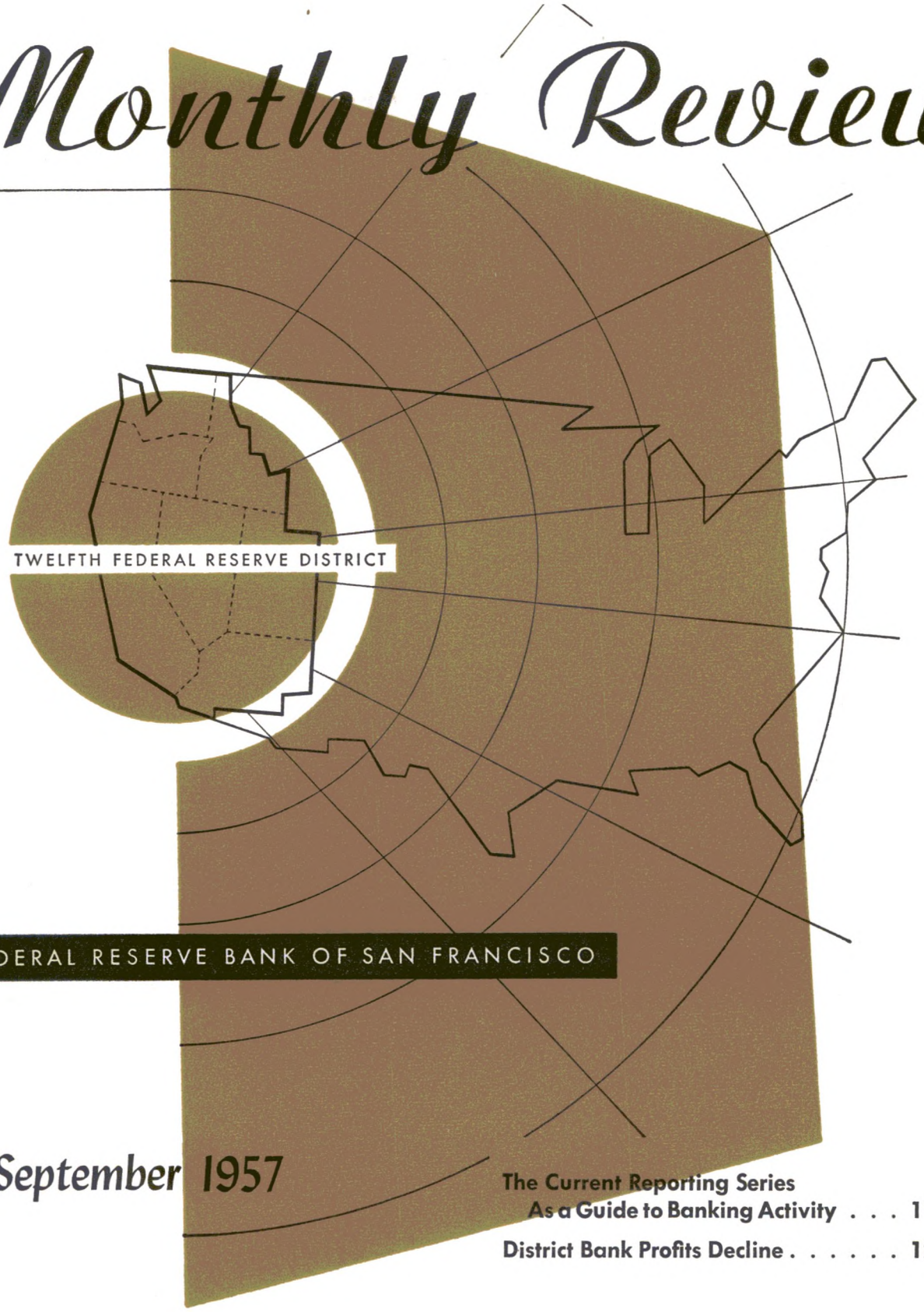
Monthly Review



FEDERAL RESERVE BANK OF SAN FRANCISCO

September 1957

The Current Reporting Series
As a Guide to Banking Activity

BANK LENDING UP IN MOST DISTRICTS

Reserve Puts the Total at $227,000,000—Deposits Also Show a Rise

Special to the NEW YORK TIMES

WASHINGTON, Sept. 18—The Federal Reserve Board reported today that the condition statement of weekly reporting member banks in ninety-four leading cities showed the following principal changes for the week ended last Wednesday, Sept. 11:

¶ An increase of $1,258,000,000 in demand deposits adjusted.

¶ A decrease of $1,182,000,000 in United States Government deposits, reflecting the usual heavy disbursements by the Treasury during the early part of the month.

Commercial and industrial loans increased in nearly all districts and a total of $227,000,000 at all reporting member banks; the principal increases were $105,000,000 in New York City, $40,000,000 in the Chicago District, $30,000,000 in the San Francisco District and $19,000,000 in the Cleveland District. Real estate loans increased $25,000,000 . . .

THE regular reader of the financial pages of the daily newspaper will quickly identify the item here reproduced from the NEW YORK TIMES as a standard feature of the Thursday or Friday edition of his paper. This story, describing banking developments during the past week and month and relating these changes to what happened a year earlier, is based upon the "Principal Resource and Liability Items of Reporting Member Banks in Leading Cities," a report released Wednesday noon by the twelve Federal Reserve Banks for their respective districts and by the Board of Governors of the Federal Reserve System for the nation. This set of selected balance sheet items states the condition of the reporting banks at the close of business the preceding Wednesday, a reporting lag of only one week, making this information one of the most current—and comprehensive—groups of economic data available.[1] The series is not continuous—it has been published for 40 years with several major revisions and numerous minor changes over the years, all to the end of providing a greater amount of information. However, this lack of continuity over the entire range of the series is not a sufficient ground for rejecting the series in an examination of short-run fluctuations.

Because the information contained in the Weekly Reporting Member Bank Series (hereafter referred to as the WRMBS for the sake of brevity) is given such wide circulation and is issued on such a current basis, questions naturally arise as to how representative this sample is of the group of banks from which it is drawn and whether the movements of this series have any significance for changes in the level of general business activity. It is the purpose of this investigation to examine the WRMBS with regard to (1) the representativeness of the WRMBS as a measure of the changes in Federal Reserve member bank operations and of all banking activity and (2) how the reporting series behaves during the business cycle. The basic data to be used in this inquiry are the same as the figures made available to the public. No adjustments have been made for seasonal or long-run movements, but this is not to imply that seasonal or secular patterns can safely be ignored. Certain industries and certain classes of borrowers do show a pronounced periodic movement which must be considered in the interpretation of the data.[2]

WRMBS not typical of All Banks

As the first step in this investigation, it is proposed to examine the behavior of the WRMBS to see if it is characteristic of the behavior of the

[1] Forty-seven percent of all the banks in the United States are members of the Federal Reserve System and hold 86 percent of the country's demand deposits. All national banks must belong, and the nonmembers are mainly the smaller country banks of the nation. The Weekly Reporting Member Banks, then, are a smaller sample of All Member Banks; but, again, this sample of less than 3 percent of All Banks holds 56 percent of the nation's demand deposits, which in turn constitute a major share of the money supply.

[2] For example, of the "Commercial and Industrial" loan series, the following show a distinct seasonal pattern: loans to "Food processing manufacturers," "Trade," "Commodity dealers," "Textile manufacturers," and to a certain extent, "Public utilities and transportation" firms.

banking community in general. This article will be confined to the first aspect of the investigation. Any careful study of this nature is bound to be somewhat technical, and for those readers without the time to go step by step through our analysis, the conclusions are drawn together at this point. There is a remarkable degree of conformity between movements in the Weekly Reporting Series and in the All Member Bank data; but the relationship between changes in each series is not necessarily proportional. Thus the Weekly Reporting Series is most successful as a qualitative rather than a quantitative indicator of changes in banking activity. In view of the time-lag between the WRMBS release one week after the fact and the more complete data which become available only months later, some precision may be lost but much time is gained.

The WRMBS may be spoken of as a "sample," but not without qualification. The preparation and construction of the weekly reporting series cannot be compared with the usual sampling processes used in statistical analysis for two reasons. First, the sample is not chosen by a method of random selection. That is to say, not every bank nor every city has an equal probability of being represented in each weekly sample that is taken. The "leading cities" included in the sample are those cities representing 2 percent or more of total commercial bank deposits within the several Federal Reserve districts. The coverage of reporting banks is at least 75 percent of all member bank deposits in the reporting cities. The individual banks represented in the sample are the same each time, subject to infrequent additions or deletions due to mergers of reporting banks, liquidations, etc. There has been a marked movement toward consolidation in the banking field even as in the industrial sector of the economy. The accompanying table shows the number of banks in the sample, together with their assets, compared with the number of member banks and all banks, together with their assets.

