drop in deposits at extensive-branching banks in the second half of 1966; and (3) the sustained above-average growth in deposits at moderate-branching banks throughout the entire period. The pattern revealed in Figure 2 can be examined more fully by means of Figures 3A through 3C. These figures show the movements in each of the three types of deposits: demand deposits,¹⁰ savings deposits, and time deposits. Since the evidence does not indicate any significant reallocation of funds among the different types of rural banks, the figures refer to urban banks only. The rural banks will be discussed separately later.

In looking at the first half of 1966, perhaps the most surprising thing is that nothing really remarkable seemed to be happening to deposits at urban unit banks, but despite this, these banks were gaining deposits at less than half the pace of the rest of the banking system. Their demand deposits showed a seasonal decline, with moderate growth in time deposits and a small decline in savings deposits. The weakness in this situation can be revealed only by comparing it to the pattern of the other banks. Early 1966 was a period when banks were bidding aggressively for time deposits, both from corporations and from households. Urban unit banks were unable, or unwilling, to keep pace with the other banks, and their time deposits were growing nearly one-third less rapidly. This discrepancy was due almost entirely to the very large unit banks. These were increasing time deposits at only half the rate of the rest of the banking system, whereas the smaller unit banks were very nearly keeping pace with the other banks.

The competition for time deposits and the rising open-market interest rates naturally tended to draw funds away from savings deposits.¹¹ Each

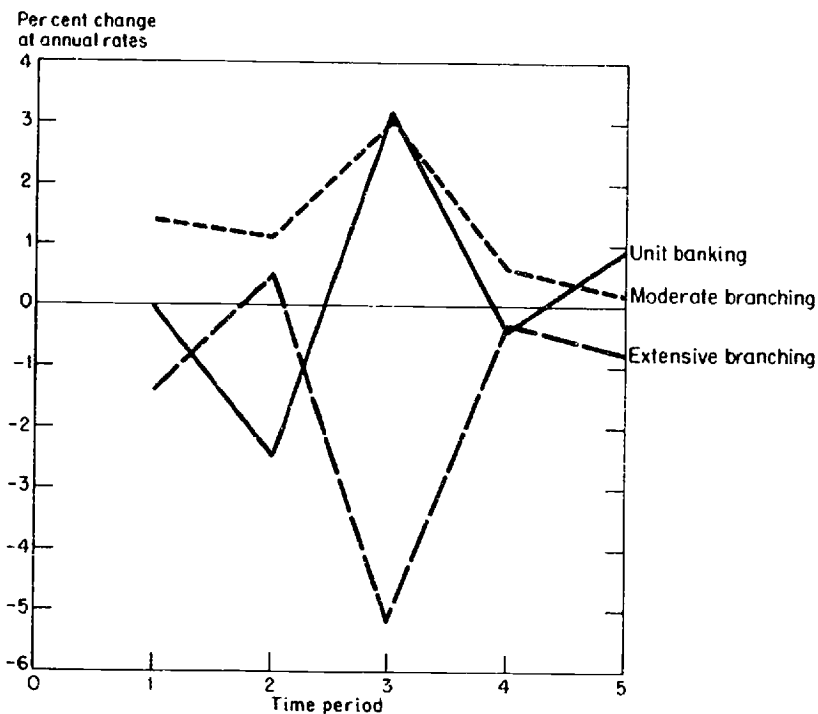


FIGURE 2 Deviations from Average Growth Rate in Adjusted Total Deposits

bank was, in effect, exposed to two drains on its savings deposits. There was an external drain as individuals moved funds from savings deposits into other financial institutions and into open-market instruments. There was also an internal drain as the bank's own depositors shifted funds from savings deposits to the higher-paying time deposits. This latter movement can be seen quite clearly in the detailed data. Other things being equal, the banks which made relatively large gains in time deposits also tended to suffer relatively large losses in savings deposits. However, this generalization does not seem to apply to the large urban unit banks. Although these banks had quite modest growth in time deposits, they suffered very large losses in savings deposits. Figure 4C shows that up to a bank size of about \$30 to \$50 million in deposits (size class 5), there was little difference in the movements of savings deposits under the different branching structures. Among the larger banks, the unit banks experienced relatively large losses in savings deposits, while their IPC time deposits¹² grew much more slowly. For example, among the largest urban banks (deposits over \$500 million), IPC time deposits grew by 18 per cent in unit banks compared to 34 per cent in the other banks, while savings deposits declined by 7½ per cent at the unit banks compared with 6½ per cent in the other banks. Thus,

