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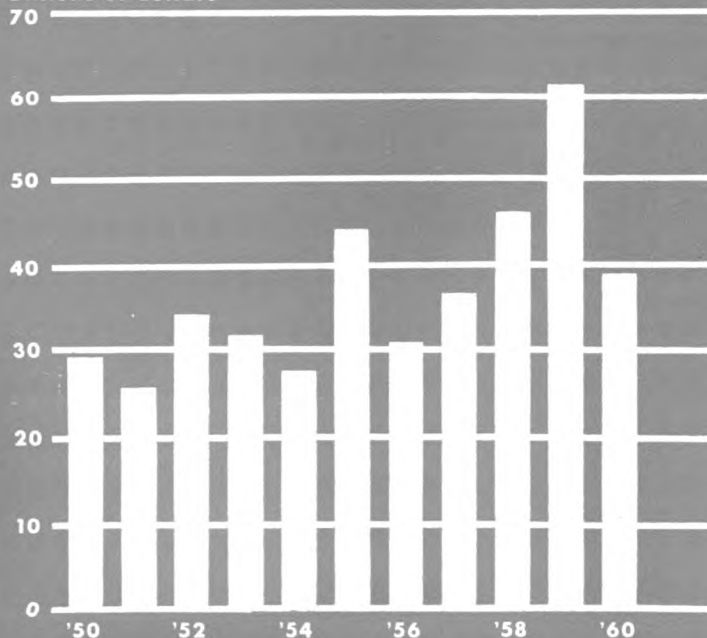
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CREDIT AND EQUITY MARKET INSTRUMENTS

Net Flows of Funds During the Year

Billions of dollars



Recently published summaries of financial flows confirm the fact that demands for funds were down sharply in 1960 from the unusually large volume of the previous year. It is expected that financial flows of this year will be larger than those of 1960.

Financial Flows In Credit And Capital Markets

NET FINANCING through credit and equity markets in 1960 amounted to \$39.2 billion. In short, this means that last year various sectors of the domestic economy and the rest of the world on balance raised (demanded) \$39.2 billion in credit and capital markets in the United States, and that an identical amount of funds was being advanced (supplied) simultaneously by the same or other sectors.

As shown on the cover chart, the volume of funds supplied to the economy through credit and equity markets varies substantially from year to year. For example, the net flow in 1960 of \$39.2 billion was in contrast to net flows of \$61.4 billion in 1959 and \$26.1 billion in 1951.

It should not be overlooked that financing through credit and equity markets is only part of the total financial flows that take place within the economy. The items which are counted in the total of financial flows are those involving, for example, gold, demand deposits and currency, time and savings deposits, savings through life insurance and pension funds, trade credit, as well as credit and equity market instruments. The tracing of such flows and the accompanying changes in financial assets and liabilities is especially helpful in understanding the nation's financial structure. In the discussion which follows, attention is limited principally to those financial flows which pass through credit and capital markets.

The credit and equity markets serve as a pipeline through which funds flow as they are transferred within the economy, accom-

panied by an exchange of instruments representing indebtedness or ownership claims. The pipeline actually consists of credit and equity instruments such as government obligations, mortgages, consumer and security credit, business and foreign securities, and bank and other loans. The instruments represent a mechanism by means of which funds can be moved from the sectors (individuals and institutions) which are willing and able to advance funds to those sectors which are interested in raising such funds.

In broad terms, the sectors of the economy include consumers, businesses, governments, and financial institutions. The sectors that raise funds through credit or equity instruments may also be the sectors that advance funds. Such a situation is possible because individual sectors consist of many individuals or groups, of which some may be borrowing funds while others are lending. Moreover, the same individual or organization may even be borrowing and lending concurrently, as in the case of a corporation that raises long-term funds in the capital market through a bond issue, while investing temporarily "idle" cash in Treasury bills.

Since the flow of funds through credit and equity instruments is perhaps the most comprehensive measure of the supply-demand relationships for credit in the economy, such data in part reflect the current status of economic conditions. These data also shed some light on the influences which affect interest rates in both money and capital markets.

Data on credit and equity markets in terms

of types of financial instruments used, sectors advancing funds, and sectors raising funds in these financial markets are included as a portion of the flow of funds system of accounts published by the Board of Governors of the Federal Reserve System. Broadly speaking, the flow of funds system is a social (or national) accounting system designed to measure the flow of both financial and non-financial activities in the domestic economy, and to present such information within a single accounting framework. The data are made available on both an annual and a quarterly basis. Let us take a closer look at both sides of the financial transactions (the demand and the supply) as well as the instruments that make the transactions possible.

