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The Effect of War on Business Financing:

Manufacturing and Trade,
World War I

CHARLES H. SCHMIDT
and
RALPH A. YOUNG

UR ECONOMY IN WAR ★

FINANCIAL RESEARCH PROGRAM

NATIONAL BUREAU OF ECONOMIC RESEARCH

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Preface

THIS PAPER IS ONE OF TWO studies of the effect of war on business financing being made by the Financial Research Program, which is supported by grants from the Association of Reserve City Bankers and private organizations. It deals primarily with World War I, but it includes a few general comparisons with current wartime tendencies. A companion paper will provide a detailed analysis of the effects of World War II.

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Charles H. Schmidt, co-author of the study, was a member of the teaching staff of the Wharton School of Finance and Commerce of the University of Pennsylvania, and a research associate of the National Bureau's Financial Research staff, until he entered the United States Army.

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THE EFFECT OF WAR ON BUSINESS FINANCING:

Manufacturing and Trade, World War I

FOR THOSE WHO OCCUPIED positions of financial responsibility in corporate management during the World War I era, the record presented in this paper will bring memories of feverish financing experiences, which up to mid-1920 were more often profitable than unprofitable but were decidedly the reverse in the latter half of 1920 and in 1921. These experiences undoubtedly left a deep impression, which affected attitudes and policies for years to come. To those whose financial responsibility began at a later date, the record provides insight into a period rich in financial lessons.

This study has a single objective: to show simply, directly, and as comprehensively as available data permit, how economic developments of the World War I era affected the financial structure—assets, liabilities and net worth—of manufacturing and trade enterprise. No one thinks that history repeats itself in detail, but a survey of this nearest parallel to the World War II period can be useful in observing and interpreting current economic tendencies.

Facts on financial structure are only the trees, and not the forest itself. Therefore this study opens with a general review intended to outline the over-all financing tendencies of World War I as revealed in detail in the subsequent analysis. A comparison with financing tendencies in World War II is also presented, but only in summary fashion. Thorough examination of the way in which the financial structure of business enterprise has reacted to the demands of the current war is reserved for a later paper in the present series.

The seven-year period that followed the outbreak of World War I has been regarded, for simplicity of treatment, as consisting of three major phases: the financial expansion of the war years, 1915-

18; the postwar financial expansion, 1919-20; and the postwar financial contraction, 1921. To set the wartime record in perspective, comparisons are briefly made, so far as the data permit, with financial experience before and after the war period, particularly with the two peacetime periods of financial expansion, 1922-29 and 1933-37, and with the two peacetime liquidations of 1930-32 and 1938.

The historical data available to us for tracing the financial experience of enterprise during the World War I era are far less complete than one would wish. They consist only of annual financial statements of comparatively small samples of manufacturing and trade companies in two size groups — large companies (over \$5 million total assets) and medium and small companies (\$50 thousand to \$5 million total assets).

The large corporation samples probably account for about 10 percent of the number of large corporations in these fields in 1920, and for about 20 percent of the total assets held by them. But the samples of medium and small corporations include altogether only a few hundred out of a total number of more than 70,000, and thus represent only a minor fraction of the total assets of manufacturing and trade corporations in this size class. All available evidence relating to the World War I period indicates that the financial behavior of medium and small companies contrasted in many respects with that of large corporations, and our samples of medium and small concerns display such a contrast.

The samples were collected for the most part in connection with the Financial Research Program's Studies in Business Financing, one of which deals with changes in the financial structure of manufacturing and trade enterprise since the turn of the century. Appendix A, which discusses the methods and limitations of the present study, describes the samples in detail.

The charts and tables that illustrate the detailed discussion are based on aggregate financial statements for the samples. This method, although subject to well-known limitations, was adopted, first, because of its simplicity, second, because of interest in the overall financing tendencies of business enterprise, and third, because our records suffice to describe only the general contours of wartime changes in financial structure in manufacturing and trade. Aggregate balance sheet data and selected income statement data are presented in Appendix B.

FINANCING TENDENCIES, WORLD WAR I—A REVIEW

Probably the most powerful influence affecting the financial experience of corporate enterprise over the 1915-21 period was the wartime inflation of prices and the postwar price collapse. Over the six-year period following the outbreak of war, the wholesale price level more than doubled, and then during a single year it declined more than one-third. Business accounts clearly mirrored the wartime inflation and postwar deflation of prices and, what is more significant, they reflected the changing attitudes and policies of corporate management, which were among the strategic elements of the inflation and deflation process.

For six months prior to the outbreak of World War I, business activity in the United States had receded, and the immediate effect of the European conflict was to accelerate this recession. Within a year, however, revival succeeded recession, and domestic recovery forces were strongly reinforced by an inflow of orders from abroad, especially from belligerents for military supplies. Idle productive capacity was quickly reemployed, and corporate earnings and resources in manufacturing and trade began a rise that continued through 1920. Per annum rates of growth in business asset investment attained levels higher than those in any of the three prewar expansions (1904-07, 1908-10, and 1911-13) or in either of the peacetime expansions that followed (1922-29 and 1933-37).

At the outset of wartime revival, current or working assets were relatively scarce, fixed assets abundant. The financing problem of manufacturing and trade enterprise was therefore to provide working assets, and the problem was soon accentuated by the advance of prices. For enterprise in both fields the increase in working assets—inventory, receivables, cash and marketable securities—was exceptionally rapid. The growth of such assets in proportion to total assets was especially marked during the war years proper, and was more noteworthy among large corporations than among medium and small concerns.

The increase in the book value of inventory over the war and postwar expansions (1915-20) reflected in part the effects of rising prices and in part larger holdings of physical stocks, both on hand and in transit. Inventory turnover, i. e., the dollar volume of inventory in relation to sales, declined through the war years for large companies as well as for medium and small concerns, suggesting that

protective and speculative inventory buying, induced by the price rise, and by transportation bottlenecks, exerted a cumulative inflationary influence on wholesale prices. After the war the inventory turnover of large corporations continued to decline, but that of the smaller companies moved upward. On the whole, inventory accumulation—by both large and smaller companies during the war years proper, and especially by the larger companies in the post-war years—appears to have been a strong factor in the financial expansions of 1915-20. Concerning the postwar years, price advances and shipment delays aggravated inventory speculation and provoked duplicate ordering on an exceptionally wide scale.

The wartime increase in dollar inventory helped to swell corporate profits because, as long as wholesale prices rose, the then prevalent methods of inventory accounting in manufacturing and trade generated unrealized book income as a result of the lag between the time of purchase and the time of sale of inventory. These methods, though based on averages of inventory cost, more nearly approximated the first-in, first-out ("fiffo") method of inventory valuation than any other. A substantial proportion of large companies made provision, through the establishment of special inventory reserves, for book losses that were bound to occur if the wartime price advance were converted by the cessation of hostilities into a decline, but in general these reserves were inadequate to meet the contingency of such a drastic price recession as occurred in 1920-21. A few of the more conservatively financed companies, e. g., the U. S. Steel and International Harvester Corporations, valued inventories in reports to stockholders at prewar prices and carried the difference between these values and cost as inventory reserves.

The growth in manufacturing and trade sales during the war years was accompanied by an increase in trade receivables, but the increase of other quick assets—cash and marketable securities—was even greater, and thus the liquidity of quick assets increased. During the war years the rise in the cash balances of manufacturing and trade corporations appears to have been somewhat more rapid than the increase in demand deposits of banks, largely because of increased cash balances among the large enterprises; but in the post-war years cash balances increased at about the same rate as circulating deposits. And marketable securities, which were a negli-

gible proportion of business assets in 1914, expanded during the main period of American war borrowing (1917-18) into a significant item both for larger and smaller companies. Much of this investment was of course a patriotic response to the Liberty Loan drives and did not reflect a deliberate policy of building up corporate liquidity by investment in marketable securities. Large manufacturing companies liquidated marketable securities in 1919-20, and large trade companies did so in 1920, and from all the evidence this liquidation was large enough to help weaken the market for government obligations in these years; prices of government bonds fell slightly toward the end of 1919 and sharply in the early part of 1920. Some companies built up holdings of marketable securities while others were liquidating; this seems to have been particularly true of smaller concerns in manufacturing and trade.

The expansion in wartime production, which was stimulated by war orders, by increased consumer incomes and by rising prices, prompted both manufacturing and trade enterprise to add new plant facilities. Not all of the plant expansion of the war years is visible in accounting records, for in war industries some contracts provided for the cost of special new facilities to be financed by contract advances. Prior to our entry into the war, European belligerents financed plant expansion in this way, obtaining a large part of the funds advanced from proceeds of security sales in American markets. Some plant expansion was covered under war contracts of our own government, 1917-18. Each of our samples had smaller percentage additions to fixed property in 1918 than in 1917—a consequence of war priorities and shortages—but there was some revival in fixed property additions in 1919 and an extremely sharp expansion in 1920. The average annual rate of investment in fixed property (increase, net of depreciation as shown by corporate accounts) between the end of 1918 and the end of 1920, and the average ratio of fixed property expenditure to the property account for those two years, were the highest attained between 1915 and 1937—a period including two wartime expansions (1915-18 and 1919-20) and two peacetime expansions (1922-29 and 1933-37).

For large companies the annual rate of investment in plant and equipment was lower, on the average, during the war years proper than during the expansion years of the '20s; for the smaller companies this rate was higher during the war years than in the '20s.

Over the expansion years of the '30s, on the other hand, all our samples except large trade corporations showed declines in plant and equipment account.

Granting that our wartime data are incomplete, it nevertheless seems that the increased output of military supplies was accomplished without abnormally large additions to manufacturing facilities financed by war industry itself, especially if allowance is made for the inflated building and equipment costs of this period. Moreover, such additions as there were apparently did not seriously interfere with plant expansion among manufacturing and trade enterprises serving consumers. The expansion of plant facilities in 1919-20 was clearly a response to the outburst of postwar consumer spending in this country, to an unprecedented influx of orders from world markets, and to business optimism that these developments engendered at prevailing and prospective price levels. In addition, the modernization of facilities became desirable as an aid to maintaining the high wage rates that had been established during war years. To judge from our samples, most of the wartime additions to the book value of fixed property accounts, however much inflated by abnormal costs, were carried over into the '20s at cost less depreciation, without special postwar write-downs. However, some postwar write-downs were taken on war-built plant and equipment, after individual companies had established the economic obsolescence of such facilities, as permitted under wartime corporate income tax laws.