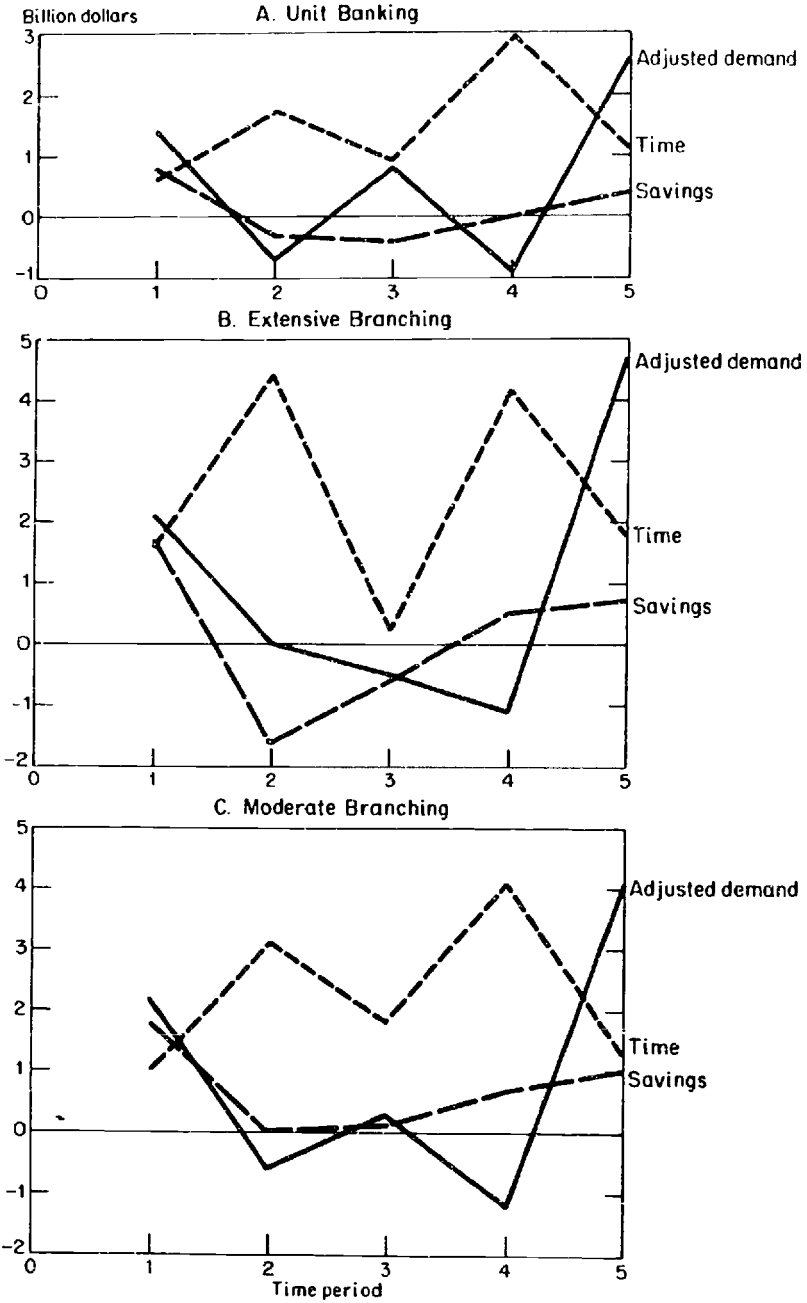


FIGURE 3 Changes in Deposits at Urban Banks by Types of Deposits

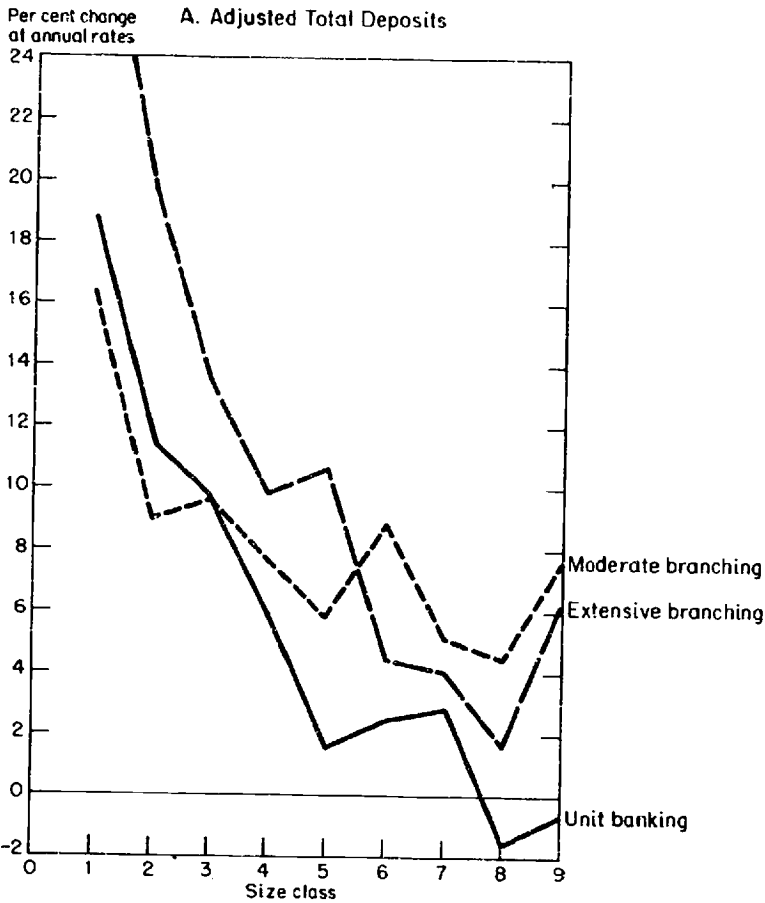


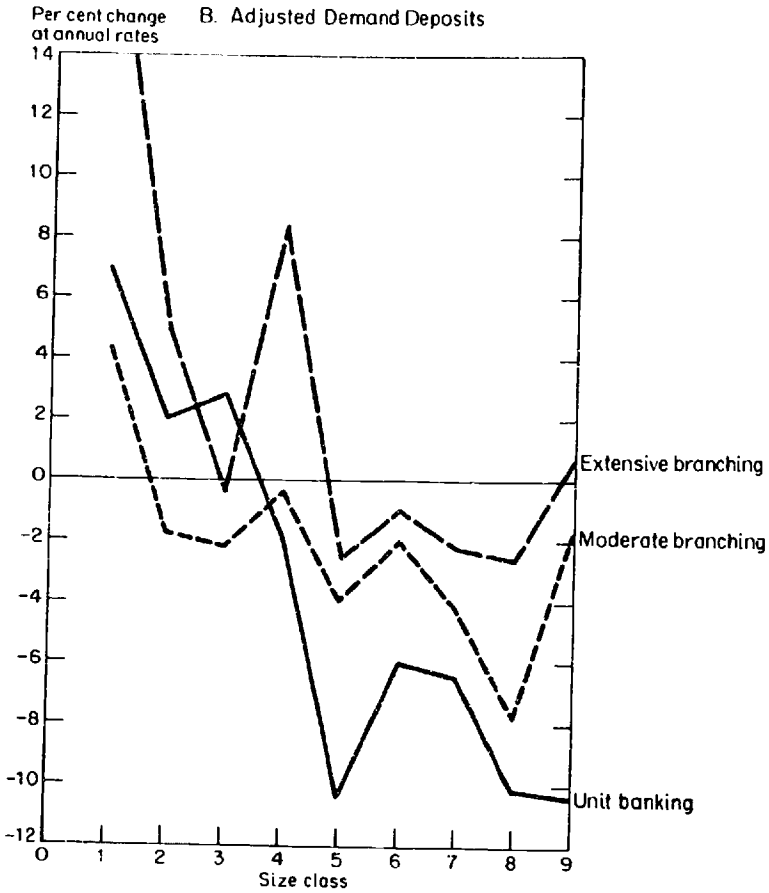
FIGURE 4 Changes in Urban Bank Deposits by Size Class—First Half of 1966

under tight monetary conditions and with aggressive competition for funds, savings deposits appeared to be a relatively vulnerable source of funds for large unit banks.

Unit banks also suffered unusually large withdrawals of demand deposits during this period. Due to seasonal factors, some decline in demand deposits is expected in the first half of the year, but as shown in Figure 4B, the large unit banks had much larger withdrawals than did the other classes of banks. A major portion of this loss was due to the unusually large withdrawals of correspondent balances held at the large unit banks.

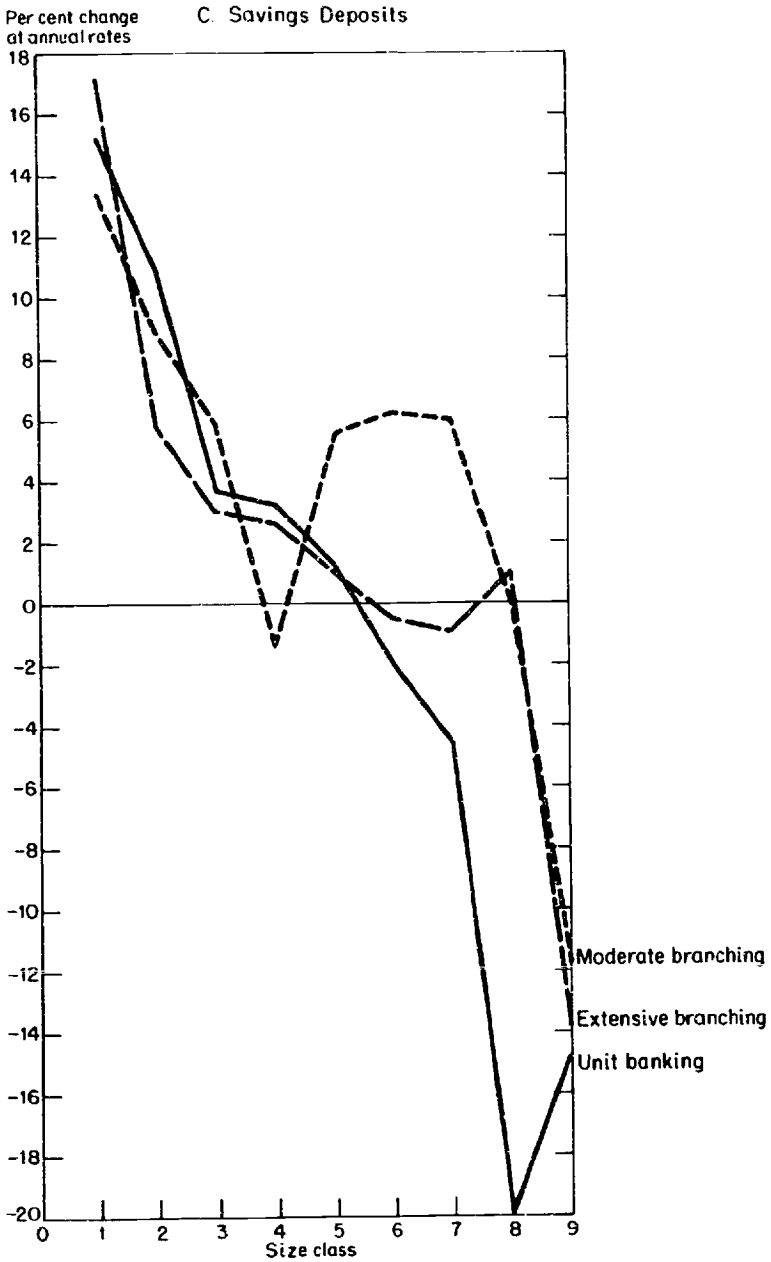
A possible explanation of the general shift in deposits is that the large unit banks were particularly susceptible to the impact of disintermediation.