The second consideration follows from the first. Aside from the fact that each bank in the universe of all banks does not have an equal chance of being represented in the sample, it should be noted that each bank is unique—there is no possibility

TABLE 1

A. NUMBER OF BANKS

	Weekly reporting banks[1]		Member banks[2]		All banks[1]	
Year	12th District	United States	12th District	United States	12th District	United States
1948	31	435	270	6,918	521	14,171
1949	30	426	268	6,892	516	14,687
1950	30	422	268	6,873	509	14,121
1951	30	408	264	6,840	508	14,618
1952	30	401	262	6,798	504	14,575
1953	32	405	260	6,743	502	14,509
1954	32	395	235	6,660	442	14,367
1955	31	385	209	6,543	401	14,243
1956	28	361	187	6,462	385	14,167

B. ASSETS OF BANKS
(millions of dollars)

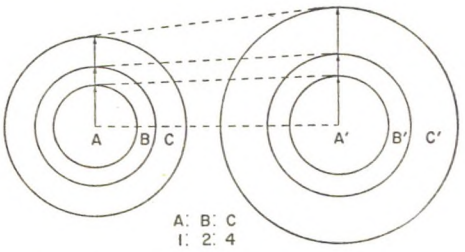
	Weekly reporting banks[a]		Member banks		All banks	
Year	12th District	United States	12th District	United States	12th District	United States
1948	14,324	85,015	17,414	131,392	18,870	154,702
1949	14,691	87,840	17,529	134,431	19,422	179,170
1950	15,874	94,637	18,854	144,660	20,816	168,932
1951	16,906	99,810	20,276	153,439	22,388	202,903
1952	18,378	104,241	22,004	160,826	24,251	213,837
1953	19,151	107,523	22,584	163,983	24,901	220,140
1954	20,599	114,506	24,169	172,242	26,758	231,654
1955	21,548	114,900	25,580	179,414	28,293	242,008
1956	21,770	115,787	26,512	184,874	29,298	250,770

[1] Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin* and Federal Reserve Bank of San Francisco.
[2] Board of Governors of the Federal Reserve System, *Federal Reserve Call Report*.
[a] Not a Statement of Total Assets: The item "other assets", consisting chiefly of Federal Reserve Bank Stock, Real Estate, etc., is omitted.

of the substitution of one bank for another without affecting the resulting sample. No provision is made for weighting the banks included in the sample according to their relative importance in the total banking structure so as to give a true representation of the composition of the banking system. Banks are not all the same size; and size, the location, whether rural or urban, and the economic region in which the bank is situated largely determine the composition of the bank's assets and the behavior of the specific items in its loan portfolio. Under these circumstances, an unweighted random sample would be meaningless, and attempts to weight a random sample would entail entirely too much effort to present on a weekly basis. From all of this it may be recognized that the sample banks are not typical of all banks; in point of fact, there is a distinct bias toward large city banks since rural banks are not represented at all except where large branch banking systems exist. The question of whether this impairs the usefulness of the sample will be taken up later.

WRMBS as an indicator of changes in banking activity

The first part of the analysis, which now follows, is concerned with the WRMBS and its relationship with the larger groups of banks. The Reporting Banks, the Member Banks, and All Banks stand in the relationship of concentric circles of increasing size. The group of Reporting Banks is wholly contained in the larger group of Member Banks, which in its turn is wholly contained in the largest group of All Banks, regardless of affiliation. Ideally, changes in the Reporting group, the Member Bank group, and the All Bank group will be proportional. Returning to our analogy of the three circles, the radii of the circles, though they will change, will still retain the same proportional relationship. To illustrate, suppose that circles A, B, and C represent the Reporting Bank group, the Member Bank group, and All Banks, respectively. If it be assumed that all banks are of equal size and importance regardless of whether they are member or nonmember, reporting or non-reporting banks, then an increase in the size or the radius of A would imply an exactly proportional change in B and C.



If the Reporting Bank group (A) contains, for instance, 50 percent of the loans outstanding for Member Banks (B) and 25 percent of loans outstanding for All Banks (C), then a given change in A signifies a change twice as great for B and four times as great for C. However, for reasons already given, the WRMBS cannot be considered an ideal, that is, a completely representative sample.

The first problem in analyzing the significance of the sample we have, then, is to find specific series of data which will be comparable among the three groups: Weekly Reporting Member Banks, All Member Banks, and All Banks. Since there was a major revision in the WRMBS in 1947, the interval covered in this study is from 1948 to 1956. There were minor changes in the presentation of the data during this period, but adjustments have been made to preserve comparability. The series with which the WRMBS will be compared are derived from the formal reports on condition which must be made by all banks to the Comptroller of the Currency and to the Federal Deposit Insurance Corporation and by all Member Banks to the Federal Reserve System. The annual report of the Comptroller of the Currency gives a summation of the balance sheets of all active commercial banks as of December 31. The Federal Deposit Insurance Corporation report, "Assets, Liabilities, and Capital Accounts, Commercial and Mutual Savings Banks," hereafter referred to as the "Call Report," states the asset position of all banks semi-annually, June 30 and December 31, since 1950.

The Federal Reserve System requires that all Member Banks report at least three, and usually four, times a year, with the second and fourth calls generally occurring on June 30 and December 31. The first or third call is sometimes timed to correspond with a reporting date for the WRMBS, offering an added check on this series. The WRMBS data, on the other hand, are reported every Wednesday. The procedure used here has been to compare the Call Report data to the Wednesday corresponding to or, usually, the Wednesday closest to the call date. This means that the intervals between Call Reports and the corresponding WRMBS reports may vary by two or three days, but any error involved should not be great enough to invalidate the conclusions reached.

The set of specific balance sheet items to be used in this investigation is dictated by the WRMBS and involves a certain amount of aggregation and dis-aggregation in the handling of the Call Report data for Member Banks and for All Banks, wherein the specific items are presented in much greater detail than they are given in the WRMBS releases. The adjustments necessary to obtain comparable sets of data are described in Table 2.

TABLE 2

ADJUSTMENTS IN BASIC REPORTING SERIES TO ACHIEVE DATA COMPARABLE TO THE WEEKLY REPORTING MEMBER BANK SERIES

Category title this study	Weekly Reporting Member Bank Series	Federal Reserve reports	Federal Deposit Insurance Corporation Call Report	Reports to Comptroller of the Currency
Commercial, industrial, and agricultural loans[1].	Commercial, industrial, and agricultural loans.	Commercial and industrial loans (including open market paper). Loans to farmers directly guaranteed by CCC. Other loans to farmers.	Commercial and industrial loans, agricultural loans.	Commercial and industrial loans (including open market paper). Loans to farmers directly guaranteed by CCC. Other loans to farmers.
Loans for carrying securities.	Loans to brokers and dealers for carrying securities. Other loans for carrying securities.	Loans to brokers and dealers. Other loans for carrying securities.	Loans for carrying securities.	Loans to brokers and dealers for carrying securities.
Real estate loans.	Real estate loans.	Loans secured by farm lands, residential property, and other properties. Loans insured by FHA or guaranteed by VA. Loans not insured or guaranteed by FHA or VA.	Loans on farm land, residential properties, and other properties. Loans insured by FHA and insured or guaranteed by VA. Loans not insured or guaranteed by FHA or VA.	Loans secured by farm land (including improvements), residential property (other than farm), and other property.
All other loans.	All other loans.	All other loans (including overdrafts). Other loans to individuals for personal expenditures. Passenger automobile instalment credit. Other retail consumer credit. Residential repair and modernization instalment. Other instalment. Single payment.	All other loans (including overdrafts). Other loans to individuals. Retail automobile instalment credit. Other retail instalment paper. Residential and modernization instalment. Single payment.	Other loans. Other loans to individuals.

[1] The agricultural loan series was split off from this series January 4, 1956. They cannot be separated out from the other loans in the earlier data for this series. The agricultural loans series is added to the commercial and industrial loans series for 1956 to preserve comparability with the preceding series.

Note: No adjustments in the various Call Reports are necessary in the following categories: "Total loans"; "Total loans and investments"; "Demand deposits of individuals, partnerships, and corporations"; and "Holdings of United States securities." For data subsequent to 1952 in "Total loans," "Loans to Banks" is added to the Weekly Reporting Member Bank Series to ensure comparability with earlier data.

"Demand deposits of individuals, partnerships, and corporations" is chosen in preference to "Demand deposits adjusted" because the adjustments necessary to arrive at the latter—particularly "Cash items in process of collection"—cannot be obtained from FDIC and Comptroller of the Currency Call Reports. "Demand deposits of individuals, partnerships, and corporations" is more sensitive to credit developments in the private sector of the economy than would be "Total demand deposits" since operations involving changes in United States Government deposits may come about either as a result of acquisitions of new issues of government securities by banks or as a result of tax payments or government disbursements.

The series selected do not represent changes in the total balance sheet but were chosen as the more useful indicators of change in the levels of banking and general economic activity. The WRMBS, moreover, does not afford sufficient data to construct complete balance sheets which may be compared, item for item, with those of the more comprehensive reports. A sample illustration of the WRMBS report is given in Table 3 with the items selected for this investigation italicized.

Method of analysis

We are now ready to come to grips with the problem of how to analyze the data. The WRMBS is a sample of the balance sheet items

of the universe of All Member Banks of the Federal Reserve System and of All Banks regardless of affiliation. It will be perhaps most representative of All Member Banks; but it is also indicative of the actions of non-member banks, the functions and decisions of which are similar to those of Member Banks. Since the WRMBS is a sample, this immediately suggests that the data could be processed by the usual statistical techniques applicable to small sample data. But that would not be true in this case. It is not the number of bank units represented that is important but rather the volume of deposits and loans outstanding that is covered. It is possible for this coverage of deposits and loans to vary without a change in the coverage of bank offices due to changing patterns of business activity or different rates of growth for different categories of banks. A striking illustration of this occurs in the case of real estate loans, where the share of real estate loans held by Reporting Banks in the national sample has fallen in proportion to Member Banks and particularly in relation to All Banks. Tables 4A and 4B give the proportions of the specific series picked up in the reporting sample.

