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INVENTORIES IN PERSPECTIVE

THE BEHAVIOR of inventories held by business firms corresponds closely with movements in economic activity. For example, during the recessions of both 1953-1954 and 1957-1958, a major portion of the decline that occurred in the Gross National Product was explained by a reduction in the level of business inventories. In the 1960-1961 recession, the small decline in GNP was accompanied by an even larger net decline in business inventories. On the other hand, during the early stages of economic recovery, increases in the level of business inventories usually have provided impetus to the thrust of the economy.

A review of the business inventory situation is appropriate at this time, not only because inventories will be a principal factor in near-term performance of business activity, but also because the economy has now completed three years of expansion, and after so long a period of continued expansion, important changes could be emerging in the area of business inventories.

This article examines specifically the inventories held by manufacturers of durable goods and the behavior patterns that might be expected. The durable goods segment of total business inventories has been selected because it is the volatile portion of the total, accounting for virtually all of the cyclical movement in the total business inventory series. Briefly stated, the evidence presented here suggests that inventory accumulation will continue in the near term, and that this will occur at a reasonably moderate pace.

SURVEY OF EXPECTATIONS

According to a survey conducted late last year, inventory expectations of durable goods manufacturers suggest a moderate rate of accumulation during early 1964.[1] The table shows both anticipated and actual changes in

[1] The survey is conducted quarterly by the U. S. Department of Commerce, and is based on a sample of nearly 1,400 manufacturing corporations whose inventories account for 55 percent of manufacturers' inventories of durable goods.

inventories of durable goods for the relatively short time period that this type of information has been published. Unfortunately, data are not available to cover the duration of a complete business cycle. Moreover, it is not possible to analyze anticipated and actual changes in inventories of durable goods during a complete period of economic expansion. Nevertheless, the information available indicates that the survey results have a reasonably accurate record of pointing to the direction of period-to-period inventory changes, as well as providing a reasonably accurate estimate of the magnitude of inventory accumulation.

STAGE OF FABRICATION GIVES CLUES

Another indication of inventory performance is found in the changes in inventories of durable goods manufacturers grouped by stage of fabrication (see Chart I). The stages are: (1) materials and supplies; (2) goods-in-process; and (3) finished goods.

Inventories of *materials and supplies* declined moderately through December, after reaching their 1963 high in August. On the other hand, inventories of *goods-in-process* moved to new high ground in December. The nature of the recent performance of these two groupings of inventories, taken together, implies a reasonably moderate inventory policy of manufacturers of durable goods during early 1964.

Contrary to a widely held view, the liquidation of steel inventories during the late summer and fall of 1963 was not solely responsible for the reduction in inventories of materials and supplies held by durable good

ANTICIPATED AND ACTUAL NET CHANGES IN INVENTORIES OF DURABLE GOODS MANUFACTURERS, SEASONALLY ADJUSTED (Billions of Dollars)

Six-Month Periods		Anticipated Change[a]	Actual Change[b]
June 30, 1961	December 31, 1961	+$1.7	+$1.2
September 30, 1961	March 31, 1962	+ 1.2	+ 1.6
December 31, 1961	June 30, 1962	+ 1.5	+ 1.2
March 31, 1962	September 30, 1962	+ 0.4	+ 0.7
June 30, 1962	December 31, 1962	+ 0.5	+ 0.5
September 30, 1962	March 31, 1963	+ 0.5	+ 0.5
December 31, 1962	June 30, 1963	+ 1.4	+ 0.9
March 31, 1963	September 30, 1963	+ 1.2	+ 0.9
June 30, 1963	December 31, 1963	+ 0.9	+ 0.8
September 30, 1963	March 31, 1964	+ 0.6	

