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THE RATIONALIZATION OF COMMERCIAL BANK RESERVE REQUIREMENTS

A Paper Presented
By

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The present framework for the management of bank reserves in the United States needs a fundamental reform. The mosaic of diverse provisions governing reserve requirements established by the 50 different States should be abolished.

In their place, there should be substituted a universal system of reserve requirements -- applicable to all insured commercial banks -- and set by the Federal Reserve Board. Moreover, with the adoption of such a universal arrangement, the overall burden of reserve requirements for the banking system as a whole could be substantially reduced -- while the management of monetary policy would be strengthened considerably.

The central theme of the suggestions above has been a part of the Federal Reserve Board's basic concern over the future of monetary management for a number of years. In its Annual Reports to Congress for 1964, 1965 and 1966, the Board recommended legislation calling for fundamental reforms in the administration of bank reserves.

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I am indebted to a number of persons on the Board's staff for assistance in the preparation of this paper. I particularly wish to thank Mr. Edward R. Fry for taking general responsibility for much of the economic analysis. Miss Jacqueline McDaniel exercised considerable imagination in mastering the difficult computer programing problems. Mr. Darwin Beck provided assistance with some of the more advanced statistical analysis, and Miss Mary Ann Graves contributed substantially to the entire project.

The key features of the legislation proposed by the Board can be summarized briefly:

- The Federal Reserve Board would be given authority to set reserve requirements for all insured banks -- rather than only for member banks of the Federal Reserve System.
- The Board would be authorized to establish graduated reserve requirements based on the amount of a bank's demand deposits -- rather than on its geographic location.
- Nonmember insured banks would be required to maintain reserves at Federal Reserve Banks, although they would not be required to become members of the Federal Reserve System.
- Nonmember insured banks would be able to borrow from Federal Reserve Banks on the same conditions which apply to member banks.

The Board's 1965 call for legislative authority to establish reserve requirements for all insured banks was really a revival of a proposition which Congress once enacted into law in a slightly different form. The Banking Act of 1933 contained a provision requiring State chartered banks to become members of the Federal Reserve System by July, 1936, if they wished to qualify for the benefits of Federal deposit insurance. The provision never took

effect: very small banks were excluded from the requirement by the Banking Act of 1935. The deadline for large banks to become Federal Reserve members was extended and finally repealed in 1939. The basic idea was revived in 1950, when Senator Paul Douglas' Sub-Committee of the Joint Economic Committee recommended that the Federal Reserve Board be empowered to set reserve requirements for all commercial banks. A Sub-Committee chaired by Congressman Wright Patman made the same recommendation in 1952. No legislation was introduced to carry out either proposal. Nearly a decade later, in 1961, the Commission on Money and Credit (a private sector body formed by the Committee for Economic Development) recommended that all insured commercial banks be required by law to become members of the Federal Reserve System. Two years later, in 1963, the President's Committee on Financial Institutions advanced a proposal which essentially became the Federal Reserve Board's recommendation in its 1964 Annual Report: that all commercial banks be subject to reserve requirements set by the Board and that they have equal access to the Federal Reserve Banks' discount windows.

The Rationale for Universal Reserve Requirements

Nevertheless, despite this long gestation period -- and even a one-time endorsement by Congress which kept a law in the statute books for six years -- the basic arguments in favor of universal reserve requirements are not fully understood by many

bankers and some public officials (at both the State and Federal level). Where they are fully understood, they are frequently opposed. Thus, it might be helpful to summarize the key points once again:

- Control of the monetary base by the Nation's central bank would be strengthened. Private demand deposits are the key component of our money supply; the growth of these deposits depends on the growth rate of bank reserves as determined by the Federal Reserve System.
- However, a growing proportion of private demand deposits (16 per cent at the end of 1956 and 21 per cent at the end of 1967) is held by nonmember banks. This erosion in the share of private demand deposits subject to Federal Reserve requirements is weakening the degree of control which can be exerted over the Nation's monetary system.
- This means that the burden of maintaining our fractional reserve system is falling increasingly on a shrinking number of banks, as a growing number of smaller member banks leave the System. Withdrawals averaged 9 banks per year in 1946-55; the average rose to 24 in 1956-65. In 1966, 39 members left the System, and 24 assumed nonmember insured status in 1967. Moreover, while withdrawals were confined essentially to small banks in

the earlier periods, in recent years a number of large banks (some with deposits exceeding $100 million) have left the System.

- The prime motive behind virtually all of these withdrawals has been the desire to employ as earning assets a large proportion of the balances held at Reserve Banks. Furthermore, many withdrawals have been encouraged by city correspondents anxious to obtain additional balances.
- The net result is that, during a period of monetary restraint, efforts to moderate the growth of bank credit must become progressively heavier on member banks, since nonmember banks' private demand deposits (which are also part of the total money supply) do not respond directly to the Federal Reserve's general instruments of credit control.

The above arguments supporting the adoption of a system of universal reserve requirements have been made a number of times. But in many quarters, they have not been accepted -- partly because of the conviction that nonmember banks must necessarily be made worse off than they are under the existing regimes of State-administered reserve requirements. This conviction, in fact, may be unwarranted.

On the basis of an extensive examination and appraisal of State reserve requirements, I am personally convinced that a rational system of universal reserve requirements, established by the Federal

Reserve Board, can be devised which would lighten the reserve burden on insured banks -- member and nonmember -- and greatly reduce the discrimination which now exists among nonmember banks, as well as between the latter as a group and member banks as a group:

- Under State administered provisions, reserve requirements are typically higher -- not lower -- than they would be under existing Federal Reserve requirements. While nonmember banks in every State can hold their reserves as correspondent balances, and in some States they can hold them partially in earning assets, it is doubtful that these advantages fully compensate for the considerably higher requirements which they must generally meet.
- Virtually all State administered reserve requirements further strengthen the tendency toward pyramiding of correspondent balances. Universal reserve requirements would substantially reverse this trend and distribute the total use of banking resources more in accordance with the geographic sources of deposit funds.
- Finally, by making all bank deposits subject to Federal Reserve requirements, the new system would open the way for further sizable reductions in the level of requirements for both member and nonmember banks.

- In the closing section of this paper, I sketch the main features of a new system of universal reserve requirements which would permit a reduction of as much as $3 billion (or more than 10 per cent) in the estimated $28 billion of reserves required of both member and nonmember banks as of June 30, 1967.

Diversity of State Reserve Requirements

The details of State reserve requirements vary considerably. In fact, so varied are specific provisions from one State to another that one could easily get the impression of disarray rather than order in reserve requirements. Such an impression would not be justified -- although it is difficult to discern a basic rationale in the existing pattern of State reserve requirements.

These requirements are set forth in detail in Table A.1 (in the appendix to this paper), showing selected provisions of the 50 State banking statutes relating to reserve requirements for commercial banks that are not members of the Federal Reserve System. Even a quick scanning of these provisions makes clear the rich variations in the definitions of deposits subject to reserve requirements, applicable ratios of reserves to deposits, and types of assets eligible as reserves.

The strategic features of these State provisions can be summarized briefly in Table 1.

Table 1. Principal Characteristics of State Reserve Requirements

Characteristic of Requirements		Number of States
No reserve requirements		1
No requirement on specific types of deposits		4
Time and savings deposits	3	
Passbook savings deposits	1	
Requirements against both demand and time deposits		45
Same percentage for demand and time	6	
Different percentage for demand and time	39	
Simple gross definition of each type of deposit	23	
Specific exemptions from requirements	15	
U.S. Government and/or State and local deposits	12	
"Due from" balances not part of reserves	3	
Differentiation by type of demand deposits	1	
Total		50

NOTE: Reserve requirements for banks in the District of Columbia are the same as those specified in Regulation D for reserve city member banks of the Federal Reserve System.

