

economic review

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IN THIS ISSUE

Advance Refunding
and Commercial
Bank Participation . . . 2

Population and Banking
Changes in the
Fourth District, 1954-65 18

FEDERAL RESERVE BANK OF CLEVELAND

ADVANCE REFUNDING AND COMMERCIAL BANK PARTICIPATION

Along with monetary and fiscal policy, management of the public debt is an integral part of public financial policy. As an instrument of public policy, the objectives of debt management are widely recognized: to finance the public debt in a way that (1) contributes to orderly growth of the economy without inflation, (2) minimizes borrowing costs, (3) achieves a balanced maturity structure, and (4) retains long-term investors as customers. In an effort to better achieve these objectives, the Treasury introduced the advance refunding technique in June 1960. That technique involves the refinancing of Treasury debt obligations in advance of maturity, and is intended primarily to improve the maturity structure and ownership distribution of the public debt.

BACKGROUND: PUBLIC DEBT IN THE POSTWAR PERIOD¹

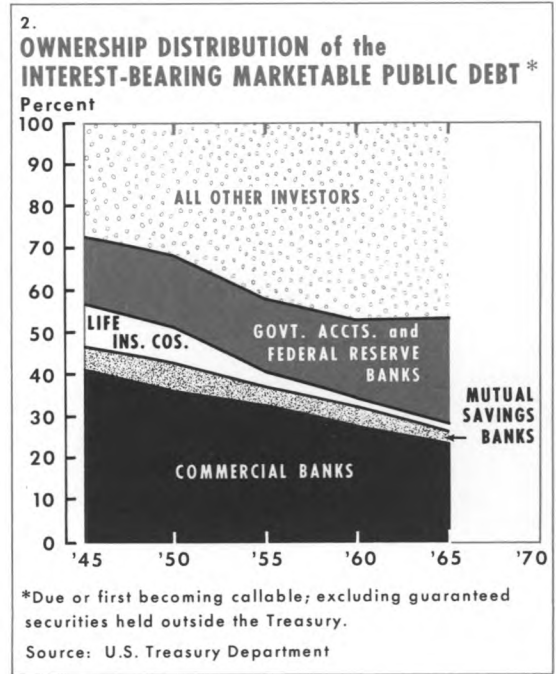
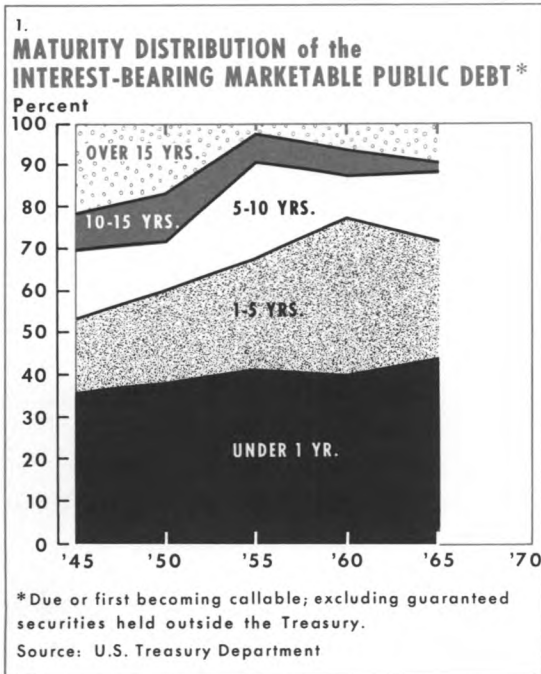
The bulk of the marketable public debt was contracted during the Second World War.

¹ This article is concerned only with interest-bearing marketable public debt, which includes Treasury bills, certificates of indebtedness, Treasury notes, and Treasury bonds. Guaranteed securities held outside the Treasury Department are excluded, as is nonmarketable debt.

Such debt rose from \$34.4 billion at the end of fiscal year 1940 to nearly \$200 billion at the immediate postwar peak in February 1946—an almost sixfold increase. The total then declined until the early 1950's, but increased steadily after 1956 in conjunction with the "Cold War." At the end of August 1966, when the latest advance refunding had been completed, the volume of marketable interest-bearing public debt outstanding was about \$211 billion.

Maturity Structure. With the passage of time, more and more of the debt issued during World War II—chiefly bonds—has come due, and the debt managers have been faced with a shortening maturity structure of marketable public debt. The average maturity declined to four years and four months in September 1960 from just under eight years immediately after the war. In addition to the passage of time, changes in the maturity structure of the publicly-held debt have occurred because of the nature of Treasury debt operations and purchases by Government accounts and the Federal Reserve System.

Chart 1 shows broad changes in the maturity distribution of the marketable debt during the postwar period. Of particular significance was the increase between 1945 and 1960 in



the proportion of debt maturing in less than five years, all of which occurred at the expense of debt maturing in over ten years. In Table I, the maturity distribution of the debt for selected years during 1945-59 is illustrated in greater detail. The table also provides a breakdown of major holders of the debt, with holdings taken as a percent of total marketable debt outstanding.

At the end of 1945, 35 percent (\$70.6 billion) of marketable debt was due to mature in *less than one year*. At the end of 1959, that is, prior to introduction of advance refundings, the volume of short-term issues amounted to 47 percent (\$88.7 billion) of the total. There was a concurrent increase in the proportion of debt maturing in one to five years—part of the so-called intermediate maturity area. As a result, at the end of 1959, more than 80 per-

cent of all marketable Government securities were scheduled to mature in five years or less, in contrast to 53 percent at the close of 1945. The table shows clearly that almost all of the debt shortening was accounted for by sharp declines in the proportion of total issues maturing in more than ten years.

