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TO: Board of Governors  
FROM: Division of Research and Statistics  
(Mr. Eckert and Mr. Formuzis)

SUBJECT: Statistical  
Analysis of the St. Louis  
Discount Policy.

This memorandum is in response to a request to provide some statistical evidence relevant to a determination of the lending posture of the Federal Reserve Bank of St. Louis relative to other Federal Reserve Banks. The present study is confined to a cross-section analysis comparing selected aspects of the discount function across districts using various data series on the extent and duration of member bank borrowing regularly compiled in the L.5.3 and L.5.4 reports.

In preparing this analysis, data were taken for the period from October 30, 1968, to October 29, 1969, the latest 12 months for which data were available at the time the study was initiated. The conclusions presented here are based only on aggregate data for each district which unfortunately conceal the reserve pressures faced by individual banks. A useful supplement to the analysis and evidence presented here would be a case-by-case study of individual bank borrowing needs across districts.

#### Summary of Conclusions

An examination of the percentage of borrowings to required reserves during the time period under consideration showed reserve city banks in the St. Louis District to have the second highest percentage relative to other districts. Country banks in the District, however, ranked much lower, with four other districts showing higher

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percentages of borrowings to required reserves. This evidence suggests that the St. Louis Bank was not out of line with other Reserve Banks and especially those with comparable economies and banking structures.

With respect to the extent of continuous borrowing, measured by the percentage of each District's country banks that borrowed during at least 10 of the preceding 13 weekly reserve periods, St. Louis also showed the second highest figure, although it was significantly below that for the Boston, New York, and Chicago Districts, which were all tied for first place. However, the percentage of borrowing country banks that borrowed continuously in the St. Louis District was nearly twice as great as the average for all other districts. It should be noted that this percentage may be subject to upward bias because of the small number of indebted banks in the St. Louis District.

#### Cross-Section Evidence

In order to form a judgment about the posture of the St. Louis discount window relative to those in other districts, a comparison was made of certain aspects of the discount mechanism among the various Federal Reserve districts. The evidence considered here includes the ratios of borrowings to required reserves and the degree of continuous borrowing.

The considerations governing decisions on the part of discount officers regarding the quantity of credit extended are largely unquantifiable variables. However, the amount of credit actually extended as a proportion of the required reserve base is known and can be viewed

as reflecting the outcome of the complex process involved in the interpretation of Regulation A.

A comparison of the average ratios of borrowings to required reserves for borrowing banks among districts, as shown in Table 1, places the St. Louis District relatively high for both classes of banks. In particular, the St. Louis Bank ties for second place for reserve city banks and ranks fifth for country banks. However, country banks in seven districts and reserve city banks in five districts have ratios of borrowings to required reserves within 3 percentage points of the St. Louis figure.

Another cross-section measure of the St. Louis District discount window posture relative to other Reserve Banks is the number of banks which borrow "continuously." The evidence presented below on continuous borrowing is confined to the most restrictive definition consistent with the available data. Under this definition a bank would be considered to be a continuous borrower if it were in debt at its Reserve Bank in at least 10 out of the preceding 13 weeks.

Utilizing the above definition of continuous borrowing, two types of evidence are developed. The first considers a weekly average of the total number of banks continuously in debt during the year under study as a percentage of the total number of banks in that class in each district. This percentage gives an indication of the degree of

continuous borrowing, taking into account the number of banks that potentially could be continuous borrowers. The second type of evidence considers the total number of banks continuously in debt as a proportion of the total number of borrowing banks. This measure is indicative of the extent to which banks that make the decision to borrow end up borrowing continuously.

The evidence on the number of banks continuously indebted as a percentage of banks in each class, as shown in Table 2, does not indicate that the St. Louis Bank is out of line with respect to other districts. In particular, this measure of continuous borrowing shows St. Louis to be ranked fourth among districts for both reserve city and country banks, three being tied for first place among country banks. This ranking of St. Louis with respect to continuously borrowing banks as a percentage of total district banks is consistent with the observed ratios of borrowings to required reserves and would seem to support a conclusion that the aggregate levels of borrowings in St. Louis are in line with those in other districts.

The second type of evidence on continuous borrowing shows the number of continuously borrowing country banks as a percentage of indebted country banks. This evidence, as shown in Table 3, indicates that a country bank in the St. Louis District that made the decision to borrow had a higher probability of continuing its borrowings for at least 10 weeks out of the next 13 weeks than country banks in any

other district. Over the year, 26 per cent of all indebted country banks in the St. Louis District have borrowed continuously. This is 6 percentage points above the next highest district and 14 percentage points above the average for all other districts. On a monthly basis, the St. Louis Bank shows percentages of continuous borrowers as high as 40 per cent. It might be noted that the highest percentage occurred during the crop season and there is no way of evaluating with the data available individual bank situations and demands.