From the above summary, several key points stand out. Nearly all States have reserve requirements against both demand and time deposits. The most striking exception is Illinois which has no reserve requirements at all. Three States (Louisiana, Massachusetts, and Rhode Island) have no requirements against time and savings deposits; one State (Connecticut) has none against passbook savings. Six States calculate requirements against a total deposit base, with no differentiation in percentage requirements on time and demand deposits. All other States do distinguish between time and demand deposits, with 23 States using a simple gross definition of each type

of deposit for reserve purposes. A dozen States exempt U.S. Government deposits and/or State and local deposits from reserve requirements; four States allow deductions of "due from" balances that are not counted as reserves when calculating demand deposits subject to requirements. One State (Kansas) has a rather high requirement on demand deposits due to banks; it has lower requirements on other demand deposits equivalent to those for country member banks of the Federal Reserve System.

Because of differences in definitions of deposits among the States, it is also difficult to make a comparison of reserve ratios from State-to-State and with percentage requirements for Federal Reserve member banks. However, if we overlook the differences in definition of deposits, 13 States specify percentages below those applicable to member banks, and about as many have set ratios above member bank requirements. In the next section, a systematic effort is made to estimate the quantitative effect of these differences in ratios from State-to-State.

Eligibility of reserve assets is the key feature distinguishing between reserve requirements in some States and those set by the Federal Reserve System. This is also the principal competitive factor in reserve requirements of nonmember vs. member banks. The one common reserve asset for member and nonmember banks is vault cash. In addition, a number of States specify clearing balances held with Federal Reserve banks as eligible reserves for nonmember banks.

Eight States require nonmembers to maintain at least a minimum percentage of reserves in the form of vault cash. All States count demand balances due from banks as reserves, although 28 States specify that such balances must be held at approved depositary banks (including Federal Reserve Banks in some cases). Securities comprise part of eligible reserves in 20 States; all of these allow some portion of requirements to be met by U.S. Government securities (in some instances with relatively short maturities specified). Only five of these States permit banks to count State and/or local government obligations as reserves.

Other reserve assets counted by a minority of States include cash items in process of collection, clearing house funds, and CCC notes. In two States (Alaska and California), reserves could be held in the form of gold dust or bullion. This is apparently only an historical legacy, since presumably no banks actually hold reserves in this form!

In the light of this great diversity in reserve provisions among the different States, it seems evident that one cannot talk simply about the differential impact of State vs. Federally-established requirements. Indeed, the differences in treatment of nonmember banks from one State to another may be greater than the differences between nonmembers as a group and member banks of the Federal Reserve System.

Many observers will undoubtedly hold that uniformity among the States is not desirable in itself. Yet, it is by no means obvious just how one would explain -- and justify -- as much diversity (and perhaps discrimination) as presently exists in reserve requirements among State-chartered nonmember banks. Lessening these differences in treatment among institutions doing essentially the same type of business in different States should be another objective in the adoption of legislation to permit the Federal Reserve to establish reserve requirements for all insured commercial banks.

Quantitative Effects of State Reserve Requirements

As mentioned above, a major effort has been made to estimate the quantitative impact of differences in State reserve requirements. Because of differences in definition of deposits and the opportunity in some States to hold required reserves partially in earning assets, the specified reserve ratios may have an effect far different from what might be implied by the numerical percentages shown in the statutory provisions.

After many hours of careful analysis and imaginative computer programming (and after a considerable amount of time on the computer itself), we have obtained a fairly good estimate of the differential impact of reserve requirements in each of the

50 States.[1/] The results are summarized in Table 2. (They are shown in detail in Appendix Table A.2.)

Table 2. Comparison of Reserve Requirements

Type of Requirement	Required Reserves (amount, millions of dollars)	Reserve Ratio* (Per cent)
Federal Reserve Member Banks		
All members		9.1
Reserve city banks		10.4
Country banks		7.4
Insured Nonmember Banks		
States allowing only cash assets as reserves	2,363	7.4
States allowing earning assets as part of reserves	2,975	13.0

* Ratio of reserves to net demand deposits plus total time and savings deposits.

1/ For those interested in the analytic techniques employed to obtain these estimates, the following explanation is given. Each State's statute governing reserve requirements was examined to identify for each State the definitions of deposits subject to reserves and the percentage requirements applied to each type of deposit. The June 30, 1967, condition reports for nonmember insured banks were used to obtain information on deposit classifications which permitted the derivation of deposits definitions reasonably consistent with those given in the statutory provisions for each State. The next step was to program the formula so that the computer could calculate reserve requirements for each State according to the statutory definitions of deposits subject to reserves and the specified percentage requirements applied to these deposits. The calculation of State reserve requirements was then made utilizing the bank deposits and other statistics from the June, 1967, call report. These calculations were done separately for each of the 7,400-odd insured banks, and the results were then summed for each State to obtain the total reserve requirements derived from the State's formula. The State nonmember deposits data were then multiplied by current Federal Reserve Regulation D percentage requirements to obtain a comparison between System requirements and State requirements.

As one would expect, reserve ratios differ markedly from one State to another, reflecting both differences in deposit definitions and percentage requirements. While there are exceptions, the ratios for States which allow only cash assets for reserves are roughly two-fifths lower than the ratios for States which permit banks to carry part of their reserves as earning assets. The ratios for member banks taken as a group fall about in the middle of the range for insured nonmember banks. On the other hand, the ratios are virtually identical for country member banks and for banks in States where only cash assets are allowed.

Another aim of the project was to obtain an estimate of the total amount of reserves which insured nonmember banks must hold under State requirements. As shown above, this total was about $5.3 billion as of June 30, 1967. As of the same date, nonmember banks held about $61.2 billion of total deposits, or roughly 17 per cent of the aggregate amount of deposits held by all insured commercial banks. At the same time, the reserves they were required to hold were around 19 per cent of the required reserves of all insured banks. If insured nonmember banks' required reserves in relation to the total amount of such reserves had been in the same proportion as its share of total deposits, they would have been able to reduce their requirements by approximately $600 million.

One can see in this a difference of $600 million or nearly 12 per cent of their required reserves -- a clear indication that

substantial diversities in State administered reserve requirements impose a sizable differential burden on some insured nonmember banks.

The same conclusion stands out even more strongly when State requirements for nonmember banks are compared with what they would be if the present Federal Reserve requirements (as specified in Regulation D) were applied. This has been done, and the results are also shown in Table 3.[1/] (For details see Appendix Table A.2.)

Table 3. Comparison of Reserve Requirements: States vs. Federal Reserve System (amounts in millions of dollars)

Classification of States	State Regulation	Federal Reserve System	Fed. Res. as Per cent of State	Potential Saving Amount	Per cent
States allowing cash assets only as reserves	2,363	2,003	84.8	-360	15.2
States allowing part of reserves as earning assets	2,975	1,566	52.6	-1,409	47.4
Illinois (no requirement)	none	279	n.a.	+279	n.a.
Total	5,338	3,848	72.1	-1,490	27.9

n.a., Not applicable.

1/ In the calculation of nonmember requirements under Regulation D, it was assumed that all nonmember banks (except a few in the District of Columbia) would be subject to requirements specified for country banks. In the District of Columbia, the present nonmember banks are subject to the higher Regulation D requirements for reserve city banks. There are some cases in which nonmember banks are located in cities designated by the Federal Reserve Board as reserve cities which, under Regulation D, are subject to higher percentage requirements. For purposes of these estimates, it was assumed that banks in such localities would, nevertheless, be subject to the lower country bank requirements. These percentages were applied consistently for each State using deposit figures from the June, 1967, call report. The Regulation D definitions of net demand deposits and total time and savings deposits were derived for each State for purposes of these estimates.

These data suggest that nonmember insured banks are presently holding approximately $1.5 billion more in required reserves than would be the case if they were subject to requirements set by the Federal Reserve Board. Thus, under universal requirements, even with the present percentages applicable to Federal Reserve members, insured nonmembers could reduce their overall reserve requirement by more than one-fourth. The average reduction would be relatively modest for banks in States which allow only cash assets as reserves. This result is about what one would expect, since the conditions under which these banks can hold their reserves are already reasonably close to those affecting member banks. The situation is far different with respect to banks in States where part of the banks' required reserves can be held as earning assets. Here the level of required reserves would be cut by $1.4 billion, a reduction of almost one-half. Undoubtedly, the earnings on that portion of their reserves which these banks can invest would lessen the net burden of their much higher reserve requirements. However, it also seems very doubtful that such earnings are sufficient to compensate fully for their substantially larger requirements which State reserve provisions impose on them -- compared with what their situation would be if Federal Reserve regulations applied.