The postwar increase in the fixed property expenditures of manufacturing and trade enterprise has been interpreted as representing, in significant part, replacement deferred during war years. The accounting records for our samples suggest that on the whole such corporations spent their depreciation and depletion accruals for replacement during the war period proper. The postwar expansion in plant facilities seems to have represented deferred replacement only to a small degree; to a much greater extent it developed because going concerns launched new business projects, some of which had been planned during the war years and deferred, some of which were newly conceived ventures. Among railroads, however, deferred replacement was probably of considerable importance, and their postwar expenditures for deferred replacement and property betterments undoubtedly swelled the demand for the out-

put of manufacturing industry and, indirectly, for trade services as well.

Manufacturing and trade companies as a whole earned more and saved more in the wartime expansions than in the succeeding peacetime expansions: a much larger proportion of these corporations reported profits to the Treasury during the war and postwar expansions than in the expansion period of the later '20s or that of the '30s. After the second year of the war, profits after taxes tended to decline in relation to sales, but in relation to net worth they reached higher average levels than in the interbellum expansions. After 1916 corporate taxes took a large part of net income, claiming in 1918 as much as 45 percent of manufacturing profits and 35 percent of trade profits.

While retained earnings were an important source of funds for financing asset investment, external sources were also relied upon heavily. Short-term debt, a large part of which was bank debt, was the chief external source during the 1915-18 expansion for both the larger and the smaller companies represented in the samples we have observed; but in the postwar expansion sales of stocks and bonds exceeded in importance short-term debt as an external source of funds. In general, however, fixed asset investment was financed by retained earnings plus sales of new securities—stocks or bonds; and short-term debt, where relied upon, was confined to financing additions to working assets. In this respect the financing of wartime asset expansion was consistent with accepted standards of prudence. There were exceptions, perhaps too numerous as events turned out; our samples in each year had a few companies that financed part of their long-term investment needs by means of short-term debt.

The rapid expansion of bank deposits that occurred during the years 1915-20 was closely paralleled by the growth of bank loans. According to national bank figures, loans to manufacturing and trade enterprise constituted nearly half of the bank loans outstanding at the end of 1920. It seems clear, therefore, that increased borrowing by manufacturing and trade was a factor of considerable importance in the inflation of bank credit during the war and postwar periods. There are indications also that during the 1915-20 period the greater reliance on bank debt characterized the large corporations more than the smaller concerns. Over the entire six-year period, there apparently was a very considerable increase in

the total *number* of small and medium-size companies that owed debt to banks, but only a moderate rise in the average amount of such debt; on the other hand, the increase in the total number of large corporations that owed debt to banks was probably small, but the average amount of notes payable increased greatly.

One of the striking features of corporate financial behavior in manufacturing and trade during 1915-18 is the extent of the changes in balance sheet relationships that in prewar years had come to be regarded as "normal." The first departures from prewar rule-of-thumb standards were undoubtedly viewed as "temporary and essential expedients," but they were soon crystallized by the requirements of national war finance and by the process of wartime price inflation. While the new pattern of corporate balance sheet relationships reflected elements of strength—larger holdings of cash, marketable securities and receivables, and even increased working capital — it also reflected elements of weakness, such as higher book values of inventory, unprotected by adequate reserves for price recession, and greatly augmented short-term debt in the form of notes and accounts payable.

During the war years changes of this sort were more marked in the case of the large corporations. They were the enterprises to incur the stronger impact of wartime expansion pressures, and they were in a position to command promptly the large amounts of credit needed to finance wartime asset expansion, particularly the expansion of current assets. But financial expansion by medium-size and small enterprises was likewise greatly stimulated in the early phase of the war period, and these companies too showed marked changes in balance sheet proportions from prewar years.

The story of financial experience in manufacturing and trade during the postwar boom of 1919-20 is one of accelerated growth in business assets and liabilities. For a time after the Armistice, many business leaders anticipated a substantial recession in wholesale prices and were hesitant in undertaking forward commitments. Both consumer and producer markets, however, received support from various sources: for example, the continued military expenditures of the Federal government; expenditures of bonuses and savings of discharged soldiers; expenditures of abnormal cash balances by industry and trade to maintain current operations and to make postwar readjustments; the expenditure of funds for special pur-

poses, obtained by business enterprises and ultimate consumers through the liquidation of Liberty Bond holdings; and the expenditure by foreign nations of accumulated dollar balances, of proceeds from new foreign loans, and of intergovernmental advances from the United States.

Although wholesale prices sagged in the first quarter of 1919, they failed to decline seriously as a whole, and soon began to move upward. This had a decisive effect on business expectations. As consumer and business spending gathered force, business sentiment turned buoyantly optimistic. Optimism was soon reinforced by unprecedented demands from world markets, demands that carried the dollar volume of exports and the balance of merchandise trade to record levels for the entire period between the two World Wars. Three strategic financial elements helped to make these great expectations effective: first, the willingness of banks to renew loans to borrowers with established lines of credit; second, the easy access to new bank and trade credits in domestic and foreign trade; third, the availability of the capital markets to private financing, now that the Treasury war financing program was ended and the control of the Capital Issues Committee relaxed.

Postwar sales of large manufacturing companies were well sustained in 1919-20, especially by heavy export demands, but sales of trade and of medium and small manufacturing corporations moved sharply upward, mainly in response to the heavy wave of consumer buying financed from savings, bonuses, and current income. The accompanying financial prosperity of large trade companies and of thousands of the country's smaller enterprises was probably a major stimulant in the 1919-20 investment boom. It is significant that the proportion of manufacturing and trade corporations reporting profits was higher in 1919 than in any other year of the entire period 1914-39. Furthermore, there were fewer business failures in 1919 and 1920, and a higher ratio of new business enterprises to discontinued enterprises, than in any other years from the outbreak of World War I to the end of 1939.

It seems justifiable to say that while the financial expansion of 1915-18 was accentuated by the sustained response of large manufacturing corporations to wartime production and price stimuli, the expansion of 1919-20 was intensified by the response of large trade companies, and of the majority of medium and small com-

panies in both manufacturing and trade, to a price, market, and transport situation that was especially stimulating to them. The fact that in 1918 there was a check to the expansion of plant and equipment facilities in trade and in medium and small manufacturing, plus the fact that the war years 1915-18 had been a time of high profits, high corporate savings and rapid working capital growth, combined to produce the needed financial flexibility among all sizes of concerns to take advantage of diversified demands, domestic and foreign, after the war.

For most manufacturing and trade concerns 1920 was a year of profitable operation, but by mid-year business activity and prices had passed their crest, and by the end of the year demoralized commodity markets, widespread cancellation of orders, and mounting unemployment showed the acute financial distress of business enterprise. For the year as a whole, however, financial accounts reflected mainly a sharp expansion in resources; the effect of deflation was not recorded until 1921, when the current assets and debt of many manufacturing and trade companies suffered drastic shrinkage.

Although the financial distress of business concerns was only one of many factors that contributed to the 1920-21 recession, there is no doubt that the distress was severe and important. Several considerations illustrate its intensity.

First is the severity of the fall recorded in wholesale and retail prices. Between the middle of 1920 and the middle of 1921, the span of a single year, a sharper and more rapid decline in wholesale prices occurred than over the three-year period of drastic deflation from the middle of 1929 to the middle of 1932. Only farm prices declined more severely in the latter and longer period than in 1920-21. The percentage decline in retail food prices and in the cost of living was practically identical, judging from available indexes, for the two periods.

Second was the fact that falling prices imperilled commitments on forward orders, commitments to buy of both manufacturers and retailers, and commitments to sell of manufacturers. Postwar rising prices, and the artificial shortages which they precipitated, coupled with transportation bottlenecks, encouraged the practice of duplicate orders. When inventory stocks accumulated more rapidly than sales, cancellation of duplicate orders followed; and when it ap-

peared that deliveries were still in excess of needs, further cancellations followed. Domestic cancellations quickly spread backward from retailing, and as they gained force, receding prices brought a virtual avalanche of cancellations from international markets. In December 1920, the committee on finance and currency of the Chamber of Commerce of the State of New York issued a report declaring: "The wave of cancellations of buying orders and repudiation of sale by buyers, which at present is sweeping the world and is menacing also the United States, has called forth a great concern in business and banking circles."¹ Reputable concerns in these circumstances were confronted with a difficult choice. In many cases, enforcement of contracts to sell meant the conversion of inventory into receivables of dubious collectibility, with the serious danger that the latter would shortly become bad debts. Commitments to buy, on the other hand, involved a concern's credit standing in the trade, future as well as present, and were not lightly repudiated by responsible companies. One large rubber concern, reorganized in 1920, set up a reserve of \$24 million to cover losses on its commitments for future delivery. Manufacturing companies, whose post-war prosperity depended heavily on foreign orders, were especially vulnerable in this situation.

A third indication of the severity of the 1920-21 recession is the reduction in the book value of inventory that resulted from sales and write-downs. For the large manufacturing and trade companies included in our samples, the percentage reduction for the single year 1921 was roughly four-fifths of the percentage decrease over the three-year liquidation of 1930-32. Inventory write-downs of a group of 64 large manufacturing and trade companies for which information is available totaled \$344 million in 1920-22—for each corporation an average of more than \$5 million that disappeared into thin air. Such write-downs in 1920 amounted to 18 percent, and in 1921 to 13 percent, of beginning-of-year book value. Corporations that did not recognize the losses resulting from the collapse of prices by means of inventory write-downs, nevertheless experienced them in the form of smaller operating profits or larger operating losses arising from higher costs of goods sold.