Funds Raised

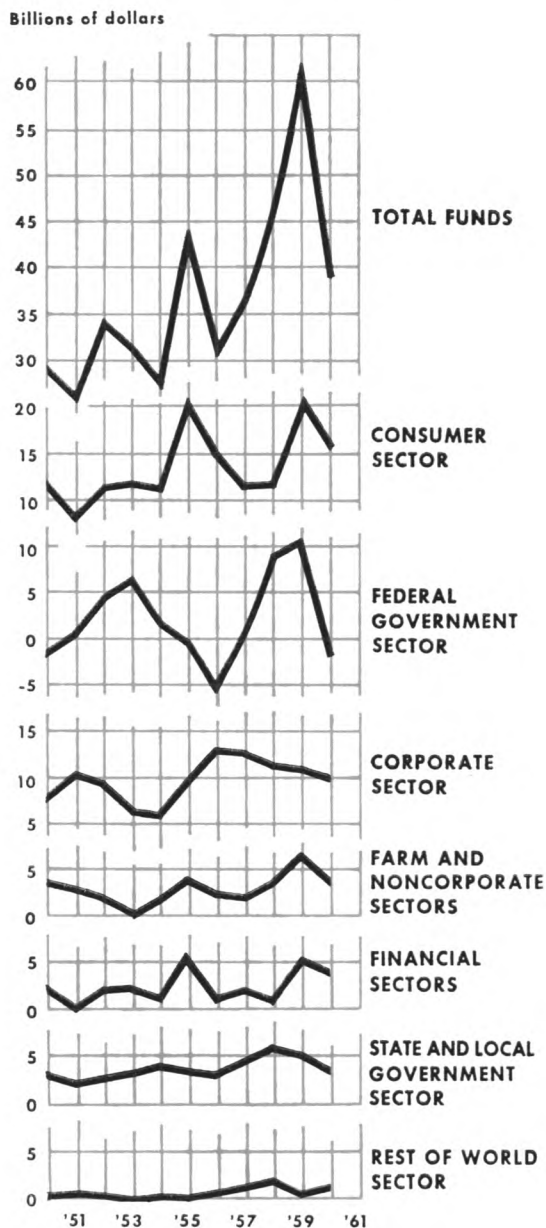
In 1960 the largest single demand for funds came from the *consumer* sector, which includes consumers, personal trusts, and non-profit organizations. This sector raised \$16.1 billion in the credit markets in 1960, or roughly two-fifths of the total amount of funds raised by all sectors through these markets during the year. (This proportion was about the average ratio of consumer borrowing to total borrowing over the entire postwar period.) Most of the consumer borrowing was in the form of mortgage and consumer credit, as consumers borrowed to purchase homes, durable goods such as automobiles and appliances, and services. Most of the \$16.1 billion that was raised by the consumer sector was advanced directly by financial institutions such as savings associations and credit unions, insurance companies, commercial banks, and finance companies.

As shown in the chart on page 4, the consumer sector, compared with each of the other sectors, has made the largest demands for credit in nearly every year of the past decade, with particularly sharp upswings evident in both 1955 and 1959. These peaks occurred virtually simultaneously with large year-to-year increases in consumer purchases of housing and automobiles, among other durable goods.

Standing second in the volume of credit demands in 1960 was the *corporate non-financial business* sector, which raised \$10.2 billion in credit and equity markets. This sector, which also includes holding companies and closed-end investment companies, raised funds through financial instruments such as bonds, mortgages, issues of stock, bank loans, open-market paper, and other loans. In general terms, the funds so obtained were used for capital spending, inventory build-up, and the financing of customers. Although it is difficult to trace the original sources of the funds raised by the corporate sector, funds were supplied (net) by insurance companies, pension funds, savings institutions, and the consumer sector. The corporate sector of the economy, like the consumer sector, has been a major borrower throughout the 1950-1960 period, with larger-than-usual demands for funds evident in both 1956 and 1957—years that were highlighted by large amounts of plant and equipment expenditures.

Each of several other sectors of the economy, by and large, contributed approximately equal volumes of credit demand in 1960. The *state and local government* sector raised \$4.0 billion in 1960, mainly by issuing notes and bonds. (During the year, the net holdings of these credit instruments increased within the insurance sector and the consumer sector, although these sectors may not have purchased directly the instruments as they were issued.) Last year the *financial sectors* raised \$4.2 billion in the credit and equity markets through such instruments as stocks, bonds, and loans. These sectors cover commercial banks, the Federal Reserve System, the Treasury monetary funds, savings institutions, insurance companies and retirement plans, finance companies, securities dealers, mutual funds, and other financial companies. In conjunction with larger-than-usual demands for funds by other sectors of the economy, as the chart shows, the financial sectors had borrowed more heavily in 1955 and 1959. *Farm and noncorporate nonfinancial business* obtained \$4.3 billion in 1960 through the use of credit instruments such as commercial

FUNDS RAISED by Sectors through credit and equity market instruments



Source of data: Flow of funds system of accounts, Board of Governors of the Federal Reserve System.

mortgages and loans. Here, too, an increased demand had been evident in 1955 and 1959 as shown in the accompanying chart. Foreign borrowers in financial markets in the United States raised a smaller volume of funds in 1960 than the above sectors, with borrowing amounting to \$1.9 billion.