In passing it should be noted that the potential savings which would accrue from the application of Federal Reserve requirements to nonmember insured banks that now hold reserves would be

close to $1.8 billion -- not $1.5 billion. The difference (amounting to $279 million as of June 30, 1967) represents the level of reserves which banks in Illinois would have to carry. As mentioned previously, insured nonmember banks in Illinois currently are subject to no State-imposed reserve requirements. Putting aside banks in this State, the reduction following from the application of Federal Reserve ratios would amount to $1,769 million, or roughly one-third, in the level of reserves required under State statutes.

As mentioned several times above, some 20 States allow insured nonmember banks to hold part of their reserves in the form of earning assets, while all States permit banks to count vault cash and correspondent balances. Given these different options, one would expect banks to minimize holdings of non-earning assets and to maximize investments wherever possible -- consistent with the need to maintain sufficient liquidity to service their customers' deposits.

A natural question to ask is this: just how far are these alternative means of managing reserves reflected in their earning assets?

This question cannot be answered definitively. However, as shown in Table 4, banks do seem to behave as generally expected. In States in which required reserves can be partially invested, earning assets of nonmember banks do account for a slightly larger proportion of total deposits. The loan/deposit ratio for these banks is moderately higher. Although their holdings of securities

are about in line with other nonmember banks, their ability to count part of these investments as liquidity reserves undoubtedly enables them to extend loans somewhat more freely. Their holdings of vault cash and deposits with other banks in relation to deposits are also slightly below the ratios for other nonmember banks.

Table 4. Deposits and Selected Earning Assets of Insured Banks, June 30, 1967 (amounts in millions of dollars)

Deposits and Selected Assets	All Insured Banks	Federal Reserve Member Banks	Nonmember Insured Banks			
			Total	Required Reserves in cash assets only	Required Reserves Partly in Earning Assets	Illinois (No Required Reserves)
Total deposits	358,695	297,529	61,166	31,220	25,279	4,668
Correspondent balances (Due from banks)	13,539	8,259	5,280	2,865	2,015	402
Per cent of deposits	3.8	2.8	8.6	9.2	8.0	8.6
Currency and coin	4,839	3,728	1,111	591	454	67
Per cent of deposits	1.3	1.3	1.8	1.9	1.8	1.4
Selected earning assets:						
Total	320,281	264,139	56,142	28,359	23,614	4,169
Per cent of deposits	89.3	88.8	91.8	90.8	93.4	89.3
Securities	100,475	79,721	20,754	10,449	8,540	1,765
Per cent of deposit	28.0	26.8	33.9	33.5	33.8	37.8
U.S. Government	53,867	40,636	13,232	6,548	5,441	1,242
Per cent of deposits	15.0	13.7	21.6	21.0	21.5	26.6
State & Local	46,608	39,085	7,522	3,901	3,099	523
Per cent of deposits	13.0	13.1	12.3	12.5	12.3	11.2
Net Loans	219,806	184,418	35,388	17,910	15,075	2,403
Per cent of deposits	61.3	62.0	57.9	57.4	59.6	51.5

While this broad summary provides a rough indication of reserve management by insured nonmember banks, an effort was also made to obtain a more refined estimate of the inter-relations among reserve requirements, correspondent balances and vault cash. These inter-relations were examined statistically, distinguishing between the 30 States which permit only cash assets as reserves and the 20 States which allow part of the requirements to be met in the form of earning assets.1/

1/ In technical terms, the analysis employed a multiple regression equation based on cross section data for 7,418 nonmember insured banks, grouped into 30 and 20 States, respectively. The dependent variable was "due from banks" (a rough measure of correspondent balances). Explanatory variables were (1) estimated reserve requirements, (2) vault cash, (3) deposit mix (ratio of time to total deposits) and (4) number of nonmember banks in each State. The results are:

States allowing cash assets only as reserves (30).
Simple regression shows a statistically significant relationship between "due from" and required reserves, with a simple coefficient of determination (R^2 adjusted for degrees of freedom) of .952. The addition of vault cash as a variable does little to explain the variability of "due from". The multiple coefficient of determination is not significantly different at .950.

States allowing earning assets as part of reserves (20).
With fewer observations, the results become more tentative. However, while the R^2 for the relationships between "due from" and required reserves declines to .736, it is still significant. The introduction of vault cash raises the R^2 to .858. This may indicate somewhat different (perhaps stronger) relationships among variables in States where earning assets are eligible as reserves.

The simple correlation coefficients are:

	"Due From" Against:			
	State Reserve Requirements	Vault Cash	Deposit Mix	No. of Banks
30 States	.98	.91	-.36	.81
20 States	.87	.92	.10	.69

The results of this statistical analysis can be interpreted generally as follows:

- There is a close association between "due from" balances and required reserves. This undoubtedly reflects the fact that "due from" is the most important reserve asset under State regulations. The relationship is stronger in States allowing only cash assets to meet reserve requirements than in States which also allow earning assets. This is the pattern one should expect, because the option for meeting requirements in the cash assets States leaves considerably less room for the management of required reserves.

- The relationship of "due from" balances to vault cash also is high for both groups of States. However, taken in conjunction with required reserves, vault cash seems to have little separate influence on the banks' tendency to hold correspondent balances. This perhaps indicates that holdings of both vault cash and correspondent balances are influenced in the same direction by the pattern of demand deposit usage by the banks' customers.

- There is also a fairly strong association between "due from" and number of banks. But this relationship appears not to be as close as that between required reserves or vault cash.

- The relationship between "due from" and deposit mix is weak. However, in the 30 States which permit only cash reserves, the greater the ratio of time to total deposits, there appears to be less of a tendency to hold correspondent balances.

In conclusion, the above results (which must clearly be interpreted with caution) do suggest that insured nonmember banks which can hold part of their reserves in earning assets are somewhat better off than those banks which can hold only cash assets. To me, this is a form of discrimination among institutions which are generally thought to be in essentially the same position relative to member banks of the Federal Reserve System. Universal reserve requirements set by the Federal Reserve Board would eliminate this unnecessary difference in treatment.

A Rational Approach to Reserve Requirements

As mentioned above, the adoption of universal reserve requirements to be administered by the Federal Reserve Board would open the way for a substantial reduction in the overall level of reserve requirements being carried by the Nation's commercial banks. Exactly what, when and how much of a reduction would be made clearly would have to be decided by the Board itself. However, in the legislation proposed to Congress, the Board did indicate the general direction in which it felt it desirable to move. It asked for authority to set reserve requirements for all insured banks within the following statutory ranges: 7 to 14 per cent of demand deposits for banks with a total of such deposits not exceeding $5 million; 10 to 22 per cent for deposits in excess of $100 million. The key feature is clearly the graduation of reserve requirements by size of bank.

Taking this as a starting point, I have formulated a structure of universal reserve requirements which, if adopted, would yield a substantial reduction in the amount of reserves that insured banks (both member and nonmember) would have to hold. This graduated structure is sketched in Table 5.1/

1/ It should be noted that this proposal calls for a 5 per cent requirement on the smallest group of banks, whereas the Board's proposal visualized 7 per cent for the smallest bracket. If the proposed legislation were admended to allow the lower ratio (and if it were established by the Board) the quantitative effect would not be greatly different compared with 7 per cent.

Table 5. Proposed Structure of Universal Reserve Requirements

Size of Bank: (Net demand deposits)	Reserve Ratio
Under $5 million	5 per cent
$5 million - $100 million	10 per cent
Over $100 million	15 per cent

For purposes of this study, this graduated formula was applied for nonmember banks and for member banks separately -- and for member banks by reserve class (country and reserve city). The requirements against net demand deposits calculated by using the formula were added to requirements against total time and savings deposits estimated on the basis of current Federal Reserve ratios: 3 per cent of savings deposits; 3 per cent of other time deposits under $5 million, and 6 per cent of time deposits over $5 million. The resulting estimates of total reserve requirements were compared to current reserve requirements for member banks to determine the implied change in member bank reserves by class and size of bank. The calculation provided for nonmember insured banks estimates of the level of reserve requirements resulting from the assumed graduated formula. These estimates were compared with nonmember requirements previously derived from State statutes.