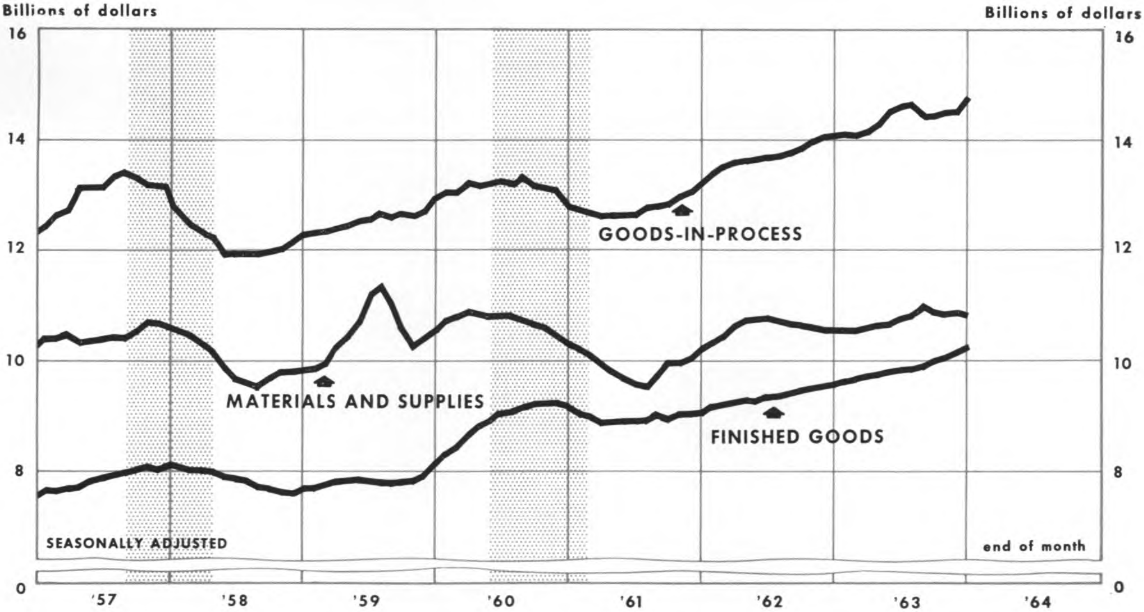
[a] Based on change from reported level of inventories at time of anticipation survey.

[b] Based on revised data, as reported by Bureau of Census.

Source: U. S. Department of Commerce

1

The recent inventory performance of durable goods manufacturers grouped by stage of fabrication indicates a moderate rate of accumulation during the fourth quarter of 1963.



Source of data: U.S. Department of Commerce

producers after August. There were also reductions in other types of inventories held by durable goods producers.[2] Because the decline in inventories of raw materials has been broadly based, the current build-up in steel inventories may not be sufficient to offset the general decline in inventories of materials and supplies.

Inventories of *finished goods* held by durable goods producers rose faster from July to December 1963 than during any comparable period of the current business expansion. The strong advance of this grouping of inventories was primarily responsible for the net rise in total inventories held by producers of durable goods.

The near-term significance of the rise in finished stocks for inventory policy is not clear. It should be pointed out, however, that in the past producers of durable goods have not reduced stocks of finished goods until the demand for such goods has declined for an extended period. For example, stocks of finished goods continued to rise for two-thirds of the duration of the 1960-1961 recession, and for about one-half of the duration of

[2] Raw materials inventories held by primary metals producers, which includes raw materials inventories held by the steel industry, advanced from $2,200 million in August 1963 to $2,230 million in December, seasonally adjusted. All other industry groupings of raw materials inventories held by durable goods producers showed declines during the interval.

the recessions of 1953-1954 and 1957-1958. Thus far in this recovery, no such decline has begun.

OTHER SOUNDINGS

There are three other soundings of the behavior of inventories of durable goods that are used widely. These include: (1) the ratio of inventories to shipments of producers to durable goods; (2) the ratio of new orders to shipments; and (3) industrial prices.