Ownership Distribution. Changes in the maturity structure of the debt were accompanied by—and to some extent caused—substantial changes in ownership, as shown in Chart 2 and Table I. The decline in holdings of traditional long-term investors—such as mutual savings banks and life insurance companies—was partly accounted for by the Treasury's lack of success in lengthening the debt. Immediately after World War II, these institutions held 5 and 11 percent, respectively, of the marketable debt. At the end of

ECONOMIC REVIEW

TABLE I
Maturity Distribution and Ownership of the
Interest-Bearing Marketable Public Debt*

December 31		Total (billions of dollars)	Percent of Total					
			Under one year	1-5 years	5-10 years	10-15 years	15-20 years	Over 20 years
1945	Total Outstanding	\$198.8	35.4%	17.8%	16.6%	8.7%	9.0%	12.5%
1950		152.2	38.0	21.9	11.4	11.7	17.0	-0-
1955		163.3	41.0	26.4	22.9	7.0	-0-	2.7
1959		188.3	47.1	34.7	13.5	0.3	0.9	3.5
	Investor Group	Percent of Total Debt	Percent of Group Total					
1945	Commercial Banks	41.4%	37.0%	30.5%	25.4%	4.2%	0.1%	2.8%
1950		36.0	36.6	44.6	13.3	0.4	5.1	-0-
1955		32.9	21.9	43.5	30.8	3.2	-0-	0.6
1959		27.5	31.4	54.1	13.5	0.1	0.1	0.8
1945	Mutual Savings Banks	5.3	1.9	6.7	20.0	31.4	21.0	19.0
1950		6.6	2.9	6.0	20.8	41.6	28.7	-0-
1955		4.1	4.5	14.9	61.2	13.4	-0-	6.0
1959		3.3	11.0	52.5	25.5	1.9	1.1	8.0
1945	Life Insurance Companies	10.6	1.5	5.9	10.8	9.8	39.2	32.8
1950		8.3	5.6	3.1	7.1	46.4	37.8	-0-
1955		3.2	9.6	5.8	55.8	21.1	-0-	7.7
1959		2.5	9.1	30.9	41.4	0.5	1.8	16.3
1945	U. S. Government and Federal Reserve Banks	15.7	75.1	3.5	3.2	1.9	7.0	9.3
1950		17.1	61.7	5.7	5.4	8.4	18.8	-0-
1955		17.8	73.2	11.0	10.3	4.5	-0-	1.0
1959		18.1	61.5	26.0	10.2	0.3	0.4	1.6
1945	All Other Investors	27.0	29.7	13.5	12.5	14.4	9.8	20.1
1950		32.0	42.7	13.1	11.7	10.9	21.6	-0-
1955		42.0	48.3	22.3	15.7	9.3	-0-	4.4
1959		48.6	55.0	26.0	12.6	0.4	1.3	4.7

*Prior to 1960, issues classified when due or first becoming callable; after 1960, classified by final maturity.

Source: U. S. Treasury Department

1959, however, each group accounted for only about 3 percent of the total. (See Table I.) Mutual savings banks and life insurance companies historically have invested in long-term securities because their liquidity requirements usually are less than those of other financial institutions, such as commercial banks. As Treasury bonds shortened in maturity with the passage of time, these long-term investors shifted their holdings to other investors who preferred what had become short-term investments. Investment demands of life insurance companies and mutual savings banks instead were satisfied by other types of securities. For example, life insurance companies turned increasingly to direct placements of higher-yielding, private debt obligations, such as corporate debentures. The need to counteract this turn was one of the major reasons for the Treasury's instigation of advance refundings.

The decline in holdings of Treasury issues by mutual savings banks and life insurance companies (and by commercial banks, as explained later) was offset by the increased proportions of debt in the hands of Government trust funds, Federal Reserve banks, and the residual category, "all other investors."² Holdings of the Federal Reserve banks and Government accounts, combined, rose from nearly 16 percent of the total at the end of 1945 to 18 percent at the end of 1959. Holdings of "all other investors" rose more sharply, from 27 to nearly 49 percent of the total, re-

² All other investors include savings and loan associations, state and local governments, nonfinancial corporations, fire-casualty-marine insurance companies, individuals, and those investors not included in the Treasury Survey of Ownership.

flecting primarily increased ownership by savings and loan associations, state and local governments, and some foreign and international investors.

Immediately after World War II, the largest single share of the marketable debt was held by commercial banks, reflecting bank financing of World War II and the pegging of interest rates until 1951. As indicated in Table I, commercial bank holdings amounted to over 40 percent of the total marketable debt at the end of December 1945, and were concentrated in the under-ten-year area. By the end of 1959, while commercial banks remained the largest single holder of U. S. Government securities, their holdings had been reduced to less than 28 percent of the total. In short, the trend of bank investment in Treasury issues showed a long-term decline, which caused major concern for the managers of the public debt.³

ADVANCE REFUNDINGS

The primary reasons why the Treasury adopted the advance refunding technique can be summarized briefly. At the close of the Fifties, among the major problems facing debt management were a steady shortening of the maturity structure and substantial net sales of

³ The secular decline occurred despite the fact that portfolio managers of commercial banks have followed a basically countercyclical investment policy. That is, "... commercial bank buying and selling of Government securities has followed a systematic, countercyclical pattern of purchases during recessions (and the early recovery stages) and sales during economic expansions." See *Cycles in Government Securities, Determinants of Changes in Ownership II*, Studies in Business Economics, Number 88, National Industrial Conference Board, New York, 1965, p. 17.

ECONOMIC REVIEW

U. S. Government securities by institutions that formerly had been net investors. The passage of time alone, if not corrected, brings imbalance in the maturity and ownership distributions of the debt. In turn, an imbalanced maturity distribution, with a heavy concentration of issues maturing in less than five years, is accompanied by a shortened average maturity of the debt. The Treasury is then faced with the added problem of retaining long-term investors, who tend to reduce their holdings as securities approach maturity. As a result, at maturity, Treasury bonds may be held primarily by short-term investors, with demands by other investors for new long-term securities being satisfied in other capital markets. In these situations, the shortening of the average maturity of Treasury issues tends to become a never-ending circle.

In attempting to retain long-term customers, the Treasury endeavors to offer yields that are attractive relative to interest rates on comparable maturities of outstanding Treasury issues, state and local tax-exempt bonds, corporate bonds, and other investments. Simultaneously, the Treasury attempts to minimize borrowing costs. The two objectives are not always mutually compatible. The Treasury often can take advantage of more favorable market conditions through advance refunding, rather than confining refinancing operations to the maturity dates of securities.⁴ More flexibility in the timing of Treasury debt refinancing also helps to reduce complications

with monetary policy operations by the Federal Reserve System.

Additional debt management problems accompany a shortening average maturity. Frequent and large refunding operations not only are costly, but can result in significant price turbulence within money and capital markets. Anticipation of Treasury actions can cause instability in the highly rate-sensitive market for Government securities, which serves as a benchmark for other markets. Finally, it is widely recognized that an excessive supply of highly-liquid short-term debt is potentially inflationary. Ideally, the volume of short-term issues should satisfy liquidity requirements of the economy, but not to excess. A balanced maturity structure implies a "sufficient" but not "excessive" volume of short-term, intermediate, and long-term securities, consistent with financial and economic conditions.