These calculations are summarized in Table 6. (The details for each State are shown in Appendix Table A.2.)

Table 6

Comparison of Reserve Requirements:
States vs. Proposed Federal Reserve
Graduated System

(amounts in millions of dollars)

Classification of States	State Regulation	Federal Reserve System		Proposed Structure as Per cent of State	Potential Savin via Proposed Structure	
		Current	Proposed		Amount	Percent
States allowing cash assets only as reserves	2,363	2,003	1,326	55.9	-1,037	44.1
States allowing part of reserves as earning assets	2,975	1,566	1,118	37.6	-1,857	62.4
Illinois (no requirements)	none	279	185	n.a.	+ 185	n.a.
Total	5,338	3,848	2,629	49.4	-2,709	50.6

n.a. Not Applicable

Under the graduated structure proposed here, insured nonmember banks would just about cut in half the amounts of reserves they would be required to carry. Again the largest share of the reduction would center at banks in those States where part of required reserves can be invested in earning assets.

The next step is to determine the effects of the proposed structure of reserve requirements on member and nonmember banks by size and class of bank. The results are shown in Tables 7, 8 and 9. Several observations can be derived:

- The immediate application of the strucutre to member banks would be a very large reduction of required reserves -- over $4.1 billion, or about one-fourth of total required reserves against net demand deposits.
- More than half of the reserve release would be concentrated at about 130 reserve city banks in the over $100 million net demand category. Smaller country banks would account for most of the remaining reduction.
- Large country banks with net demand deposits exceeding $100 million would not share proportionately in the reserve release compared to reserve city banks of like size. This reflects the relatively favorable position of large country banks under the present system of requirements.
- As indicated in Table 8, country banks with net demand deposits of just over $200 million (actually about

Table 7

Net Change in Required Reserves Against
Net Demand Deposits

Size of net demand deposits ($ millions)	Reserve City Banks			Country Banks		
	Number of Banks	Change in reserve requirements		Number of Banks	Change in reserve requirements	
		(% points)	($ millions)		(% points)	($ millions)
Under 5	5	-11.5	- 1	3,897	- 7.0	613
5 to 10	4	- 9.7	- 3	1,030	- 5.7	412
10 to 50	21	- 7.7	- 52	835	- 3.6	607
50 to 100	36	- 7.3	-196	106	- 2.8	201
100 to 500	97	- 4.1	-991	48	- 0.3	26
Over 500	29	- 2.3	-1,039	--	--	--
Total	192	- 3.2	-2,272	5,916	- 3.8	-1,859

Table 8

Reserve Requirements Against Net Demand Deposits--
Current Versus Assumed Graduated Formula*

Size of net demand ($ millions)	Percentage requirements			Change in required reserves of individual banks	
	Current		Proposed Formula		
	RC	Country	(all banks)	RC	Country
	(per cent of net demand)			($ millions)	
5	16.5	12.0	5.0	- .800	- .350
10	16.75	12.25	7.5	-1.600	-1.150
20	16.875	12.38	8.75	-1.625	- .726
40	16.938	12.438	9.38	-3.025	-1.225
50	16.95	12.450	9.5	-3.725	-1.475
75	16.967	12.467	9.67	-5.475	-2.100
100	16.975	12.475	9.75	-7.225	-2.725
200	16.988	12.488	12.38	-9.225	- .225
300	16.992	12.492	13.25	-11.226	+2.275
400	16.994	12.494	13.69	-13.226	+4.775
500	16.995		13.95	-15.225	
1,000	16.998		14.48	-25.230	
4.000	16.9983		14.87	-84.152	

* - Graduated formula: 5% on first $5 million of net demand; 10% on next $95 million; 15% on deposits over $100 million.

Table 9

Estimated Distribution of Required Reserves
With Assumed Universal Graduated Reserve Requirements
(amounts in millions of dollars)

Size of net demand deposits ($ millions)	All insured banks	Nonmember banks	Member banks		
			Total	Reserve City	Country
Under 5	1,805	977	828	1	827
5 to 10	1,277	462	815	3	812
10 to 50	3,133	750	2,383	92	2,291
50 to 100	1,584	190	1.394	396	998
100 to 500	5,924	248	5,676	4,232	1,444
Over 500	8,911	--	8,911	8,911	--
TOTAL	22,634	2,627	20,007	13,636	6,371

$210 million) would experience increases in required reserves under the proposed structure. There were 16 such banks in June, 1967. The largest country banks, of course, would experience the largest increase in requirements, an increase of about 1.3 percentage points. None of the large country banks would reach the present statutory maximum of 14 per cent, but this limit would presumably be removed anyway if enabling legislation were enacted to permit reductions in requirements below present minimums.

The average reduction in reserve requirements under the proposed structure would be about equal in percentage points for the two classes of member banks -- 3.2 for city and 3.8 for country banks.

The percentage requirements by size of net demand deposits shown for the proposed structure (see Table 8, Col. 4) represent the levels that would be applicable for nonmember as well as member banks. This structure would result in average requirements below 10 per cent against net demand deposits for all but 38 nonmember banks (as of June, 1967). The largest nonmember bank would have net demand requirements about equivalent to current requirements for country banks of that size.

As shown in Table 9, under the proposed graduated (but universally applied) structure, nonmember banks would hold about 11.5 per cent of total required reserves. Currently their share (based on State requirements) come to roughly 19 per cent of the required reserves of all insured banks.

If the proposed graduated structure could be adopted, the question of how insured banks would adjust to it would still be significant. A possible avenue of adjustment, focusing on correspondent balances, is illustrated in Tables 10 and 11. The case of nonmembers is dealt with in Table 10. The 7,418 nonmember banks would have roughly $2.6 billion of reserve requirements to be met either by vault cash holdings or balances with Federal Reserve banks. If all vault cash could be applied against these requirements -- that is, if no bank held cash in excess of its total requirements -- about $1.1 billion of total requirements would be met by vault cash, and about $1.5 billion would be required in balances at Federal Reserve Banks.

In providing these balances at Reserve Banks, it is assumed that nonmember banks would not reduce average "due from" or correspondent balances below levels held by member banks of comparable size, and it is also assumed that reductions in U.S. Government securities would be the remaining source. On these assumptions, about $1,071 million of the required balances which

Table 10.

Estimated Required Reserves of Nonmember Insured Banks with Assumed Universal Graduated Requirements *
(reserve amounts in millionsof dollars)

	Size of net demand deposits ($ millions)					
	0 to 5	5 to 10	10 to 50	50 to 100	100 to 500	All banks
Number of banks	6,477	609	304	19	9	7,418
Est. required reserves	977	462	750	190	248	2,627
Eligible reserve assets						
Vault cash	564	194	237	45	71	1,111
Required bal. at FRB	413	268	513	145	177	1,516
Est. sources of bal. at FRB:						
Reduction in "due from"	200	268	314	141	148	1,071
Reduction in U.S. Gov't.	213	--	199	4	29	445

* - Estimated sources of reserves to meet requirements are based on the assumption that nonmember banks would not reduce average "due from" balances below levels held by member banks of comparable size, and that reductions in U.S. Gov't. securities would be the remaining source.

Table 11.

Distribution and Estimated Reduction of Demand Balances of Domestic Commercial Banks with Assumed Universal Graduated Requirements*
(in millions of dollars)

Class of bank	Demand balances due to banks (June 30, 1967) Size of net demand deposits ($ millions) 0 to 5	5 to 10	10 to 50	50 to 100	100 to 500	over 500	Total
Nonmember insured	100	79	205	93	67		544
Country member	87	139	764	535	269		1,793
RC member	2	2	184	661	4,660	7,531	13,041
All insured	189	220	1,153	1,289	4,996	7,531	15,378
(Estimated reduction of "due to" with assumed formula*)							
Nonmember insured			-15	- 7	- 5		-27
Country member			-55	-38	-19		-112
RC member			-13	-47	-333	-539	-932
All insured			-83	-92	-357	-539	-1,071

* - Reductions in "due to" shown above reflect distribution of estimated reduction of $1,071 in nonmember "due from" in proportion to share of total "due to" held by each class and size group of banks having net demand deposits greater than $10 million.

nonmembers would have to build at Federal Reserve Banks would be met by drawing on correspondent balances. These estimates also suggest that nonmembers might reduce holdings of U.S. Government securities by about $450 million, or little over 3 per cent of their holdings on June 30, 1967.