If the proportions of the totals of loans outstanding and deposits reported by the Weekly Reporting Member Banks to those of Member Banks and All Banks were constant and invariant, this would be *a priori* evidence that the sample was a true gauge and indicator of banking activity. However, these proportions may and do vary, so that the ratio of the WRMBS sample to the group from which it is drawn changes, as can be seen in Tables 4A and 4B, since it is the number of banks as units that can be controlled as a sample, rather than the volume of their assets and obligations. In the first section of this study

TABLE 3

PRINCIPAL RESOURCE AND LIABILITY ITEMS OF REPORTING MEMBER BANKS IN LEADING CITIES* IN THE TWELFTH FEDERAL RESERVE DISTRICT

(in millions of dollars)

	August 21 1957	Change since August 14 1957	Change since July 24 1957	Change since August 22 1956
Assets				
Loans adjusted and investments[1]	17,274	+149	+115	+355
Loans adjusted[1]	10,595	+ 55	+ 35	+463
Real estate loans	3,918	0	— 2	+ 10
Loans for purchasing or carrying securities:				
To brokers and dealers	100	+ 14	+ 2	+ 24
To others	64	0	+ 1	+ 9
Agricultural loans	234	— 2	+ 5	— 5
Commercial and industrial loans	4,445	+ 40	+ 26	+368
Other loans	1,996	+ 3	+ 3	+ 78
U. S. Government obligations—total	5,025	+ 74	+ 67	—166
Treasury bills	304	+ 99	+136	+253
Treasury certificates of indebtedness	452	— 15	+ 90	+292
Treasury notes	593	— 4	—132	—513
U. S. bonds	3,676	— 6	— 27	—198
Other securities	1,654	+ 20	+ 13	+ 58
Loans to banks	300	— 28	— 19	+ 77
Reserve with Federal Reserve Bank	2,117	+ 13	+ 13	— 39
Cash in vault	158	— 17	— 9	+ 3
Balances with domestic banks	227	— 22	— 16	— 38
Other assets	459	— 11	— 1	+ 82
Liabilities				
Demand deposits—adjusted	8,908	—141	—128	—130
Time deposits, except U. S. Government	8,463	— 8	— 10	+754
U. S. Government deposits	396	+181	+ 97	— 65
Interbank demand deposits:				
Domestic banks	514	— 20	0	— 21
Foreign banks	158	+ 5	+ 29	— 13
Borrowings	142	+ 59	+ 68	—102
Other liabilities	548	+ 6	+ 26	— 28
Capital accounts	1,406	+ 2	+ 1	+ 45
Memoranda:				
Demand deposits of ind., part., and corp.	9,175	—276	— 50	— 63
Time deposits of ind., part., and corp.	7,614	+ 7	+ 34	+696

*Including all offices of reporting branch banks.
[1] Exclusive of loans to banks and after deduction of valuation reserves; individual loan items are shown gross.

TABLE 4A

PERCENTAGES OF SPECIFIC MEMBER BANK SERIES CONTAINED IN WEEKLY REPORTING MEMBER BANK SERIES, SELECTED BALANCE SHEET ITEMS, 1948-56 CALLS

Year and call	Total loans and investments		Total loans		Commercial, industrial, and agricultural loans		Real estate loans		Securities loans		Other loans		United States securities		Demand deposits	
	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.
1948 I	83	66	85	73	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	82	64	82	69
II	83	66	84	69	86	80	86	49	86	91	81	71	82	64	82	68
III[a]																
IV	84	66	85	71	87	80	85	49	100	93	81	69	82	63	81	68
1949 I	84	62	85	69	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	82	64	82	69
II	83	66	86	69	88	78	86	49	91	95	80	59	81	64	81	68
III	84	66	85	69	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	82	66	81	67
IV	84	66	85	69	88	78	85	49	91	88	77	59	82	66	82	68
1950 I	83	66	85	68	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	82	65	81	68
II	84	66	84	68	91	78	83	49	88	90	74	66	84	66	81	68
III	84	66	84	69	90	79	84	50	84	91	78	58	82	64	81	68
IV	84	67	85	71	90	80	83	50	86	92	76	61	81	64	82	68
1951 I	84	66	85	70	90	80	83	50	99	90	78	61	81	63	82	69
II	83	66	85	70	89	80	83	50	89	85	79	61	79	63	82	68
III	84	66	85	70	89	80	83	50	98	91	80	60	81	62	81	67
IV	84	66	85	71	89	81	83	50	100	84	81	61	81	62	81	67
1952 I	83	66	85	70	88	80	83	50	110[c]	96	82	60	80	62	81	67
II	85	68	85	72	88	80	83	49	120[c]	120[c]	81	60	85	66	82	67
III	83	66	85	70	89	80	82	49	100	93	78	60	80	62	80	67
IV	83	66	85	70	90	81	82	49	100	93	78	60	80	62	81	67
1953 I	84	66	86	71	92	81	83	50	110[c]	90	78	61	81	60	84	68
II	84	66	86	71	92	81	83	50	100	94	78	61	81	61	83	67
III	84	66	85	70	92	81	83	50	100	93	76	60	81	61	82	70
IV	84	66	85	71	92	81	83	49	91	92	76	60	82	62	82	67
1954 I	83	65	84	69	90	79	83	50	100	88	76	60	81	62	82	67
II	84	66	84	68	91	79	83	50	100	93	74	59	81	64	82	68
III	84	66	84	68	89	79	82	50	100	92	76	59	83	64	82	67
IV	84	66	85	69	90	79	82	50	100	90	78	60	83	64	82	68
1955 I	84	65	85	69	92	79	81	50	97	92	76	60	83	62	83	68
II	83	65	85	69	92	79	81	50	89	91	75	60	83	61	82	67
III	84	65	84	69	93	80	81	50	95	91	75	60	82	59	82	66
IV	84	65	85	70	91	79	82	50	93	88	75	61	82	59	82	66
1956 I	82	64	85	70	92	80	82	50	87	89	77	62	81	58	82	67
II	83	64	85	70	91	80	82	50	96	89	77	61	81	58	82	66
III	82	63	85	69	91	80	82	50	98	87	77	61	80	56	82	66
IV	82	63	86	70	91	80	82	50	103[c]	85	76	61	79	55	82	65

TABLE 4B

PERCENTAGES OF SPECIFIC ALL BANK SERIES CONTAINED IN WEEKLY REPORTING MEMBER BANK SERIES, SELECTED BALANCE SHEET ITEMS, 1948-56 CALLS

Year and call	Total loans and investments		Total loans		Commercial, industrial, and agricultural loans		Real estate loans		Securities loans		Other loans		United States securities		Demand deposits	
	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.
1948 IV	74	47	78	53	83	71	73	24	86	87	75	49	71	45	76	59
1949 IV	75	48	77	50	84	69	72	24	82	84	72	48	73	48	77	59
1950 IV	75	48	77	52	86	72	71	24	81	87	72	50	72	46	77	59
1951 II	74	48	77	51	85	72	71	24	80	80	74	50	72	45	77	59
IV	75	48	77	52	85	73	70	23	94	79	76	50	72	45	75	57
1952 II	76	49	77	52	84	71	70	22	110[c]	120[c]	75	50	75	47	76	58
IV	78	47	77	51	87	73	69	22	89	88	72	50	70	45	76	58
1953 II	75	48	78	51	88	73	70	22	90	88	72	50	71	43	78	58
IV	75	47	77	51	91	73	70	22	84	87	71	50	72	45	77	58
1954 II	75	47	76	48	87	70	70	21	93	88	69	49	73	46	77	58
IV	75	47	76	49	86	70	69	21	94	85	71	49	74	47	76	58
1955 II	74	46	76	49	87	71	68	22	81	86	69	49	73	45	76	58
IV	75	46	76	49	86	71	69	21	81	82	69	51	73	43	76	57
1956 II	74	45	77	50	86	71	70	21	82	82	66	50	71	41	76	57
IV	74	44	78	50	86	73	70	21	93	78	70	51	70	39	77	56

[a] No call this period.

[b] Total loans not available by component series.

[c] The apparent discrepancy for "Securities Loans" may be explained by the difference of several days between the WRMBS Wednesday reporting date and the Call Report date.

Sources: Federal Reserve Bank of San Francisco, *Principal Resource and Liability Items of Reporting Member Banks in Leading Cities in the Twelfth Federal Reserve District*. Board of Governors of the Federal Reserve System, *Principal Resource and Liability Items of Reporting Member Banks in Leading Cities in the United States*. Comptroller of the Currency, *Annual Reports* through 1950. Federal Deposit Insurance Corporation, *Semi-annual Reports* since 1951.

we are interested chiefly in the magnitude and direction of the changes in a series such as, "Demand Deposits," rather than the total amount of demand deposits outstanding. In determining whether changes over time in the WRMBS accurately reflect similar changes in the larger populations of which the samples are a part, the "first differences" of this series between call dates will be used. First differences are simply the dollar value changes in the individual series over the intervals determined by the call reports. This may be illustrated by picking some purely arbitrary figures for two series, as follows:

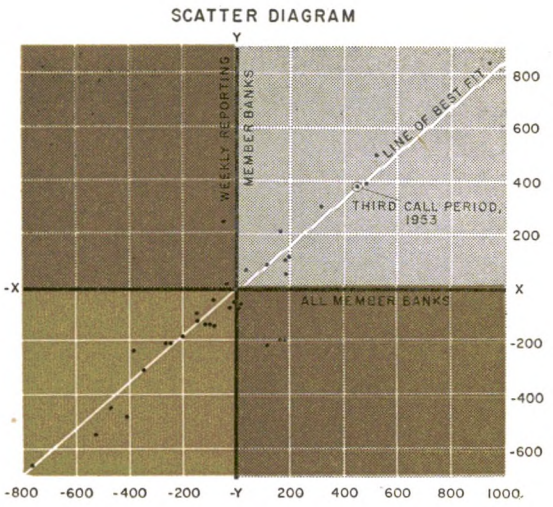
Date	Series A	First differences of Series A	Series B	First differences of Series B
First Quarter	210		142	
Second Quarter	225	15	149	7
Third Quarter	218	—7	138	—11
Fourth Quarter	215	—3	138	0
First Quarter	223	8	150	12

Since the question asked here is whether the changes in Series A accurately reflect changes in Series B, the first differences are compared by methods which will now be described.