With reference to the final sector of the economy—the *Federal government*—in seven of the years from 1950 through 1960 (including the year 1960) the Federal government on balance raised funds through credit and equity markets. As the chart shows, in the other four years this sector retired more debt than it issued. Such a turn of events results from the fact that Federal government demands for funds are tied principally to the budget position for the particular calendar year. For example, if the Federal budget is in surplus and a portion of the Federal debt outstanding is repaid, this sector becomes a net supplier of funds to the economy. Such net repayments were made in 1950, 1955, 1956, and 1960; in the latter year net repayments amounted to \$1.6 billion. In contrast, the Federal government has been a substantial user of credit in other years, for example, 1958 and 1959. The fact that the budget was in deficit in these years made it necessary for additional U. S. Government securities to be issued to finance the deficits.

Funds Advanced

On the other side of the credit and equity markets is the supply of funds, i.e., the funds that are *advanced* in these markets by the various sectors of the economy. The suppliers of funds to individual borrowing sectors have been mentioned above, but a detailed description of the volume of funds supplied may be helpful.

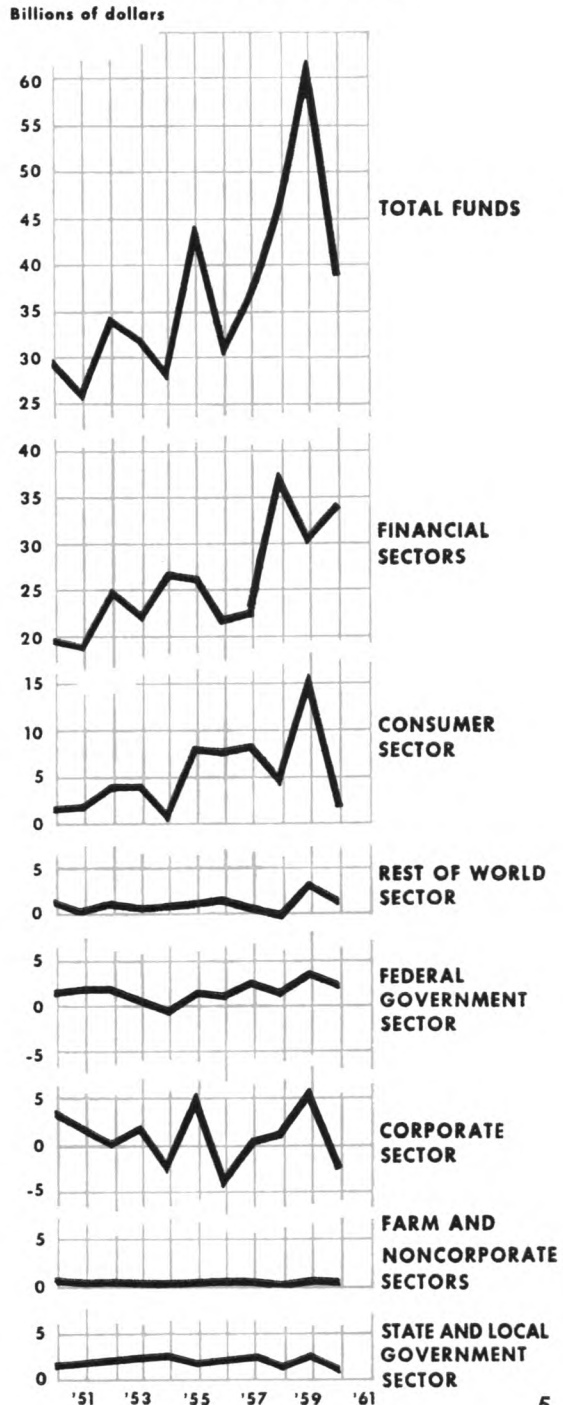
The *financial sectors*, as defined here, advanced nearly 90 percent of the \$39.2 billion total of funds that were *raised* through credit and equity market instruments in 1960. As would be expected, financial institutions functioned in considerable part in the role of the intermediary, channeling funds from the

FUNDS ADVANCED by Sectors through credit and equity market instruments

original savers. The financial sectors were the source of \$34.3 billion last year—an amount that was close to the all-time high of \$37.3 billion for the sectors in 1958. In 1960, the funds were advanced in the form of nearly every type of credit and equity instrument, although the largest dollar amount was loaned through mortgage credit.