The impact of the reduction in correspondent balances is indicated in Table 11. The upper panel of the table provides a distribution of demand deposits "due to" commercial banks, the liability side of correspondent balances. As one would expect, large reserve city banks account for the largest portion of these balances. The lower panel of Table 11 indicates the amount of reduction in these "due to" balances by class and size of bank, assuming that the estimated $1,071 million reduction in nonmember "due from" would be drawn from the "due to" balances in proportion to the share of total "due to" held by each class and size group. For this purpose, it was assumed that reductions in "due to" would occur only at banks having more than $10 million of net demand deposits; so it is assumed that the small amounts of correspondent balances held by banks in the smallest size categories would not be affected.

These estimates suggest that almost nine-tenths of the $1.1 billion estimated reduction in correspondent balances would be drawn from reserve city banks. About 85 per cent of the reduction would occur at banks with $100 million or more in net

demand deposits. Of course, this concentrated impact on reserve city banks would be more than offset by the release of $2.0 billion of reserves at these large banks if the proposed graduated structure were adopted (see Table 7).

Federal Reserve Adjustment to Graduated Structure

The final -- and most critical -- question concerns the magnitude of the net release of reserves for the banking system as a whole, if the proposed formula were adopted. This net release of reserves is a rough measure of the amount of excess reserves with which the Federal Reserve would have to cope. Put another way, the System could elect to give all insured banks a handsome net reduction in reserve requirements -- or it could offset part of the potential release through open market operations.

In Table 12, the results of mutual adjustments by member and nonmember insured banks to the proposed graduated structure are summarized. With the application of the structure to members, their required reserves initially decline by $4.5 billion. As nonmembers are also affected, they draw down $1.1 billion of correspondent balances to add to their newly-opened accounts at Federal Reserve Banks. These withdrawals lead to a further decline of $200 million in member banks' required reserves. Thus, for these banks, the total reduction in required reserves is roughly $4.7 billion.

It would be necessary for nonmembers to sell $600 million of U.S. Government securities to make up the balance of the $1.7 billion

TABLE A-1

Selected Provisions of State Banking Statutes Relating to Reserve Requirements
of Insured Nonmember Banks

State	Deposits subject to reserve requirements	Reserve Requirements Ratios 1/			Reserve assets eligible to meet requirements 2/						Other provisions
		Minimum	Maximum	Current	Vault Cash	Due from banks	Securities			Other	
							U. S. Govt.	State	Local		
Alabama	T Dem	7	14	11	x	x					
	TS	3	6	3	x	x					
Alaska	T Dem - US_D-SL_D			20	x	x				gold dust, bullion	
	TS - US_t-SL_t			8	x	x					
Arizona	T Dem US_D-SL_D	7	14	10	x	x					
	TS - US_t-SL_t	3	6	4	x	x					
Arkansas	T Dem	15	20	15 if pop.>1500		x #					if pop. < 1,500 and capital between $10,000 and $25,000, reserve requirement against total deposits 50%, one-half of which may be held in U.S. Govt. securities.
	TS	4	15	15 if pop.>1500		x #					
California	T Dem-US_D-SL_D	18	FR	18 if pop. > 100,000		x #					
		15	FR	15 if pop.50,000 to 100,000		x #				gold bullion	
		12	FR	12 elsewhere, res. depositary 15 per cent		x #					
	TS	5	FR	5	(at least one-fifth) #		(up to 4/5)				
Colorado	T Dep			15	(at least one-fifth) #			(up to 4/5)			
Connecticut	T Dem	12	24	12	at least	x	up to 1/6				
	Time other than passbook savings.	5	10	5	1/6	x					
Delaware	T Dem	7	FR	11	x	x #					
	TS	3	FR	4	x	x #					
Dist. of Col.	ND	FR System Regulation D. As applied to reserve city banks				x #					
	TS										

See notes and key to abbreviations on page following tables.

Table 12. Estimated Reserve Structure under Universal Graduated Formula*
(amounts in billions of dollars)

Member Bank Requirements and Total Reserves	
Current Reg. D Requirements (Assume no excess reserves initially)	$24.5
Required reserves under graduated formula	19.8
(Excess reserves generated)	4.7
Excess reserves after nonmembers meet reserves at FRB	3.0
Total reserves of member banks after nonmembers meet reserves at FRB with no absorption by System open market operations	22.8
Nonmember Requirements (Total Reserves)	
After meeting graduated requirements (1.1 reduction of vault cash, 1.1 reduction of due from, .6 reduction of securities)	2.8
Total Reserves All Insured	25.6
(includes 1.1 of nonmember vault cash not previously counted plus original 24.5 of member bank reserves)	
Total Required Reserves All Insured	22.6
Excess Res. (without System operations)	3.0

* - Based on deposit distributions as of June 30, 1967. Graduated formula applied to all insured banks is 5 per cent on 1st $5 million of net demand; 10 per cent on $5-100 million; 15 per cent on net demand deposits over $100 million. Time and savings reserve requirements by current Regulation D.

they would now have in required reserves. It is assumed that these securities would be purchased by member banks who pay for them by drawing further on their excess reserves at Federal Reserve Banks. After this step, these excess reserves would amount to approximately $3.0 billion.

The adjustment process also can be viewed from the vantage point of nonmember banks. Their required reserves would amount to about $2.8 billion. This would consist of $2.6 billion as estimated on the basis of their initial net demand and time and savings deposits -- plus an increase of $200 million resulting from a rise in net demand deposits because of the reduction of $1.1 billion in correspondent balances. Again, to meet these requirements, it is assumed that nonmembers would rely on vault cash ($1.1 billion), a reduction in correspondent balances ($1.1 billion) and sales of U.S. Government securities ($600 million).

At the end of the process, total reserves of all insured banks would amount to $25.6 billion. Total required reserves would be roughly $22.6 billion. Excess reserves would be approximately $3.0 billion.

From the Federal Reserve Board's point of view, a release at once of $3.0 billion in reserves would most likely be unacceptable. On the other hand, the Board could stagger the reduction over any length of time it wished -- if necessary taking as long as three or more years to complete the process. The key point is that the

net release of reserves inherent in the adoption of a meaningful system of graduated reserves applicable to all insured banks could be managed within the framework of open market operations.

Concluding Observations

The analysis in this paper has made several points exceptionally clear: under greatly diverse State reserve requirements, some insured nonmember banks do gain an advantage over members of the Federal Reserve System. However, this seems to be generally true in only 20 States where reserves can be held partially in earning assets. In the remaining 30 States, in which reserves must be held only in cash assets, requirements are far less favorable to nonmember banks. Thus, there is a substantial element of discrimination among banks which are assumed to be doing business under essentially the same conditions.

Because of this differential treatment, it seems that, if the present Federal Reserve requirements were applied to all insured nonmembers, the reserves they would be required to hold would decline by well over one-quarter, compared with their current requirements under State provisions. Although the opportunity to invest part of their reserves in earning assets in some States reduces the burden of the existing higher requirements, the offset appears to be far from complete. If the graduated structure proposed in this paper (or some variation on it) were adopted, the way would be opened for a sizable reduction (perhaps up to $3.0 billion) in required reserves for the banking system as a whole.

In addition, the adoption of a system of graduated, universally applicable, reserve requirements would greatly strengthen the control of the monetary base by the central bank. Thus, the rationalization of reserve requirements is desirable from the point of view of national economic objectives as well as from the perspective of a more efficient private banking system.

TABLE A-1 (cont'd.)