Index of correspondence of WRMBS with other series

In order to quantify the relationship between the WRMBS sample and the larger groups from which it is drawn and to provide a means of ranking the individual series, it is necessary to calculate some sort of a number common to all of the series. Some idea of the dispersion of the observations of a specific pair of series may be obtained from Chart 1. The vertical axis represents the first differences of the WRMBS and the horizontal axis is marked off in terms of the first differences of the Federal Reserve Member Bank call series. These pairs of values are plotted as single points and the pattern of all such points—technically known as a "scatter diagram"—gives some clue to the correspondence between the two values, i.e., the degree of correlation. To illustrate, for the third quarter period in 1953, the change in United States securities held by Reporting Banks in the Twelfth District was +$384 million and the change in the amount of United States securities held by All Member Banks in the District was +$451 million. By traveling up the vertical

CHART 1



axis + 384 and out the horizontal axis + 451, the point expressing the relation between this pair of values is located. But it is not enough merely to map all of the pairs of first differences, because the visual comparison of a number of scatter diagrams to determine which have more and which have less "scatter" around a "line of best fit" drawn among the points is arduous and inexact. It is much easier and more accurate to determine the degree of correspondence of one series with another by bringing in to play a more powerful tool of comparison useful to the statistician. This is the correlation coefficient, a single, calculated numerical index of the relationship between two sets or series of values. By means of calculations too tedious to relate, an "index of correlation" is arrived at, which for this particular pair of series is: r equals .931.

The index of correlation is a measure of the strength of the relationship between two series. As the index approaches 1.0, the correspondence between the series becomes progressively stronger; and, conversely, as it approaches zero, the relationship is weaker.[1] Table 5 shows the indexes

[1] The correlation coefficients calculated for these series cannot, however, carry the meaning usually attributed to these coefficients, since we are here correlating a sample with the universe of which it is a part. They are therefore to be interpreted technically only as devices to establish a rank order among the series, i.e., as to which of them provide the better and which the worse measures of prediction from the WRMBS to the All Member Bank and the All Bank series. Although the standard procedure is used to obtain the index, it would probably be more accurate to refer to this index as a measure of

of correlation for the WRMBS and Member Banks and for the WRMBS and All Banks for all eight of the balance sheet items here being compared. The numbers in parentheses represent the rank of the series within the group.

The prime requisite of a sample should be that it reflect changes in the direction and in the magnitude of the population that it represents. The index of correlation is influenced principally by the correspondence of the changes in direction between the two items compared: If the amount of total loans outstanding of All Member Banks increases, certainly the sample should indicate a similar movement; not to do so would immediately rule out its effectiveness. However, the index of correlation does not give sufficient clue to the change in the universe relative to the size of the change in the sample.

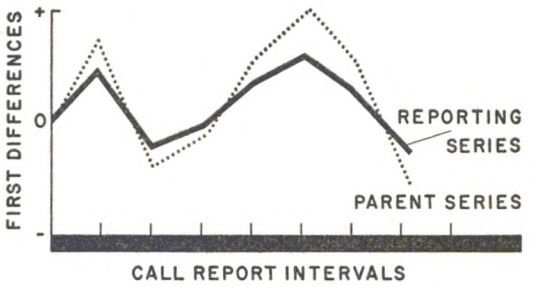
TABLE 5

INDEXES OF CORRELATION ON EIGHT BALANCE SHEET ITEMS FOR WEEKLY REPORTING MEMBER BANK SERIES COMPARED WITH MEMBER BANKS AND ALL BANKS, TWELFTH DISTRICT AND UNITED STATES, 1948-56

	Twelfth District correlation and rank	United States correlation and rank
WRMBS AND MEMBER BANKS		
Total loans and investments	.907 (7)	.758 (7)
Total loans	.977 (1)	.905 (5)
Commercial, industrial, and agricultural loans	.972 (2)	.984 (1)
Real estate loans	.968 (3)	.906 (4)
Loans for carrying securities	.868 (8)	.893 (6)
All other loans	.928 (6)	.696 (8)
Holdings of United States securities	.931 (5)	.952 (3)
Demand deposits	.965 (4)	.964 (2)
WRMBS AND ALL BANKS		
Total loans and investments	.889 (6)	.806 (7)
Total loans	.986 (1)	.894 (6)
Commercial, industrial, and agricultural loans	.965 (3)	.987 (2)
Real estate loans	.957 (4)	.922 (5)
Loans for carrying securities	.866 (7)	.727 (8)
All other loans	.896 (5)	.930 (4)
Holdings of United States securities	.967 (2)	.932 (3)
Demand deposits	.798 (8)	.993 (1)

Relative magnitude of changes in WRMBS and other series

An ideal reporting sample should reflect changes in the larger series but should be contained within these changes, maintaining a fixed proportionality to them. The plotted first differences of an "ideal" sample and the larger series from which it is drawn should appear as follows:



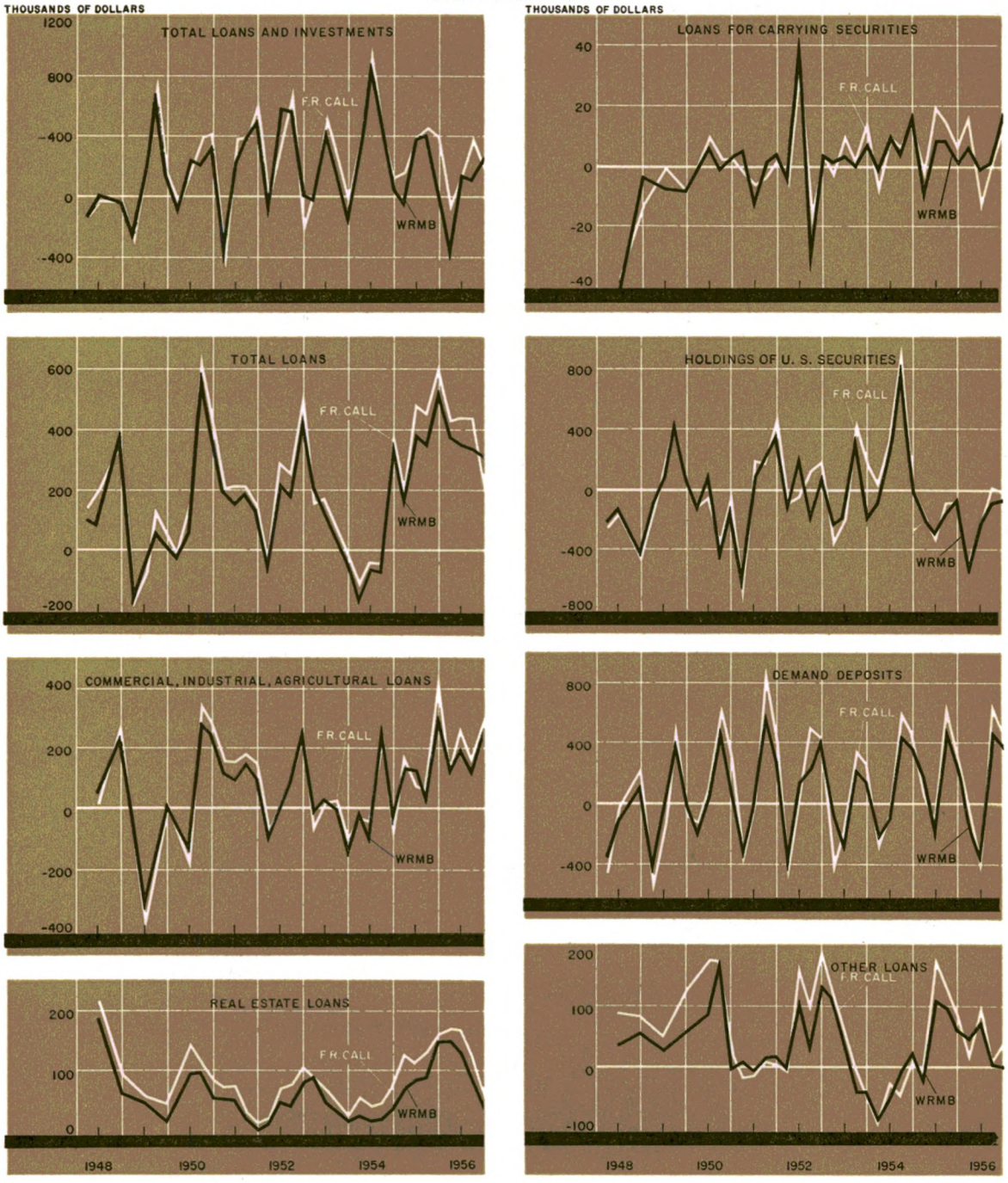
An examination of several series will show that the "ideal" sample finds no exact counterpart in the WRMBS and the more inclusive series with which they are compared. In no case is there a fixed proportionality between changes in the reporting series and the larger series. The plotted first differences of the WRMBS and Member Banks for the Twelfth Federal Reserve District are given in Chart 2. By inspection it can be seen that the movements of the changes in the reporting series show a remarkable degree of conformity with the Member Banks as represented by the changes in successive Call Reports. At this point, however, a note of warning must be interjected.