As shown in the accompanying chart, smaller amounts of credit were advanced by other sectors of the economy. The *Federal government* sector, for example, supplied (net) \$2.5 billion (including loans and mortgage credit) to the credit markets. This was the second-largest amount of credit supplied to these markets by this sector since 1950. Last year the *consumer* sector advanced \$2.2 billion through credit and equity market instruments—a volume that was down sharply from the peak level of 1959. The net funds supplied by the consumer sector took the form of gains in the sector's holdings of state and local government obligations, corporate and foreign bonds, and commercial mortgages that were larger than concurrent liquidations of their holdings of Federal obligations. *State and local governments* advanced \$1.0 billion to the economy in 1960. This was done primarily by adding to holdings of corporate bonds. Last year's volume was the smallest amount of funds supplied by this sector in the past decade. In addition to the above sectors, foreign lenders advanced \$1.2 billion in the credit markets of the United States in 1960.

On the other hand, the *corporate non-financial* sector actually liquidated (net) holdings of credit market instruments to the extent of \$2.2 billion in 1960, as a result of its liquidation of holdings of Federal obligations exceeding small additions to other market assets. By way of contrast, in the previous year the corporate nonfinancial sector had advanced \$5.5 billion to the economy, mainly in takings of Federal obligations. The accompanying chart illustrates clearly the substantial year-to-year fluctuations in the amount of funds advanced by the corporate sector. Similar variations are also evident in



the data for the financial and consumer sectors.⁽¹⁾

Credit and Equity Market Flows, By Instrument

The net flows during the year in each of the various types of credit and equity market instruments reflect demands for funds in credit and capital markets, and how these demands are matched with the supply of funds available. These flows also reflect to some extent the prevalent type of financing and the preferred type of security given in exchange for credit.

In 1960, as in previous years, the largest financing flow among the credit and equity instruments was in *home mortgages*. Mortgages on 1- to 4-family dwellings increased \$10.9 billion, thus accounting for more than one-fourth of the total financing through the credit and equity markets during the year. When combined with *other mortgages*, which have shown an average annual flow of about \$4½ billion in recent years, it can be seen that mortgage credit in each year accounts for a substantial volume of the financial flows in the economy.

Other credit market instruments that have increased in volume in recent years are *corporate and foreign bonds* held in the United States. In 1960, the outstanding volume of such instruments rose \$5.5 billion. A fractionally-larger gain of \$5.6 billion was posted by credit instruments identified as *other loans*. This was the largest annual in-

(1) In addition to the year-to-year fluctuations in the amounts of funds raised and advanced in credit and capital markets, there are also seasonal fluctuations within each year, as revealed in the quarterly data on credit and capital markets. Since annual fluctuations in financial flows can be associated to some extent with the cyclical course of the economy, it would be of interest to investigate the cyclical as well as the seasonal factors in order to evaluate their respective influences. Of particular interest, for example, would be the quarterly patterns revealed in financing through credit and equity markets during periods of recession, paying special attention to the sectors of the economy whose demands for funds respond quickly to changes in the level of business activity. Such a study is beyond the scope of this article, however, which is intended to be an introduction to financing in credit and capital markets as reported in the flow of funds system of accounts.

crease in such instruments in the entire post-war period, and was due to the increased use of open market financial instruments such as commercial paper and bankers' acceptances, as well as Federal government and Commodity Credit Corporation loans.

Each of four types of credit and equity instruments increased by virtually the same dollar volume in 1960. *Consumer credit* was up \$3.9 billion, *state and local obligations* \$3.6 billion, *bank loans* (mainly business and agricultural loans) \$3.4 billion, and net *corporate stock* issues amounted to \$3.5 billion. In each case, however, the net flow during the year was smaller than that of 1959.

Contrary to the change in all other credit and equity market instruments, the amount outstanding of *Federal obligations* declined by \$2.2 billion in 1960. This was due to the influence of the Federal budget, as mentioned above, which in 1960 was in surplus, and was related to changes in the government's cash balance position. All of the decline took place in the volume of direct marketable debt maturing within one year, i.e., the floating debt. Other Federal obligations, both direct and guaranteed, actually increased in the amount outstanding during the year.

1961. It is still too early to make a determination as to the amount of financing which will take place in money and capital markets in 1961. However, on the basis of widely recognized indications, it is likely that the Federal government, because of the anticipated budget situation for calendar year 1961, will on balance raise funds in 1961, although probably not in the same magnitude as two years ago in 1959. In addition, if current widely-held expectations are fulfilled, it is conceivable that there will be a larger amount of financing through mortgages in 1961 than in 1960. Taken together, these two developments are likely to bring a larger total volume of financing this year than occurred last year.

Steel Finishing Capacity In A Heavy Industry Area

ACCORDING to the most recent information available, steel mills within the Fourth Federal Reserve District have the capacity to produce 44,923 thousand tons of hot-rolled steel products, or about two-fifths of the total of such capacity in the United States.⁽¹⁾ The steel finishing potential of mills in the Fourth District alone is thus greater than that of the entire U.S.S.R., the world's second largest steel producer; the potential in the District is also greater than that of the combined capacities of the United Kingdom and West Germany, the two leading steel producing nations of Western Europe.