State	Deposits subject to reserve requirements	Reserve Requirements Ratios 1/			Reserve assets eligible to meet requirements 2/						Other provisions
		Minimum	Maximum	Current	Vault Cash	Due from banks	Securities: U.S. Govt.	Securities: State	Securities: Local	Other	
Minnesota	T Dem	12	FR	12	x	x #					
	TS	3	FR	3	x	x #				Cash items in process of collection	
Mississippi	T Dem			15	x	x					
	TS			7	x	x					
Missouri	T Dem - "Due from" reserves			18 if the pop. > 200,000	at least 7/18	x					
				12 elsewhere	at least 2/5	x					
	TS			3	x						
Montana	T Dem - "due from"	5-1/4	FR	10	x	x #					
	TS	2-1/4	FR	3	x	x #					
Nebraska	T Dem			20 if pop. > 25,000	x	x	up to 1/5			Clearing house exchange and CCC notes at face value	
				15 elsewhere	x	x					
	TS			5	x	x					
Nevada	T Dem - US_D-SL_D	10	*	10	x	x #					
	TS-US_t-SL_t	5	*	5	x	x #					
New Hampshire	T Dem	*	FR	12	at least 3/5		up to 2/5				U.S. Govt. securities maturing in 2 years are eligible
	TS	5	FR	5							
New Jersey	T Dem	15	30FR	12	x	x #					
	TS	3	10FR	FR Reg. D	x	x #					
New Mexico	T Dem	7	12	12	x	x #	up to 1/2				U.S. Govt. securities maturing in 100 days are eligible
	TS	3	7	4	x	x #					
New York	T Dem -"due from" reserves	10	FR	16-1/2 N.Y Albany, Buffalo		x #					Deposits arising from subscriptions to U.S. Treasury financings exempt from requirements.
		7	FR	11 elsewhere	x	x #					
	TS	3	FR	FR Reg. D	x	x #					
North Carolina	T Dem - US_D-SL_D			15	x	x #				Clesring house exchange	
	TS-US_t-SL_t			5	x	x #					
North Dakota	T Dem	10	20	10	x	x #					
	TS	5	10	5	x	x #					
Ohio	T Dem - US_D	*	*	15	x	x #					
	TS-US_t	*	*	10	x	x #	up to 3/5				
Oklahoma	T Dem	10-1/2	30	15	x	x #					
	TS	3-1/2	10	5	x	x #					

See notes and key to abbreviations on page following tables.

TABLE A-1 (cont'd.)

State	Deposits subject to reserve requirements	Reserve Requirement Ratios 1/			Reserve assets eligible to meet requirements 2/						Other provisions
		Minimum	Maximum	Current	Vault Cash	Due from banks	Securities: U.S. Govt.	Securities: State	Securities: Local	Other	
Oregon	T Dem - US_D	12	30	15	x	x #				Cash items on banks in same city	
	TS- US_t	4	10	5	x	x #					
Pennsylvania	T Dem	7	22	12	x	x #	up to 2/3				
	TS	3	6	4	x	x #	up to 2/3				
Rhode Island	T Dem			15	at least 2/5	x #	up to 3/5				U.S. Govt. securities maturing in 91 days eligible
South Carolina	T Dem			7	x	x				Cash items collectible in 10 days	
	TS			3	x	x					
South Dakota	T Dep - US_D-SL_D-US_t-SL_t			17-1/2	x	x	up to 3/5				
Tennessee	T Dem			10	x	x					
	TS			3	x	x					
Texas	T Dem			15	x	x #					Demand requirements are 20 % for banks with capital < $25,000
	TS			5	x	x #					
Utah	T Dem	FR	40	16-1/2 if pop > 50,000	x	x					
		FR	30	12 elsewhere	x	x					
	TS	FR	6	3	x	x					
Vermont	T Dem	9	30	30	at least 2/5 in cash assets and U.S. Govt.'s maturing in 1 year#		Up to 3/5 in other maturities	up to 1/5			Deposits arising from subscription to U.S. Treasury financing ex-empt from requirements
	TS	2	8	8							
Virginia	T Dem			10	x	x					
	TS			3	x	x					
Washington	T Dem			15	x	x #				Cash items on banks in same city.	
	TS			6	x	x #					
West Virginia	T Dem			10	at least 1/5	x					
	TS			5		x					
Wisconsin	T Dep			20 if reserve depositary	x	x	x				U.S. Govt. securities maturing in 18 months are eligible to meet 1/3 of demand requirements and 7/12 of time requirement.
				15 other banks	x	x	x				
Wyoming	T Dem -US_D-SL_D			20	x	x #					
	TS			10	x	x					

See notes and key to abbreviations on page following tables.

Notes and Abbreviations for Table A-1

* - Ratio not specified in the law. # - Must be held in approved banks.

1/ Statutory range for reserve requirements is shown for States in which the banking authority is authorized to charge reserve requirement ratios.

2/ In many States demand balances due from banks must be held in approved depositary banks to be eligible as a reserve asset. Proportions specified by type of asset in some States indicate limitations on certain assets in meeting reserve requirements.

Key to abbreviations of deposit subject to reserve requirements

T Dep -- Total deposits

T Dem -- Total demand deposits

TS -- Total time and savings deposits

US_d -- U. S. Government demand deposits

US_t -- U. S. Government time deposits

SL_d -- State and local government demand deposits

SL_t -- State and local government time deposits

due from-- demand balances due from domestic commercial banks

ND -- Net demand deposits: Total demand less cash items in process of collection and demand balances due from domestic banks

Appendix Table A.2 Estimated Reserve Requirements of Insured Nonmember Banks Computed by Three Methods and Selected Reserve Assets, By State (June 30, 1967)

State	Estimated required reserves			Selected assets typically held as primary and secondary reserves				Average reserve ratio: reg. res. ÷ net dem. and time deposits
	by State regulation	by F.R. System regulation	by assumed graduated formula	Currency and coin	Due from banks	Securities: U.S. Gov't	Securities: State and local	
	(amounts in millions of dollars)							
States allowing only cash assets as reserves:								
Alabama	68	63	37	20	89	233	136	8.43
Alaska	9	5	4	2	7	14	3	11.81
Arizona	25	29	24	6	24	61	40	6.05
Delaware	32	30	24	8	28	77	52	8.13
Dist. of Col.	15	15	14	2	16	49	14	9.59
Hawaii	46	46	43	16	41	85	83	7.49
Indiana	133	135	90	37	161	637	197	6.91
Iowa	116	147	87	36	189	532	260	5.44
Kansas	108	98	56	21	150	377	219	8.09
Kentucky	82	102	63	31	163	399	155	6.21
Maine	19	15	11	6	15	36	34	8.36
Minnesota	131	115	72	30	130	575	169	6.94
Mississippi	132	78	48	28	133	207	196	13.35
Missouri	255	225	147	55	296	760	471	8.29
Montana	10	11	6	3	19	44	22	5.92
Nevada	6	7	5	2	8	24	14	6.44
New Jersey	81	71	54	21	96	183	187	7.72
New York	97	90	71	18	111	189	208	8.15
North Carolina	160	124	99	55	134	279	288	9.54
North Dakota	33	29	17	5	35	116	54	8.00
Oklahoma	74	46	26	15	86	178	70	12.13
Oregon	33	21	14	6	30	77	51	10.06
South Carolina	32	42	26	17	56	105	86	6.13
Tennessee	89	84	53	31	143	263	203	7.08
Texas	416	240	147	71	544	573	425	12.97
Utah	22	18	12	6	22	52	45	8.09
Virginia	54	57	41	20	62	168	106	6.29
Washington	35	22	13	8	26	78	33	11.22
West Virginia	40	34	21	13	40	159	74	8.04
Wyoming	11	5	3	2	11	21	5	14.94
Total	2363	2003	1326	591	2865	6551	3900	7.36

Appendix Table A.2 Estimated Reserve Requirements of Insured Nonmember Banks Computed by Three Methods and Selected Reserve Assets, By State (June 30, 1967)