FIGURE 4 (Continued)



It should be recalled that disintermediation was of increasing concern during 1966 as the rising market interest rates attracted more and more funds out of commercial banks, savings and loan associations, and other financial intermediaries. Commercial banks attempted to counter this by advertising their advantages as "full service banks." The banks were, in effect, using nonprice competition to compensate for the fact that regulatory constraints prevented them from using price (interest rate) competition for certain classes of deposits. The two major types of deposits subject to effective restraints were demand deposits (on which interest payments were prohibited) and savings deposits (on which the Regulation Q ceiling rate was far below market rates). Unit banks may have lost these two types of deposits because they were simply unable to offer effective nonprice competition. In particular, the large unit banks could not offer the locational convenience of branch offices to attract and hold household de-

FIGURE 4 (Concluded)



posits. Also, the large unit banks do relatively little consumer lending and carry very few residential mortgages (see Appendix Table 2). Thus, they

were in a comparatively weak position to offer "full-service banking" as compensation for lower interest rates. Their structural characteristics, combined with the regulatory constraints, left the large unit banks at a competitive disadvantage which may account for their losses in savings and demand deposits. These losses, along with the relatively slow growth in time deposits, account for the below-average growth in bank deposits in the unit banking states, and especially in the urban areas, during the first half of 1966.

Monetary policy was tightened still further in the second half of 1966, and a change in Regulation Q produced a sharp reallocation of bank funds. Deposits at both unit banks and moderate-branching banks expanded by about 3½ per cent, while deposits at extensive-branching banks fell by 0.6 per cent. It is apparent from Figure 3B that time deposits account for most of the shift in funds. Regulation Q interest rate ceilings were below market rates, and commercial banks were unable to compete effectively for time and savings accounts. The extensive-branching banks, which had relied heavily on both consumer and corporate time deposits, saw the gain in time deposits drop sharply from \$4.5 billion in the first half of 1966 to \$0.4 billion in the second half of the year. Total time and savings deposits at these banks actually fell by \$200 million in the second half, while time and savings deposits at other banks increased by \$4.0 billion. These figures represent a decline of 0.4 per cent in extensive-branching areas and increases of 3.2 per cent for unit banking and 4.8 per cent for moderate-branching areas.

Clearly, the Federal Reserve was using open-market operations and Regulation Q to restrict the aggregate growth in time and savings deposits and in total bank credit. Moreover, in pursuing its aggregate policy goals, the Federal Reserve caused a major structural reallocation of bank funds. From the data available here, it is not clear just what caused the policy impact to be concentrated so intensively on extensive-branching banks. It may be hypothesized, however, that in expanding their time deposits so aggressively, the extensive-branching banks had attracted a great deal of "hot money," which was very sensitive to interest rate differentials. When, due to Regulation Q, bank rates fell below market rates, this money was withdrawn as the outstanding certificates of deposit matured. The extensive-branching banks may also have had a relatively large proportion of consumer savings certificates, which were lost due to the rollback in the applicable interest rate ceiling.¹³ Whatever the reason, it is apparent that time deposits at extensive-branching banks were particularly vulnerable to the use of interest rate ceilings as instruments of monetary policy.

Deposits held at urban banks in moderate-branching areas seemed to be reasonably responsive to changes in aggregate monetary policy, but they were apparently relatively insensitive to changes in the mix of policy

instruments employed. As shown in Figures 2 and 3C, deposits at moderate-branching banks showed relatively stable growth during the period of very active monetary policy. The aggressive competition for deposits during the first half of 1966 and the interest rate ceilings in the second half of the year did not have a disproportionate impact upon these banks, as they did upon the unit banks and the extensive-branching banks. As a result, the growth in total deposits at moderate-branching banks held up quite well throughout 1966. From December 1965 to December 1966, deposits at urban moderate-branching banks increased by 6 per cent, compared with 4 per cent for unit banks and 2 per cent for extensive-branching banks. Time deposits at moderate-branching banks grew very rapidly during the first half of the year when competition was not constrained by interest rate ceilings. These time deposits continued to grow even in the second half when the rate ceilings were in effect. Savings deposits showed only a small net increase in 1966, but the impact of disintermediation did not produce the large withdrawals experienced by the other classes of banks.

The relatively stable flow of funds to the urban moderate-branching banks can probably be attributed in large part to the diversity among the banks comprising this group. There are no structural or legal factors operating to produce homogeneity, nor are there any factors causing dominance by a small subset of similar banks. The typical market in a moderate-branching state would be served by a variety of banks, with different numbers of branches, different structural characteristics, and different response patterns. In contrast, a unit banking area is, of necessity, served only by banks without branches. An extensive-branching area could, in principle, be served by banks of various types, but in practice most markets are dominated by a small number of large banks.¹⁴ Thus, under unit banking, there is a similarity among banks imposed by legal restraints; and under extensive branching, there is similarity due to dominant firms. What 1966 demonstrated was that when a restrictive monetary policy is implemented using instruments such as Regulation Q, the impact on the availability of funds can vary widely among different types of banks. If a given market is served primarily by a single type of bank, and if that bank is particularly vulnerable to the instrument being used, then that market will be subject to a disproportionate impact of monetary policy. Apparently, this is what happened to the unit banking areas in the first half of 1966, and to the extensive-branching areas in the second half of 1966. On the other hand, the moderate-branching areas were subjected to much less concentrated doses of monetary policy. If one type of bank within these areas was particularly hard hit by a certain policy instrument, another bank would be likely to fare relatively well. On the whole, the urban banks in moderate-branching states came through the 1966 "credit crunch"

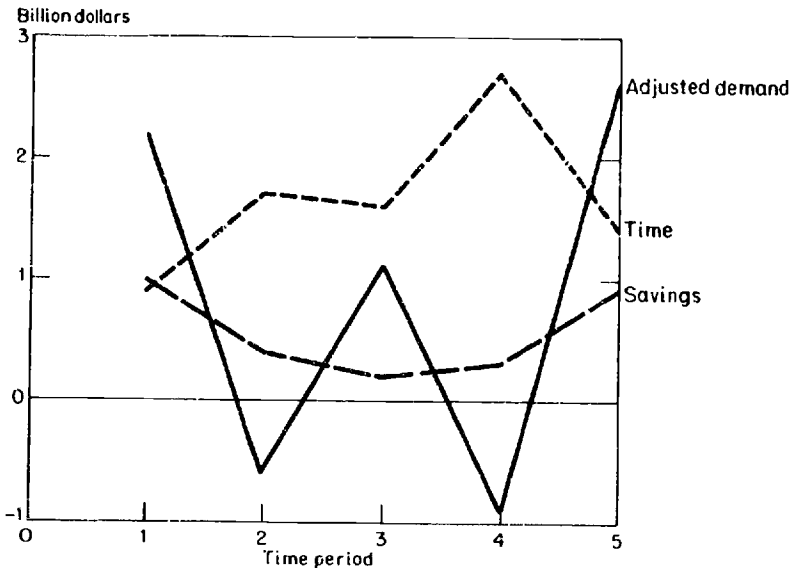


FIGURE 5 Changes in Deposits at Rural Banks by Types of Deposits

much more smoothly than did the banks in other areas. This is not to say that monetary policy had no effect, but the repercussions were not as concentrated or erratic as under the other branching structures.