The graphs for the first differences of "Total Loans" and "Commercial Loans" shown in Chart 2 seem to demonstrate the existence of a strong relationship between the changes in the WRMBS and changes in Member Banks for these two series, a relationship apparently borne out by the relatively constant ratios or percentages of the totals of the WRMBS to the totals of the parent series shown in Tables 4A and 4B. Thus, if the reporting sample for, say, "Total Loans" for the United States contains about 50 percent of All Member Bank commercial loans subject to a range of variation of 2 or 3 percent about this figure, it would seem no more than reasonable that the changes in this same WRMBS sample as compared to the Member Bank series should show a comparable range of variation. In other words, knowing that the WRMBS reports a

"correspondence," or of "sympathetic movements" rather than as an index of correlation. Nevertheless, in spite of these restrictions, it is possible to infer that an index in the neighborhood of .90 indicates a very high degree of correspondence.

CHART 2

COMPARISON OF WEEKLY REPORTING MEMBER BANKS
AND ALL MEMBER BANKS[1] FOR DESIGNATED BALANCE SHEET ITEMS
TWELFTH DISTRICT 1948-56



given fraction of all of the loans for a given group of banks, we might then, as with the "ideal" sample, blow up the change in the WRMBS by a given multiple—the inverse or reciprocal of the aforesaid fraction—and obtain the change in the Member Bank series. There is no better proof that this cannot be done than to calculate a ratio of the first differences of the WRMBS to the first differences of the larger groups as was done for the totals of the series in Tables 4A and 4B. The wide range of variation of this ratio, which is given in Tables 6A and 6B, clearly demonstrates the inapplicability of using the known changes in the WRMBS to measure exact changes in the larger series. The changes in the two sets of data do not exactly parallel each other, so that predicting changes in the larger as a given multiple of changes in the smaller series is indeed a chancy business. Changes from one Call date to the succeeding one may vary considerably for the WRMBS relative to, say, the Member Bank series and yet the dollar amounts of these changes in the two series will be so small relative to their respective totals that the relationship of these two total figures will be affected only slightly.[1]

Differences in structure of banking in District and nation

An examination of the indexes of correlation in Table 5 for the Member Banks in the nation and for the Twelfth District offers some interesting contrasts. Since the coverage of the Twelfth District Reporting Series is in all cases greater than the coverage for the nation as indicated by Table 4, it would appear that the correspondence between changes in the sample and changes in the total banking population should be much closer for the District than for the nation. However, this is not always the case. The indexes for "Total Loans and Investments," "Total Loans," "Real Estate Loans," and "All Other Loans" are noticeably higher for the District than for the nation, while "Commercial, Industrial, and Agricultural Loans," "Loans for Carrying Securities," and "Holdings of U. S. Securities" are higher for the nation than for the Twelfth District. There is a twofold explanation for the difference in the relative orderings of the indexes of the series within the two samples. One is the greater weight accorded to branch banks in the Twelfth District relative to the national sample. Branch banking does exist outside this District, but certain states absolutely forbid branch banking or restrict it to local political units, so that the relative weight given to branch banks in the nation is much smaller than in the Twelfth District.

The second explanation, stemming from the first, lies in the method of branch bank reporting in the WRMBS. Branch bank offices report as a single unit through the head office. A more representative sample of the bank population will therefore be obtained since the country offices of branch banks will be included in the head office report, giving a greater weight to rural banks and banks in the smaller non-reporting cities than does the national sample, where the reporting units are largely non-branch city banks or branch bank systems confined to the reporting cities. Representing as it does a cross section of the banking structure of the District, it stands to reason that the Twelfth District WRMBS will show a higher correspondence to the universe of banks from which it is drawn for "Loans and Investments," and particularly in loans made to individuals rather than business firms, such as "Real Estate Loans" and "All Other Loans," which are chiefly loans for consumer expenditures. The higher index of correlation for "Commercial, Industrial, and Agricultural Loans," "Loans for Carrying Securities," and "Holdings of U. S. Securities" could be accounted for largely by the inclusion of the New York City member banks, which exert a powerful influence upon the national sample, particularly in these categories.

[1] In Tables 6A and 6B the extreme high values and the zero values may be discounted. In the ratio of changes in the WRMBS to changes in the larger groups, a very small change in the larger group relative to the change in the WRMBS will give an extremely high value, such as $\frac{125}{0.5}$, while if there is no change in the WRMBS for the last period, the ratio will be of the form $\frac{0}{20}$, or zero. The negative ratios indicate a change in the direction of the two series; that is, the WRMBS has increased while the All Bank series has decreased, or conversely. The point of these tables is that the size of the change in the universe of member banks or of all banks would be reflected in the size of the change in the sample if there were a fixed or even approximate proportionality in the ratio of the change in the sample to the change in the universe. This proportionality between changes in the first differences of the two groups does not exist.

TABLE 6A

RATIO OF FIRST DIFFERENCES: WEEKLY REPORTING MEMBER BANK SERIES TO ALL MEMBER BANKS IN SELECTED BALANCE SHEET ITEMS, 1948-56 CALL REPORTS

Year and call	Total loans and investments		Total loans		Commercial, industrial, and agricultural loans		Real estate loans		Securities loans		Other loans		United States securities		Demand deposits	
	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.
1948 I	.89	1.01	.78	.10	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	.79	.77	.70	.60
II	—1.27	.47	.50	.22	2.67	8.02	.89	.56	1.08	1.01	.48	— 1.15	.57	[b]	1.66	—2.96
III[a]																
IV	.60	.63	1.05	.94	.92	.84	.79	.50	.20	2.33	.81	.49	.92	.48	.69	.56
1949 I	.83	— .51	.92	1.39	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	.75	.84	.73	.57
II	.79	— .43	.55	.08	.79	.95	.97	.42	7.00	1.01	.69	.04	.62	.27	1.25	0
III	.89	.73	.55	.39	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	.97	.79	.81	.45
IV	.75	1.18	.50	.85	.87	.82	.48	.49	.89	1.51	.52	.58	.85	.81	.16	.94
1950 I	1.31	129.57	1.64	.03	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	1.08	— .47	1.22	.78
II	1.68	1.18	.49	.76	.60	.93	.68	.47	.70	1.06	.53	— 7.91	2.86	1.18	.74	.73
III	.58	.43	.91	.75	.85	.89	.97	.64	.50	.77	1.06	.31	1.16	4.02	.81	.61
IV	.82	1.02	.90	.97	.94	.84	.72	.54	1.33	.94	.04	—27.70	2.70	.93	1.11	.71
1951 I	.85	1.21	.98	.48	.84	.85	.84	.56	2.00	.97	.90	.36	.86	.84	.78	.57
II	.59	1.08	.77	.91	.67	— .54	.77	.58	1.86	.49	.40	.37	.36	1.86	.57	.16
III	1.10	.25	.93	.58	.92	.90	.79	.44	— .20	.62	2.44	5.66	1.38	— .57	.68	.39
IV	.83	.81	.93	1.02	.80	.92	.39	.24	2.50	.54	12.00	1.01	.82	.68	.72	.64
1952 I	1.15	.88	.97	2.77	1.10	4.33	.72	— .01	.71	.19	.18	— .08	1.29	.73	.79	.61
II	1.76	1.75	.82	1.52	.88	.72	.80	.30	1.35	1.86	.70	.62	— 4.50	2.22	2.03	.49
III	—0.50	—2.00	.74	— .99	1.12	.54	.68	.43	1.79	2.66	.32	.39	— 1.88	—13.63	.49	.79
IV	.79	.68	.87	.80	1.14	.98	.80	.50	1.00	.92	.74	.68	.59	.41	1.04	.71
1953 I	— .11	.68	1.53	1.11	.16	.28	1.10	.99	— .40	1.24	.87	.77	.58	.78	.11	.58
II	—2.13	— .19	.73	—8.24	.56	1.19	.84	.45	.30	— .95	.59	.52	.85	— .24	1.63	1.95
III	.82	.54	.51	.05	.24	1.31	1.05	.44	*	.24	4.75	— .24	.85	.67	.70	6.52
IV	.99	1.07	2.00	1.16	0	.71	.88	.23	.50	.89	.71	.68	— 1.09	1.03	.59	.21
1954 I	2.35	1.59	1.39	4.53	1.38	2.84	.59	—12.20	.18	1.20	.88	.97	—24.00	.78	.71	.71
II	.88	.99	1.19	1.29	— .39	.92	.60	.52	1.10	1.19	1.92	.11	.98	1.05	.99	—1.27
III	.86	.67	1.49	—1.25	1.79	.76	.55	.49	.60	.39	— .06	.66	.91	.67	.78	.39
IV	1.14	.91	.97	.87	.98	.77	.57	.51	1.20	.77	2.54	.80	2.55	.75	.80	.77
1955 I	.56	2.34	.98	.49	*	—2.71	.59	.66	2.20	.21	—1.56	.65	1.10	.98	4.44	.65
II	— .47	2.03	.81	.82	.17	.81	.82	.55	.45	.73	.63	.55	.85	.82	1.10	2.49
III	1.05	.08	.79	.63	.78	.95	.74	.25	.64	.82	.79	.65	1.38	1.11	.79	.34
IV	.91	.78	.91	.82	1.66	.67	.99	.43	.25	.61	. 80	.84	.42	.68	.85	.65
1956 I	3.45	1.81	.94	.68	1.25	.99	.93	.66	.41	.73	3.69	1.28	1.04	.81	1.44	.62
II	1.45	.43	.83	.90	.77	.76	.81	.52	.06	1.17	.76	.52	.76	.75	.80	1.77
III	.30	.03	.79	.27	.85	1.14	.83	.47	*	1.01	3.60	— .50	— 5.73	— 3.79	.76	0
IV	1.62	.74	1.65	1.01	.94	.81	.80	.14	1.58	.48	.27	.49	6.63	.14	.95	.54