The advance refunding technique allows the Treasury to remove issues from maturity ranges in which securities are heavily concentrated; it thus contributes to improved maturity distribution and reduces the frequency of Treasury trips to the market to refinance. There have been several types of advance refundings since 1959. A *junior advance refunding* gives the holders of U. S. Government securities maturing within one to five years the opportunity to exchange for securities due in more than five years. A *senior advance refunding* allows holders of issues maturing within five to twelve years to exchange for longer term securities maturing in 15 years and more. In a *pre-refunding*, owners of Treasury securities maturing

⁴ The Treasury has not called any securities for redemption prior to maturity since August 1962, when the last partially tax-exempt issue outstanding, the 2¾ percent bonds of December 1965/60, was called for redemption in December 1962.

DEFINITION OF TERMS

Types of U. S. Government securities:

Treasury bills—non-coupon obligations; sold at discount through competitive bidding; generally having original maturities of three months, six months, and one year.

Certificates of indebtedness—obligations having original maturities of one year or less; generally issued with coupons.

Treasury notes—coupon obligations having original maturities of from one to five years.

Treasury bonds—coupon issues having original maturities of more than five years.

Types of advance refundings (based upon the remaining maturity of U. S. Government securities eligible for exchange):

Pre-refunding—an exchange by holders of securities maturing in less than one year for securities of longer original maturity, usually due within ten years.

Junior—an exchange by holders of securities maturing within one to five years for issues with original maturities of five or more years.

Senior—an exchange by holders of securities maturing within five to twelve years for issues with original maturities of 15 years or longer.

Par—technically, 100 percent; for example, a Treasury bond having a face value (principal amount on which interest is paid) of \$1,000 and sold at par, is sold for \$1,000.

Premium—the amount by which a security is priced over par. A \$1,000 bond with a market price of \$1,050 has a premium of \$50.

Discount—the amount by which a security is priced below par, that is, the opposite of premium. A \$1,000 bond with a market price of \$950 has a discount of \$50.

Boot—payments by or to the Treasury that may be necessary in an advance refunding in order to align more closely the respective values of the eligible issues and the issues offered.

Rights—accruing to securities that are eligible for exchange in both regular and advance refundings. Holders of the eligible issues may sell their rights, and the buyer is entitled to exchange the rights for the new issue.

ECONOMIC REVIEW

in less than one year are given the opportunity to extend their holdings. The maturity area of the eligible issues determines the type of advance refunding. There were 13 advance refundings during the period from June 1960 through August 1966; of these, only two were senior advance refundings, one was a combination junior and senior advance refunding, and most others were a combination of junior and pre-refundings.

COMMERCIAL BANK PARTICIPATION IN ADVANCE REFUNDINGS

Commercial banks, as major holders of U. S. Government securities, have been important participants in most advance refunding operations. A summary of bank participation is presented in Table II. The 13 advance refundings are ranked according to the extent of bank participation, as measured by the proportion of total allotments awarded to commercial banks.

As discussed earlier, the type of advance refunding operation is based upon the maturity dates of the issues involved. The table lists the total amount of *eligible* issues outstanding, including both the publicly-held issues and those held by Government accounts and Federal Reserve banks. The table also shows the amount and proportion of eligible issues held by commercial banks at the end of the month preceding the refunding operation.

Bank response to the advance refundings was greatest in the first operation, conducted in June 1960. (This refunding is treated separately, because it was the first in the series and investor response may not have been typical.) In contrast, bank participation was minimal in the advance refundings involving

only longer term issues, namely, those of October 1960 and September 1961.

The First Advance Refunding. In the first operation in June 1960—a junior advance refunding—Treasury officials dealt with the largest single debt issue outstanding at that time in an effort to reduce the cumbersome amount that otherwise would have required refunding at maturity. Slightly over \$11 billion of 2½ percent bonds issued during World War II and due in November 1961 were outstanding, held mostly by the public. In turn, about half of the publicly-held volume was in commercial bank portfolios. Many institutional investors had retained these securities after the war, having been unwilling to take a capital loss by selling them in the market.

Legislation passed in September 1959, which permitted the Secretary of the Treasury to designate the exchange of one security for another as a nontaxable exchange, removed legal constraints that might have hindered advance refundings.⁵ The Treasury proceeded to offer, in exchange for the 2½ percent War bonds, both 3¾ percent four-year notes and 3⅞ percent eight-year bonds on a par-for-par basis. Holders who had purchased the

⁵ Title II of Public Law 86-346 states: "Generally this means that in the exchange the value of the existing security on the books of the investor becomes the book value of the new security. Therefore, the exchange causes no immediate tax consequences and investors are *not* required to take a loss for tax purposes merely because they exchanged. The gain or loss is deferred until the new security is redeemed (or disposed of prior to maturity). However, if a payment to the investor—other than an adjustment of *accrued interest*—is involved (which might be the case in some advance refundings), the book value of the new issue would *not* be the same as that of the existing issue and part or all of the payment becomes immediately taxable."

original bonds at par and elected not to participate in the advance refunding by exchanging for the $3\frac{3}{4}$ percent notes of May 1964 would have had to reinvest the maturing value for $2\frac{1}{2}$ years at about $4\frac{1}{2}$ percent in order to obtain the investment return equivalent to that offered. Holders who elected not to exchange for the $3\frac{7}{8}$ percent bonds of May 1968 would have had to reinvest at a rate of almost $4\frac{1}{4}$ percent for $6\frac{1}{2}$ years.

It was expected that this advance refunding would appeal to commercial banks. Credit conditions had become less restrictive in 1960. Government securities prices had stabilized after advancing sharply immediately following a change in the discount rate earlier, and the market for Treasury issues appeared favorable for the first advance refunding. In June, market yields on three- to five-year Treasury securities averaged 4.06 percent, so that the reinvestment equivalents offered in the refunding were fairly generous.

As expected, commercial bank participation was substantial. In fact, in terms of the proportion of total allotments, bank response has not been equaled since. Overall response was apparently less than anticipated by the Treasury—only 38 percent of the eligible issues were turned in—and so commercial bank allotments, which totaled \$2.7 billion, amounted to 64 percent of the total. Banks exchanged almost half of their eligible holdings. Of the two issues offered, commercial banks favored the shorter maturity, and were allotted 66 percent of the four-year notes issued. Of the longer issue, banks were allotted only \$100 million, or 32 percent of the total. In all but two of the subsequent advance refundings, commercial banks favored the shorter issues,

reflecting traditional investment policies.

The first advance refunding only increased the average maturity of the debt by less than a month. However, with the primary objective to alleviate future problems in refunding the large volume of bonds maturing in November 1961, the advance refunding was considered successful in that it reduced the amount outstanding from \$11 billion to about \$7 billion.