The *inventory-shipments* ratio (the top panel of Chart 2) reached a four-year low in July 1963. The recent small rise in the ratio is not significant, and it would seem that current levels of stocks are not burdensome and that inventories have sufficient room to rise before manufacturers become concerned. Although this particular ratio is followed closely by many observers, it is unstable, and a drop in sales can quickly reverse a reassuring ratio. During the postwar period there has been a downtrend in the ratio, reflecting the increased effectiveness of methods of inventory control by business firms.

The *new order-shipments* ratio also points toward a period of continued mild expansion in inventories of durable goods producers (bottom panel of Chart 2). Manufacturers need to anticipate demand in order to maintain an adequate level of inventories. The ratio of new orders to shipments of durable goods manufacturers is helpful in this respect. When monthly orders continually run less than shipments, i.e., the ratio drops below 1.00, it is a signal to manufacturers that incoming business is less than outgoing deliveries. Manufacturers may then prepare to pare inventories. Conversely, a rise in orders relative to shipments serves as an incentive to increase output and ultimately to increase inventories.

In the latter half of 1963, the ratio of new orders to shipments bobbed around the parity mark. Although orders were lower than shipments in four of the six months from July through December, the ratio was only slightly below parity.

The recent tendency of the ratio to remain near parity may conceal certain factors that actually suggest strength in the series. For example, the swell of durable goods orders in the early part of 1963, which was associated with the threat of a steel strike, probably included orders that would have been placed later in the year.

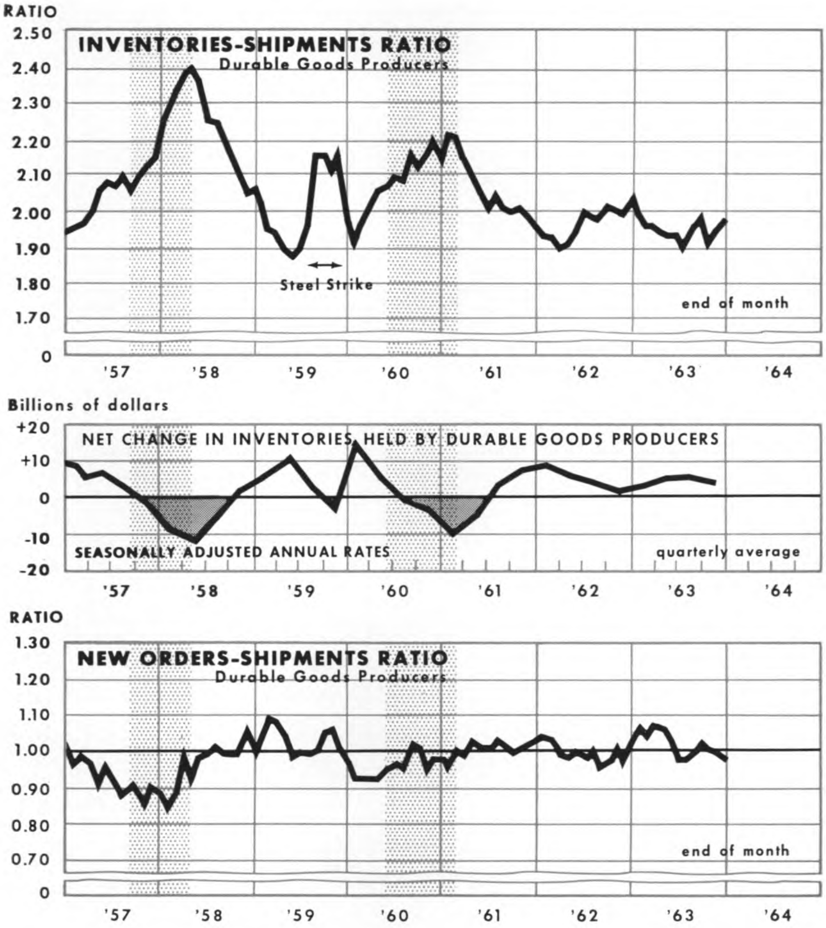
Prices represent another factor that has a bearing on the performance of inventories held by durable goods manufacturers. Industrial prices have usually moved upward during the later phases of business expansions. In marked contrast, the current expansion in business activity has been characterized by stability in the industrial price level. This steadiness, particularly during the past year, has probably acted as a restraint to acquisitions of additional inventories by producers of durable goods.