For all three branching structures, the rural banks seem to have been effectively insulated from the effects of short-run changes in monetary policy. Even the extreme stresses of 1966 produced only very modest changes in the flow of funds to rural banks (see Figure 5). The rate of acquisition of savings deposits slowed down, but unlike the urban banks, the rural ones never actually lost savings deposits. The rural banks did not show an upsurge in time deposits in the first half of 1966, but neither did they show a sharp decline in the growth of time deposits in the second half of the year. The movements in demand deposits were largely attributable to seasonal factors, though the restrictive monetary policy in the second half of 1966 may have dampened the normal seasonal gain.

The pattern of changes in total deposits is very similar for the three types of rural banks (see Figure 6). In each case, the pattern is dominated by seasonal factors. The unit banks exhibit wider seasonal fluctuations, but on an annual basis, there is little difference among the three groups. The rural unit banks do a relatively large amount of agricultural business,¹⁵ and this may account for their greater seasonality. On the whole, the flow of funds to rural banks proved remarkably stable, and changes in monetary policy did not cause reallocations of deposits among the different branching groups in rural areas.

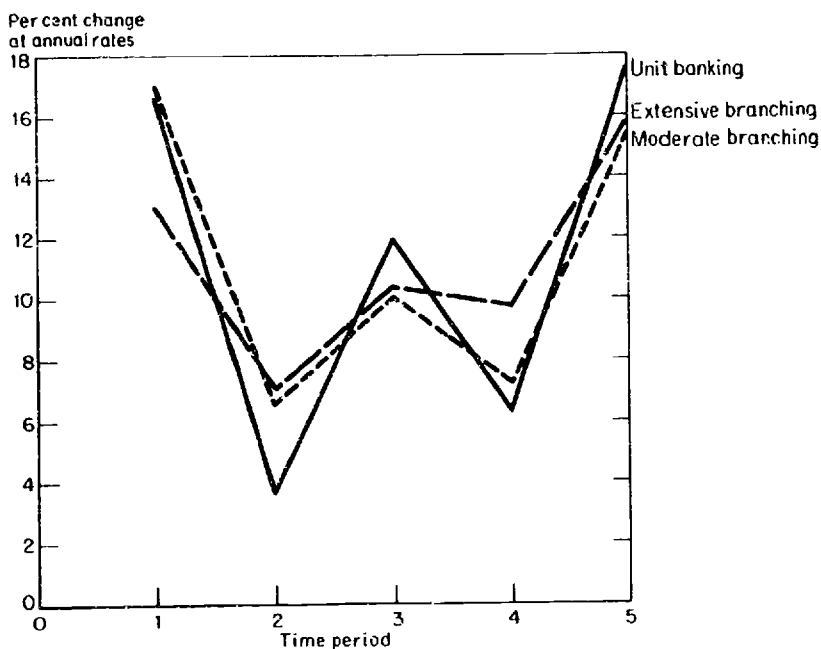


FIGURE 6 Changes in Deposits at Rural Banks by Branching Groups

Changes in Asset Allocation

The growth in total earning assets for any class of banks is largely controlled by the flows of funds into those banks. The relative growth rates in earning assets will, therefore, closely parallel the relative growth rates in bank deposits. Thus, in terms of total earning assets, the redistributive impact of monetary policy will be the same as that discussed in the previous section. However, changes in monetary policy may, in addition, cause banks to redistribute the available funds from one type of asset to another. In particular, one might expect a very tight monetary policy to cause banks to reduce their secondary reserves (investments) in order to provide funds for additional lending. The data in Appendix Table 6 show that during the 1965-66 period, the urban banks did, in fact, tend to increase their loans relative to other assets.

Between June 1965 and December 1967, loans at urban banks increased from 67.5 per cent of assets to 70.0 per cent of assets. This increase of 2½ percentage points represents a shift of more than \$6 billion from investments into loans. Over the same period, the total increase in loans was \$25 billion, so the reallocation among assets provided enough funds to account for one-fourth of the increase in urban bank lending. In late 1965, the reallocation of funds was accomplished without any net reduction in

any major asset category. The urban banks did not sell their investment securities; they simply increased them less rapidly in order to increase loans more rapidly. Then, in the first half of 1966, there was substantial net selling of U.S. Government securities. Some reduction in Government securities due to seasonal factors would be normal, but the decline of 11.4 per cent is far more than seasonal. The funds derived from the sale of Government securities were used both to increase lending and to purchase municipal and agency securities. In fact, holdings of municipals increased substantially more rapidly than lending (see Appendix Table 6). This strategy was reversed abruptly in the second half of 1966 as monetary policy was further tightened and Regulation Q became effective. The urban banks were forced to sell some of their municipal and agency securities to sustain their lending and to rebuild their holdings of Government securities.

Examination of the more detailed data shows that these sales were confined solely to the largest urban banks. The banks with deposits in excess of \$500 million sold \$1.3 billion in municipal and agency securities in the second half of 1966, whereas the other urban banks were actually making net purchases of \$600 million. In Appendix Table 8, it can be seen that in 1966 the large banks made substantial reallocations of funds to support their lending activity. By the end of 1966, their holdings of marketable securities had been drawn down to very low levels. As a result, when monetary policy eased in 1967, a large portion of the new money was used to rebuild the investment portfolio. By shifting funds from investments to loans in 1966, and from loans to investments in 1967, the large banks were able to spread out the impact of the 1966 tight monetary policy.

It is apparent from Appendix Table 7 that the rural banks were able to sustain a steady growth throughout the entire 1965-67 period. The allocation of funds between loans and investments seems to have been determined primarily by seasonal factors. The holdings of U.S. Government securities were built up in the second half of the year and then drawn down in the first half of the succeeding one. In their investment portfolios, the rural banks did substitute municipal and agency securities for Government securities, but there is no evidence of any cyclical response in the form of a significant reallocation of funds between loans and investments. Overall, the rural banks present a picture of impressive stability. This confirms the impression conveyed above in the discussion of deposit behavior.

None of the data presented in this section have been disaggregated on the basis of branching structure, because that factor does not seem to have an identifiable independent impact on asset allocation. Loans and investments do grow at different rates under the different branching struc-

tures, but the patterns can be more properly attributed to differences in deposit growth or to differences in average bank size. In general, the discussion concerning the allocation of funds between loans and investments is equally applicable to all of the branching categories.

Changes in the Composition of Lending

In addition to the factors discussed above, some of which are outside the bank's control, the distribution of bank credit is influenced by the individual bank's decision concerning the allocation of loanable funds. Under tight monetary conditions, a bank may choose to restrict certain types of lending in order to increase the supply of funds to more favored borrowers. It has already been observed that during the period studied, banks did, in fact, expand their commercial and industrial loans much more rapidly than other lending. Consumer loans and residential mortgages are two important areas in which the banks adopted relatively restrictive lending policies.

The purpose of this section is to examine the relationship between the observed changes in the pattern of lending and the structural characteristics of the banking system. In order to accomplish this, the growth in each loan category will be compared to the growth in total lending for the various groups of banks. By concentrating on relative growth rates, this procedure tends to screen out the effects of other factors, such as differences in the availability of funds and changes in loan-deposit ratios.