Senior Advance Refundings. In contrast to the first advance refunding, bank response was rather inconsequential in the senior advance refundings in the fall of 1960 and 1961 (chronologically, the second and fourth refundings). Bank participation was somewhat greater in the combined junior and senior operation in March 1962, although markedly less than in any of the pre-refundings, junior, or combined pre-refunding/junior operations.

In the advance refunding of October 1960, the Treasury undertook its first major step to lengthen the average maturity of the debt. Some of the remaining issues of $2\frac{1}{2}$ percent War bonds were chosen for refunding, with \$12.5 billion ranging in maturity from seven to nine years selected. In exchange, the Treasury offered several bond issues maturing in 20 to 38 years, all with $3\frac{1}{2}$ percent coupons. (See Table II.) In contrast to the previous advance refunding, commercial banks did not hold as many of the eligible issues (one-quarter of the outstanding issues, as compared with one-half). Mutual savings banks and insurance companies, combined, held more of the eligible issues than commercial banks, and the offering was designed to appeal to these long-term investors.

After the advance refunding in June 1960, the discount rate had been reduced again,

ECONOMIC REVIEW

to 3 percent in August of that year. At that time, the banking system appeared to be in a relatively comfortable position. Interest rates had declined throughout most of the early part of 1960, and the lowering of the discount rate in August did not produce an immediate downward adjustment in yields on Government securities.

In the October refunding, banks exchanged less than 10 percent of their eligible holdings. Of the \$4 billion in total allotments, commercial banks received only \$267 million, or 7 percent. Nevertheless, because overall investor response was much greater, the Treasury was able to shift \$4 billion into securities maturing beyond 15 years, and thus to increase the average maturity of the debt from four years and two months to four years and nine months.

General market stability prevailed prior to the other senior advance refunding, conducted in September 1961. The 2½ percent War bonds due in 1970 and 1971 were selected for this operation, and the Treasury reopened the same issues that were offered in the previous senior advance refunding, namely, the 3½ percent bonds with maturities of 1980, 1990, and 1998. This exchange required payments ("boot" payments) to adjust original prices to the value of the new offerings.⁶

This operation also was designed to appeal to long-term investors, particularly life insurance companies which owned about one-third of the eligible issues. Commercial banks held

only about \$600 million, the smallest amount of eligible issues held by banks in any of the 13 advance refundings in the 1960-66 period. A total of \$3.8 billion of the reopened 3½ percent bonds was issued, as all investors turned in about half of their holdings. Commercial bank allotments totaled only \$192 million, or 5 percent of total allotments, essentially the same as in the preceding senior operation.

In the first senior advance refunding, commercial banks held a substantial volume of eligible issues and elected not to exchange many of them. In the second senior refunding, commercial banks did not hold enough of the securities to permit any substantial exchanges. While prospective investors could purchase issues carrying rights, the amount of rights trading was small in both senior operations and also in the subsequent junior-senior advance refunding.⁷

In February 1962, with market conditions apparently favorable for both types of operation, the Treasury announced that a combination junior-senior advance refunding would be held in March. Markets for fixed income securities were relatively firm at that time; because of uncertainties about the outlook for business conditions, some investors were lengthening portfolios in the belief that interest rates might fall. Bank interest was not expected to be strong in this advance refunding of approximately \$18.7 billion of selected bond issues maturing between February and December 1972. Offered in exchange were

⁶ See definition of boot on page 7. For example, the exchange of 2½ percent bonds of March 15, 1965/70 required holders to pay \$2.25 per \$100 face value (or \$22.50 per bond) to the Treasury in exchange for the 3½ percent bonds of November 15, 1980.

⁷ See Thomas R. Beard, "U. S. Treasury Advance Refunding," June 1960-July 1964, Board of Governors of the Federal Reserve System, p. 28.

four issues of 3½ and 4 percent bonds maturing from 1971 through 1998.

Commercial banks held over \$7 billion of the eligible issues but turned in only about one-quarter of their holdings; bank allotments totaled \$1.9 billion, or 36 percent of the total. Commercial bank participation, again, was strongest in the shortest of the two bonds with the higher 4 percent coupon. (See Table II.) Banks were allotted 57 percent (or \$1.6 billion) of the 4 percent bonds due in 1971, about 20 percent of the 4 percent bonds due in 1980, and only 10 and 8 percent, respectively, of the 3½ percent issues. Overall, commercial banks turned in about the same percent of holdings as all investors. Apparently, strong market demand for rights had led some banks into relinquishing their rights issues. Moreover, the change in Regulation Q in January, which raised the ceiling on interest rates payable on time and savings deposits at commercial banks, had stimulated bank purchases of higher-yielding state and local government bonds which had higher after-tax yields.

Other Advance Refundings. In the nine additional advance refundings conducted between September 1962 and 1966, the Treasury shifted issues out from the under-one-year maturity range and from the one-to-five-year maturity range into longer maturities. Five of the operations combined pre-refundings and junior advance refundings.

The advance refundings between June 1960 and March 1962 (already described) occurred first within an economic environment of mild recession and then of emerging business expansion. During this period, monetary policy was attempting to stimulate the economy

and accommodate the upswing in business activity. Throughout the period covering the later advance refundings, the economic environment ranged from a leveling-off in business activity in 1962 to rapid expansion in 1965-66. Within this period, financial markets gradually moved from a phase in which the overall supply of investable funds exceeded demands to one in which demands outpaced supply. Interest rate movements, of course, reflected these changes in supply-demand relationships in flows of funds.

Thus, the Treasury's advance refundings were carried out under widely-different market conditions. Bank participation also was influenced by substantial changes in the demand for bank credit. The rate of expansion in bank loans began to increase in 1963 and climbed sharply in 1965-66. At the same time, major changes in the composition of bank deposits prompted banks to seek out higher-yielding loans and investments. Against this background, bank participation in the advance refundings during the period from September 1962 through August 1966 showed no apparent consistent pattern. In those refundings, the Treasury replaced in advance \$56.1 billion of securities, with about \$31 billion of total allotments going to commercial banks. (For details of each refunding, see Table II.)