If current price stability were to give way to an upsurge in prices, this could provide a strong stimulus to inventory accumulation.

2

Although the current value of the inventory-shipments ratio indicates that durable goods producers' stocks are comparatively low, care should be taken in interpreting this series.

The new order-shipments ratio points toward a period of continued mild expansion in inventories of durable goods producers.



Source of data: U.S. Department of Commerce

EXTERNAL FINANCING BY FOURTH DISTRICT INDUSTRIES, 1953-1963

INDUSTRIAL activity in the Fourth Federal Reserve District ranges from the production of chemicals and paint to that of machine tools and fabricated steel products. In an effort to learn more about an important aspect of this activity, the Research Department of the Federal Reserve Bank of Cleveland recently conducted a study of large offerings of new securities by companies that maintain their principal offices in the Fourth District.[1] The study was designed to provide information on the industries that issued new securities from 1953 through mid-1963 and to determine the volume of securities issued. (See Chart 1.) In addition, the study was intended to provide information on the type of securities issued, method of issue, quality, and yield.

Data were obtained from the Securities and Exchange Commission (SEC), through the Board of Governors of the Federal Reserve System, in the form of individual listings for all large public offerings registered with the SEC and for private placements that are not subject to registration but were reported.

SUMMARY OF FINDINGS

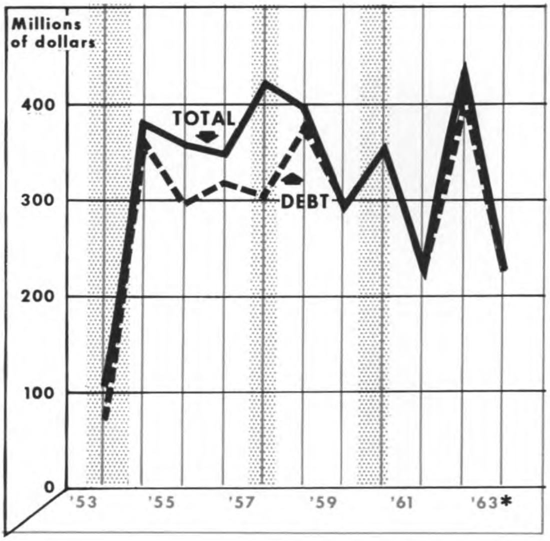
The principal findings of the study indicate that nearly 6 percent of total net proceeds from all large offerings reported by the SEC from 1953 through the first half of 1963 was received by firms with principal offices in the

[1] Based on the volume of net sales in 1962, sixty-three of the nation's 500 largest industrial firms maintain their principal offices in the Fourth District.

Large security offerings include public offerings with gross proceeds of $15 million or more and private placements with net proceeds of $14.5 million or more.

1

NET PROCEEDS FROM LARGE ISSUES OF SECURITIES BY FOURTH DISTRICT CORPORATIONS



* 1963 total estimated

Source of data: Securities and Exchange Commission

Fourth District (see Table I).[2] The proportion was no doubt higher in specific industries such as primary metals, rubber, and glass. Public utilities and producers of primary metals accounted for more than 60 percent of total issues by District firms during the 1953-63 period.

The study also indicates that over 90 percent of the dollar volume of securities issued by District companies during the 1953-1963 period were debt securities, with debentures (unsecured bonds) accounting for the largest share.

Fourth District firms have also used the private placement method of issuing securities. The data reveal that approximately one-quarter of all securities issued were privately placed and that public utilities were the principal users of this method of issue.

The quality of the securities issued by Fourth District firms compared favorably with total U. S. issues. Nearly two-thirds of the publicly offered notes and bonds carried a Moody's rating of Aa (the second highest rating), and no reported issue by a District company was rated lower than Baa.