Bank size is clearly the most significant structural determinant of the observed pattern of bank lending. Across all three branching groups, the banks with deposits in excess of \$500 million show a very different response as compared with the smaller banks (see Figure 7). The large banks devoted a markedly disproportionate share of their loanable funds to commercial and industrial loans. In fact, from mid-1965 to mid-1967, the increase in commercial and industrial loans (\$13 billion) was only slightly less than the increase in total lending (\$14 billion). The expansion in business lending by large banks was financed in part through a relative slowdown in lending to the household sector. Between 1965 and 1967, commercial and industrial loans increased 34 per cent, whereas residential mortgages increased 11 per cent, and consumer loans gained only 4 per cent. At the large banks, approximately half of the total increase in commercial lending was financed by shifting funds from other types of lending. Over \$2 billion was shifted out of the loans supplied to the household sector; that is, residential mortgages and consumer loans increased \$2 billion less than they would have if they had grown at the same rate as total lending.

In addition, the large banks shifted very large sums of money out of their loans to financial institutions and to brokers and dealers. These loans to the

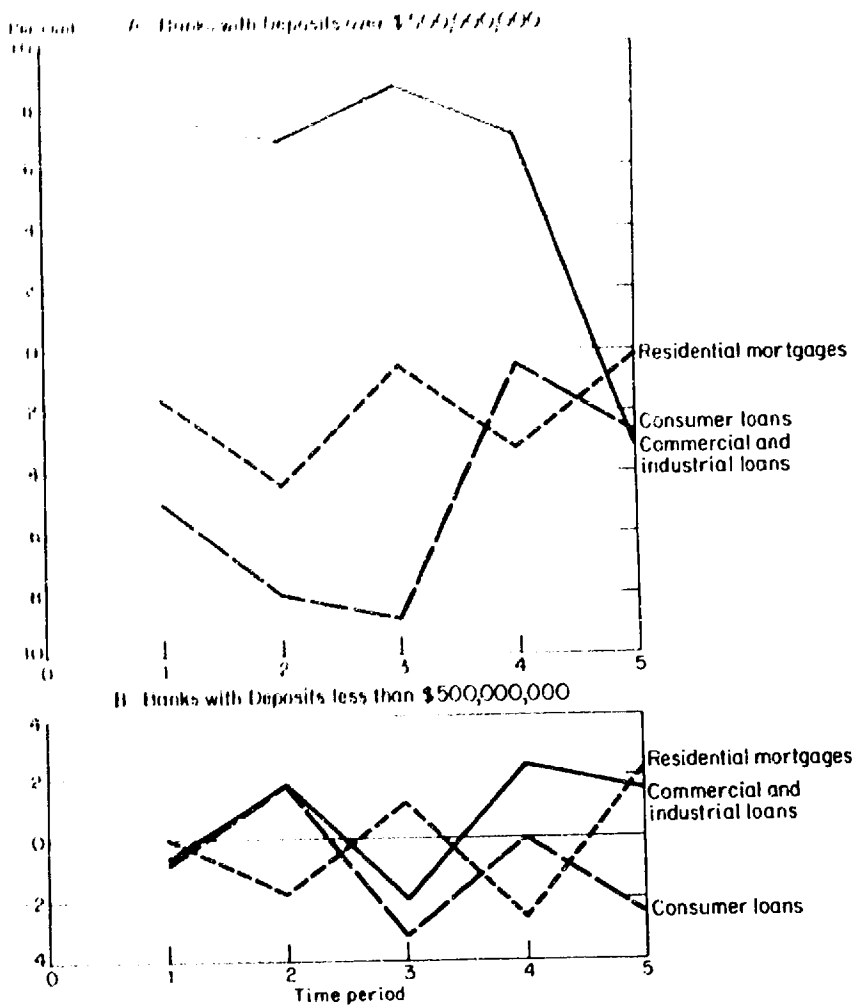


FIGURE 7 Deviations from Growth Rate for Total Loans

financial sector were reduced by \$1 billion in the second half of 1966 and by another \$2 billion in the first half of 1967. The financial loans apparently served as secondary reserves for the bank. They were assets acquired during times of relatively abundant funds, and they were sold, or not renewed, as monetary policy was tightened. In terms of their function, the financial loans are more nearly comparable to marketable securities than to the other loan categories. Financial loans provided the large banks with an important source of additional funds for commercial and industrial loans. Nonetheless, the shift of funds out of residential mortgages and consumer loans, although smaller in size, was probably of greater concern

as regards public policy, since the household sector did not have ready access to other sources of credit.

Among the banks with deposits of less than \$500 million, there is little evidence of any systematic shift of funds from one category of loans to another. As shown in Figure 7B, there were seasonal movements in the major loan categories, but over the period as a whole, all categories of loans grew at approximately the same pace. Despite the drastic changes in monetary policy and in financial conditions, these banks made almost no reallocation of loanable funds. This behavior pattern is in striking contrast to that of the larger banks, as illustrated in Figure 7A. The small group of very large banks responded in a fashion totally different from other banks in the system. The relatively rapid growth in commercial and industrial loans observed in the aggregate data was due solely to the actions of the large banks. Most of the contraction in lending to the household sector was also attributable to the larger banks.

The size classification used here is, of course, arbitrary; the group of large banks could perhaps have been defined as those with deposits in excess of \$700 million or even \$1 billion.¹⁶ This might have sharpened the results, but the major conclusion would still have been that the largest banks, unlike the other banks, responded by reallocating their loanable funds. Because of the relationships among bank size, location, and branching structure, this finding has further implications for the general allocation of bank credit. For example, all of the large banks are urban banks. Thus, it is the size factor which was responsible for the cutback in the bank credit provided to urban areas for consumer loans and residential mortgages. The restriction on bank loans to households in states with extensive branching was also attributable to the size factor rather than to the branching *per se*.¹⁷ Since the banking system in these states was dominated by the very large banks, their decisions had a much greater impact than the actions of large banks in the states with other branching structures. Finally, the localities most affected by the reallocation of bank credit were the urban areas in states with extensive branching. Thus, urban households in the Far West and in the Northeast found the supply of bank credit extremely restricted relative to conditions prevailing in other parts of the country. It should be emphasized that the evidence does not indicate that an individual bank of a specified size allocated funds differently in the Far West or Northeast than elsewhere. Instead, the impact was due to the fact that these areas had an unusually large share of their total bank credit provided by banks in the largest size class.

The available data cannot provide a definitive answer to the question of what caused the large banks to act as they did. Since the different types of large banks reallocated funds in very similar ways, it is likely that they were responding to a common factor. It is possible that the characteristic

which set the large banks apart from the other banks in the system was the fact that they operated extensively in the national money markets, a larger proportion of their loans going to national firms than to the regional and local firms served by the smaller banks. It is not uncommon for a national firm to have lines of credit at several banks, which, in total, substantially exceed its normal borrowing. However, under the extremely tight credit situation of 1965-67, the typical firm is likely to have increased its utilization of its lines of credit. As a consequence, the large banks, as a group, were most probably exposed to a substantial increase in the effective demand for commercial and industrial loans. The result of this circumstance would be an increase in their commercial loans relative to other types of loans and relative to the pace of lending at other types of banks. Although the hypothesis cannot be proven, it is consistent with both the institutional characteristics and the observed behavior patterns.

[7] CONCLUSIONS

The data presented here show that the changes in monetary policy observed during the 1965-67 period produced significant variations in the allocation of bank credit. The short-run response patterns of many banks were quite different from the patterns observed in their static portfolio balance. In addition, banks with different structural characteristics (size, location, and branching characteristics) responded differently to the changes in monetary policy. The following are some of the key factors underlying the reallocation of bank credit:

- a. Demand and savings deposits at large unit banks were particularly vulnerable to the process of disintermediation observed during the first half of 1966.
- b. Large, extensive-branching banks were hard hit by the use of interest rate ceilings on time deposits.
- c. The supply of funds to rural banks seemed almost totally unaffected by the changes in monetary policy.
- d. The supply of funds to moderate-branching areas was affected by changes in aggregate monetary policy, but the impact was more balanced than that observed under the other branching structures.
- e. Under all three branching structures, the large urban banks (deposits over \$500 million) sold investment securities during the 1966 "credit crunch" to finance an expansion in loans. The smaller urban banks made a much less drastic reallocation of available funds and,

in general, continued to add both securities and loans to their portfolios.