TABLE 1

AVERAGE PERCENTAGE OF BORROWING TO REQUIRED RESERVES  
OF RESERVE CITY AND COUNTRY BANKS BY DISTRICT  
FROM OCTOBER 30, 1968, TO OCTOBER 29, 1969

	Reserve City		Country	
	Per cent	Rank	Per cent	Rank
All Districts	16.7		27.7	
Boston	14.8	10	27.7	7
New York (outside NYC)	13.1	11	29.4	2
New York City	8.4	13		
Philadelphia	8.4	13	18.5	10
Cleveland	15.9	8	24.2	9
Richmond	15.5	9	15.7	11
Atlanta	20.5	5	28.4	4
Chicago (outside city of Chicago)	22.0	2*	28.6	3
City of Chicago	17.7	7		
St. Louis	22.0	2*	28.1	5
Minneapolis	21.3	4	27.9	6
Kansas City	23.9	1	27.5	8
Dallas	19.5	6	30.2	1
San Francisco	10.7	12	15.5	12

\* - Indicates tie for ranking.

TABLE 2

NUMBER OF BANKS WHICH HAVE BORROWED 10-13 OUT OF THE  
PRECEDING 13 WEEKLY RESERVE PERIODS AS A PERCENTAGE OF  
TOTAL BANKS IN EACH CLASS, COVERING 53 RESERVE PERIODS, FROM  
FROM OCTOBER 30, 1968, TO OCTOBER 29, 1969

	<u>Reserve</u> <u>Per cent</u>	<u>City</u> <u>Rank</u>		<u>Country</u> <u>Per cent</u>	<u>Rank</u>
All Districts	2.3		.6		
Boston	1.5	8	1.5	1*	1*
New York (outside NYC)	8.2	2	1.5	1*	
New York City	.0	12			
Philadelphia	.0	12	.0	11	
Cleveland	1/	10*	.0	11	
Richmond	1.8	7	.8	5	
Atlanta	.5	9	.2	10	
Chicago (outside city of Chicago)	8.9	1	1.5	1*	
City of Chicago	1/	10*			
St. Louis	2.8	4	1.1	4	
Minneapolis	.0	12	.4	9	
Kansas City	2.7	5	.7	6	
Dallas	2.0	6	.5	7	
San Francisco	3.8	3	.5	7	

\* - Indicates tie for ranking.

1/ Less than .05 per cent.

TABLE 3

NUMBER OF COUNTRY BANKS INDEBTED 10-13 OUT OF THE LAST 13 WEEKLY RESERVE PERIODS AS A PERCENTAGE OF INDEBTED COUNTRY BANKS, BY DISTRICT, FROM OCTOBER 30, 1968, TO OCTOBER 29, 1969

	Yearly												
	<u>Ave.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>
All Districts	13.4	15.0	12.0	8.2	5.0	7.3	11.7	11.4	16.0	18.7	18.3	20.7	17.3
Boston	11.1	6.3	4.9	8.2	9.6	4.4	14.4	11.1	18.4	21.5	17.1	10.6	7.1
New York	14.3	6.3	8.7	5.2	6.7	10.1	17.2	7.6	22.6	25.4	22.9	20.6	17.8
Philadelphia	7.0	11.5	9.1	0	6.1	0	7.9	7.4	10.9	9.7	7.7	6.7	6.5
Cleveland	2.3	0	0	0	0	0	0	0	0	0	6.7	12.5	8.7
Richmond	16.0	14.8	13.5	14.0	7.0	9.7	16.7	17.8	17.9	17.0	24.2	20.3	19.6
Atlanta	8.4	20.8	19.6	23.5	0	0	0	0	5.9	11.2	9.3	4.7	6.0
Chicago	20.2	16.5	15.1	14.8	11.0	14.2	18.5	22.6	20.2	20.2	22.2	34.0	33.1
St. Louis	26.2	26.8	22.2	19.0	7.7	7.7	23.5	32.2	38.3	40.0	29.7	40.0	26.7
Minneapolis	8.4	7.0	0	7.1	3.0	7.7	5.8	13.3	11.8	17.1	11.7	6.6	9.5
Kansas City	14.3	6.4	8.8	6.5	2.2	7.5	11.8	18.5	18.2	22.3	21.3	26.5	21.6
Dallas	17.0	33.3	16.7	0	6.9	14.6	9.9	5.9	13.6	24.0	26.5	34.3	18.0
San Francisco	15.4	30.0	25.0	0	0	0	14.3	0	14.3	16.1	20.6	31.6	33.0