Between early 1957 and 1960, steel finishing capacity in the Fourth District has been enlarged by 3.6 million tons, increasing the total to nearly 45 million tons in 1960. With proportionate increases being made elsewhere in the nation, the Fourth District's share of the total remained unchanged between 1957 and 1960. Most of the increase in the District, as well as in the nation as a whole, consisted of expansion of facilities for the hot rolling of sheet and strip steel. Other increases in the finishing capacity of mills in the District were for the cold rolling and coating of sheet and strip steel. Although steel mills in the Fourth District have specialized for a long time in finishing flat rolled products (both hot and cold rolled) the specialization appears to have intensified between 1957 and 1960. The accompanying table shows the various capacities for selected steel products in the District on January 1, 1960, expressed

in tonnages as well as in percentages of total U.S. capacity. The table also shows the percentage changes in capacities in the District since the survey in early 1957.

Steel Consumption

In addition to producing a substantial share of the nation's finished and semi-finished steel, the Fourth District contains a sizable concentration of metal fabricating firms which provide a market for large quantities of District-based steel production. Foremost among these firms are the stamping plants (particularly for autos and appliances) and sheet metal fabricators, both of which are major customers for the flat rolled and coated products of local steel mills.

The importance of metalworking in the District is indicated by the fact that, as a group, metalworking firms have provided about 43 percent of all manufacturing jobs in the District during the last two years. In the rest of the nation during the same period, such industries provided only 34 percent of all manufacturing employment.

Although figures on steel consumption for the Fourth District are not available, shipment figures for the nation as a whole give an indication as to the nature of steel consumption by metal fabricating industries in the District. Thus, in the nation as a whole, metal fabricating industries purchased in 1960 more than three out of every five tons of all finished and semi-finished steel shipped by U.S. mills.⁽²⁾ An additional 20 percent of

(1) The American Iron and Steel Institute compiles steel finishing capacity figures triennially. The latest estimates are for January 1, 1960.

(2) The metal fabricating category, as used here, includes firms in the fabricated metal products, nonelectrical machinery and equipment, electrical machinery and equipment, and transportation equipment industries.

steel shipments went to warehouse distributors. Since many of the warehouses' customers are metal fabricators, the first figure cited, i.e., the more than three out of five tons, probably understates the true size of the over-all market. Such firms often purchase from warehouses rather than directly from producing mills, because the quantities of steel they need are too small for economical direct shipment, or because the firms want faster delivery, or are short of storage space.

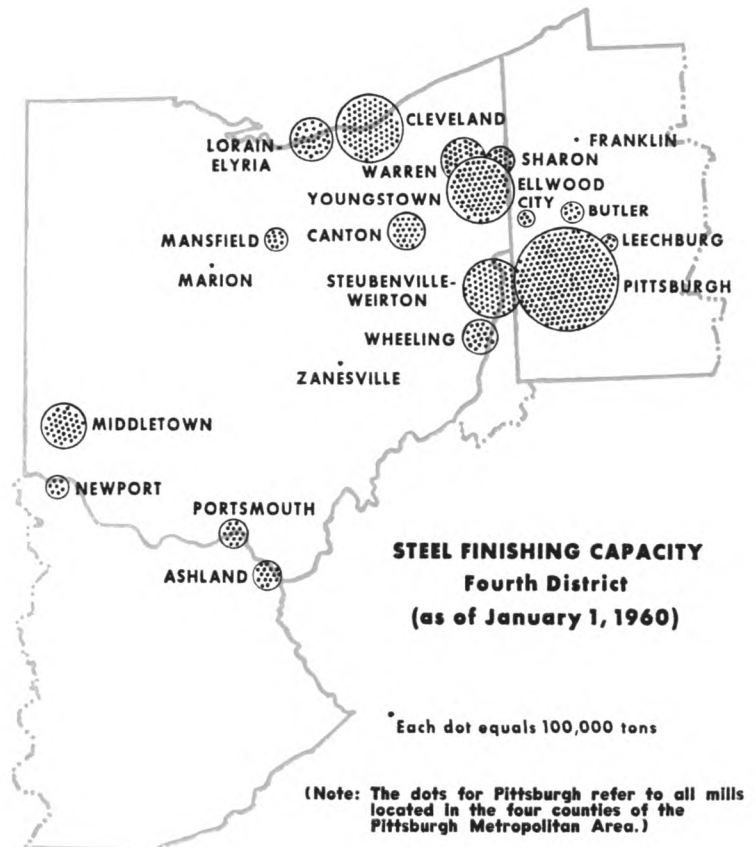
Expansion in Flat Rolled Capacity

For many years there has been a trend toward wider use of light, flat rolled steel which can be easily stamped or drawn into the shapes required in the manufacture of products such as automobile bodies, appliances, and kitchenware, as well as miscellaneous items such as bottle caps. At least two widely recognized factors help to explain the trend toward greater use of flat rolled steel: (1) the growth in the demand for consumer goods items and (2) the development of new metalworking techniques which use sheet and strip steel. Such a trend is reflected in the changes which have occurred in the finishing capacity in the District during the three-year period bounded by the two most recent surveys on finishing capacity (see accompanying table).