- f. The large urban banks devoted the vast bulk of their loanable funds to commercial and industrial loans. They sharply restricted funds supplied to the consumer loan and residential mortgage markets.

The factors just enumerated lead to certain types of reallocations of bank credit which have particular significance for the design and evaluation of monetary policy. First, it appears that much of the impact of a restrictive monetary policy is concentrated on the large banks in urban areas. Rural banks, and the customers they serve, are insulated from the effects of short-run changes in monetary policy. Areas served by the two extreme forms of branching structures (unit banking and extensive branching) find that the supply of bank credit is quite sensitive to the mix of monetary tools employed. Areas served by the less homogeneous moderate-branching systems experience much more even responses in the supply of bank credit.

Because branching structures are geographically concentrated, changes in monetary policy can shift funds from one region of the country to another. Thus, the Central and Midwestern states, which are unit banking areas, had their supply of bank funds curtailed in early 1966. Then, in the second half of 1966, the impact of a tight monetary policy fell more heavily on the extensive-branching states on the West Coast and in the Northeast.

Throughout the 1966 "credit crunch," the total supply of bank credit to the household sector was sharply restricted. Since this was due almost exclusively to the actions of the large urban banks, the households in areas served by such banks bore a disproportionate share of the impact of monetary policy; urban households, particularly on the West Coast and in the Northeast, had their supply of bank credit cut back sharply. In contrast, the business sector, which was the ostensible target of the restrictive monetary policy, received virtually all of the loanable funds available at the large urban banks. In light of this, it would seem that the allocational implications should be an important element in the design of appropriate monetary policies. This study has shown that the structural characteristics of the banking system must be taken into account in tracing out those implications.

**TABLE A-1 Balance Sheet Items as a Proportion of Total Assets: Selected Sources of Funds
(June 30, 1965, per cent)**

Deposit Size Class (\$ Millions)	Urban Banks		Rural Banks		All Banks
	Unit Banking	Extensive Branching	Moderate Branching	Unit Banking	
			Demand Deposits		
Less than 5	47.2	40.1	41.5	53.6	41.8
10-20	47.0	42.3	42.3	51.8	42.1
Over 500	53.2	47.8	51.4	—	—
All sizes	51.3	47.4	50.4	52.8	43.6
					45.4
					48.9
			Savings Deposits		
Less than 5	23.0	29.8	29.5	15.3	35.7
10-20	31.5	34.2	36.1	23.2	38.4
Over 500	16.2	20.8	22.8	—	—
All sizes	23.2	22.7	27.1	19.5	30.3
					22.6
					30.1
					—
					28.0
					21.0
					30.8
					20.6
					24.5
			Other Time Deposits		
Less than 5	14.5	7.1	15.2	20.1	7.7
10-20	12.7	11.0	11.4	15.6	7.4
Over 500	16.5	17.1	13.5	—	—
All sizes	14.0	16.2	11.2	17.7	9.8
					19.9
					16.2
					—
					16.3
					14.5
			Capital Accounts		
Less than 5	13.6	20.4	12.4	10.3	12.1
10-20	7.2	10.1	8.4	8.2	8.1
Over 500	8.5	8.1	8.5	—	—
All sizes	8.2	8.2	8.2	9.0	8.3
					10.1
					8.1
					—
					8.2
					8.3

Deposits of Commercial Banks

Less than 5	1.2	0.7	0.4	0.4	0.2	0.2	0.4
10-20	1.3	0.9	0.5	1.2	0.5	0.5	0.8
Over 500	11.9	5.9	6.4	—	—	—	6.7
All sizes	7.8	5.0	4.4	1.0	2.6	0.6	4.6

Deposits of State and Local Governments

Less than 5	10.2	6.0	6.3	10.5	9.0	8.6	9.4
10-20	8.7	8.1	7.3	10.4	8.3	7.7	8.4
Over 500	4.0	4.7	5.9	—	—	—	4.8
All sizes	6.6	5.5	6.7	10.6	6.9	8.7	6.7

TABLE A-2 Balance Sheet Items as a Proportion of Total Assets: Selected Uses of Funds
(June 30, 1965, per cent)

Deposit Size Class (\$ Millions)	Urban Banks		Moderate		Rural Banks		All Banks
	Unit Banking	Extensive Branching	Branching	Unit Banking	Extensive Branching	Moderate Branching	
	Total Loans						
Less than 5	49.2	55.1	50.8	46.1	48.3	47.7	47.7
10-20	47.7	55.4	50.6	48.1	55.4	50.4	49.9
Over 500	54.8	56.3	53.9	—	—	—	55.6
All sizes	51.2	56.2	53.2	46.5	55.2	49.5	53.2
	Commercial and Industrial Loans						
Less than 5	11.2	16.3	8.4	6.4	9.0	5.9	7.1
10-20	12.9	17.6	10.4	12.4	15.0	10.2	11.7
Over 500	30.4	24.3	20.8	—	—	—	24.4
All sizes	20.7	23.1	17.0	9.5	15.0	9.1	18.5
	Consumer Loans						
Less than 5	19.4	19.3	15.4	10.1	14.1	11.0	12.1
10-20	18.3	16.5	16.3	13.7	15.5	15.0	15.8
Over 500	6.1	8.3	12.0	—	—	—	8.8
All sizes	12.1	9.6	14.7	11.9	13.9	13.5	12.1
	Residential Mortgages						
Less than 5	7.3	9.2	13.4	5.4	10.1	9.3	8.0
10-20	9.0	11.9	14.3	6.4	11.4	11.9	10.7
Over 500	2.1	8.0	7.9	—	—	—	7.2
All sizes	5.3	8.6	9.6	6.3	10.7	11.5	8.5

	Government Securities						
Less than 5	25.5	22.0	26.7	28.1	24.8	27.8	27.4
10-20	24.1	20.7	23.1	21.6	19.6	22.1	22.4
Over 500	12.5	10.1	12.6	—	—	—	10.9
All sizes	17.7	11.2	16.4	25.0	16.4	23.5	16.0
	Municipal and Agency Securities						
Less than 5	6.7	5.3	6.7	9.6	8.7	9.3	8.8
10-20	13.0	8.9	11.9	14.0	10.4	13.0	12.7
Over 500	10.4	10.7	12.3	—	—	—	11.0
All sizes	11.1	10.9	11.7	12.0	10.7	12.0	11.3

TABLE A-3 Number of Banks and Total Deposits in Each Bank Group as of June 30, 1965

Size Class (\$ Millions)	Urban Banks			Rural Banks			All Branching Groups
	Unit Banking	Extensive Branching	Moderate Branching	Unit Banking	Extensive Branching	Moderate Branching	
	Number of Banks						
Under 5	650	125	482	3,006	197	2,748	7,208
5-10	364	67	324	768	124	1,137	2,784
10-20	325	71	310	315	70	579	1,670
20-30	149	39	135	72	30	136	561
30-50	129	35	124	28	22	77	415
50-100	97	40	108	5	20	32	302
100-250	50	42	97	0	7	5	201
250-500	18	16	45	0	2	0	81
Over 500	13	35	27	0	0	0	75
All sizes	1,795	470	1,652	4,194	472	4,714	13,297
	Total Deposits (\$ Billions)						
Under 5	1.6	0.3	1.4	6.8	0.6	7.2	17.9
5-10	2.6	0.5	2.4	5.3	0.9	8.0	19.6
10-20	4.6	1.0	4.4	4.3	1.0	7.9	23.2
20-30	3.6	1.0	3.4	1.7	0.7	3.3	13.6
30-50	4.9	1.4	4.9	1.0	0.8	2.9	16.0
50-100	6.5	2.8	7.8	0.4	1.3	2.1	20.9
100-250	7.0	7.0	14.6	—	1.0	0.7	30.3
250-500	6.2	5.7	16.4	—	0.6	—	29.0
Over 500	17.0	89.0	27.7	—	—	—	133.7
All sizes	54.1	108.7	82.8	19.5	6.9	32.0	304.0