The total amount of securities exchanged through the advance refunding technique since its inception in 1960 has been over \$79 billion; of the total, commercial bank allotments amounted to \$39 billion, or 49 percent. In general, bank participation was substantial in each of the advance refundings with the

TABLE II
Commercial Bank Participation in Advance Refundings
(millions of dollars)

<u>Month of Advance Refunding</u>	<u>Type</u>	<u>Maturity Area of Eligible Securities</u>	<u>Maturity Area of Securities Issued</u>	<u>Total Eligible Issues Outstanding</u>	<u>Commercial Bank Holdings</u>
June 1960	Junior	1-5 years	1-5, 5-10 years	\$ 11,177	\$ 5,535
September 1962	Pre-refunding	0-1	1-5, 5-10	26,819	9,610
August 1966	Pre-refunding	0-1	1-5	5,757	2,705
July 1964	Junior and Pre-refunding	0-1, 1-5	5-10, 20+	41,746	13,150
January 1965	Junior and Pre-refunding	0-1, 1-5	5-10, 20+	33,077	10,743
March 1961	Junior	1-5	5-10	19,437	10,699
March 1963	Junior and Pre-refunding	0-1, 1-5	1-5, 5-10, 10-15, 15-20	29,046	10,454
September 1963	Junior and Pre-refunding	0-1, 1-5	5-10, 20+	32,139	12,561
January 1964	Junior and Pre-refunding	0-1, 1-5	5-10, 20+	24,723	6,429
February 1966	Pre-refunding	0-1	1-5	23,291	4,884
March 1962	Junior and Senior	1-5, 5-10	5-10, 15-20, 20+	18,740	7,327
October 1960	Senior	5-10	20+	12,472	3,097
September 1961	Senior	5-10	15-20, 20+	7,615	594
GRAND TOTALS:				\$286,039	\$97,788

Commercial Bank Holdings as Percent of Total	Securities Issued	Total Allotments	Commercial Bank Allotments	Commercial Bank Allotments as Percent of Total
49.5%	3¾% Notes 5-15-64	\$ 3,893	\$ 2,582	66.3%
	3⅞ Bonds 5-15-68	320	102	31.9
		\$ 4,213	\$ 2,684	63.7%
35.8	3¾ Notes 8-15-67	\$ 5,282	\$ 3,585	67.9%
	4 Bonds 8-15-72	2,579	1,146	44.4
		\$ 7,861	\$ 4,731	60.2%
47.0	5¼ Notes 5-15-71	\$ 1,686	\$ 1,000 ^e	60.0% ^e
31.5	4 Bonds 10-1-69	\$ 3,726	\$ 2,392	64.2%
	4⅞ Bonds 11-15-73	4,357	2,582	59.3
	4¼ Bonds 8-15-87/92	1,198	527	44.0
		\$ 9,281	\$ 5,501	59.3%
32.5	4 Bonds 2-15-70	\$ 4,381	\$ 2,883	65.8%
	4⅞ Bonds 2-15-74	3,130	1,792	57.3
	4¼ Bonds 8-15-87/92	2,254	975	43.3
		\$ 9,765	\$ 5,650	57.8%
55.0	3⅞ Bonds 11-15-66	\$ 2,438	\$ 1,714	70.3%
	3⅞ Bonds 11-15-67	3,604	1,664	46.2
		\$ 6,042	\$ 3,378	55.9%
36.0	3⅞ Notes 2-15-67	\$ 4,287	\$ 2,711	63.2%
	3⅞ Bonds 11-15-71	1,515	923	60.9
	3⅞ Bonds 11-15-74	1,074	491	45.7
	4 Bonds 2-15-80	1,131	278	24.6
		\$ 8,007	\$ 4,403	55.0%
39.1	3⅞ Bonds 11-15-68	\$ 1,591	\$ 989	62.2%
	4 Bonds 8-15-73	3,894	1,998	51.3
	4⅞ Bonds 5-15-94	1,260	378	30.0
		\$ 6,745	\$ 3,365	49.9%
26.0	4 Bonds 8-15-70	\$ 2,223	\$ 1,230	55.3%
	4¼ Bonds 5-15-85	748	212	28.3
		\$ 2,971	\$ 1,442	48.5%
21.0	4⅞ Notes 8-15-67	\$ 2,117	\$ 524	24.8%
	5 Notes 11-15-70	7,681	3,919	51.0
		\$ 9,798	\$ 4,443	45.3%
39.1	4 Bonds 8-15-71	\$ 2,806	\$ 1,591	56.7%
	4 Bonds 2-15-80	563	116	20.6
	3½ Bonds 2-15-90	900	94	10.4
	3½ Bonds 11-15-98	933	77	8.2
		\$ 5,202	\$ 1,878	36.1%
24.8	3½ Bonds 11-15-80	\$ 643	\$ 96	14.9%
	3½ Bonds 2-15-90	993	54	5.4
	3½ Bonds 11-15-98	2,343	117	5.0
		\$ 3,979	\$ 267	6.7%
7.8	3½ Bonds 11-15-80	\$ 1,273	\$ 61	4.8%
	3½ Bonds 2-15-90	1,298	81	6.2
	3½ Bonds 11-15-98	1,187	50	4.2
		\$ 3,758	\$ 192	5.1%
34.2%		\$79,308	\$39,034	49.2%

ECONOMIC REVIEW

exception of the operations in which securities eligible for exchange had remaining maturities of over five years. In almost all cases, banks preferred the shortest issues offered in the refundings, and their participation diminished with the increase in the maturity length of the issues offered.

RECENT CHANGES IN THE PUBLIC DEBT

While it is not the purpose of this article to evaluate advance refunding as a technique of debt management, it is relevant to compare various characteristics of the marketable public debt at the end of 1959 with the debt in 1966, after 13 advance refundings. From the end of 1959 through August 1966, the dollar volume of publicly-held, marketable Government securities increased by \$23 billion to a level of \$211.4 billion. Of the total increase, \$13.7 billion, or nearly three-fifths, represented debt maturing within one year. In contrast, only \$1 billion was in issues due within one to five years. In relative terms, the less-than-one-year segment represented 43.6 percent of the total marketable debt on August 31, 1966, considerably less than the 47.1 percent at the end of 1959. In August, the debt maturing in five years or less accounted for about 73 percent of the total, down substantially from 82 percent at the end of 1959 (see Table III).

Some of the dollar increase in short-term debt in the past six years reflected the passage of time. For example, in both 1961 and 1962 about \$20 billion moved into the shortest maturity range. Moreover, partly for balance of payments reasons, the debt managers had substantially increased the supply of Treasury bills during 1960-64, further adding to

the growth of short-term debt. The fact that, over the period, the volume of short-term debt increased by less than \$14 billion, on balance, is one indication of the effectiveness of advance refundings. The rise in short maturities would have been even greater if securities had not been removed from this area in pre-refunding operations.

Advance refundings also were responsible for the limited increase in the dollar volume of one-to-five-year issues between 1959 and August 1966. In many of the advance refundings, the Treasury removed debt from this maturity range, thus reducing the net increase in such issues.