The high quality of offerings by District firms also is suggested by the fact that the average yield on notes and bonds at the time of issue was usually lower than the average reported for the nation. The reoffering yield on Fourth District debt offerings exceeded

Table I
Large Issues of Securities by Fourth District Corporations
(millions of dollars)

	Volume of Issues	Percent of U. S. Total
1953	$ 107.2	2.2%
1954	381.2	9.4
1955	356.9	6.7
1956	347.0	5.6
1957	422.5	5.3
1958	397.8	5.7
1959	292.7	5.6
1960	354.2	6.9
1961	227.9	3.4
1962	433.2	8.0
1963*	198.7	7.6
Total	$3,519.3	5.8%

* *First six months*

Source of data: Securities and Exchange Commission

[2] One company located outside the Fourth District is included because it is a joint venture by two Ohio companies which guarantee its obligations.

Table II
Net Proceeds From Large Issues of Securities
By Fourth District Corporations[a]
Classified by Industry
(millions of dollars)

Industry Classification	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963[b]	Total
Public Utilities	$ 72.2	$226.7	$204.7	$ 99.5	$137.1	$125.4	$ 80.5	$ 74.9	$ 30.1	$ 91.4	—	$1,142.5
Primary Metals	—	114.6	19.1	70.0	182.7	143.0	152.2	180.6	86.1	39.4	$51.0	1,038.7
Machinery & Trans. Equip.	35.0	—	20.0	27.7	38.3	37.7	—	39.4	48.8	79.7	—	326.6
Rubber	—	—	95.6	17.0	—	—	25.4	59.3	—	26.0	73.6	296.9
Petroleum	—	—	—	14.9	24.6	—	—	—	—	113.8	59.1	212.4
Chemicals	—	—	—	84.4	—	29.2	14.9	—	—	—	—	128.5
Mining	—	—	17.5	—	—	21.3	—	—	38.6	23.1	—	100.5
Glass	—	39.9	—	—	15.5	24.2	—	—	—	—	15.0	94.6
Paper.	—	—	—	19.7	—	17.0	19.7	—	24.3	—	—	80.7
Finance & Insurance	—	—	—	13.8	—	—	—	—	—	59.8	—	73.6
Real Estate	—	—	—	—	24.3	—	—	—	—	—	—	24.3
TOTAL	$107.2	$381.2	$356.9	$347.0	$422.5	$397.8	$292.7	$354.2	$227.9	$433.2	$198.7	$3,519.3

[a] Proceeds from sale less issuing costs

[b] First six months

Source of data: Securities and Exchange Commission

the average yield on all large offerings reported by the SEC in only two of the 10½ years included in the study.

INDUSTRY CLASSIFICATION

As shown in Table II, eleven industry groups in the Fourth District issued new securities during the 1953-63 period. Five of the industry classifications (public utilities, primary metals, machinery and transportation, rubber, and petroleum) accounted for more than 85 percent of the total volume of new issues.

Public utilities, which are heavy users of borrowed capital, accounted for the largest volume of new issues. Utility issues declined, however, from about two-thirds of the total in 1953 to no new issues in the first half of 1963.

Ten electric utility companies and one telephone company each reported at least two separate offerings of securities during the period under review.[3] The largest volume of public utility issues occurred in 1954 in response to declining interest rates. High grade debt instruments were issued in that year with an approximate reoffering yield of 3.0 percent. The proceeds were used, in large part, to repay bank loans.

The primary metals industry accounted for the second largest volume of new issues during the 10½-year period; however, only eight metal producers reported offerings.

[3] One electric company is owned by ten other electric companies. Five Fourth District companies own 38.7 percent of the common stock of this company.