TABLE 6B

RATIO OF FIRST DIFFERENCES: WRMBS TO ALL BANKS IN SELECTED BALANCE SHEET ITEMS, 1948-56 CALL REPORTS

Year and call	Total loans and investments		Total loans		Commercial, industrial, and agricultural loans		Real estate loans		Securities loans		Other loans		United States securities		Demand deposits	
	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.	12th District	U.S.
1948 IV	.10	—1.07	.52	.44	.81	.77	.18	.26	.06	1.38	.35	.41	.45	.59	— .46	.75
1949 IV	.18	.67	.33	— .46	— .07	.97	.18	.17	.58	.62	.36	.41	.15	1.03	.05	2.24
1950 IV	.38	.53	.28	.60	.59	.96	.16	.26	.25	1.22	— .003	.58	.11	.68	.32	.57
1951 II	—2.29	1.18	.34	.40	.329	.72	.32	.17	1.63	1.68	.22	.23	— .10	.59	.05	.53
IV	.47	.50	.33	.60	.34	.87	.86	.10	—1.20	1.07	1.41	.50	.57	.40	.21	.46
1952 II	2.07	1.23	.93	.61	— .19	2.64	.43	.06	1.62	3.01	.69	.51	— 1.57	— 2.42	— .27	.56
IV	2.18	.12	.56	.38	.80	.93	.41	.18	— .19	—9.17	.48	.47	.33	— .55	.45	.58
1953 II	— .023	.77	.35	.59	— .44	.89	.46	.23	.60	.86	.19	.57	.28	.64	.43	.55
IV	.21	.56	— .27	.40	0	.73	2.52	.13	1.60	.83	.63	.21	— .29	.73	.23	.57
1954 II	1.43	— .11	.33	—2.66	— .23	1.41	.24	.12	11.00	1.05	.37	61.75	1.15	—10.87	.16	.53
IV	.27	.59	.85	.58	1.10	.62	.23	.21	.86	.71	—1.38	.76	.07	.61	.29	.58
1955 II	— .27	—3.97	.56	.49	1.53	.84	.35	.26	.56	3.72	.41	.50	.50	.83	1.31	.69
IV	.44	.38	.48	.56	.81	.71	.46	.11	.04	.44	.29	.74	.22	1.03	.23	.50
1956 II	—5.31	—7.60	.39	.57	.82	.81	.37	.21	— .25	.79	.28	.37	.23	.68	.60	.58
IV	.49	.33	.53	.47	.90	.91	.27	.12	6.33	1.93	— .08	—1.87	—10.60	— .19	.37	.43

[a] No call this period.

[b] Total loans not available by component series.

*In these cases, the ratio is such that there is a zero change in the denominator (the member bank series) giving a fraction of the form, $\frac{15}{0}$, which is not a finite number.

Sources: Federal Reserve Bank of San Francisco, *Principal Resource and Liability Items of Reporting Member Banks in Leading Cities in the Twelfth Federal Reserve District*. Board of Governors of the Federal Reserve System, *Principal Resource and Liability Items of Reporting Member Banks in Leading Cities in the United States*. Comptroller of the Currency, *Annual Reports* through 1950. Federal Deposit Insurance Corporation, *Semi-annual Reports* since 1951.

Conclusion

In assessing the value of the WRMBS as a representative indicator of banking activity there is a strong temptation either to look at the high indexes of correlation for the specific series (Table 5) and conclude that the series perform this function in a highly satisfactory fashion or to look at a comparison of the relative magnitudes of the changes in the compared series between Call dates—i.e., the ratio of their first differences (Tables 6A and 6B)—and conclude that the WRMBS is a hopeless misfit cast in the role of prophet. To satisfy one's self with either of these findings is to be guilty of oversimplification, for there is an element of truth in each of these seemingly contradictory conclusions.

At this juncture it might be well to reconsider just what function the WRMBS is intended to perform and the limitations imposed by the type of data and the method of reporting. From a purely statistical standpoint, the series lacks the more desirable qualities of a random weighted sample, since a given change in the sample does not imply a given change in the universe of all banks within predictable limits of error. However, it would be almost physically impossible to construct and maintain a weighted representative sample of over 6400 separate banks on a weekly basis; hence, a continuing sample with the shortest possible reporting lag cannot be too complex.

The point has been made earlier that the reporting banks are not similar, since each bank, with its location and function, is unique. This admission is less damaging than it might appear to be, for the basic functions and operations of banks are very much the same whether the bank is located in Manhattan or Milpitas. Bankers will react in the same manner to changes in the business climate, although there may be differences in the speed and the intensity of their reaction to the stimuli. Banks in the financial and commercial centers are much more sensitive to changes in business conditions and will react strongly and perhaps more quickly to meet these changes. This may account in part for the divergent movements of the WRMBS and the larger series as shown in Table 5. Another reason for these divergent movements may be the differences to be found in the composition of banks' loan portfolios. Banks in the larger cities have a larger share of "Commercial and Industrial" loans and, since the WRMBS is drawn from these cities, there should be a strong relation between changes in commercial loans for the reporting sample and for Member Banks and for All Banks. An examination of the time series for commercial loans outstanding for New York City Member Banks and for All Member Banks (using the Call Report series) shows a striking similarity between the two series.

On the other hand, the "All Other Loans" series, which is made up chiefly of consumer loans, demonstrates the weakest correspondence between Reporting Banks and Member Banks and All Banks. This may be due to the fact that the volume of these loans outstanding is not concentrated in the larger cities, as are commercial loans, where a greater proportion of them will be included in the reporting sample, but are distributed more widely since loans are made to individuals rather than to business firms. In this case, movements in the series will correspond more directly to changes in local conditions rather than to changes in the larger centers of commerce from whence the WRMBS sample is chiefly drawn.

The WRMBS finds its greatest success as a qualitative rather than a quantitative indicator of changes in the level of banking activity. It has been demonstrated, particularly in the graphs of Chart 2, that there is a consistent pattern of conformity between increases or decreases in the Weekly Reporting Series and in the Member Bank group from which it is selected and also between the WRMBS and activity of the entire banking system. The relation between the dollar amounts of the changes in the sample and of the system is less strong. Thus, a "large" increase or a "moderate" decrease in the WRMBS sample will probably indicate a similar movement in member bank or all banking operations. Because the reporting banks do not represent a true cross section of the banking community, it would not be wise to conclude that a given dollar change in the reporting sample therefore implies a proportionate dollar change in total banking operations.

Granted that the WRMBS is not a consistent indicator of the exact dollar changes in general banking activity, the questions remain: Does the sample serve as a useful tool of economic analysis, and does it compare favorably with other current economic series? The answer must be "Yes," in both cases, because the series indicates what is currently happening to the resources of the banking system: whether total bank credit outstanding is increasing or decreasing, as well as whether the change is moderate or large. And equally important, the series describes changes in the composition of bank credit outstanding. For example, total loans of reporting banks may be increasing because of a rise in loans to business while, at the same time, real estate loans and loans to consumers are falling off. Or, in the case of Treasury debt operations, the weekly reporting banks, holding as they do a sizable fraction of bank-held United States securities, give a continuing picture of the actions of one of the largest holders of these securities. Again, the WRMBS contains over half of the demand deposits of all banks or not quite a half of the total money supply of the nation, since demand deposits make up about 80 percent of the total money stock.

The exact dollar amounts of the various balance sheet items of the Member Banks of the Federal Reserve System and of the entire banking system must wait upon the Call Reports for the two groups, which are only available several months after the Call dates. It is the intended function of the WRMBS to describe changes in the disposition of the resources of the banking system. Trends which are developing or changes in certain sectors of the economy may be observed in the WRMBS and followed between Call Reports. Published every week with a reporting lag of only seven days, the WRMBS might be said to purchase timeliness at the cost of arithmetical exactness. In view of the unquestioned usefulness of the information supplied, this may not be a bad bargain.

At this point in the investigation the wheel has come half turn. The task of this first part of the inquiry has been to ascertain whether the Weekly Reporting Member Bank Series is a suitable vehicle for measuring variations in total banking activity. It has been found that the series to be used in the second part of this study are adequate and useful indicators of the actions of the groups from which they are drawn. In the examination of the behavior of the banking series in the business cycle in a subsequent article, the emphasis will shift from the District data to the national sample because the best economic indicators are available only on a national basis. The frame of reference of the investigation will become the variations in the level of business activity rather than merely the banking sector which, after all, is only one segment of the total economy.

District Bank Profits Decline

TWELFTH District bankers found their business less profitable to all appearances in the first half of 1957 than it had been in 1956. This was not an unexpected development; at the end of 1956 the anticipated increased expenses, resulting from a higher authorized interest rate on time deposits, made the course of bank profits in 1957 fairly obvious. Monetary authorities maintained a close rein on the expansion of credit in the first half of 1957, and loans outstanding increased very little during the period. Thus, earnings on loans, the major source of earnings, although at a record high, did not keep pace with increased expenses. As a result, net current earnings declined from last year's peak.

Another type of factor enters the net profit picture. Here appeared again this year discretionary action by the banks in switching from government securities purchased at higher prices to others with similar maturities bought at present low prices—prices which are dictated by the higher interest rate structure. This process, which shows up as an undetermined portion of net charge-offs, losses, and transfers to reserves, serves to defer profits by converting today's charge-offs into tomorrow's capital gains, and in lowering this year's net profit figure may contribute to that in the years ahead. In addition, many of the actual losses incurred through selling securities to procure funds for more profitable loans at today's rates have not yet had time to be offset fully by those higher earnings.