State	Estimated required reserves			Selected assets typically held as primary and secondary reserves				Average reserve ratio: reg. res. ÷ net dem. and time deposits
	by State regulation	by F.R. System regulation	by assumed graduated formula	Currency and coin	Due from banks	Securities: U.S. Gov't	Securities: State and local	
	(amounts in millions of dollars)							
States allowing earning assets as part of reserves:								
Arkansas	213	48	26	17	97	141	113	33.6
California	288	175	146	30	205	449	304	10.75
Colorado	78	33	21	9	45	131	49	16.63
Connecticut	44	46	35	12	66	81	85	6.94
Florida	534	177	118	50	220	760	374	21.96
Georgia	165	103	61	37	177	354	179	11.26
Idaho	16	7	5	2	9	15	16	16.63
Louisiana	181	109	73	37	209	417	267	12.65
Maryland	119	94	81	28	111	278	111	9.39
Massachusetts	78	64	45	20	74	122	103	9.95
Michigan	217	105	79	35	107	431	301	12.27
Nebraska	84	52	28	12	81	162	56	12.81
New Hampshire	11	8	6	2	7	26	12	6.76
New Mexico	22	18	12	6	25	52	36	9.09
Ohio	206	90	61	35	130	405	207	14.10
Pennsylvania	262	231	185	63	192	631	511	7.82
Rhode Island	11	9	6	4	6	14	12	13.07
South Dakota	52	22	13	4	33	110	23	16.64
Vermont	45	15	12	4	18	38	42	15.69
Wisconsin	348	161	107	46	206	825	300	13.16
Total	2975	1566	1118	454	2015	5441	3099	13.01
States with no reserve requirements								
Illinois	--	279	185	67	402	1242	523	

Appendix Table A.3 Required Reserves by F.R. System Regulation and Graduated Formula and Selected Assets as Percentages of Estimated State Requirements, by State

	Estimated required reserves as primary and secondary reserves			Selected assets typically held			
	by State regulation	by F.R. System regulation	by assumed graduated formula	Currency and coin	due from banks	Securities U.S.Govt.	Securities State & Local
	($Millions)	(% of est. State required reserves)					
States allowing only cash assets as reserves:							
Alabama	68	97.1	54.4	29.4	101.5	342.6	200.0
Alaska	9	55.6	44.4	22.2	77.8	155.6	33.3
Arizona	25	116.0	96.0	24.0	96.0	244.0	160.0
Delaware	32	93.8	75.0	25.0	87.5	240.6	162.5
Dist. of Col.	15	100.0	93.3	13.3	106.7	326.7	93.3
Hawaii	46	100.0	93.5	34.8	89.1	184.8	180.4
Indiana	133	101.5	67.7	27.8	121.1	478.9	148.1
Iowa	116	126.7	75.0	31.0	162.9	458.6	224.1
Kansas	108	90.7	51.9	19.4	138.9	349.1	202.8
Kentucky	82	124.4	76.8	37.8	198.8	486.6	189.0
Maine	19	78.9	57.9	31.6	78.9	189.5	178.9
Minnesota	131	87.8	55.0	22.9	99.2	438.9	129.0
Mississippi	132	59.1	36.4	21.2	100.8	156.8	148.5
Missouri	255	88.2	57.6	21.6	116.1	298.0	184.7
Montana	10	110.0	60.0	30.0	190.0	440.0	220.0
Nevada	6	116.7	83.3	33.3	133.3	400.0	233.3
New Jersey	81	87.7	66.7	25.9	118.5	225.9	230.9
New York	97	92.8	73.2	18.6	114.4	194.8	214.4
N. Carolina	160	77.5	61.9	34.4	83.8	174.4	180.0
N. Dakota	33	87.9	51.5	15.2	106.1	351.5	163.6
Oklahoma	74	62.2	35.1	20.3	116.2	240.5	94.6
Oregon	33	63.6	43.4	18.2	90.0	233.3	154.5
S. Carolina	32	131.3	81.3	53.1	175.0	328.1	268.8
Tennessee	89	94.4	59.6	34.8	160.7	295.5	228.1
Texas	416	57.7	35.3	17.1	130.8	137.7	102.2
Utah	22	81.8	54.5	27.3	100.0	236.4	204.5
Virginia	54	105.6	75.9	37.0	114.8	311.1	196.3
Washington	35	62.9	37.1	22.9	74.3	222.9	94.3
W. Virginia	40	85.0	52.5	32.5	100.0	397.5	185.0
Wyoming	11	45.5	27.3	18.2	100.0	190.9	45.5
Total	2363	84.8	56.1	25.0	121.2	277.2	165.0

Appendix Table A.3 Required Reserves by F.R. System Regulation and Graduated Formula and Selected Assets as Percentages of Estimated State Requirements, by State

	Estimated required reserves			Selected assets typically held as primary and secondary reserves			
	by State regulation	by F.R. System regulation	by assumed graduated formula	Currency and coin	Due from banks	Securities U.S. Govt.	Securities State & Local
	($millions)			(% of est. State required reserves)			
States allowing earning assets as part of reserves							
Arkansas	213	22.5	12.2	8.0	45.5	66.2	53.1
California	288	60.8	50.7	10.4	71.2	155.9	105.6
Colorado	78	42.3	26.9	11.5	57.7	167.9	62.8
Connecticut	44	104.5	79.5	27.2	150.0	184.1	193.2
Florida	534	33.1	22.1	9.4	41.2	142.3	70.0
Georgia	165	62.4	37.0	22.4	107.3	214.5	108.4
Idaho	16	43.8	31.3	12.5	56.3	93.8	100.0
Louisiana	181	60.2	40.3	20.4	115.5	230.4	147.5
Maryland	119	79.0	68.1	23.5	93.3	233.6	93.3
Massachusetts	78	82.1	57.7	25.6	94.9	156.4	132.1
Michigan	217	48.4	36.4	16.1	49.3	198.6	138.7
Nebraska	84	61.9	33.3	14.3	96.4	192.9	66.7
New Hampshire	11	72.7	54.5	18.2	63.6	236.4	109.1
New Mexico	22	81.8	54.5	27.3	113.6	236.4	163.6
Ohio	206	43.7	29.6	17.0	63.1	196.6	100.5
Pennsylvania	262	88.2	70.6	24.0	73.3	240.8	195.0
Rhode Island	11	81.8	54.5	36.4	54.5	127.3	109.1
S. Dakota	52	42.3	25.0	84.6	63.5	211.5	44.2
Vermont	45	33.3	26.7	8.9	40.0	84.4	93.3
Wisconsin	348	46.3	30.7	13.2	59.2	237.1	86.2
Total	2975	52.6	37.6	15.3	67.7	182.9	104.2

Appendix Table A.4 Number of Insured Commercial Banks, By State, Member and Nonmember Banks (June 30, 1967)

State	Distribution of insured commercial banks				
	Total number	F.R. members		Nonmember	
		number	% of total	number	% of total
Alabama	266	110	41.4	156	58.6
Alaska	10	5	50.0	5	50.0
Arizona	17	5	29.4	12	70.6
Arkansas	245	83	33.9	162	66.1
California	181	99	54.7	82	45.3
Colorado	215	135	62.8	80	37.2
Connecticut	65	36	55.4	29	44.6
Delaware	19	7	36.8	12	63.2
Dist. of Col.	14	12	85.7	2	14.3
Florida	447	208	46.5	239	53.5
Georgia	404	73	18.1	331	81.9
Hawaii	7	2	28.6	5	71.4
Idaho	25	16	64.0	9	36.0
Illinois	1059	522	49.3	537	50.7
Indiana	413	205	49.6	208	50.4
Iowa	662	159	24.0	503	76.0
Kansas	598	211	35.3	389	64.7
Kentucky	341	94	27.6	247	72.4
Louisiana	222	57	25.7	165	74.3
Maine	41	27	65.9	14	34.1
Maryland	120	55	45.8	65	54.2
Massachusetts	156	107	68.6	49	31.4
Michigan	342	209	61.1	133	38.9
Minnesota	719	224	31.2	495	68.8
Mississippi	188	42	22.3	146	77.7
Missouri	653	177	27.1	476	72.9
Montana	133	91	68.4	42	31.6
Nebraska	432	140	32.4	292	67.6
Nevada	9	6	66.7	3	33.3
New Hampshire	72	53	73.6	19	26.4
New Jersey	227	187	82.4	40	17.6
New Mexico	64	41	64.1	23	35.9
New York	306	268	87.6	38	12.4
North Carolina	131	28	21.4	103	78.6
North Dakota	165	46	27.9	119	72.1
Ohio	535	349	65.2	186	34.8
Oklahoma	420	244	58.1	176	41.9
Oregon	47	14	29.8	33	70.2
Pennsylvania	523	380	72.7	143	27.3
Rhode Island	10	5	50.0	5	50.0
South Carolina	124	32	25.8	92	74.2
South Dakota	165	59	35.8	106	64.2
Tennessee	295	86	29.2	209	70.8
Texas	1140	614	53.9	526	46.1
Utah	55	24	43.6	31	56.4
Vermont	45	27	60.0	18	40.0
Virginia	249	163	65.5	86	34.5
Washington	96	37	38.5	59	61.5
West Virginia	191	114	59.7	77	40.3
Wisconsin	593	166	28.0	427	72.0
Wyoming	69	53	76.8	16	23.2
United States	13,525	6,107	45.2	7,418	54.8