Fourth is the fact that at the end of 1920 much of the swollen

¹ Chamber of Commerce of the State of New York, "Report of the Committee on Finance and Currency," *Monthly Bulletin* (December 1920) p. 13.

dollar inventory holdings were financed by short-term debt. It is true that a good deal of this debt was legitimate by conventional credit standards (e. g., the rule of thumb that there should be two dollars of current assets for each dollar of current debt). Nonetheless, about half of the companies represented in our samples had short-term indebtedness, including income tax accruals, that exceeded the highest amounts of "cash throw-off from operations" (net profit plus non-cash charges against income) in any one year of the entire war and postwar period 1915-20; and in some cases the excess was substantial. It seems clear that many business concerns, in following their accustomed practice of looking to future sales at the current price level for the liquidation of their short-term indebtedness, failed to discount fully the possibility of a sudden and drastic decline in prices that would prevent the full retirement of outstanding debt from current transactions. The companies represented in our data, while they are not numerous, are all concerns that survived both the liquidation of 1920 and the prolonged depression of 1930-32; in other words, they represent the more ably managed companies. Obviously, the debt problem faced by many imprudent and less well managed concerns must have been critical indeed, considering the commitment and inventory situation at that time.

Given the exaggerated business optimism occasioned by the fact that no serious postwar recession in prices developed in 1919, and by the prompt emergence of active demands for goods from domestic and world markets, it was perhaps inevitable that prudence and caution in financial management should have been thrown to the winds in early postwar years. And when this attitude was combined with the financial unbalance that had accumulated over four years of war prosperity, it seems inevitable, from today's vantage point at least, that business assets in postwar years should have deteriorated in quality as they increased in quantity, and that a severe financial crisis should sooner or later have resulted.

Considering the nature of the eventual crisis, its international as well as domestic basis, it could hardly have been avoided by any makeshift policies of business, banking and government, conceived and applied at the moment. Unfortunately, business departures from prudence in commitments to buy and sell, in inventory holdings, and in short-term business debt had gone too far in too many

cases. Furthermore, the participation of manufacturing and trade concerns in the speculative excesses of the period was widespread; in certain industries—of which automobiles, textiles, rubber, paper, retailing and wholesaling were outstanding examples—financial overextensions were numerous and conspicuous. Orders for goods were too often placed and accepted with a reckless disregard for the responsibilities involved. The ultimate liquidity of too many debt commitments, however consistent with customary practice and with the commercial credit theory underlying the newly established Federal Reserve System, was solely dependent on impending transactions at the inflated level of prices then prevailing; in other words, too few concerns took sufficient account of their future capacity to retire debt from funds retained from operations in case short-term market expectations failed to materialize. Lastly, too many business creditors and debtors were unprepared to make debt adjustments once financial crisis was at hand; too few of them had anticipated the possibility of such a crisis, and too few debtors had refunded excess short-term debt in time, or converted it into equity. In brief, businessmen, bankers, and public officials had simply raised their sights on the future too high and in so doing had overlooked immediate realities. Nothing except a different set of postwar business expectations, a less ambitious scale of business planning, and stricter adherence to older standards of financial prudence could have altered the result.²

Whether wartime taxes on corporate profits accentuated the wartime inflation of business debt, by reducing the funds available for internal financing or self-financing, is debatable. It is true that higher profits after taxes, if not paid out in dividends, would have made it possible to expand corporate resources after the war with less reliance upon current debt; on the other hand, such a fiscal policy would have made it more profitable to “trade on equity” by financing current operations with bank and trade credit. Moreover, departures from pre-1914 business standards of balanced financial structure had gone far even before the United States entered the war, and it cannot be said with certainty today that untaxed profits would have been used to liquidate current debt.

Opinions will differ as to whether the abrupt liquidation of cur-

² See in this connection Stella Stewart, *Post-War Planning of World War I*, U. S. Bureau of Labor Statistics, Historical Study No. 63 (May 1943).

rent assets and short-term debt, given the inflated financial structure of 1920, was desirable from the standpoint of the long-run prosperity of the whole economy; and as to whether business enterprise could have avoided participating so extensively in the postwar accumulation of inventory, of current debt, and of forward commitments to buy and sell. Business concerns were, of course, following long-established practices of financing current operations, and their policies were formulated by executives whose experience did not embrace a single period of drastic price deflation. Furthermore, the business contraction and price deflation of 1920-21 was more than a crisis of commitments, inventory and current debt; irresponsible cancellation of orders and the heavy liquidation of inventory and business debt seem mainly to have made the contraction more severe. Nevertheless, it was unfortunate that the postwar environment induced such widespread disregard of financial prudence.

In drawing general conclusions from this paper, it should be borne in mind that only a limited segment of the economy is dealt with here, and only a few of the factors involved. Many elements other than those associated with the financing of manufacturing and trade enterprise determined the course of the war period financial expansion, and many other elements, international as well as domestic, operated to bring about the postwar liquidation. The difficulties that beset any effort to obtain a completely comprehensive view are so great, however, that use must be made of investigations of more limited scope. Only by comparing the views of a number of different observers will it be possible to develop the entire record of World War I and absorb fully the economic lessons of that period.

FINANCING TENDENCIES, WORLD WAR II —

A PRELIMINARY COMPARISON

Compared with the present conflict, World War I was part-time. Even in 1918, the year of greatest effort, probably only a little more than a fifth of the national product was devoted to war. Military output made no serious inroads on civilian supplies until the second half of 1918, and by the end of that year hostilities had ceased and demobilization was in full swing. But in 1941, before the country was directly involved in World War II, one-tenth of the national

product was absorbed by military outlays; in 1942 war took one-third of the national product, and in 1943 it will take at least one-half.³ The business financing problems precipitated by this greater concentration of effort upon war needs, while they find some parallels in World War I experience, are much more complex and difficult than the ones which arose in the earlier period.

At the outbreak of World War II the pattern of business debt among manufacturing and trade companies, in relation to size of enterprise, was similar to that at the outbreak of World War I. Broadly speaking, equity was high and debt was low for large corporations and very small corporations, the highest ratios of debt to equity occurring in the medium and small enterprise classes; an exception was wholesale trade, where the debt ratio rose with size. But economic changes that occurred between 1914 and 1939 had altered the significance of the pattern. First, the composition of manufacturing and trade was considerably different in terms of activities, as a result of the integration of business processes, of the growth in the importance of durable goods, and of other changes in the structure of the economy. Second, the average size of enterprises was greater, and a slightly greater proportion of enterprises, partly because of the many consolidations and mergers of the '20s, were in the large-size-high-equity category, which includes those with total assets in excess of \$5 million; in consequence, for manufacturing and trade as a whole, the relative importance of debt in financial structure had declined.⁴

Also the financial expansion that has taken place in manufacturing and trade enterprise since the beginning of World War II resembles, in several important respects, what occurred during the World War I period. Sales of large corporations (particularly in manufacturing) have increased more than those of medium and small-size companies (except for smaller companies whose products are essential to the war effort, such as aircraft and machine tools). Asset investment, especially of large corporations in strategic industries, has once more been greatly accentuated. Current assets of

³ Milton Gilbert and George Jaszi, "National Income and National Product in 1942," *Survey of Current Business* (March 1943) pp. 10-19.

⁴ These general observations are drawn from an unpublished study by Sidney S. Alexander, *Changes in the Financial Structure of American Business Enterprise, 1900-1940*, National Bureau of Economic Research, Financial Research Program (ms. 1943).

manufacturing and trade — cash, marketable securities, receivables and inventory — have again expanded in relation to total assets, and current debt too has risen.⁵

But there are also conspicuous differences between the two war period expansions. Because of the increased mechanization of modern warfare the need for specialized productive plant is immeasurably greater in World War II than it was in World War I; and the loss of shipping facilities and of foreign sources of supply — of tin and rubber, for example — has greatly extended the number and variety of goods that must be produced. Much of the industrial plant capacity needed for the present war has had to be newly constructed. At the end of 1939 the total book value of plant and equipment in all manufacturing industry, net of accrued depreciation, amounted to about \$23 billion; by mid-1943 almost \$20 billion of new plant capacity for war production was either finished or in process of construction,⁶ substantially over half of which was in industries whose facilities may have some peacetime application.

Approximately 80 percent of this new construction has been publicly financed, either under Emergency Plant Facilities Contracts of the Army, the Navy or the Maritime Commission, or by the Defense Plant Corporation, the Reconstruction Finance Corporation,⁷ or the British government. In comparison with a figure of about \$15 billion of publicly financed additions to industrial plant made during the present war, the amount so spent during World War I probably did not exceed \$750 million,⁸ and the bulk of this investment was for production of munitions and ships. For the most part the financing of World War I additions to manufac-

⁵ See Roy A. Foulke, *Our Critical Wealth in Inventories*, Dun & Bradstreet, Inc. (New York 1942) pp. 37-39 and 52-71, which gives a significant summary report of financing tendencies in 70 lines of business activity (42 manufacturing, 21 wholesaling and 7 retailing) for the years 1937-41.

⁶ Based on War Production Board press release, June 30, 1943.

⁷ As of November 1, 1942, the Reconstruction Finance Corporation and its subsidiaries had financed or contracted to finance the construction, equipment or expansion of 1,337 plants for the production of war materiel, the total cost being in excess of \$8.3 billion.

⁸ Lowell J. Chawner, "Capital Expenditures for Manufacturing Plant and Equipment, 1915 to 1940," *Survey of Current Business* (March 1941) p. 10, gives a figure of \$500 million total publicly financed additions to manufacturing facilities, 1917-19. Although information is not available, it appears that some additional facilities were financed by Allied governments, 1915-17.

turing capacity was effected through industrial channels without direct participation by the Federal government in the risks of ownership, and such additions were on a moderate scale in comparison with those in the present war. Thus there was no serious legacy of government-owned plant and facilities to be disposed of by dismantlement and scrap, by public operation, by outright or installment sale to private interests, or by lease.

What differences World War II plant expansion may make in postwar property expenditures cannot be foreseen, but they are almost sure to be relatively large, as they were in the first postwar period, because of heavy reconversion and replacement outlays. Property expansion in trade during World War II has probably been more severely curtailed than during World War I.

With the wartime increase in consumer incomes, retail and wholesale trade lines have prospered in terms of sales during World War II, as they did in World War I. But although the growth of trade inventory was stimulated in both war expansions, in World War II the sharp curtailment of production of civilian supplies has abruptly checked the increase in trade inventory and has resulted in depletion of accumulated stocks in spite of the imposition of a general price ceiling, and the introduction of consumer rationing. Thus while trade concerns generally were well stocked in November 1918, the shelves and warehouses of many such enterprises may be almost empty at the end of World War II. As for manufacturing industry, durable and non-durable goods producers appear to have increased their dollar inventory at approximately the same rate during World War I, but during the present war the rate of inventory growth of durable goods producers has greatly exceeded that of non-durable goods manufacturers.