Loan expansion slows

The combined balance sheet of Twelfth District member banks shows only minor changes in condition over the past six months. (Table 1) Total loan expansion of $76 million was hardly comparable to the increase of $655 million in the first half of 1956. Commercial and industrial loans actually declined $6 million from December 31, 1956 to June 6, 1957, compared with an increase of $174 million during the six months ending June 30, 1956. Business borrowing later in June this year for tax payment purposes undoubtedly increased, but from the condition statements of a sample of member banks which report weekly, this borrowing was considerably smaller than last year. Real estate loans on residential properties declined in 1957, while those made primarily for commercial and industrial purposes showed some gain. Borrowing by farmers and other individuals also showed a net increase during the first six months of this year.

TABLE 1

PRINCIPAL RESOURCE AND LIABILITY ITEMS OF ALL MEMBER BANKS IN THE TWELFTH DISTRICT DECEMBER 31, 1956, AND JUNE 6, 1957

(in millions of dollars)

	Dec. 31, 1956	June 6, 1957	Percent change
Loans and investments	$20,949	$20,942	*
Loans and discounts net	12,616	12,692	+ 0.6
Commercial and industrial loans	4,630	4,624	— 0.1
Agricultural loans	448	512	+14.3
Real estate loans	4,859	4,797	— 1.3
Loans to individuals	2,310	2,390	+ 3.5
United States Government obligations	6,454	6,288	— 2.6
Other securities	1,879	1,962	+ 4.4
Total assets	26,512	25,965	— 2.1
Demand deposits	14,818	13,429	— 9.4
Time deposits	9,427	10,017	+ 6.3
Total deposits	24,246	23,446	— 3.3
Capital accounts	1,675	1,709	+ 2.0

*Less than 0.05 percent.

Note: A preliminary tabulation of all items of condition of Twelfth District member banks as of June 6, 1957 is now available for distribution. Requests for copies should be directed to the Federal Reserve Bank of San Francisco, 400 Sansome Street, San Francisco 20, California.

In contrast to large sell-offs of United States Government securities by District member banks in 1955 and 1956, holdings declined less than 3 percent during the first six months of 1957. Demand deposits of individuals, partnerships, and corporations also declined in the six months ending June 6, 1957; but time deposits increased over 6 percent during the same period. It was this growth in time deposits at increased interest cost that determined the course of bank profits in the first half of the year.

Earnings at record high

All sources of operating income showed gains in 1957 at Twelfth District member banks, to put gross current earnings at a record high for any half-year period (Table 2). Earnings on loans were an even larger portion of total earnings than last year, and the rate of return (on an annual basis) shows a gain over the first six months of 1956 as well as over the full year

1956. Since the average rate of return increases more slowly than the substantially higher interest rate structure would suggest, earnings from new loans made at the prevailing higher interest rates will only be reflected slowly as they become a larger part of the loan portfolio.

Interest on United States Government securities increased slightly in spite of decreased holdings of these securities by District banks. Yields on United States Governments have increased markedly during the first half of 1957, and the average rate of return to District member banks increased from 2.30 percent to 2.47 percent. Earnings from interest and dividends on other securities, up almost 8 percent, reflect the higher yields during 1957 on municipal and corporate securities.

The largest single percentage increase in earnings in 1957 over the first half of 1956 was from charges on deposit accounts, in part reflecting, as it did in 1956, the increased activity of demand deposit accounts as well as increased charges for transactions.

Expenses increase faster than earnings

Expenses at District banks for the first half of 1957 increased by more than one-fifth over those of the same period a year earlier. The most significant increase in expenses was the 55 percent gain in interest paid on time deposits—the primary cause for the decline in net profits. The interest cost ratio (that is, the total interest expense divided by the average level of time deposits) increased from 1.77 percent to 2.54 percent. This is more than the one-half of 1 percent increase in the maximum allowed by authorities because many banks were not paying the maximum rate permissible before the beginning of 1957. If the interest paid on time deposits had not been raised and the interest cost ratio of 1956 were applied to 1957 deposits, net profits would have shown an increase in the first half of 1957 over 1956.

The other major expense item—wages and salaries—again increased, by 9 percent, over the previous year. The number of officers and employees in Twelfth District banking also in-

TABLE 2

EARNINGS AND EXPENSES OF MEMBER BANKS
SIX MONTHS ENDING JUNE 30, 1956 AND JUNE 30, 1957

	Earnings and expenses of Twelfth District banks (in millions of dollars)		Percent changes, 1st half of 1956 to 1st half of 1957			
			Twelfth District			United States
	1st half 1956	1st half 1957	All	13 largest	Other	all banks
Earnings on loans	310.7	352.1	+13.3	+13.0	+15.0	+14.0
Interest and dividends on						
Government securities	78.4	78.5	+ 0.2	— 1.8	+ 7.5	+ 3.3
Other securities	20.6	22.1	+ 7.7	+ 6.1	+15.1	
Service charges on deposit accounts	36.3	43.5	+19.7	+18.2	+25.8	
Trust department earnings	13.3	15.1	+13.6	+13.2	+15.5	
Other earnings	20.8	23.6	+13.5	+13.5	+13.5	+10.8*
Total earnings	480.0	535.0	+11.4	+10.7	+14.4	+11.3
Salaries and wages	136.3	148.5	+ 8.9	+ 8.4	+11.2	
Interest on time deposits	80.2	124.4	+55.1	+56.4	+48.4	
Other expenses	88.0	95.8	+ 8.9	+ 7.9	+12.6	
Total expenses	304.5	368.7	+21.1	+21.4	+20.0	+15.3
Net current earnings	175.5	166.2	— 5.3	— 7.3	+ 3.8	+ 5.4
Net recoveries and profits (—losses)[1]						
On securities	+ 0.7	— 5.1	....	....	....	
On loans	— 14.7	— 11.7	....	....	....	
Other	— 0.5	— 1.6	....	....	....	
Total net recoveries and profits	— 14.4	— 18.3	+26.9	+58.9	—44.4	+ 4.7
Net profits before income taxes	161.1	147.9	— 8.2	—12.3	+11.6	+ 5.5
Taxes on net income	72.7	67.3	— 7.3	—11.0	+ 9.0	+ 6.5
Net profit after taxes	88.4	80.6	— 8.9	—13.3	+14.1	+ 4.6
Cash dividends declared	42.6	46.3	+ 8.6	+ 8.9	+ 6.2	+11.1
Undistributed profits	45.8	34.3	—25.1	—35.3	+19.3	— 1.0

*For the United States, other earnings include all earnings except those on loans and United States Government securities. No breakdown of expense data is available.
[1] Including transfers to (—) and from (+) valuation reserves.

creased to 71,000 persons (10,000 officers and 61,000 employees). All other categories of expense also rose except interest paid on borrowed money, which declined by 12 percent. This is partly due to smaller daily average borrowings of member banks from the Federal Reserve Bank in the first six months of 1957 than in the comparable period a year ago.

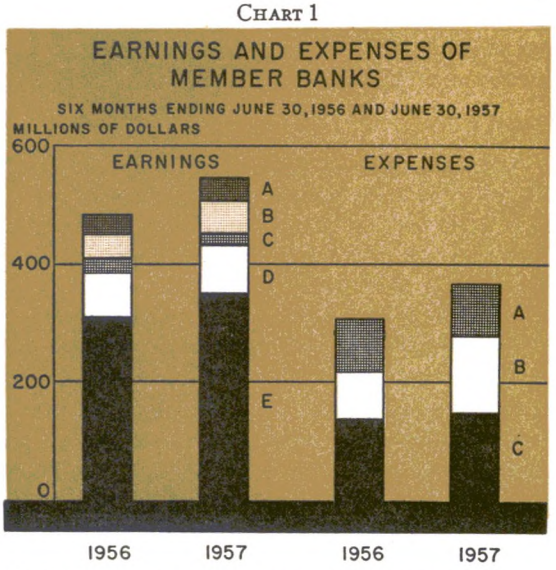
Profits down from 1956 in the District

Increased expenses caused net current earnings to fall 5 percent below the level of the first half of 1956. The ratio of net current earnings to capital accounts declined from 22.28 percent in the first half of 1956 to 19.69 percent this year. From these operating earnings non-operating adjustments are made by means of valuation reserves on both bad debts and other contingencies. Transfers to loan reserves as well as net charge-offs and losses on loans resulted in a net decrease in current earnings of $11.7 million. Profits on securities increased in the first six months of this year, but so did losses and charge-offs and transfers to reserves with a resultant net charge to current earnings of $5.1 million. Adjustments in other valuation reserves decreased earnings by $1.6 million so that the total net losses, charge-offs, and transfers to reserves of all types decreased net current earnings by $18.3 million, or 27 percent more than in the first half of 1956.

Net profits before taxes amounted to $147.9 million, 8.2 percent less than the first half of 1956. From this total, member banks in the District made provisions for $67.3 million in Federal and state income taxes. Thus, net profits after taxes were reduced to $80.6 million, a decline of 8.9 percent from last year. As a percent of capital accounts, or the return on the investment in banking in the Twelfth District, these after-tax profits were down from 11.22 percent in 1956 to 9.54 percent in 1957. This latter ratio is the lowest since this series of half-year statistics on member bank earnings began in 1948.

Stockholders fared somewhat better this year than last as $46.3 million was declared in cash dividends, an increase of 8.6 percent over 1956. These distributed profits amounted to 5.48 percent of capital accounts compared with 5.41 percent in 1956.

CHART 1



Note: The Earnings categories are as follows: A. All other; B. Charges on deposit accounts; C. Interest and dividends on other securities; D. Interest on United States Governments; E. Earnings on loans.