Sheet and Strip. Hot rolled sheet and strip capacity registered the largest increase in tonnage of any type of product. During the 1957-1960 period, steel mills in the District added 3.3 million tons of sheet and strip capacity, which accounted for 92 percent of the total increase in

hot finishing capacity. At the beginning of 1960, the District's hot rolled sheet and strip capacity amounted to a record 23.7 million tons. Relatively smaller gains in other areas of the nation boosted the District's share of the national total by one point to 45 percent. The fact that sheet and strip capacity accounts for 53 percent of all hot rolling capacity in the District, as compared with only 49 percent three years earlier, is another indication of the growing specialization in the flat rolling of steel by the steel mills in the District. This increase was somewhat greater than for the nation as a whole, where sheet and strip capacity amounted to 47 percent of all hot rolling capacity in 1960, as compared with 45 percent three years earlier.

Turning again to figures on steel shipments for the nation as a whole to obtain some idea as to probable patterns in the District, it has



STEEL MAKING AND FINISHING CAPACITY

Fourth District, January 1, 1960

| Product | Capacity 1960 (000's net tons) | Percent Change 1957 to 1960 | 4th District Percent of U. S. Total 1960 |
|---|-----------------------------------|--------------------------------|--|
| INGOTS AND STEEL FOR CASTINGS..... | 58,530 | + 8% | 39% |
| HOT ROLLED STEEL PRODUCTS ⁽¹⁾ | 44,923 | + 9 | 40 |
| Rails..... | 19 | — 90 | 1 |
| Structural shapes..... | 1,767 | + 7 | 22 |
| Plates..... | 2,970 | + 19 | 27 |
| Sheet and strip ⁽²⁾ | 23,747 | + 16 | 45 |
| Bars..... | 5,779 | + 1 | 32 |
| Steel for further conversion into wire and tubular products ⁽³⁾ | 10,260 | * | 53 |
| Other hot rolled products..... | 381 | — 30 | 15 |
| OTHER FINISHED STEEL PRODUCTS ⁽⁴⁾ .. | | | |
| Pipe and tubing..... | 8,508 | + 3 | 52 |
| Cold finished bars..... | 1,725 | + 2 | 41 |
| Plain wire..... | 1,921 | — 5 | 27 |
| Cold rolled sheet and strip..... | 11,324 | + 10 | 44 |
| Galvanized sheet and strip..... | 2,499 | + 8 | 57 |
| Long terne sheets..... | 88 | — 56 | 43 |
| Tin and terne plate..... | 3,243 | + 6 | 40 |

(1) Capacities of hot rolled products are limited to steel available from own ingot capacity plus estimated steel supply normally obtained from others.

(2) Also includes coils for cold reduced black plate and tin plate.

(3) Wire rods, skelp and blanks, and tube rounds or pierced billets for seamless tubes.

(4) Capacities of other finished products are annual capacities without regard to the available supply of ingots, semi-finished steel, or hot rolled products.

* Less than 1 percent decline.

Source: American Iron and Steel Institute

been estimated that substantially less than one-half of the hot rolled sheet and strip steel mentioned above goes to final steel consumers without additional processing. In 1960, 9.1 million tons of hot rolled sheet and strip were shipped directly to customers. The automobile industry took 40 percent of these shipments, while an additional 20 percent was purchased by manufacturers of industrial and domestic machinery and equipment. The manufacturers of tin cans and other containers received 7 percent of the total, while warehouses took 15 percent of the shipments for resale to final consumers. An additional 11 percent was shipped directly to the construction and other nonmanufacturing indus-

tries, while the remaining 7 percent of the shipments was purchased by firms for conversion into other steel products.

Cold Rolled Products. Well over one-half of the the hot rolled sheet and strip steel produced in the U.S., however, receives additional processing by cold rolling, coating, or other operations designed to impart certain desired characteristics to the steel.

The increase in Fourth District capacity for cold rolling of sheet and strip was second only to the area's increase in hot rolled sheet and strip capacity. At the beginning of 1960, steel mills in the District had a cold rolling capacity of 11.3 million tons of sheet and strip, reflecting a gain of 10 percent from the

1957 capacity. Between 1957 and 1960, expansion was slightly greater in other parts of the U.S., and the District's share of the total capacity in the nation declined from 46 percent to 44 percent.