Appendix Table A.5 Insured Commercial Bank deposits by State
Member and Nonmember Banks (June 30, 1967)

State	Deposits of insured commercial banks					
	All Insured		F.R. Members		Nonmember	
	Total	Net demand	Total	Net demand	Total	Net demand
	(millions of dollars)		(millions of dollars)		(millions of dollars)	
Alabama	3553	1645	2,652	1,227	901	418
Alaska	350	146	268	116	83	30
Arizona	2351	840	1,900	695	450	145
Arkansas	2146	984	1,408	670	739	314
California	38,831	12217	35,891	11,374	2,940	843
Colorado	3086	1206	2,563	1,004	523	202
Connecticut	3892	1802	3,179	1,513	713	289
Delaware	981	542	560	360	422	182
Dist. of Col.	2421	1218	2,232	1,151	189	68
Florida	8504	3512	5,835	2,415	2,669	1,097
Georgia	5197	2331	3,538	1,693	1,658	638
Hawaii	1090	417	414	174	676	243
Idaho	948	404	839	361	109	43
Illinois	27,386	11103	22,718	9,485	4,668	1,618
Indiana	7777	3095	5,665	2,290	2,112	804
Iowa	4702	1889	2,356	988	2,346	901
Kansas	3651	1703	2,144	1,069	1,507	634
Kentucky	3730	1741	2,217	1,091	1,513	650
Louisiana	4755	2181	3,095	1,505	1,660	676
Maine	923	373	681	281	242	92
Maryland	3820	1738	2,412	1,166	1,408	571
Massachusetts	8113	4293	7,244	3,869	869	424
Michigan	16054	4740	14,166	4,243	1,888	497
Minnesota	6635	2380	4,610	1,743	2,025	638
Mississippi	2240	1057	1,112	542	1,128	516
Missouri	8899	3955	5,502	2,608	3,397	1,347
Montana	1172	468	991	402	181	66
Nebraska	2458	1208	1,718	853	740	355
Nevada	770	313	664	279	106	34
N. Hampshire	655	271	482	241	173	30
New Jersey	10,932	4192	9,774	3,799	1,157	394
New Mexico	1035	466	759	352	275	114
New York	68,223	28863	66,900	28,343	1,323	520
No. Carolina	4901	2027	3,048	1,325	1,853	702
N. Dakota	1011	390	559	213	453	176
Ohio	17084	6151	15,358	5,662	1,727	489
Oklahoma	3996	1801	3,288	1,503	708	298
Oregon	3114	1045	2,750	926	364	119
Pennsylvania	21875	8355	18.309	7,085	3,566	1,270
Rhode Island	1327	507	1,228	443	100	63
S. Carolina	1563	913	985	623	578	290
S. Dakota	1114	449	766	307	348	142
Tennessee	5364	2163	3,953	1,651	1,411	513
Texas	18559	8032	14,662	6,502	3,897	1,530
Utah	1453	475	1,155	375	298	100
Vermont	619	170	314	98	305	72
Virginia	5510	2021	4,578	1,714	932	307
Washington	4238	1724	3,896	1,592	343	132
W. Virginia	2002	876	1,462	663	539	213
Wisconsin	7079	2376	4,210	1,508	2,869	868
Wyoming	564	209	478	183	86	26
United States	358695	142990	297,529	120,288	61,164	22,703

Appendix Table A.6 Distribution of Insured Commercial Bank Deposits, By State Member and Nonmember Banks (June 30, 1967)

State	Deposits of insured commercial banks					
	All insured		F.R. members		Nonmember	
	Total (Millions of dollars)	Net demand	Total (% of all insured)	Net demand	Total (% of all insured)	Net demand
Alabama	3553	1645	74.6	74.6	25.4	25.4
Alaska	350	146	76.3	79.4	23.7	20.6
Arizona	2351	840	80.8	82.7	19.2	17.3
Arkansas	2146	984	65.6	68.1	34.4	31.9
California	38,831	12217	92.4	93.1	7.6	6.9
Colorado	3086	1206	83.1	83.2	16.9	16.8
Connecticut	3892	1802	81.7	84.0	18.3	16.0
Delaware	981	542	57.0	66.4	43.0	33.6
Dist. of Col.	2421	1218	92.2	94.5	7.8	5.5
Florida	8504	3512	68.6	68.8	31.4	31.2
Georgia	5197	2331	68.1	72.6	31.9	27.4
Hawaii	1090	417	38.0	41.6	62.0	58.4
Idaho	948	404	88.5	89.4	11.5	10.6
Illinois	27,386	11103	83.0	85.4	17.0	14.6
Indiana	7777	3095	72.8	74.0	27.2	26.0
Iowa	4702	1889	50.1	52.3	49.9	47.3
Kansas	3651	1703	58.7	62.8	41.3	37.2
Kentucky	3730	1741	59.4	62.7	40.6	37.3
Louisiana	4755	2181	65.1	69.0	34.9	31.0
Maine	923	373	73.8	75.3	26.2	24.7
Maryland	3820	1738	63.1	67.1	36.9	32.9
Massachusetts	8113	4293	89.3	90.1	10.7	9.9
Michigan	16054	4740	88.2	89.5	11.8	10.5
Minnesota	6635	2380	69.5	73.2	30.5	26.8
Mississippi	2240	1057	49.6	51.2	50.4	48.8
Missouri	8899	3955	61.8	65.9	38.2	34.1
Montana	1172	468	84.5	86.0	15.5	14.0
Nebraska	2458	1208	69.9	70.6	30.1	29.4
Nevada	770	313	86.3	89.0	13.7	11.0
N. Hampshire	655	271	73.6	88.8	26.4	11.2
New Jersey	10,932	4192	89.4	90.6	10.6	9.4
New Mexico	1035	466	73.4	75.6	26.6	24.4
New York	68,223	28863	98.1	98.2	1.9	1.8
N. Carolina	4901	2027	62.2	65.4	37.8	34.6
N. Dakota	1011	390	55.2	54.7	44.8	45.3
Ohio	17,084	6151	89.9	92.1	10.1	7.9
Oklahoma	3996	1801	82.3	83.4	17.7	16.6
Oregon	3114	1045	88.3	88.6	11.7	11.4
Pennsylvania	21,875	8355	83.7	84.8	16.3	15.2
Rhode Island	1327	507	92.5	87.5	7.5	12.5
S. Carolina	1563	913	63.0	68.2	37.0	31.8
S. Dakota	1114	449	68.8	68.5	31.2	31.5
Tennessee	5364	2163	73.7	76.3	26.3	23.7
Texas	18,559	8032	79.0	80.9	21.0	19.1
Utah	1453	475	79.5	78.9	20.5	21.1
Vermont	619	170	50.7	57.6	49.3	42.4
Virginia	5510	2021	83.1	84.8	16.9	15.2
Washington	4238	1724	91.9	92.3	8.1	7.7
W. Virginia	2002	876	73.1	75.6	26.9	24.4
Wisconsin	7079	2376	59.5	63.5	40.5	36.5
Wyoming	564	209	84.8	87.6	15.2	12.4
United States	358,695	142,990	82.9	84.1	17.1	15.9