On the other hand, as a proportion of the total marketable debt, securities due within five to ten years rose from 13.5 percent at the end of 1959 to 14.6 percent in August (after amounting to as much as 17 percent at the end of both 1963 and 1964). Even more strikingly, the proportion of debt maturing within 10 to 20 years increased by 3 percentage points, while the share of very long-term debt (due in more than 20 years) jumped by 4½ percentage points. It should be noted that long-term bonds were offered in most of the advance refundings between 1960 and 1965.

As this article has suggested, bank participation in the advance refunding operations contributed importantly to their success. The Treasury's use of the new debt management technique coincided with a period of exceptional change in commercial banking. Among the major developments affecting banking in the past six years were: the public's increased preference for interest-earning assets as opposed to non-earning demand deposits; bank

TABLE III
Maturity Distribution and Ownership of the
Interest-Bearing Marketable Public Debt*

December 31		Total (billions of dollars)	Percent of Total					
			Under one year	1-5 years	5-10 years	10-15 years	15-20 years	Over 20 years
1959	Total Outstanding	\$188.3	47.1%	34.7%	13.5%	0.3%	0.9%	3.5%
1962		203.0	43.0	30.4	16.7	0.6	1.7	7.6
1964		212.5	41.6	30.2	17.1	-0-	2.9	8.2
1966 (August 31)		211.4	43.6	29.8	14.6	2.1	1.9	8.0
	<u>Investor Group</u>	<u>Percent of Total Debt</u>	<u>Percent of Group Total</u>					
1959	Commercial Banks	27.5%	31.4%	54.1%	13.5%	0.1%	0.1%	0.8%
1962		28.6	34.3	45.3	19.3	0.2	0.2	0.7
1964		25.3	34.4	43.8	20.5	-0-	0.4	0.9
1966 (August 31)		21.3	31.1	44.2	22.7	0.4	0.5	1.1
1959	Mutual Savings Banks	3.3	11.0	52.5	25.5	1.9	1.1	8.0
1962		2.8	10.5	22.8	38.6	1.8	3.5	22.8
1964		2.5	11.1	27.8	33.3	-0-	3.7	24.1
1966 (August 31)		2.3	13.9	30.3	27.8	3.8	2.4	21.8
1959	Life Insurance Companies	2.5	9.1	30.9	41.4	0.5	1.8	16.3
1962		2.4	6.2	8.3	18.8	-0-	10.4	56.3
1964		2.2	2.2	8.7	17.4	-0-	15.2	56.5
1966 (August 31)		1.9	2.2	9.1	11.7	13.8	8.1	55.1
1959	U. S. Government and Federal Reserve Banks	18.1	61.5	26.0	10.2	0.3	0.4	1.6
1962		20.0	47.6	30.4	11.8	1.0	2.5	6.7
1964		23.2	47.0	32.5	10.0	-0-	3.2	7.3
1966 (August 31)		26.7	51.5	31.0	6.9	2.6	1.4	6.6
1959	All Other Investors	48.6	55.0	26.0	12.6	0.4	1.3	4.7
1962		46.2	50.2	22.7	15.9	0.6	1.7	8.9
1964		46.8	46.4	22.7	18.0	-0-	3.4	9.5
1966 (August 31)		47.8	47.9	23.5	14.7	2.1	2.4	9.4

*Prior to 1960, issues classified when due or first becoming callable; after 1960, classified by final maturity.

Source: U. S. Treasury Department

ECONOMIC REVIEW

efforts to tap new sources of funds through the issuance of time certificates of deposit, among other innovations; and intensified competition for savings among financial institutions. These developments have had important effects on bank portfolio management. For example, large inflows of savings-type funds enabled banks to invest for a longer term. At the same time, the increase in interest-earning deposits, as well as increased rates paid on such deposits, pushed up bank costs, which encouraged banks to move investable funds into assets yielding high returns. For these reasons, and despite some sacrifice of liquidity, banks have tended to lengthen Government securities portfolios in recent years.

Within the past six years, commercial banks first increased holdings of Government securities during the 1960-61 recession, and then steadily reduced holdings in the subsequent economic expansion. Until recently, net sales of Treasury issues were accompanied by shifts of funds into other assets such as state and local government securities—which often carried higher after-tax yields than those on Treasury issues. On balance, including the intervening increase, commercial bank holdings of U. S. Government obligations declined from \$60 billion at the end of 1959 to \$54 billion on August 31, 1966. Virtually all of the decline reflected a substantial reduction in holdings of issues in the one-to-five-year maturity range. As a result of these portfolio changes, commercial banks held only 21 percent of the marketable public debt at the end of August 1966, in contrast to nearly 28 percent at the end of 1959. The decline in the commercial banking system's proportion of

the marketable public debt was shared, on a much smaller scale, by mutual savings banks, life insurance companies, and all other investors. The declines were offset by a large increase in the percent of the debt held by U. S. Government agencies and trust funds and the Federal Reserve banks. Thus, slightly less than three-fourths of the marketable debt was held by the public on August 31, 1966, and only half of the debt was in the hands of the non-bank public. (See Table III.)

The effects of the advance refundings, in combination with recent changes in investment goals at most financial institutions, are apparent from the maturity distributions of the investor groups shown in Table III. The proportion of securities held by commercial banks in the one-to-five-year maturity range declined appreciably, while the proportion of securities due to mature in more than five years increased markedly. Mutual savings banks, like commercial banks, shifted U. S. Government investments from the intermediate area into longer term holdings. Particularly noteworthy is the nearly three-fold gain in the proportion of their holdings due in more than 20 years. Similar investment shifts also occurred at life insurance companies, and to a lesser extent, in the holdings of "all other investors."

CONCLUDING COMMENTS

The advance refunding method has apparently been successful in making progress toward a more balanced maturity structure of the marketable public debt and a better distribution of holdings among long-term holders. Perhaps the greatest contribution of the technique has been in restructuring the

marketable debt, as evidenced by the relative decline in the proportion of the total debt maturing in less than five years, matched by the relative increase in the proportion of longer term securities. While not all of the improvement has been the direct result of the advance refunding technique, the effect has nevertheless been important. Throughout the period under review, commercial banks played a major role in Treasury operations to

refund debt obligations prior to maturity.

Each time debt extension is accomplished, future debt management operations become more flexible. While all the objectives of debt management are not easily reconcilable, it is evident that a more balanced maturity structure of the debt, as well as a better ownership distribution, can be obtained through utilization of the advance refunding method.



POPULATION AND BANKING CHANGES IN THE FOURTH DISTRICT, 1954-65

Two earlier articles in the *Economic Review* traced changes in the number of banks, branches, and banking offices in the Fourth District during 1954-65 and compared such changes with the distribution of deposits at commercial banks in the District. This article is concerned with the relationship of population changes in the Fourth District during 1954-65 to changes in the number and type of banking facilities and the distribution of deposits in the District.