Throughout World War I the risks of current inventory accumulation were to a large extent a primary responsibility of private enterprise, though in war production there were contract cancellation clauses that provided compensation for the purchase of materials needed in filling orders for war supplies. During World War II, on the other hand, special public financing agencies, mainly subsidiaries of the RFC, have undertaken to share in risks attendant on inventory accumulation for war output: by agreeing to purchase inventories for prospective war contractors, whether prime or subcontractors, in advance of visible sales to public agencies; and also

by direct acquisition of inventory of strategic supplies, holding and selling it as needed. In addition, these agencies have undertaken to finance inventory immobilized by rationing or other restrictions, or have committed themselves to purchase it. No estimate of the total World War II participation by public agencies in the risks of inventory accumulation is possible, but fragmentary information indicates that in manufacturing alone it may have amounted to as much as a fifth of total inventory by the beginning of 1943.

In World War I, manufacturing and trade companies commonly valued inventory by methods that approximated the first-in, first-out ("fiffo") principle, which operated in a period of rising prices to inflate book profits, and in a period of falling prices to accentuate book losses. Realization of this fact led a few manufacturing concerns to introduce, during the '20s, the last-in, first-out ("liffo") method of inventory valuation, which moderates the effects on profits of rapid changes in inventory values. The price deflation of the '30s increased the use of this method of inventory pricing in manufacturing, and the outbreak of World War II greatly accelerated its application, especially among large concerns.⁹ A number of trade concerns, while precluded by their inventory control methods from a strict application of the last-in, first-out method of inventory pricing, have sought to obtain comparable results by adjusting their closing inventory on the basis of a retail price index to a value approximating "normal or average" cost.¹⁰

During World War I the financing of working capital requirements of manufacturing and trade was chiefly by private enterprise itself, through short-term credits from banks and trade sources. In World War II these sources have again been important, but trade credit and deferred tax payments, that is, tax accruals, have played a larger role than in the last war period. Whereas total loans and discounts of all banks increased 39 percent over the first three years

⁹ "It is interesting to note the increasing use of the last-in, first-out method. With generally increasing prices of materials, more and more people object to showing profits and paying taxes on what, under the first-in, first-out method, is merely an increase in the price level for the same inventory quantities and not a real profit." C. Oliver Wellington, "Financial Statements in Wartime," *Journal of Accountancy* (July 1943)

P. 57.

¹⁰ See the *New York Sunday Times*, June 27, 1943, Section 3, p. 6, in which close to 100 retail concerns are credited with applying this method in filing their income tax returns for 1941-42.

of World War I, they decreased by 7 percent over the equivalent period of World War II. Commercial and industrial loans have risen, as in the first war, but thus far they have been quite a small factor in the total wartime inflation of bank credit.

Cash balances of medium and small business concerns in manufacturing and trade increased about in proportion to demand deposits of banks during the war years 1915-18, while those of large corporations increased somewhat more rapidly. In the early stages of World War II, cash balances of business concerns of all sizes grew in rough proportion to demand deposits, but after late 1942 they increased at a substantially greater rate.¹¹ This reflects an increased need for cash to meet the greatly expanded volume of wartime disbursements; it also reflects, in many cases, the liquidation of inventory and receivables, the postponement of maintenance and replacement expenditures, the accumulation of reserve funds, the accrual of tax liabilities, and the failure to reinvest retained earnings in other assets. The fact that the cash balance gains of manufacturing and trade enterprise during 1915-18 were not lost in the immediate postwar years may have prophetic significance.

Progress payments and, in some industries, advances on war contracts helped to meet working capital needs in World War I. The broader scale of World War II, and the greater number of prime and subcontractors, have magnified the problem of providing working capital aid to war production industries. To expedite the financing of subcontractors, and to alleviate the dependence of prime contractors upon contract advances and progress payments, commercial banks have been guaranteed since May 1942 by the Army, the Navy and the Maritime Commission against losses on loans to war contractors arising out of the cancellation of war contracts. Advances outstanding under loan agreements, guaranteed through the Reserve Banks as agents (under Regulation V of the Board of Governors of the Federal Reserve System), amounted to about one-tenth of total commercial and industrial loans of all insured banks by the middle of 1943, and total loans authorized exceeded one-third of total commercial and industrial loans outstanding. To

¹¹ See the results of the survey by the Federal Reserve System, "Ownership of Bank Deposits," *Federal Reserve Bulletin* (October 1943) pp. 917-22; also C. R. Whittlesey, *The Effect of War on Currency and Deposits*, National Bureau of Economic Research, Financial Research Program, Occasional Paper 11 (1943) pp. 20-24.

help meet the special financing needs of small business concerns engaged in producing war materials or essential civilian goods, the Smaller War Plants Corporation instituted in November, 1943 a repurchase plan for bank loans up to \$25,000 extended to small-scale producers. Restrictions on consumer credit, and limitations on inventory accumulation as a result of rationing, have operated to hold down the expansion of working capital in trade, and hence have checked demands for short-term bank credit in this field.

Complete information on the total amounts that were involved in contract cancellations at end of World War I is not available, but it has been estimated that war agencies terminated approximately 32,000 separate contracts, with an aggregate uncompleted value of about \$5 billion.¹² In the neighborhood of 7,000 contracts remained unsettled one year after termination, of which about 800 contracts were ultimately adjudicated through the United States Court of Claims at an average time expenditure of three and one-half years. On the basis of the production program of World War II, it is estimated that the end of hostilities will witness cancellations in excess of a hundred thousand contracts, having an uncompleted value anywhere from \$60 to \$75 billion, and involving inventories on hand of from \$10 to \$15 billion.¹³ Sheer number of contracts and the magnitude of sums involved makes the problem of contract termination after World War II vastly more complicated than after World War I. Many manufacturing companies, prime and sub-contractors, face the possibility of having to finance postwar reconversion from working capital, whose liquidity is dependent upon the fair and speedy settlement of war contracts when canceled at the close of hostilities.¹⁴

¹² Report of the Research Committee, Committee for Economic Development, *Postwar Employment and the Settlement of Terminated War Contracts* (October 1943); also J. Donald Edwards, *Termination of Ordnance Contracts, 1918*, U. S. Bureau of Labor Statistics, Historical Study No. 57 (January 1943); and Lieut. Col. Harold Shepherd, *Settlement of War Contracts*, Army Ordnance Report No. 2, Army Ordnance Association (August 9, 1943).

¹³ Report of the Research Committee, Committee for Economic Development, *op cit.*; also M. R. Gainsbrugh and M. N. Struever, "Cancellation of War Contracts, World War I," National Industrial Conference Board, Inc., *The Conference Board Economic Record* (March 1943) pp. 55-59; and "The Settlement of War Contracts," *National City Bank Letter* (March 1943) pp. 29-32.

¹⁴ The standard contract termination clause used by the War Department is discussed in Shepherd, *op. cit.*

The war finance mechanism of World War I made no advance provision for the impact of war contract termination; the World War II situation in this respect is strikingly different. To the extent that war contract inventory is covered by government purchase commitments, the threat of partial freezing of corporate working capital during contract settlement is lessened. Moreover, where working capital needs for war contracts have been financed with the aid of Regulation V loans, there are provisions for the automatic extension of outstanding advances, upon cancellation of contracts, and for relief from interest and principal repayments until settlement of contracts.¹⁵ Finally, new regulations have been issued for V loans, called VT loans, under which guaranteed credits may be extended with the object of freeing business working capital in the event of war contract termination in response to swiftly changing war requirements, subject like Regulation V loans to the same automatic relief from interest and principal repayments until settlement of canceled war contracts.¹⁶ While Regulation V and VT loans protect war contractors against the necessity of liquidating current debt suddenly, and thus assure maintenance of postwar working capital positions, there are some who feel that the contract termination problem cannot be fully met in this way, and that some new mechanism for settling war contracts quickly and equitably must be provided.¹⁷

Maintenance expenditures have necessarily been postponed by priorities and material shortages, and this deferment has tended, especially in non-war enterprises, to inflate corporate profits subject to taxes — regardless of any impairment of the productivity of physical plant that may affect the profitability of operations in the postwar period. Material shortages were less stringent during World War I, and thus profit inflation arising from postponed mainte-

¹⁵ The relation of Regulation V loans to contract cancellation is clearly shown in Roy A. Foulke, "Let's Tackle the First Post-War Problem Now," *Dun's Review* (May 1943) pp. 7 ff.

¹⁶ Effective September 1, 1943; see the *Federal Reserve Bulletin* (September 1943) pp. 849-50.

¹⁷ Report of the Research Committee, Committee for Economic Development, *op. cit.*, in which special legislation is recommended to create a contract settlement board with broad powers, to provide "loans" on unsettled contracts awaiting verification of claims, to establish a uniform formula for contract settlement, and to provide for expansion of legal machinery to expedite appeals of dissatisfied contractors.

nance expenditures was probably a less important factor at that time in the financial experience of manufacturing and trade.

With regard to the taxation of corporate income in the two war periods, several factors are noteworthy:

First, the over-all tax burden was considerably lighter in the first war than at the present time — 45 percent of net income in 1918, the year of heaviest taxes, as compared with a maximum effective tax rate of 80 percent under the Revenue Act of 1942. Not only is the total amount of the tax substantially larger at present, but also the structure of corporate income taxes is different: in 1918 there was a 12 percent normal tax, no surtax, and an 80 percent war and excess profits tax; under the tax law of 1942 the combined normal and surtax is 40 percent and the excess profits tax 90 percent. This difference in the structure of tax rates means that a smaller component of the total annual tax assessment is considered an abnormal wartime levy, while a larger component is regarded as a normal, continuing charge against annual earnings. Business expectations as to possible postwar reductions in corporate taxes must take this fact into account.