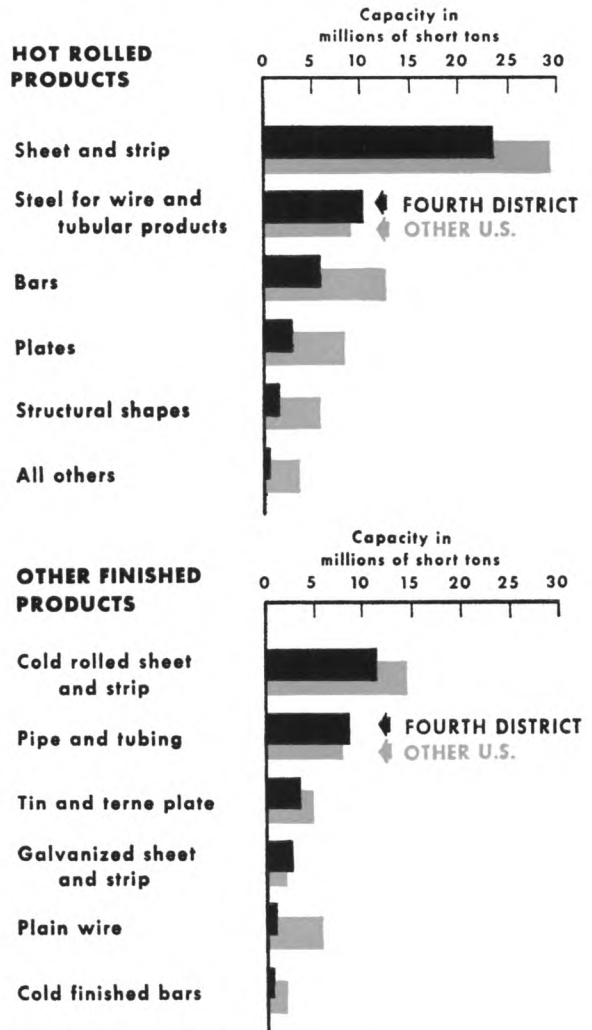
According to figures made available by the American Iron and Steel Institute, steel shipments to the automotive industry accounted for almost one-half of the cold rolled sheet and strip shipments in the nation during 1960. Manufacturers of machinery and equipment received 22 percent of the mill shipments to domestic users, while 5 percent was accounted for by the container industry.⁽³⁾ The remainder was received by warehouses and non-metal fabricators.

Coated Steel. It has been estimated that metal corrosion costs the national economy about \$2 billion annually. In an attempt to reduce this loss, metal fabricators have increased the use of corrosion-resistant metals. The steel industry has met this increased demand by expanding the capacity to apply thin layers of corrosion-resistant lead, tin, or zinc to cold rolled sheet and strip steel.⁽⁴⁾

District mills have held for some time a substantial part of the nation's capacity to coat steel, especially that which is done by galvanizing. Between 1957 and 1960, Fourth District mills expanded their steel galvanizing capacity by 8 percent to a total of 2.5 million tons. This increase compares with a gain of 5 percent in the same period for the nation as a whole. The difference in the respective rates of increase was sufficient to allow the District to increase its share from 56 percent to 57 percent of the industry's total capability.

Demand for a large part of galvanized steel production comes from the construction industry and the industrial and domestic machinery and equipment industries, as well as from agriculture. In recent years, the rapid growth of the air conditioning and ventilat-

Mills in the Fourth District tend to specialize in flat rolled and tubular products.



Capacities as of January 1, 1960.

Source of data: American Iron and Steel Institute.

ing equipment industry has made the latter industry an increasingly important market for galvanized steel.

Mills in the Fourth District also expanded the capacity to produce tin and terne plated steel products. The 6 percent increase between the survey dates brought total capacity to 3.2 million tons, an amount equal to 40 percent of the nation's potential production of such products. During 1960, all but about

(3) The container industry, as referred to here, includes manufacturers of metal barrels, cans, drums, pails, compressed gas cylinders, and boxes.

(4) The metallic coatings most commonly used to give steel corrosion-resistant properties include zinc (used in producing galvanized steel), tin, and terne metal (an alloy of tin and lead).

6 percent of the tin and terne plated steel went to manufacturers of tin cans and other containers.

Plate. Compared with all other steel products, plate rolling capacity showed the largest percentage gain in the District during the 1957-60 period.⁽⁵⁾ Mills in the area increased their plate capacity by 19 percent, reaching a 3.0-million-ton total by the beginning of 1960. While this tonnage represents only 27 percent of the industry total, the District mills are able to turn out a considerably larger amount of lighter plate by using the rolling mills now producing sheet and strip steel, if demand conditions are such that larger quantities of plate are needed (as was the case in World War II, for example).