TABLE A-4 States Included in Each Branching Group

Unit Banking States ^a	Extensive-Branching States ^b	Moderate-Branching States ^c
Colorado	Arizona	Alabama
Florida	California	Arkansas
Illinois	Connecticut	Delaware
Kansas	District of Columbia	Georgia
Minnesota	Idaho	Indiana
Missouri	Maine	Iowa
Montana	Nevada	Kentucky
Nebraska	New York	Louisiana
Oklahoma	North Carolina	Maryland
Texas	Oregon	Massachusetts
West Virginia	Rhode Island	Michigan
Wyoming	Washington	Mississippi
	Alaska	New Hampshire
	Hawaii	New Jersey
		New Mexico
		North Dakota
		Ohio
		Pennsylvania
		South Carolina
		South Dakota
		Utah
		Vermont
		Virginia
		Wisconsin

^aStates with fewer than 0.1 branches per bank.

^bStates with more than 4.0 branches per bank.

^cStates with 0.1 to 4.0 branches per bank.

TABLE A-5 Growth in Selected Asset Components (per cent at annual rates)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All Banks:					
Total earning assets	13.2	6.2	5.8	7.6	15.2
Loans	14.4	11.4	5.8	5.8	10.8
Commercial and industrial	18.6	16.2	9.2	9.8	9.6
Consumer loans	11.8	9.8	1.4	6.6	n.a.
Residential mortgages	13.6	8.8	6.6	3.6	12.2
Investments	11.2	- 4.0	5.6	11.6	24.0
U.S. Government securities	10.2	-20.4	10.4	- 6.8	30.8
Municipal and agency securities	15.2	18.4	- 0.2	31.6	17.4
Unit Banking:					
Total earning assets	13.0	4.4	7.2	7.6	15.2
Loans	14.4	8.2	7.2	7.8	9.6
Commercial and industrial	15.4	10.6	8.6	9.8	9.8
Consumer loans	12.6	8.2	4.0	8.0	n.a.
Residential mortgages	15.2	6.6	8.0	5.4	10.6
Investments	10.6	- 1.8	7.4	7.2	25.0
U.S. Government securities	7.4	-15.2	6.0	- 5.0	23.4
Municipal and agency securities	19.4	20.2	9.2	22.6	26.2
Extensive Branching:					
Total earning assets	12.4	6.4	3.2	6.4	15.4
Loans	13.6	12.2	2.8	2.4	12.6
Commercial and industrial	22.4	17.4	10.0	8.6	9.8
Consumer loans	9.4	7.6	0.0	4.0	n.a.
Residential mortgages	12.0	8.0	1.6	- 1.8	11.6

Commercial and industrial	22.4	17.4	10.0	8.6	9.8
Consumer loans	9.4	7.6	0.0	4.0	n.a.
Residential mortgages	12.0	8.0	1.6	- 1.8	11.6
Investments	9.6	- 8.2	4.2	16.8	22.4
U.S. Government securities	10.2	-29.8	17.4	- 5.8	35.8
Municipal and agency securities	11.6	13.8	- 7.8	34.8	12.8
Moderate Branching:					
Total earning assets	14.4	7.2	7.2	9.0	14.8
Loans	15.4	12.4	8.2	8.0	9.6
Commercial and industrial	15.2	19.0	8.4	11.8	8.8
Consumer loans	13.0	12.2	1.0	7.6	n.a.
Residential mortgages	14.4	10.4	10.4	7.6	13.4
Investment	12.8	- 2.0	5.6	10.8	24.4
U.S. Government securities	12.0	-17.6	9.4	- 8.4	32.4
Municipal and agency securities	16.0	21.4	0.8	34.6	16.2

n.a.: Not available due to a change in items included.

TABLE A-6 Growth in Selected Asset Components at Urban Banks (per cent at annual rates)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All Urban Banks:					
Total earning assets	12.8	6.2	4.6	8.0	15.0
Loans	14.8	11.4	5.0	4.4	11.4
Commercial and industrial	19.4	17.0	9.2	9.4	9.6
Consumer loans	11.4	8.4	0.0	5.4	n.a.
Residential mortgages	13.8	8.2	6.0	2.6	12.0
Investments	8.4	- 4.8	3.4	16.2	22.8
U.S. Government securities	7.4	-22.8	10.4	- 4.2	31.4
Municipal and agency securities	11.8	17.2	- 4.2	36.6	15.4
Urban Unit Banking:					
Total earning assets	12.0	4.4	5.6	8.2	14.6
Loans	15.2	7.6	6.8	6.2	10.2
Commercial and industrial	16.0	10.8	8.4	9.2	9.8
Consumer loans	12.8	6.4	3.4	6.8	n.a.
Residential mortgages	16.2	5.8	7.2	4.4	10.6
Investments	6.6	- 1.4	3.6	12.2	23.2
U.S. Government securities	2.4	-15.2	2.2	- 0.4	20.8
Municipal and agency securities	16.6	19.2	5.4	26.0	25.2
Urban Extensive Branching:					
Total earning assets	12.2	6.4	2.8	6.4	15.2
Loans	13.6	12.4	2.6	2.2	12.8
Commercial and industrial	22.8	17.6	10.4	8.4	10.2
Consumer loans	8.8	7.4	- 0.8	3.6	n.a.
Residential mortgages	12.0	7.8	2.0	- 2.0	10.4

Investments									
U.S. Government securities	9.0	- 8.8	3.2	18.2	21.4				
Municipal and agency securities	10.2	-30.8	17.8	- 5.0	35.6				
Urban Moderate Branching:	10.2	13.2	- 9.8	36.4	11.2				
Total earning assets	13.8	7.2	6.2	9.8	15.0				
Loans	16.4	12.4	7.4	6.2	10.4				
Commercial and industrial	15.8	20.8	7.8	11.6	8.6				
Consumer loans	12.8	10.2	- 1.2	5.8	n.a.				
Residential mortgages	15.0	9.4	10.2	7.0	14.4				
Investments	8.8	- 2.8	3.4	17.2	24.2				
U.S. Government securities	8.2	-20.4	9.6	- 6.4	35.0				
Municipal and agency securities	10.6	20.8	- 3.6	43.8	14.0				

n.a.: Not available due to a change in items included.