Second, as an incentive to expansion of industrial capacity, corporations in World War I were allowed to accelerate depreciation on specially constructed war plant and facilities. However, the amount of accelerated depreciation was left to be determined under normal peacetime conditions, so that tax relief was only realized in the early '20s when economic obsolescence could be established in conformity with tax laws. In World War II, concerns expanding plant and facilities under emergency conditions have been permitted to amortize costs of expansion over a 60-month period (or less, if the emergency ended sooner), provided these facilities had been certified as necessary for national defense or war purposes.¹⁸ Immediate tax relief by virtue of accelerated depreciation has thus been available currently on the basis of proper certification by the contracting government agency. The prospect that postwar tax rates may be lower has been the principal incentive for taking advantage of accelerated depreciation on privately constructed war

¹⁸ Effective June 10, 1940 through October 5, 1943. An illuminating account of the role of accelerated depreciation in World Wars I and II is given by E. Cary Brown and Gardner Patterson, "Accelerated Depreciation, A Neglected Chapter in War Taxation," *Quarterly Journal of Economics* (August 1943) pp. 630-45.

plants. Over \$5.5 billion worth of private investment in World War II facilities has been certified for accelerated depreciation, against around \$700 million worth of facilities so amortized under World War I tax law.

Third, in view of the high level of taxes attained in World War II the government has assumed some responsibility for providing business with funds from which to meet postwar conversion and adjustment expenses. The Revenue Act of 1942 allows a postwar credit amounting to 10 percent of excess profits taxes, with a proviso that corporations retiring debt may under certain conditions avail themselves of this credit immediately.

Fourth, as a result of the carry-back provision applicable to net operating losses, a corporation whose deferred maintenance and re-adjustment expenditures are so large as to result in postwar operating losses is entitled to apply these losses against earnings of the two preceding years, and to claim a refund of taxes paid; in like manner it may carry any remaining loss balance forward as an offset to succeeding years' profits. There is a similar provision with respect to unused excess profits tax credits, and a carry-forward provision applying to capital losses, both of which may be expected to influence postwar replacement and reconversion decisions. The contribution of these provisions may prove very great, but their efficacy remains to be tested.

In the period of World War I larger companies established reserves for possible postwar contingencies and future declines in the market value of inventory, but the amount of such reserves was in most cases relatively small. The experience of the last war, and the progress made by accountants in evaluating economic conditions, have, in the present war, led a much larger number of companies to set up such reserves and to make substantial allocations to them. The American Institute of Accountants took early recognition of the problem, and in January 1942 its committee on accounting procedure issued a bulletin recommending to corporate management and accountants the principles to be followed in accounting for special reserves arising out of the war.¹⁹ A recent survey, based on 1941 fiscal year-end reports of 429 large companies in 15 trade and manufacturing industry groups, reveals that about one-fifth of the

¹⁹ American Institute of Accountants, *Accounting for Special Reserves Arising Out of the War*, Accounting Research Bulletin No. 13 (January 1942).

companies had established contingency reserves of one type or another for such postwar purposes as: reconversion of plant and facilities; deferred maintenance and repairs; dismissal compensation; and inventory revaluation.²⁰ Tabulations of corporate annual reports for 1942 show a considerable increase in the proportion of companies providing postwar reserves by charges against earned income or by earmarking other reserves. In contrast to World War I experience, the sums involved in such reserves were in most cases substantial.²¹

The likenesses and differences between financing tendencies in World Wars I and II, as observed at this stage of the second conflict, provoke conjecture regarding the future. It is clear that some of the differences arise from the larger scale of the present war effort, and that some of them grow out of the financial lessons learned during the first war and in the intervening years. It remains to be seen whether from now on the resemblances will increase or diminish. The war and postwar record of the World War I period, although not an infallible guide, is certainly suggestive of problems that may have to be met, and of experiences that may have to be avoided.

²⁰ The survey was conducted by the Research Department of the American Institute of Accountants. See *Journal of Accountancy* (August 1942) pp. 125-32, and (November 1943) pp. 391-408.

²¹ The question of postwar reserves is treated at some length in Mark S. Massel, *Business Reserves for Postwar Survival*, National Planning Association, Planning Pamphlets Nos. 19-20 (April 1943).

I. WARTIME ASSET EXPANSION

The period from the turn of the century to the outbreak of the first World War was one of pronounced and relatively steady expansion of industry and trade, interrupted temporarily by the contractions of 1903-04, 1907-08, 1910 and 1914. The economic importance of manufacturing and trade increased in relation to other productive activities, particularly agriculture. In both manufacturing and trade there was a growth in the business assets of active and successful enterprises, and the financial structure of these companies was strengthened by a slowly advancing price level for manufactured and other goods.

By and large, the prewar decade was noteworthy for its stability in business financial structure.²² Changes took place, of course, with the ebb and flow of business activity, but none of them as radical as those that characterized the financial expansions of 1915-20 and the contraction that followed. In general, there was no long-time tendency for current assets to grow in relation to fixed assets; business debt tended to maintain a stable relationship with ownership or equity; and throughout the period about one-fourth of all manufacturing assets and about one-third of all assets of trade enterprises were supplied by short- and long-term creditors.

The outbreak of World War I in July 1914 found American enterprise contracting operations, and the uncertainties and confusion precipitated by the European conflict, together with the accompanying crisis in world commodity and exchange markets, added force to the contraction tendencies for another half year. Industrial activity, which had declined at the rate of 0.6 percent per month over the year and a half preceding war, fell at an average rate of 1.3 percent during the five months that followed the outbreak of hostilities.²³ In January 1915 business failures were more numerous than at any time since the turn of the century,²⁴ and the U. S. Steel Corporation reported that shipments in November and December 1914 were the lowest in the history of the corporation. Among other industries experiencing acute depression were railroad equipment,

²² The observations of this paragraph are based on Alexander, *op. cit.*

²³ Computed by the compound interest rule, using three-month averages centered on January 1913, July 1914 and December 1914, from Babson's index of the physical volume of business activity.

²⁴ According to the Insolvency Index issued by Dun & Bradstreet, Inc.

machinery manufacture and railroad transportation — industries that in another year or two were to find themselves producing, in an effort to fill the war orders of belligerents, at rates that taxed their productive capacity.

Disrupted production and accelerated consumption caused European belligerent nations, early in 1915, to reach out into world markets for supplies. The influx of war orders into the United States acted first to prevent further recession, then as a stimulus to expansion. Led by a revival of activity in heavy industries and in those producing clothing, food and supplies adaptable to military purposes, recovery spread rapidly. By the end of that year manufacturing output had exceeded its prewar peak; industrial employment and payrolls had attained new highs; trade was flourishing; and farmers were again making profits.

World War I thus came at a time when American business enterprise in general was accumulating unused capacity as a result of economic recession, and the more rapid contraction that followed the outbreak of war widened this margin still further. Fixed productive assets — land, plant and equipment — were relatively abundant, while current or working assets — inventories, receivables and cash or equivalent — were relatively scarce. This condition, typical after a period of extended liquidation, was intensified by the sharpness of the wartime revival, which further depleted current assets — in manufacturing, for financing the conversion from peace to war production; in trade, for financing the enlargement of sales facilities to meet the increase in consumer demand.

In these circumstances the immediate financing problem of business enterprise was to build up working assets to facilitate high-level wartime operations, and the problem was soon rendered more acute by the rise in prices, which set in late in 1915 and quickly inflated the value of assets subject to rapid turnover. Whereas during the last three major expansions preceding World War I the structure of assets in manufacturing and trade had been comparatively stable, showing only a moderate increase of current assets in relation to fixed assets, the World War I expansion quickly altered conventional standards regarding the balance between these asset groups.²⁵

The pressure to expand current assets was soon reinforced by

²⁵ See Alexander, *op. cit.*

pressure to expand fixed assets, while the problem of financing this expansion was made more acute by the wartime advance in prices. The result was an exaggerated increase of all business assets, which continued through the war years 1915-18 and the two postwar years 1919-20. The percentage increases per year in current assets, fixed property and total assets, and in wholesale prices, for the periods

TABLE 1—PERCENTAGE INCREASE PER YEAR IN CURRENT ASSETS, FIXED PROPERTY AND TOTAL ASSETS, AND IN WHOLESALE PRICES ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29	1933-37
MANUFACTURING SAMPLES				
Large companies				
Current assets	30%	2%	5%	4%
Fixed property	5	10	6	-1
Total assets	15	7	6	1
Medium and small cos. (Wisc.)				
Current assets	21	21	5	3
Fixed property	8 } ^b	16	2	-4
Total assets	13 }	21	4	c
TRADE SAMPLES				
Large companies				
Current assets	25	27	11	11
Fixed property	8	26	21	2
Total assets	14	15	11	4
Medium and small cos. (Wisc.)				
Current assets	14	6	1	2
Fixed property	9 } ^b	9	2	-1
Total assets	13 }	7	1	1
WHOLESALE PRICES				
All commodities	18	8	c	6
Commodities other than farm products and food	17	14	-2	4

^a Annual percentage increases computed by the compound interest rule from balance sheet figures, net of valuation reserves, for the terminal dates of each period. Wholesale prices computed by the compound interest rule from average prices of the preceding and terminal year of each period. "Fixed property" refers to land, plant and equipment. The large corporation samples for the peacetime expansions differ in composition from those for the wartime expansions; for description of the samples see Appendix A.

^b Average for the period 1917-18 only.

^c Decrease of less than 0.5 percent.

1915-18 and 1919-20, are compared in Table 1 with those of the peacetime expansions of 1922-29 and 1933-37.

Over the entire wartime period 1915-20, the relative pace of asset growth was swifter than in either of the later peacetime expansions, and it was much more rapid for current assets than for fixed property. Price inflation was obviously a major determinant of this more rapid rate of wartime asset expansion, especially in the case of current assets, which have the higher rate of turnover.

The wartime expansion in assets had to be financed by an equal sum of dollars. The next section deals with this financing problem in detail; for the moment, two preliminary observations may be offered. First, all possible sources of funds were tapped by manufacturing and trade enterprise to finance such expansion — trade creditors, commercial banks, the securities market (by means of bond and stock issues), and undistributed earnings. Second, many of the critical financial problems encountered by business enterprise in the first postwar recession can be traced to the expedients used to finance asset expansion over the 1915-20 period.