The Expenses categories are: A. All other; B. Interest on time deposits; C. Wages and Salaries.

Net profits rise in the nation

Earnings increased at about the same rate in both the nation and the District, but expenses in the country as a whole grew less rapidly than in the Twelfth District. No breakdown by types of expense is currently available for the country as a whole, but since the ratio of time to total deposits is much less at all member banks than at District member banks, it seems evident that the increased interest cost factor which caused the decline at District banks had less effect on total bank profits in the nation.

Net current earnings increased 5 percent in the United States, and the ratio of these earnings to capital accounts decreased only slightly, from 18.0 percent in 1956 to 17.9 percent in 1957 (Table 3). Net losses, charge-offs, and transfers to valuation reserves decreased net earnings by $178 million, so that net profits before taxes amounted to just over $1 billion. Taxes on income increased 5.5 percent and reduced net profits to $569 million. These after-tax profits were 4.6 percent greater than profits in the first half of 1956, but as a percent of capital accounts decreased from 8.3 percent last year to 8.2 per-

cent in 1957. Cash dividends were declared in the amount of $281 million, an increase of 11 percent over 1956.

Outlook

Assuming time deposits in the Twelfth District remain close to present levels, the expense item associated with them will continue to be a drain on net profits. Some increased income can be expected to be derived from the loans which have been made at increased interest rates, but this growth in earnings is a relatively slow process with returns spread over the maturity of the loans. As noted above, moreover, there has been some switching of government securities by banks from issues that were bought at higher prices to other issues bought at lower prices. This results in capital losses currently, but net profits may be bolstered later by capital gains on the substituted issues. Even though a steadily increasing income from loans at higher interest rates and capital gains on maturing issues may improve second half net earnings, the effect of the hike in the time deposit rate may well keep bank earnings for the year as a whole below those the industry has learned to expect.

TABLE 3

EARNINGS RATIOS OF MEMBER BANKS
TWELFTH DISTRICT AND UNITED STATES
(percent ratios, annual basis)

	First half 1956	First half 1957
UNITED STATES		
Return on loans	4.9	5.2
Return on Government securities	2.3	2.5
Current earnings to capital accounts	18.0	17.9
Net profits after taxes to capital accounts	8.3	8.2
TWELFTH DISTRICT		
Return on loans	5.4	5.6
Return on Government securities	2.3	2.5
Current earnings to capital accounts	22.3	19.7
Net profits after taxes to capital accounts	11.2	9.5

BUSINESS INDEXES — TWELFTH DISTRICT[1]

(1947-49 average = 100)

Year and month	Industrial production (physical volume)[2]							Total nonagricultural employment	Total mf'g employment	Carloadings (number)[2]	Dep't store sales (value)[2]	Retail food prices[3, 4]	Waterborne foreign trade[3, 5]	
	Lumber	Petroleum[3] Crude	Petroleum[3] Refined	Cement	Lead[3]	Copper[3]	Electric power						Exports	Imports
1929	95	87	78	54	165	105	29	....	....	102	30	64	190	124
1933	40	52	50	27	72	17	26	....	....	52	18	42	110	72
1939	71	67	63	56	93	80	40	....	55	77	31	47	163	95
1948	104	101	100	104	105	101	101	102	102	100	104	103	86	98
1949	100	99	103	100	101	93	108	99	97	94	98	100	85	121
1950	113	98	103	112	109	113	119	103	105	97	105	100	91	137
1951	113	106	112	128	89	115	136	112	120	100	109	113	186	157
1952	116	107	116	124	87	112	144	118	130	101	114	115	171	200
1953	118	109	122	130	77	111	161	121	137	100	115	113	140	308
1954	111	106	119	133	71	101	172	120	134	96	114	113	131	260
1955	121	106	122	145	75	117	192	127	143	104	122	112	164	308
1956	116	105	129	156	77	118	210	134	152	104	129	114	195	443*r*
1956														
July	120	105	132	160	75	110	212	134	152	102	132	115	215	559
August	117	105	128	171	84	123	212	135	153	101	131	114	207	500
September	112	104	136	168	78	122	209	135	153	107	131	114	212	459
October	110	104	128	163	81	127	217	136	154	102	130	115	256	563
November	111	104	135	146	79	123	216	137	156	100	132	116	242	401
December	112	103	132	139	72	123	210	138	159	106	131	116	234	436
1957														
January	108	102	131	120	79	125	220	139	160	105	131	116	237	421
February	115	102	130	127	88	138	211	138	159	96	127	117	269	417
March	115	101	132	140	88	133	221	138	159	100	133	116	267	489
April	111	101	132	154	78	135	228	138	159	103	127	117	298	534
May	111	101	138	157	82	126	229	138	159	99	126	117	283	698
June	114	101	131	152	75	130*r*	239	139	160	101	131	118	....	....
July	109	101	133	...	66	133	....	138	159	94	132	118	....	....

BANKING AND CREDIT STATISTICS — TWELFTH DISTRICT

(amounts in millions of dollars)

Year and month	Condition items of all member banks[6]				Bank rates on short-term business loans[8]	Member bank reserves and related items					Bank debits index 31 cities[3, 12] (1947-49 = 100)[2]
						Factors affecting reserves:					
	Loans and discounts	U.S. Gov't securities	Demand deposits adjusted[7]	Total time deposits		Reserve bank credit[9]	Commercial[10]	Treasury[10]	Money in circulation[9]	Reserves[11]	
1929	2,239	495	1,234	1,790	.....	− 34	0	+ 23	− 6	175	42
1933	1,486	720	951	1,609	.....	− 2	− 110	+ 150	− 18	185	18
1939	1,967	1,450	1,983	2,267	.....	+ 2	− 192	+ 245	+ 31	584	30
1949	5,925	7,016	8,536	6,255	3.20	+ 13	− 930	+ 378	− 65	1,924	102
1950	7,093	6,415	9,254	6,302	3.35	+ 39	−1,141	+1,198	− 14	2,026	115
1951	7,866	6,463	9,937	6,777	3.66	− 21	−1,582	+1,983	+ 189	2,269	132
1952	8,839	6,619	10,520	7,502	3.95	+ 7	−1,912	+2,265	+ 132	2,514	140
1953	9,220	6,639	10,515	7,997	4.14	− 14	−3,073	+3,158	+ 39	2,551	150
1954	9,418	7,942	11,196	8,699	4.09	+ 2	−2,448	+2,328	− 30	2,505	154
1955	11,124	7,239	11,864	9,120	4.10	+ 38	−2,685	+2,757	+ 100	2,530	172
1956	12,613	6,452	12,169	9,424	4.50	− 52	−3,259	+3,274	− 96	2,654	189
1956											
August	12,173	6,439	11,356	9,286	.....	+ 4	− 315	+ 247	− 103	2,565	198
September	12,423	6,491	11,581	9,305	4.57	+ 3	− 454	+ 466	− 59	2,640	182
October	12,384	6,468	11,747	9,326	.....	− 5	− 417	+ 312	− 2	2,542	195
November	12,504	6,431	11,867	9,235	.....	0	− 143	+ 209	+ 38	2,579	195
December	12,804	6,383	12,078	9,356	4.65	− 17	− 303	+ 451	+ 38	2,654	200
1957											
January	12,488	6,505	11,812	9,587	.....	+ 33	− 558	+ 249	− 144	2,548	206
February	12,556	6,356	11,279	9,690	.....	+ 41	− 816	+ 494	− 139	2,517	200
March	12,576	6,177	11,129	9,794	4.74	− 37	− 170	+ 170	− 9	2,495	199
April	12,649	6,520	11,622	9,839	.....	− 35	− 445	+ 430	− 31	2,560	202
May	12,694	6,315	11,210	9,995	.....	+ 56	− 261	+ 209	+ 54	2,526	200
June	12,911	6,249	11,310	10,155	4.81	− 29	− 374	+ 402	+ 20	2,483	203
July	12,912	6,319	11,407	10,188	.....	− 49	− 426	+ 320	+ 6	2,457	205
August	12,945	6,313	11,329	10,220	.....	+ 50	− 145	+ 292	+ 39	2,592	197

[1] Adjusted for seasonal variation, except where indicated. Except for department store statistics, all indexes are based upon data from outside sources, as follows: lumber, California Redwood Association and U.S. Bureau of the Census; petroleum, cement, copper, and lead, U.S. Bureau of Mines; electric power, Federal Power Commission; nonagricultural and manufacturing employment, U.S. Bureau of Labor Statistics and cooperating state agencies; retail food prices, U.S. Bureau of Labor Statistics; carloadings, various railroads and railroad associations; and foreign trade, U.S. Bureau of the Census. [2] Daily average. [3] Not adjusted for seasonal variation. [4] Los Angeles, San Francisco, and Seattle indexes combined. [5] Commercial cargo only, in physical volume, for Los Angeles, San Francisco, San Diego, Oregon, and Washington customs districts; starting with July 1950, "special category" exports are excluded because of security reasons. [6] Annual figures are as of end of year, monthly figures as of last Wednesday in month. [7] Demand deposits, excluding interbank and U.S. Gov't deposits, less cash items in process of collection. Monthly data partly estimated. [8] Average rates on loans made in five major cities. [9] Changes from end of previous month or year. [10] Minus sign indicates flow of funds out of the District in the case of commercial operations, and excess of receipts over disbursements in the case of Treasury operations. [11] End of year and end of month figures. [12] Debits to total deposits except interbank prior to 1942. Debits to demand deposits except U.S. Government and interbank deposits from 1942. *p*—Preliminary. *r*—Revised.