Table III
Net Proceeds from Large Issues of Securities
By Fourth District Corporations
By Type of Security
(millions of dollars)

Type of Security	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963*	Total
TOTAL DEBT	$ 74.9	$362.3	$295.6	$318.0	$302.3	$376.5	$292.7	$354.2	$227.9	$402.2	$198.7	$3,205.3
Mortgage Bonds	39.9	207.8	206.5	153.6	134.7	120.2	158.7	113.3	68.7	133.9	—	1,337.3
Debentures	35.0	100.0	39.1	132.5	167.6	236.4	119.1	240.9	112.6	182.5	132.7	1,498.4
Convertible Debentures	—	—	19.1	43.6	19.4	—	19.7	—	—	—	34.5	136.3
Notes	—	54.5	50.0	31.9	—	19.9	14.9	—	46.6	85.8	66.0	369.6
TOTAL EQUITY	$ 32.3	$ 18.9	$ 61.3	$ 29.0	$120.2	$ 21.3	—	—	—	$ 31.0	—	$ 314.0
Preferred Stock	15.4	—	—	—	—	—	—	—	—	—	—	15.4
Common Stock	16.9	18.9	61.3	29.0	120.2	21.3	—	—	—	31.0	—	298.6
TOTAL ISSUES	$107.2	$381.2	$356.9	$347.0	$422.5	$397.8	$292.7	$354.2	$227.9	$433.2	$198.7	$3,519.3

* First six months

Source of data: Securities and Exchange Commission

Primary metal firms accounted for more than half of all District issues in 1959 and 1960, but less than 10 percent in 1955 and 1962. The largest volume of securities issued by the primary metals industry occurred in 1957, and may have been associated with a substantial volume of plant and equipment spending in that year.

TYPE OF ISSUE

Over 90 percent of the volume of large issues by Fourth District firms during 1953-63 was in the form of notes or bonds as compared with 83 percent for the entire nation (see Table III). Nearly half of the debt securities issued by District firms were debentures (unsecured bonds) while 40 percent were mortgage bonds (secured bonds).

From 1953 through 1956, first mortgage bonds accounted for the largest part of debt financing. Since that time, with the exception of 1959, debentures have been the most important type of debt security issued. The relative decline in the issuance of mortgage bonds in recent years is explained by an accompanying decline in issues of securities by public utilities. As the principal users of mortgage bonds, public utilities accounted for nearly three-fourths of the volume issued in the District during the 1953-1963 period.

The reliance on mortgage bonds by public utilities reflects the characteristics of utility operation. The nature and regulation of public utilities provide a nearly stable income and rate of return on investments; therefore, the assets provide excellent collateral for mortgage bonds. In addition, public utilities are often able to reduce interest costs on a bond issue by pledging their assets as collateral.

In contrast, other industries have relied heavily on the use of debentures as a means of borrowing. For example, the primary metals industries accounted for more than 40 percent of the volume of debentures offered by firms located in the Fourth District in the period under review. The reliance on debentures by concerns other than public utilities is explained, in part, by the unwillingness of many organizations to accept the limitations placed on the use and disposition of assets when pledged as collateral. More important, the highly specialized nature of their assets and fluctuations in income usually subject their assets to a sharp decline in value in case of default. Therefore, such assets often do not provide the type of protection creditors require for collateral purposes.

Nearly all of the equity financing by District firms occurred from 1953 through 1958, and nearly 80 percent of the issues were accounted for by public utilities, primary metals producers, machinery and transportation firms, and the rubber industry. The largest amount of common stock issued by Fourth District firms was in 1957. In that year the volume of new equity issues amounted to nearly $120 million, or approximately 40 percent of the common stock issued during the entire period. One explanation for the concentration of offerings in 1957 is the fact that interest costs moved up sharply between mid-1956 and the fourth quarter of 1957, and thereby encouraged the issuance of common stock as opposed to debt securities.

Only one issue of preferred stock was reported during the entire period. This single issue was by a public utility in 1953.