Current Assets

Indexes of wartime changes in current and total assets are shown in Chart 1. The increase in current assets of manufacturing and trade corporations up to the end of hostilities was substantial in both of our size samples, but was greater for the samples of large companies than for those of medium and small concerns.²⁶ The greater rate of current asset expansion of the large corporations than of the medium and small enterprises (as shown by Chart 1 and Table 1) reflects the more rapid expansion of large companies' sales under wartime influences.

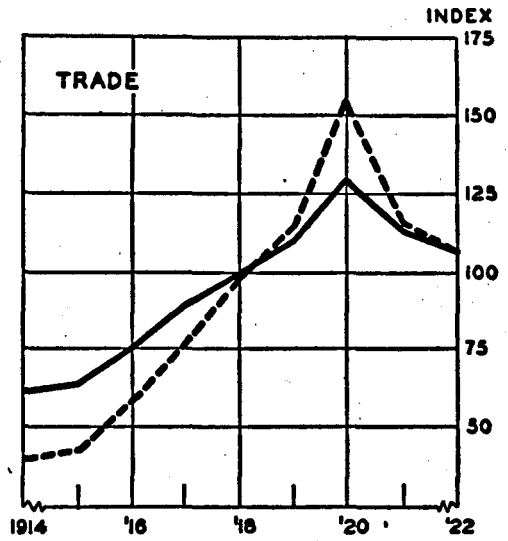
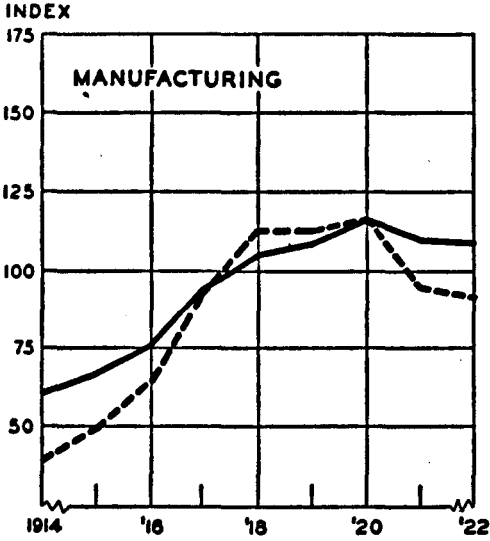
Current assets not only grew quickly, but became a greater part of total assets, particularly in the large companies. At the end of 1916 the current assets of large manufacturing and trade corporations amounted to 38 percent of total assets; by year-end 1918 the proportion had risen to about 48 percent. Among medium and small manufacturing corporations the rise was from 47 to 53 per-

²⁶ This observation concerning the aggregate behavior of major size-industry groups is confirmed by the behavior of the majority of individual companies in our samples. Throughout the various size-industry groups the degree of current asset expansion of individual companies was high, in comparison with other asset categories.

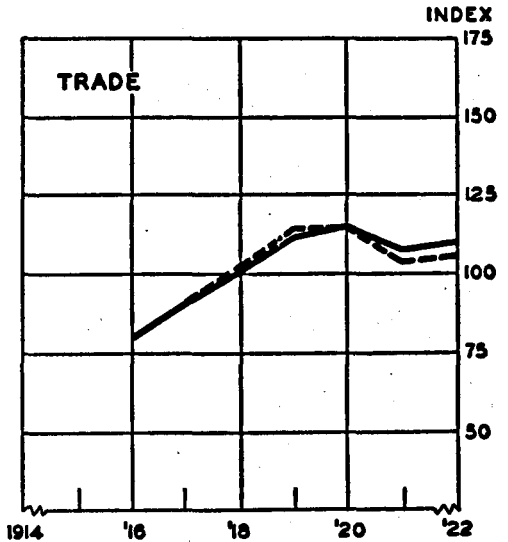
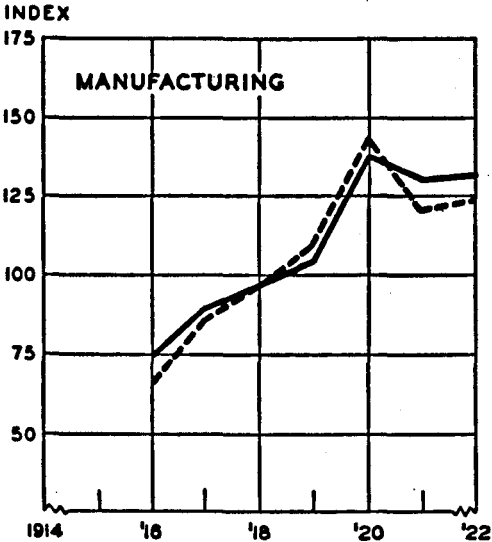
CHART 1—INDEXES OF TOTAL ASSETS AND CURRENT ASSETS, 1914-22 ^a
 (1916-20 average = 100)

— TOTAL ASSETS - - - CURRENT ASSETS

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a The samples of large corporations consist of a varying number of identical manufacturing concerns, averaging about 83, and 8 identical trade concerns engaged in mass distribution. The Wisconsin samples of medium and small corporations consist of 73 identical manufacturing concerns, and 30 identical trade concerns; data on these companies are not available for the years before 1916. Subsequent charts, and also the tables, are based on these samples except where otherwise indicated. For details see Appendix A.

cent; while among medium and small trade companies it was only from 79 to 80 percent.

During the postwar expansion of 1919-20 the current assets of manufacturing and trade continued to increase. For large manufacturing concerns the rise was moderate by comparison with that of the war years and of interbellum expansions; for the other groups it was pronounced, particularly in medium and small manufacturing and large trade concerns. During 1919 large manufacturing companies were converting plant and equipment back to peacetime production, a process that checked current asset growth; but trade companies and the smaller manufacturers, with few if any problems of plant conversion, responded at once to consumer demands swollen by increased wartime incomes and deferred during the war emergency. Furthermore, current assets of trade companies, which contained a larger inventory component, were carried upward on the postwar wave of rising prices for finished goods, that reached its crest early in 1920.

The financing requirements arising from the growth of current assets during wartime and peacetime expansions may be gauged roughly for our samples by expressing each year's increase in current assets, adjusted for revaluations, in percent of total assets at the beginning of the year. Such percentages, computed by periods, are presented in Table 2. That table shows that the additions to corporate resources resulting from the flow of funds into current assets were larger during the World War I expansions than during

TABLE 2—EXPANSION OF CURRENT ASSETS IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS, ANNUAL AVERAGE ^a

<i>Industry-Size Group</i>	<i>World War I Expansions</i>		<i>Peacetime Expansions</i>	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies	11%	1%	2%	2%
Medium and small cos. (Wisc.)	10 ^c	12	3	1
TRADE SAMPLES				
Large companies	10	14	7	5
Medium and small cos. (Wisc.)	11 ^c	6	1	1

^a See text footnote 27. For description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Average for 1917-18 only.

the subsequent peacetime expansions, with the single exception of large manufacturing concerns, 1919-20.²⁷ Available data suggest that the wartime current asset additions to corporate resources were large also, on the average, in comparison with the prewar expansions of 1904-07, 1908-10, and 1912-13.²⁸

Inventory

Inventory is ordinarily the largest component of current assets in manufacturing and trade; consequently, marked changes in total current assets arise chiefly from changes in inventory. Chart 2 shows indexes of inventory at book value for our four primary industry-size samples, and also compares them with indexes for other available samples. For large corporations the supplementary indexes are based on samples collected by the Division of Research of the Board of Governors of the Federal Reserve System²⁹ and by Dun & Bradstreet, Inc.³⁰ For medium and small corporations the supplementary index represents a smaller sample of identical Massachusetts companies. The supplementary samples differ from our primary industry-size samples in industrial coverage and weighting, and therefore they reveal somewhat different year-to-year movements.

Over the entire wartime period 1915-20 the indexes on the whole point to the same fact, a rapid accretion in book value of business inventory. For the shorter period 1915-18 the large companies and the smaller trade companies showed a marked increase in dollar

²⁷ In preparing this and following tables in which asset, liability and net worth changes, adjusted for write-ups and write-downs, appear as percentages of total assets, the aggregate amount of such change over the period was divided by the aggregate total assets as of the beginning of each year included in the period. This method yields a weighted average of percentage increase or decrease in relation to previous year total assets, and permits the use of a varying number of companies from year to year. Such variation in coverage is caused by omissions, in certain years, of essential data from the published financial statements of individual companies. Moreover, the coverage of the large corporation samples differs somewhat as between the wartime and peacetime expansions. For manufacturing, 47 of the 81 large companies in the 1915-22 sample are included in the 1920-39 sample of 84 companies; for trade, 5 of the 8 companies in the first sample are also among the 10 of the second sample.

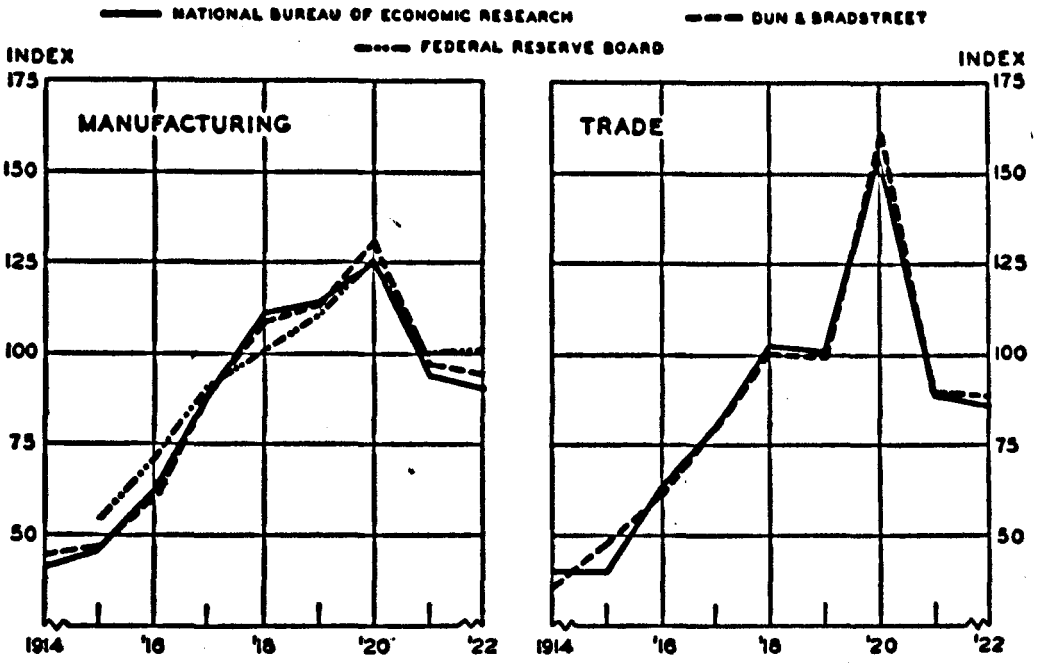
²⁸ Several samples of prewar corporate financial data assembled for the Financial Research Program's Studies in Business Financing are collected in a source volume, *Data for Studies in Business Financing, 1900-42* (ms. 1943).