POPULATION AND BANKING STRUCTURE (BY COUNTY)

Although there is no precise relationship between changes in population and changes in the number of banks and banking offices, the evidence is sufficient that population and banking facilities tend to move together, that is, more people, more banking facilities. Such a relationship is not surprising in that commercial banking is a service industry, and the number of banking facilities available to the public generally would be expected to follow population changes. An increased number of banking facilities does not necessarily mean that there will be more *banks* to meet the needs of the population; rather, that there will be more *banking offices*.

In an earlier article, it was shown that, during 1954-65, the number of banks in the Fourth District declined from 1,035 to 843—an 18.6-percent decline—while the number of banking offices soared from 1,545 to 2,317—a 50-percent increase. As Table I shows, this pattern was by and large the same throughout the areas of the four states that lie wholly or partially within the Fourth District, with the exception of West Virginia. The latter is the only state in the District that has unit banking, and was the only state to have equivalent declines in total banks and total banking offices during 1954-65 (no branches are allowed under State law in West Virginia).

As Table I also shows, the areas with the largest percentage increases in the number of banking offices had the largest percentage increases in population. Thus, Pennsylvania, with an increase of 59 percent in the number of banking offices, had a population increase of 8.2 percent; and Ohio, with an increase in total banking offices of 52 percent, had a population increase of 19.6 percent. On the other hand, Kentucky, with a 31-percent increase in total banking offices had the lowest population gain (0.2 percent), and West Virginia, with a net decline in total banking

TABLE I
Changes in Population, Number of Banks,
and Banking Offices, Fourth District
1954-65

	<u>Number of Banks</u>	<u>Percent Change</u>	<u>Number of Banking Offices</u>	<u>Percent Change</u>	<u>Population</u>	<u>Percent Change</u>
Fourth District						
1954	1,035	-18.6%	1,545	+50.0%	13,672.8	+14.6%
1965	843		2,317		15,666.1	
Ohio (88 counties)						
1954	637	-15.0	982	+52.0	8,586.8	+19.6
1965	542		1,487		10,269.4	
Pennsylvania (10 districts)						
1954	212	-40.0	366	+59.0	3,569.6	+ 8.2
1965	128		583		3,863.8	
Kentucky (56 counties)						
1954	161	- 8.0	172	+31.0	1,323.6	+ 0.2
1965	149		223		1,325.7	
West Virginia (6 counties)						
1954	25	- 4.0	25	- 4.0	192.8	+ 7.5
1965	24		24		207.2	

Sources: Sales Management, *Survey of Buying Power*, May 10, 1955 and June 10, 1966 and Federal Reserve Bank of Cleveland

offices of 4 percent, had an increase in population of 7.5 percent.¹

Changes in the Number of Banks and Population. Within the District, a comparison of changes in the number of banks with changes in population shows that the two do not tend to move closely together (see Table II). In Ohio, 74 of the 80 counties that experienced an increase in population during 1954-65 showed either a decline or no change in the number of banks. In six counties, both the number of banks and population rose, while in eight counties where population declined,

¹ The six counties of West Virginia included within the Fourth District are not necessarily representative of the state's economy since they include the industrial centers of Wheeling and Weirton. Economic and demographic changes in the six-county area were somewhat different from state patterns during 1954-65.

the number of banks remained unchanged (7), or fell (1). It may be noted that these eight counties are all located in the "Appalachian" region of southeastern and southern Ohio, an area that has had little, if any, economic growth in recent years.

In Pennsylvania the situation was mixed, with five of the ten districts² experiencing

² Because Pennsylvania state law permits branch banking in contiguous counties, the 19 counties of western Pennsylvania lying within the Fourth District are lumped into ten districts in order to better measure changes in banking structure. The ten districts and the counties included are (1) Erie; (2) Venango, Mercer, Clarion, Crawford; (3) Warren; (4) Forest; (5) Jefferson; (6) Lawrence; (7) Indiana; (8) Allegheny, Armstrong, Butler, Beaver, Washington, and Westmoreland; (9) Greene, Fayette; (10) Somerset. While not a "perfect" redistricting, such a procedure more closely approximates the realities of the situation than do county boundaries.

ECONOMIC REVIEW

TABLE II
Changes in Number of Banks Compared
With Changes in Population, Fourth District
1954-65

	<u>Both Up</u>	<u>Both Down</u>	<u>Banks Up Population Down</u>	<u>Banks Down Population Up</u>	<u>Banks No Change Population Up</u>	<u>Banks No Change Population Down</u>
OHIO (88 counties)	6	1	-0-	39	35	7
KENTUCKY (56 counties)	-0-	3	2	7	13	31
PENNSYLVANIA (10 districts)	-0-	2	1	5	-0-	2
WEST VIRGINIA (6 counties)	1	1	-0-	1	3	-0-

Sources: Sales Management, *Survey of Buying Power*, May 10, 1955 and June 10, 1966 and Federal Reserve Bank of Cleveland

declines in the number of banks while population was increasing, and four districts showing no change or declines in the number of banks while population was declining. In the counties of West Virginia lying within the Fourth District, the experience was essentially similar to that of Ohio and Pennsylvania. In marked contrast, the portion of Kentucky lying within the Fourth District experienced a different pattern of population and bank changes during the 1954-65 period, centered largely on population developments. Thus, while 20 of the 56 counties in Fourth District Kentucky registered population growth and either reduction or no change in the number of banks, 36 counties experienced declines in population and either declines or no change in the number of banks.

Changes in the Number of Banking Offices and Population. When changes in the number of banking offices are compared with changes in population, the results are quite different, as suggested earlier. For example, 66 of Ohio's 88 counties had an increase in both banking offices and population during

1954-65 (see Table III). In 12 of the counties population grew but the number of banking offices did not change. In eight counties, decreases in population were associated with mixed patterns (no change or increase) in the number of banking offices. Generally, the same pattern prevailed for the counties within the Fourth District portions of Pennsylvania and West Virginia during 1954-65. Again, however, the situation was different in Kentucky. There were only 19 counties in Kentucky in which the number of banking offices either remained unchanged or increased while population was increasing. In ten counties, the number of banking offices increased while population was declining; in 25 counties, banking offices remained unchanged while population was declining. In seven counties the number of banking offices did not change while population was increasing.