The most important peacetime user of plate is the construction industry. Of the 6.0 million tons of domestic shipments of plate in 1960, 30 percent went to the construction industry. Manufacturers of industrial equipment and machinery received an additional 21 percent, warehouses and distributors took about 15 percent, and the remainder was widely distributed among other users. During wartime, of course, shipbuilding and ordnance provide an important market for plate steel.

Other Mill Products

In addition to the flat rolled and coated items already mentioned, steel mills in the Fourth District turn out a variety of other steel products. These products include steel for further conversion into wire and tubular products, structural shapes and rails, pipe and tubing, wire, and steel bars.

Steel for Further Conversion. The group of semi-finished steel products stands second to sheet and strip in the amount of capacity in the District devoted to production. However, it is the only major product group which did not register an increase in capacity between 1957 and 1960. The 10.3 million tons of capacity reported by the mills in the Dis-

⁽⁵⁾ Plate is thicker than sheet or strip. In general, sheet and strip run to about 0.20 inches in thickness, while plate is more than 0.20 inches thick.

trict at the beginning of 1960 was, in fact, slightly lower than three years earlier.

The decline in productive potential has been due in part to a reduction in the demand for domestically produced wire rods to be processed into wire products. Looking back over the last decade, domestic shipments of wire rods for conversion into nails, staples, woven wire fencing, barbed wire, and baling wire have shown a persistent downward movement from the peak levels set in 1950 and 1951. On the other hand, imports of wire rods and wire products into the U.S. have risen steadily since 1952. In 1960, nearly 53 percent of all barbed wire, 43 percent of the nails and staples, and 31 percent of the wire rods available to consumers in the U.S. originated in foreign countries. According to many observers, this turn of events is due in part to price differences.

Pipe and Tubing. Over one-half of the nation's pipe and tube-making capacity is located in the Fourth District. The bulk of the capacity is centered in the production of small diameter pipe and tubing (less than 24 inches in diameter). Approximately one-third of the capacity in the District is for the production of seamless pipe, a high quality product requiring close control during processing. Such a requirement explains in part why a relatively large share of the pipe is produced in the District, fairly distant from many of its ultimate users. The nearer the pipe mill is to the source of its raw material (tube rounds and billets, in this instance) the easier it is to control the quality of the steel used, and thus the quality of the end product. On the other hand, electric-weld facilities for making the larger diameter pipe (over 24 inches in diameter) which is used in gas and oil transmission lines, are more widely distributed throughout the country. As might be expected, there is a heavy concentration of electric-weld facilities in Texas and California.⁽⁶⁾

⁽⁶⁾ Considerations of market location are especially important to electric-weld mills for making large diameter transmission pipe. In this instance, quality considerations are outweighed by the savings gained from shipping plate instead of the bulkier pipe.

According to the figures provided by the American Iron and Steel Institute, about one-half of the 7.1 million tons of pipe and tubing shipped by U. S. mills to domestic users during 1960 were delivered to warehouses and distributors for resale, and another 17 percent went directly to construction firms. The remaining 33 percent was purchased in small quantities by a wide variety of manufacturing and other firms in the U. S.

In addition to the principal use in the construction of pipelines, pipe and tubing have a number of industrial applications. However, most of these uses require only small quantities of pipe and tubing. The applications range from plumbing fixtures to furniture, bushings, and printing press rolls. The automotive, machinery, appliance, and commercial equipment industries are the major consumers of smaller diameter pipe and tubing.

Structural Shapes and Rails. District mills have expanded the capacity to produce structural shapes (girders, beams, and other steel members used in construction) at about the same pace as the rest of the nation. The fact that proximity to markets is an important consideration in the location of capacity for structural shapes suggests why the District accounts for only 22 percent of the total capacity of the industry. Large tonnages of structural steel capacity are located in or near major consuming areas of the northeast, southeast, mid-west, and far west.

Production of rails has ceased to be important in the Fourth District. The transfer by one company of its rail production from a location in the District to a mid-western facility accounted for the entire 90 percent decline in District capacity between 1957 and 1960. The latest reduction in capacity lowered the District's share of the national total to 1 percent. Moreover, the industry as a whole registered a 12-percent decline during the same period.

Steel Bars. Steel mills in the Fourth District have two-fifths of the capacity in the nation for producing cold rolled bars and about one-third of the hot rolled steel bar capacity. Bars produced by the hot and cold rolling processes are generally divided into four classes: hot rolled shapes, concrete reinforcing bars, cold finished bars, and tool steel. These classes accounted for 65 percent, 21 percent, 13 percent, and 1 percent, respectively, of the 10.5 million tons of steel bars shipped to domestic users in 1960.

The largest consumers of hot rolled shapes are the automotive industry, the construction industry, the machinery and industrial equipment industries, the forging industry, and the metal fastener industry. The construction industry purchases most of the concrete reinforcing bars. The automotive and industrial machinery industries are the largest consumers of cold finished bars. Metalworking and industrial equipment industries purchase a large part of the tool steel output.