²⁹ George Terborgh, "Manufacturing Inventories During and After the World War," *Federal Reserve Bulletin* (July 1941) pp. 613-17.

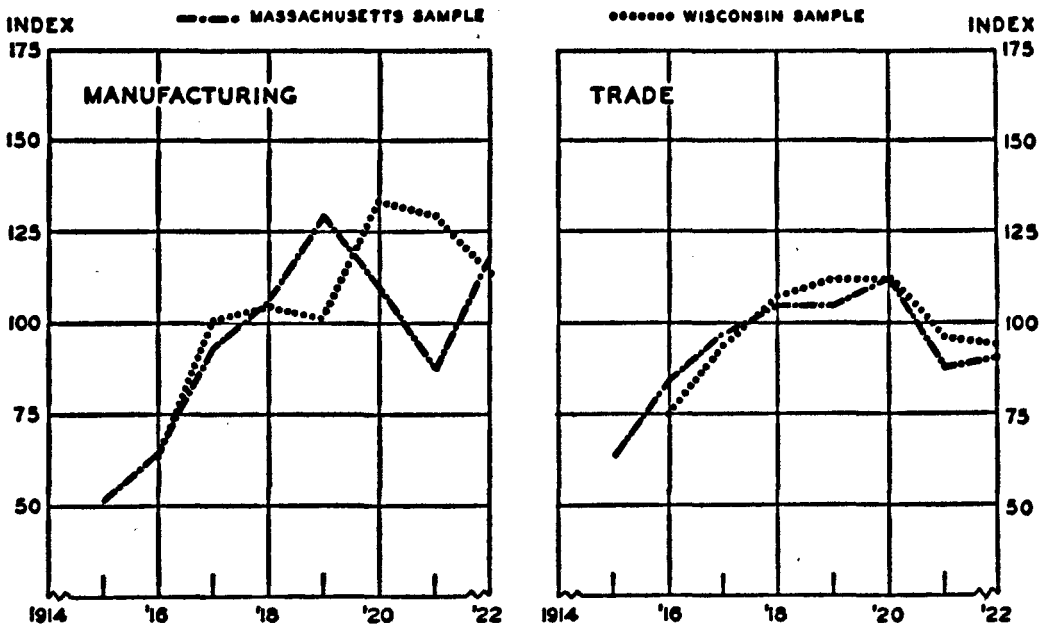
³⁰ Helen Brown Russell and Willard L. Thorp, "Inventories During the World War," *Dun's Review* (February 1940) pp. 17-22.

CHART 2—INDEXES OF YEAR-END BOOK VALUE OF INVENTORY, 1914-22 *
 (1916-20 average = 100)

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS



* The Massachusetts samples consist of 39 identical manufacturing concerns and 17 identical trade concerns; for description of the samples see Appendix A.

inventory, but among the smaller manufacturing companies, especially those in the Wisconsin sample, this was true only through 1917, their inventory expansion having slowed down considerably in 1918. This leveling out was found also for 1919 in two of the samples of large companies, but the Federal Reserve sample continued to show a rise in that year. The 1920 rise in large corporation inventory is confirmed by each of the samples. The inventory indexes of the two medium and small company samples, although they moved in the same direction during the war, diverged considerably in the postwar years, especially among manufacturing corporations. This postwar divergence reflects differences in the volume and character of business activity in the two states from which the samples were drawn, and also differences in the industrial composition of the samples.

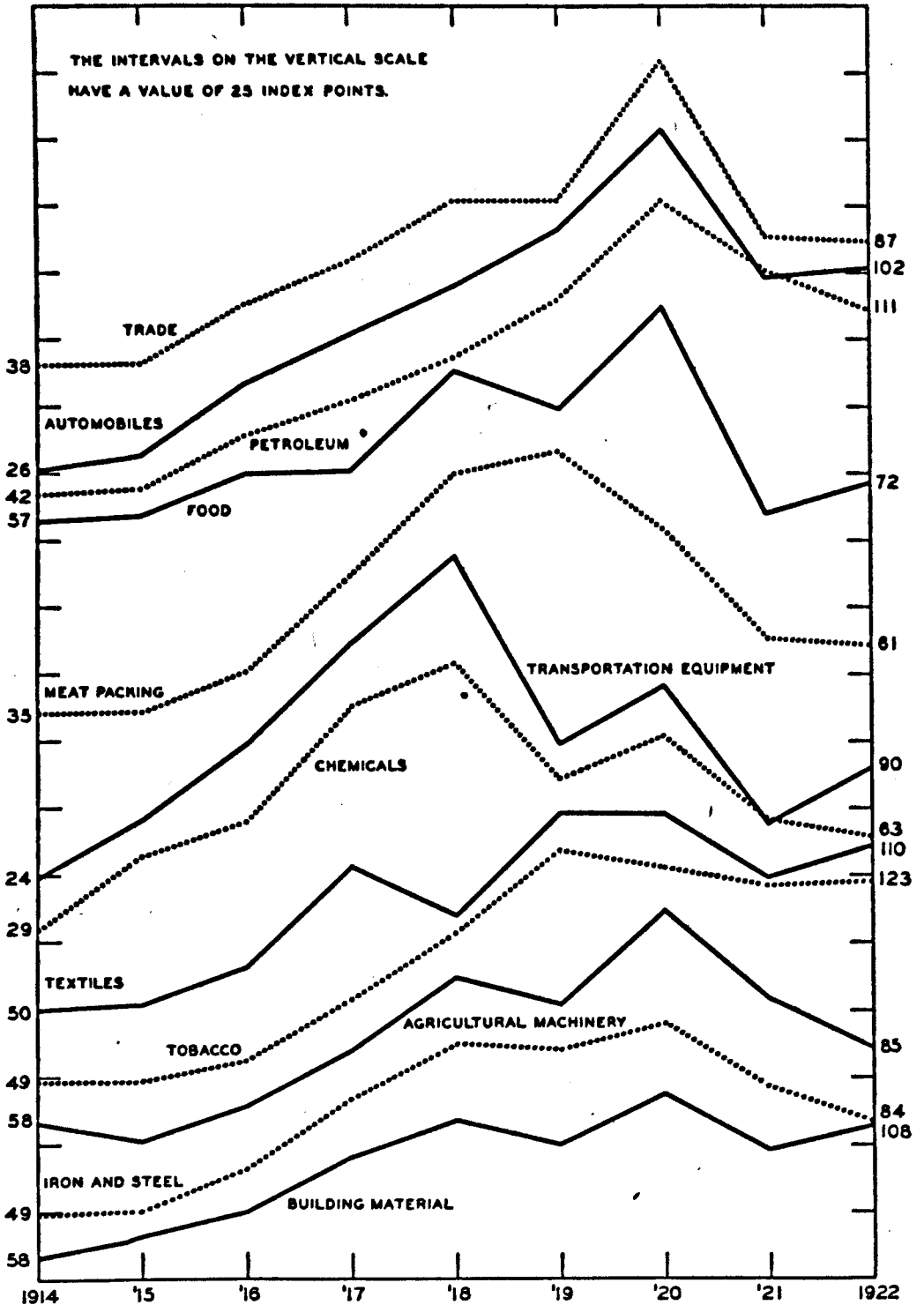
The industries represented in our samples showed a consistent pattern of inventory expansion through 1918, with more uniformity among the large corporations than among the medium and small ones (Charts 3 and 4).³¹ Considerable variation was evident in 1919, but in 1920 there was again a high degree of consistency. In the large corporation sample, durable and non-durable goods industries expanded inventory at about the same rate up to 1918; inventory expansion of durable goods producers was checked in 1919 but rose sharply the following year, while inventory of non-durable goods producers continued to rise in 1919, and again, though at a slower rate, in 1920.³²

³¹ There was also a substantial degree of uniformity in the behavior of individual concerns, 1915-20. In the large manufacturing sample, 52 out of 75 companies expanded their inventory in 1915; 74 out of 82 in 1916; 81 out of 85 in 1917; 69 out of 85 in 1918; 46 out of 86 in 1919; and 61 out of 82 in 1920. In the large trade sample, 5 out of 7 companies expanded their inventory in 1915; 7 out of 8 in 1916, 1917 and 1918; 4 out of 8 in 1919; and 6 out of 8 in 1920.

Among the medium and small companies the year-to-year uniformity of behavior with regard to inventory was not so great as among the large concerns. In manufacturing the number of medium and small companies that expanded their inventory holdings was as follows: 48 out of 68 in 1917; 47 out of 73 in 1918; 46 out of 75 in 1919; 58 out of 77 in 1920. For trade the figures are: 18 out of 22 in 1917; 22 out of 29 in 1918; 15 out of 29 in 1919; 20 out of 30 in 1920.