In addition to the issuance of equity securities, nearly 10 percent of the debentures issued by manufacturing firms in the Fourth District were classified as convertible debentures. A convertible debenture holder is given the privilege of exchanging a debenture for shares of common stock of the issuing corporation at a predetermined price per share. The conversion price is set well above the existing market price at the time the debentures are issued. The holder usually has the right to exercise the option at any time between the date of issue and the redemption date. Many firms have adopted the use of convertible debentures as a means of improving the attractiveness of fixed-

Table IV
Net Proceeds From Private Placements of Securities by Fourth District Corporations (millions of dollars)

	Volume of Issues	Percent of Total District Issues
1953	$ 17.9	16.7%
1954	161.3	42.3
1955	209.5	58.7
1956	83.4	24.0
1957	—	—
1958	72.6	18.3
1959	40.3	13.8
1960	—	—
1961	85.2	37.4
1962	148.3	34.2
1963*	66.0	33.2
Total	$884.5	25.1%

* First six months

Source of data: Securities and Exchange Commission.

income securities. From a corporation's standpoint, use of a convertible debenture may widen the market for its securities, permit a lower cost of capital, and, in the event of conversion, the corporation normally receives a higher price for its common stock than would have been received at the time the debentures were issued. Furthermore, conversion relieves the management of the problem of refunding at the time the debentures mature.

PRIVATE PLACEMENTS

Private placement of securities occurs when one large investor, usually a financial institution, acquires an entire issue of new securities through direct negotiation with the issuing firm. Hence, the securities are not offered for sale on the securities markets, nor is the public given the opportunity to acquire any part of the issue. Approximately one-fourth of all issues of securities by District firms in the period under review were classified as private placements (see Table IV). In 1955, nearly three-fifths of all new issues were privately placed, and the dollar total of $210 million was the largest annual volume of private issues during the entire 10½-year period.

All private placements reported in this study were debt securities, with nearly 28 percent of all issues of notes and bonds classified as private placements. Moreover, nearly all of these issues were either mortgage bonds or notes, as only 5 percent of total debenture issues were privately placed. Approximately 18 firms reported private placement of securities; however, two public utilities accounted for 40 percent of the total volume.

QUALITY RATINGS

Approximately two-thirds of the $2.3 billion of publicly offered debt securities during the 1953-1963 period were rated Aa (see Table V). At the same time, less than 10 percent were rated Baa, the lowest rating achieved by any issue from a Fourth District corporation.

Securities with the highest rating of Aaa, accounting for approximately 10 percent of total volume, were all issued by 4 of the 11 public utilities reported in the study. More

Table V
Net Proceeds From Large Issues of Debt Securities
By Fourth District Corporations
By Quality Rating
(millions of dollars)

Quality Rating	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963*	Total
Aaa	—	$ 36.0	—	$ 20.1	$ 24.6	$ 70.3	$ 25.1	$ 30.2	—	$ 45.4	—	$ 251.7
Aa	$ 22.0	165.0	$ 47.0	151.2	218.0	187.4	207.6	284.6	$ 79.1	119.2	$ 73.6	1,554.7
A	35.0	—	—	19.7	16.0	46.2	—	39.4	39.0	89.3	24.6	309.2
Baa	—	—	39.1	43.6	43.7	—	19.7	—	24.6	—	34.5	205.2

* *First six months*

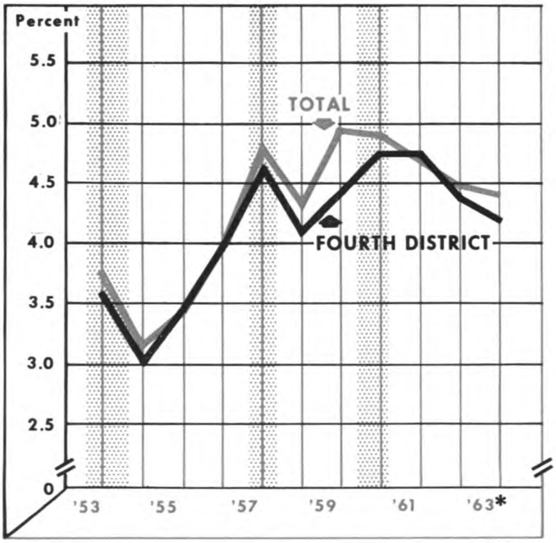
Source of data: Securities and Exchange Commission than half of the Aa rated securities were offered by firms in the primary metals industry, with public utilities accounting for an additional one-fourth of the total. The machinery and transportation equipment industry accounted for 40 percent of the securities rated A and more than 40 percent of those rated Baa.