Thus, as a general matter, in most counties of the Fourth District there were considerably more banking offices at the end of 1965 than in 1954, even though the number of banks fell materially. The increase in the number of

TABLE III
Changes in the Number of Banking Offices Compared
With Changes in Population, Fourth District
1954-65

	Both Up	Both Down	Banking Offices Up Population Down	Banking Offices Down Population Up	Banking Offices No Change Population Up	Banking Offices No Change Population Down
OHIO (88 counties)	66	-0-	4	2	12	4
KENTUCKY (56 counties)	12	1	10	1	7	25
PENNSYLVANIA (10 districts)	4	1	3	1	-0-	1
WEST VIRGINIA (6 counties)	1	1	-0-	1	3	-0-

Sources: Sales Management, *Survey of Buying Power*, May 10, 1955 and June 10, 1966 and Federal Reserve Bank of Cleveland

banking offices tended only to be generally associated with changes in population, with the relationship closest in Ohio (where 66 out of 88 counties experienced increases in both population and banking offices).

**POPULATION AND BANKING
STRUCTURE (BY SMSA)**

It would be expected that, since changes in banking facilities are closely related to changes in population in subareas and counties of the Fourth District, a similar pattern would appear in the SMSA's of the District. In fact, the data show an even stronger correlation between population growth and increases in banking facilities in the 19 SMSA's of the District than that for the subareas and counties of the District.³

As shown in Table IV, population increased in every SMSA of the Fourth District during

TABLE IV
Percentage Changes in Population,
Number of Banks,
and Number of Banking Offices in
SMSA's, Fourth District
1954-65

	Population	Banks	Banking Offices
Akron	+24.6%	-31.3%	+103.7%
Canton	+16.1	-25.0	+ 53.6
Cincinnati	+22.0	-23.2	+ 27.3
Cleveland	+23.6	- 4.2	+ 91.7
Columbus	+32.1	-32.3	+ 91.7
Dayton	+29.4	-20.0	+ 58.8
Erie	+15.9	-35.7	+ 73.9
Hamilton-Middletown	+32.4	-20.0	+ 47.1
Huntington-Ashland	+ 9.7	no change	+120.0
Johnstown	- 7.0	-31.3	+ 12.5
Lexington	+33.6	-16.7	+150.0
Lima	+13.8	no change	+100.0
Lorain-Elyria	+44.3	-41.7	+123.5
Pittsburgh	+ 7.6	-48.3	+ 69.7
Springfield	+13.8	-16.7	+100.0
Steubenville-Weirton	+11.4	-10.5	+ 28.6
Toledo	+13.7	-22.7	+ 77.5
Wheeling	+ 0.2	-19.2	no change
Youngstown-Warren	+20.5	- 6.7	+ 80.0

Sources: Sales Management, *Survey of Buying Power*, May 10, 1955 and June 10, 1966 and Federal Reserve Bank of Cleveland

³ During the first half of 1966, Richland County, Ohio, was designated a Standard Metropolitan Statistical Area, increasing the number of SMSA's in the Fourth District to 20. Population and banking structure changes in Richland County are not included in this article.

TABLE V
Population Per Bank and Per Banking Office
in SMSA's, Fourth District
1954 and 1965

	Population Per Bank (thousands)	Population Per Banking Office (thousands)
AKRON		
1954	32.5	19.3
1965	58.9	11.8
CANTON		
1954	15.5	11.0
1965	23.9	8.4
CINCINNATI		
1954	19.3	8.4
1965	30.7	8.1
CLEVELAND		
1954	69.7	12.7
1965	89.9	8.2
COLUMBUS		
1954	19.9	12.9
1965	38.9	8.9
DAYTON		
1954	17.3	11.9
1965	28.0	9.7
ERIE		
1954	16.7	10.1
1965	30.1	6.8
HAMILTON-MIDDLETOWN		
1954	16.3	9.6
1965	26.9	8.6
HUNTINGTON-ASHLAND		
1954	20.4	20.4
1965	22.4	10.2
JOHNSTOWN		
1954	5.1	5.1
1965	6.9	4.1
LEXINGTON		
1954	17.8	13.3
1965	28.5	7.1
LIMA		
1954	13.8	10.7
1965	15.7	6.1
LORAIN-ELYRIA		
1954	13.6	9.6
1965	33.7	6.2
PITTSBURGH		
1954	26.0	11.3
1965	54.1	7.1
SPRINGFIELD		
1954	20.2	13.4
1965	27.6	7.7
STUEBENVILLE-WEIRTON		
1954	8.3	7.5
1965	10.4	6.5
TOLEDO		
1954	22.3	12.2
1965	32.8	7.8
WHEELING		
1954	7.4	7.1
1965	9.2	7.1
YOUNGSTOWN-WARREN		
1954	29.9	15.0
1965	38.6	10.0

1954-65 with the exception of Johnstown, Pennsylvania, which lies partly within the District. At the same time, nearly all SMSA's showed a decline in the number of banks (except Huntington-Ashland and Lima, which showed no change). On the other hand, the number of banking facilities increased considerably in 18 of the 19 SMSA's, with the remaining SMSA (Wheeling) showing no change, for reasons cited earlier.

Thus, in the metropolitan centers of the District the growth of banking offices and the growth of population are closely related, while population changes and changes in the number of banks have a high inverse relationship. Accordingly, with the number of banking offices increasing faster than population in virtually every one of the 19 metropolitan centers, residents of those areas have more banking facilities available even though there are fewer banks in the metropolitan centers. The fact that there are less banks but more banking offices does not necessarily mean there is more banking competition in the individual SMSA's than previously, or that a wider variety of services is available to the public.

The increased availability of banking facilities in SMSA's of the Fourth District can also be seen by relating population to the number of banks and the number of banking offices (see Table V). In the case of number of banks, the experience is the same for all 19 SMSA's of the Fourth District: in each SMSA the number of people being served by each bank has risen, and in some cases markedly. For example, at the extreme, in Columbus, Lorain-Elyria, and Pittsburgh, the number of people served by each bank has doubled or more than doubled. On the other hand, only four

SMSA's experienced a relative small increase in the number of persons served per bank—Huntington-Ashland, Johnstown, Lima, and Wheeling.

The number of people served by each banking office reveals a markedly different trend over the period 1954-65. Through the extensive establishment of bank branches throughout the Fourth District, with the exception of West Virginia, the number of banking offices has risen to the extent that the number of

people being served by each banking office in the metropolitan centers has fallen in 18 of the 19 SMSA's. Indeed, in a number of cases about half as many people were being served by each banking office in 1965 as in 1954: Huntington-Ashland, Lexington, and Springfield. The only SMSA that did not experience a decline in the number of people served at each banking office during 1954-65 was Wheeling, and in that case, the number was actually unchanged.



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