TABLE A-7 Growth in Selected Asset Components at Rural Banks (per cent at annual rates)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All Rural Banks:					
Total earning assets	15.6	6.0	10.2	6.8	15.8
Loans	12.4	11.4	9.0	12.6	8.2
Commercial and industrial	12.4	10.2	9.0	13.6	8.2
Consumer loans	13.4	15.2	6.8	11.6	n.a.
Residential mortgages	13.0	11.6	8.6	7.6	13.0
Investments	20.2	- 1.0	12.2	- 1.2	27.2
U.S. Government securities	17.6	-14.2	10.8	-12.6	29.0
Municipal and agency securities	29.0	22.8	14.6	15.0	25.4
Rural Unit Banking:					
Total earning assets	15.6	4.2	11.4	6.2	16.8
Loans	12.4	9.4	8.4	13.2	7.8
Commercial and industrial	12.2	9.8	9.0	14.0	9.6
Consumer loans	11.8	13.4	5.4	11.4	n.a.
Residential mortgages	12.8	8.8	10.0	7.8	11.0
Investments	19.6	- 2.2	15.2	- 2.4	28.6
U.S. Government securities	17.4	-15.0	13.2	-13.0	28.6
Municipal and agency securities	26.6	22.4	18.6	14.8	28.6
Rural Extensive Branching:					
Total earning assets	13.8	7.0	9.4	6.4	18.8
Loans	12.6	11.2	6.8	8.4	11.0
Commercial and industrial	12.6	11.8	2.8	13.6	2.8
Consumer loans	16.6	9.0	8.4	8.0	n.a.
Residential mortgages	13.4	12.0	- 3.4	- 1.0	25.8

Investments									
U.S. Government securities	16.2	- 1.0	14.8	2.4	34.4				
Municipal and agency securities	9.6	-18.6	13.8	-14.6	37.6				
	32.6	22.8	17.8	17.4	32.8				
Rural Moderate Branching:									
Total earning assets	16.0	7.0	9.8	7.2	14.8				
Loans	12.2	12.6	9.8	13.2	7.8				
Commercial and industrial	12.6	10.0	11.4	13.2	9.6				
Consumer loans	13.4	17.6	7.2	12.4	n.a.				
Residential mortgages	13.0	11.6	8.6	7.6	13.0				
Investments	21.2	- 0.4	9.6	- 1.2	25.2				
U.S. Government securities	19.0	-13.0	8.8	-12.0	28.0				
Municipal and agency securities	29.6	23.0	11.2	14.6	21.6				

n.a.: Not available due to a change in items included.

TABLE A-8 Growth in Selected Asset Components at Banks with Deposits Over \$500 Million (per cent at annual rates)

	Period 1 6/65-12/65	Period 2 12/65-6/66	Period 3 6/66-12/66	Period 4 12/66-6/67	Period 5 6/67-12/67
All Banks:					
Total earning assets	11.2	6.2	1.6	6.6	14.0
Loans	14.6	12.0	2.4	1.8	11.2
Commercial and industrial	22.2	18.8	11.0	8.8	8.0
Consumer loans	9.6	4.0	--	1.4	8.4
Residential mortgages	13.0	7.6	1.8	--	11.0
Investments	2.8	--	0.8	21.0	21.4
U.S. Government securities	5.8	-29.0	15.2	--	34.8
Municipal and agency securities	2.4	10.8	-14.8	42.6	11.4
Unit Banking:					
Total earning assets	9.8	3.4	1.2	4.6	13.2
Loans	17.2	6.6	3.2	4.2	8.4
Commercial and industrial	18.8	14.4	10.0	8.4	5.2
Consumer loans	14.2	--	0.2	--	n.a.
Residential mortgages	34.6	3.6	7.2	0.6	--
Investments	--	7.4	--	--	4.4
U.S. Government securities	--	4.8	4.6	5.4	27.0
Municipal and agency securities	--	16.0	5.2	2.0	15.8
	--	8.2	--	10.0	37.4
Extensive Branching:					
Total earning assets	11.4	6.6	1.6	5.8	14.6
Loans	13.2	12.6	2.0	0.6	13.0
Commercial and industrial	23.8	17.8	12.0	7.8	9.4
Consumer loans	8.2	5.0	--	1.2	n.a.
Residential mortgages	11.8	7.6	0.6	--	10.2

Investments										
U.S. Government securities	6.4	-10.0	0.8	22.0	18.8					
Municipal and agency securities	9.6	-34.2	20.0	- 4.2	35.0					
	6.2	12.2	-14.8	41.8	7.8					
Moderate Branching:										
Total earning assets	11.8	7.0	2.0	10.4	12.8					
Loans	18.0	13.4	3.8	4.2	7.4					
Commercial and industrial	18.6	26.4	8.4	12.8	5.4					
Consumer loans	11.0	4.8	-14.6	2.4	n.a.					
Residential mortgages	13.8	8.8	4.2	5.8	16.6					
Investments	- 1.5	- 7.5	- 3.0	26.8	25.6					
U.S. Government securities	2.8	-22.8	16.0	-10.2	45.8					
Municipal and agency securities	- 4.6	8.0	-20.4	64.2	10.4					

n.a.: Not available due to a change in items included.

NOTES

1. See especially the Bell and Murphy study [1]; see also Benston [2].
2. See Edwards [3], Flechsig [4], Jacobs [7], and Kaufman [8].
3. See Horvitz and Shull [6], and Guttentag and Herman [5], pp. 151-162.
4. It should be emphasized that this section is considering the influence of size alone. The discussion does not consider the effects of market power. It is quite conceivable that a large bank will have some appreciable degree of monopoly power. However, the issue of monopoly versus competition is separable from the effects of bank size per se.
5. See Guttentag and Herman [5], pp. 30-65, and Horvitz and Shull [6].
6. See Edwards [3], Flechsig [4], and Kaufman [8].
7. To keep the tables from becoming too unwieldy, data are given only for the largest and smallest banks and for a "typical" medium-sized bank.
8. This category includes automobile loans, repair and modernization loans, other installment loans, and single-payment personal loans.
9. This adjustment is nearly the same as that made by the Federal Reserve in computing "net demand deposits," except that reserves have also been subtracted here.
10. Demand deposits have again been adjusted by subtracting cash from them. In principle, the reserves required for time and savings deposits should have been treated separately, but since reserves are reported as a single number, all reserves are subtracted from demand deposits.
11. When the interest ceiling on time deposits had been raised to 5 1/2 per cent in December 1965, the ceiling on savings deposits had been kept at 4 per cent.
12. IPC time deposits are those held by individuals, partnerships, and corporations.
13. In December 1965, the interest ceiling on all time deposits had been raised to 5 1/2 per cent. However, in September 1966, the ceiling was lowered to 5 per cent on certificates of deposit of less than \$100,000.
14. Recall that the thirty-five banks with deposits over \$500 million hold over 75 per cent of the bank assets in the extensive-branching states.
15. For example, agricultural loans were 12 1/2 per cent of total assets for rural unit banks. Agricultural loans were 3 per cent and 6 1/2 per cent of total assets for extensive-branching and moderate-branching rural banks.
16. A lower cutoff would not have been appropriate because the next smaller size class (\$250-\$500 million) behaved like the smaller banks, not like the larger ones.
17. Over the longer run, it may be the bank's ability to add branches which produced the large banks in these states, but, in principle, the two factors should be kept separate.

REFERENCES

1. Bell, Frederick W., and Murphy, Neil B. "Costs in Commercial Banking: A Quantitative Analysis of Bank Behavior and Its Relation to Bank Regulation." Research Report No. 41, Federal Reserve Bank of Boston, April 1968.
2. Benston, George. "Economics of Scale and Marginal Costs in Banking Operations." *National Banking Review* 2 (June 1965): 507-549.
3. Edwards, Franklin. "Concentration in Banking and Its Effect on Business Loan Rates." *Review of Economics and Statistics* 46 (August 1964): 294-300.
4. Flechsig, Theodore G. "The Effect of Concentration on Bank Loan Rates." *Journal of Finance* 20 (May 1965): 298-311.
5. Guttentag, Jack M., Herman, Edward S. "Banking Structure and Performance." Bulletin No. 41/43, New York University Institute of Finance, February 1967.

6. Horvitz, Paul, and Shull, Bernard. "The Impact of Branch Banking on Bank Performance." *National Banking Review* 4 (December 1964): 1581-1626.
7. Jacobs, Donald P. "The Interaction Effects of Restrictions on Branching and Other Bank Regulations." *Journal of Finance* 20 (May 1965): 332-348.
8. Karfman, George. "Bank Market Structure and Performance: The Evidence from Iowa." *Southern Economic Journal* 32 (April 1966): 429-439.