YIELD

Chart 2 shows the average reoffering yield of all large public offerings of debt securities by Fourth District corporations from 1953 through the first half of 1963. It represents an average yield in that it includes all securities issued in the District regardless of quality rating. Also shown on the chart is the average reoffering yield for all large securities registered with the SEC and offered for sale throughout the U. S.

2

AVERAGE REOFFERING YIELD OF LARGE ISSUES OF DEBT SECURITIES



* 1963 based on first six months

Source of data: Securities and Exchange Commission

Interest rates on both national and Fourth District offerings were responsive to changes in economic activity. Business recessions occurred in 1953-54, 1957-58, and 1960-61 and are represented by the shaded areas in Chart 2. The decline in rates in 1954 and again in 1958 indicates a ready availability of funds in the capital market during those periods. The most recent recession, in 1960-61, was also characterized by a ready availability of funds, although rates at first leveled off in 1961 and declined in 1962, with further declines in the first half of 1963.

The average yield on securities issued by Fourth District corporations was heavily weighted by securities that carried the Aa quality rating. Table VI compares yield rates of District and total U. S. offerings by quality ratings. Comparisons of interest rate behavior should be concentrated on the Aa and A ratings because they represent a major portion of all issues by Fourth District firms.

A comparison of Aa offerings by Fourth District firms with total Aa offerings in the U. S. indicates generally lower yields on District securities.

There have been too few offerings of securities by separate industries in the District to permit meaningful comparisons of the costs of borrowing among various industries; comparisons of yields on securities of similar quality ratings among industries present even greater obstacles. A very general comparison can be made, however, between Aa rated debt securities issued by public utilities and primary metals producers because of the volume of securities issued by these firms

Table VI
Reoffering Yields on Large Issues of Debt Securities by Corporations in the Fourth District and the United States

	Aaa		Aa		A		Baa	
	Fourth District	Total U. S.	Fourth District	Total U. S.	Fourth District	Total U. S.	Fourth District	Total U. S.
1953	—	3.56%	3.24%	3.54%	3.90%	3.88%	—	4.08%
1954	2.98%	2.99	3.04	2.94	—	3.24	—	3.95
1955	—	3.20	3.27	3.29	—	3.37	3.63%	3.64
1956	3.40	3.69	3.99	3.81	3.75	3.87	4.25	4.26
1957	4.17	4.53	4.61	4.65	4.41	4.78	4.96	5.15
1958	3.97	4.07	3.92	4.07	4.44	4.26	—	4.86
1959	4.29	4.86	4.49	4.82	—	4.95	4.50	5.03
1960	4.88	4.81	4.74	4.75	4.75	4.87	—	5.31
1961	—	4.31	4.60	4.58	4.68	4.77	5.25	4.94
1962	—	4.36	4.40	4.34	4.41	4.43	—	4.69
1963*. . . .	—	4.25	4.30	4.31	4.35	4.42	3.88	4.58

* First six months

Source of data: Securities and Exchange Commission.

and the regularity of issue. Despite the fact that the cost of borrowing for both industries tended to reflect prevailing business conditions, yields on Aa issues of public utilities show a wider fluctuation than those by primary metals producers. In addition, in most years the Aa securities issued by public utilities in this District carried a higher yield than those issued by primary metals producers.

50 YEARS
FEDERAL RESERVE
SYSTEM

Fourth Federal Reserve District