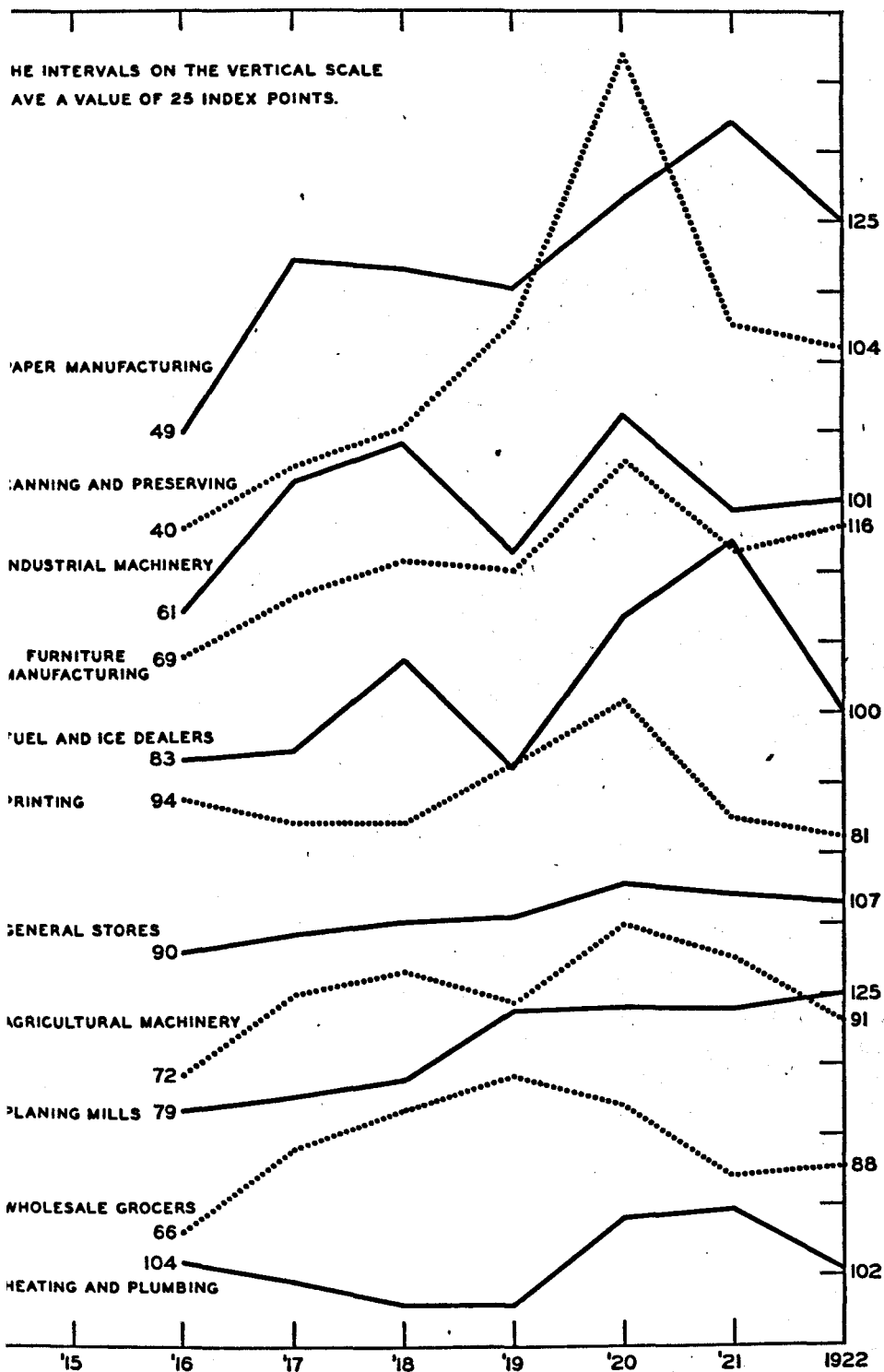
³² For the four years 1915, 1918, 1919 and 1920 the indexes of inventory book value (1916-20 = 100) were as follows: in durable goods industries, 46, 111, 107, 128; in non-durable goods industries, 45, 109, 120, 124. Terborgh's indexes of durable and non-durable goods inventory for a large sample of corporations indicate the same general movement; see Terborgh, *op. cit.*

**CHART 3—INDEXES OF YEAR-END BOOK VALUE OF INVENTORY,
Samples of Large Corporations in Eleven Manufacturing Industries
and in Trade, 1914-22^a**
(1916-20 average = 100)



^a For description of the samples see Appendix A.

CHART 4—INDEXES OF YEAR-END BOOK VALUE OF INVENTORY, of Medium and Small Corporations in Eight Manufacturing Industries and in Three Lines of Trade, 1916-22^a
(1916-20 average = 100)



^a description of the samples see Appendix A.

Some of the war period increase in the book value of manufacturing and trade inventory took place because a greater physical stock of inventory was maintained in anticipation of threatened material shortages and transportation bottlenecks, and in support of a larger volume of operations; some was the result of shifts in the character of goods produced. At least half of it, however, was the result of price inflation. Wholesale prices rose rapidly from the end of 1915 to May 1920, when the all-commodity index of the U. S. Bureau of Labor Statistics attained a peak 141 percent higher than the average for 1915. Although the upward movement of prices was general, prices of individual commodities rose in varying degree, and thus affected differently the book value of inventory of individual manufacturers, wholesalers and retailers. Prices of semi-manufactured goods experienced the greatest rise, with raw material prices second and finished goods not far behind.

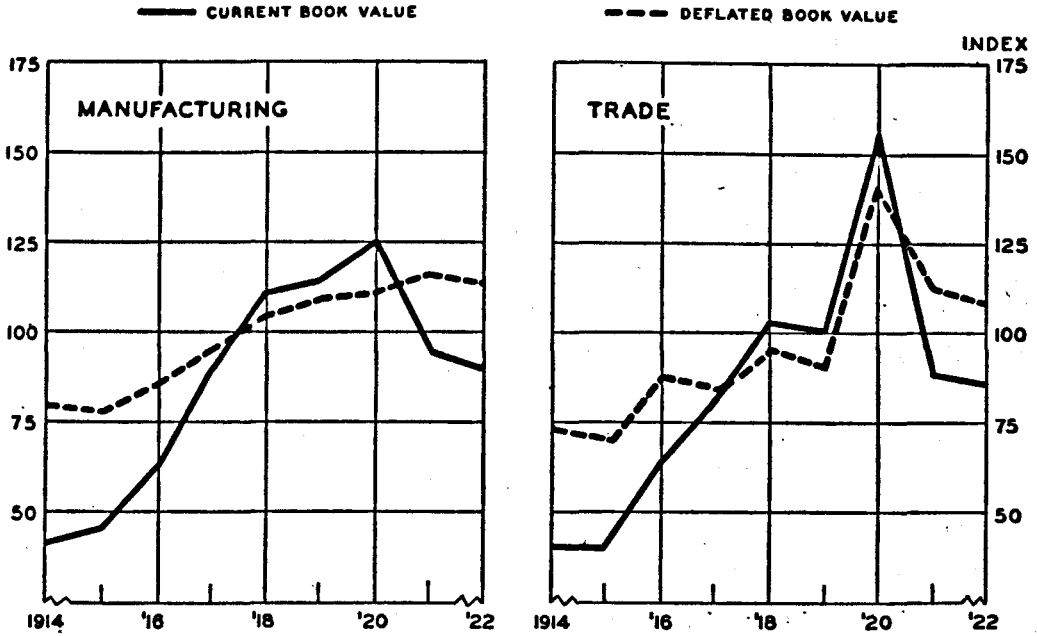
Chart 5 shows the movement of the inventory indexes for large corporations, adjusted and unadjusted for price changes, and the comparable indexes of wholesale prices.⁸³ Between 1915 and 1920 large manufacturing companies showed steady increases in their physical inventory (as represented by the deflated book value of inventory); for large trade companies there were sizable increases in 1916 and 1918 and a sharp rise in 1920.

The postwar expansion of physical inventory is of special interest. The speculative conditions that came to prevail, accentuated by delivery and transportation delays, gave rise to the practice of placing duplicate orders with two or more independent suppliers, and in some lines this practice became widespread. Furthermore, these same conditions led to an extension of forward commitments, i. e., an acceleration of forward ordering, from both domestic and foreign buyers. The accumulation of physical inventory by manufacturing and trade in this situation must have been a strong factor in

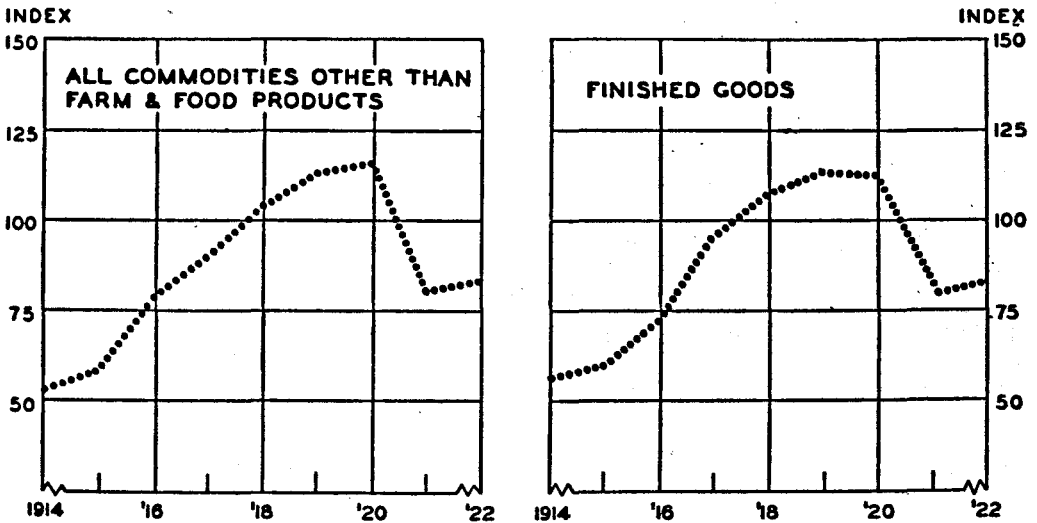
⁸³ In deflating manufacturing inventory, price indexes developed by the Bureau of Labor Statistics for individual industry groups were employed; the deflation was carried out separately for each industry, using a price average based on the number of months that inventory is ordinarily held, and the index was calculated from the aggregate of the deflated inventory values. In deflating trade inventory, the price index for finished commodities was employed, using the price average indicated by the inventory turnover ratio. No deflation of the inventory book value of the medium and small corporation samples was attempted, because of the absence of suitable price indexes for the specific industries represented.

CHART 5—INDEXES OF CURRENT AND DEFLATED BOOK VALUE OF INVENTORY, Samples of Large Manufacturing and Trade Corporations, and Indexes of Wholesale Prices, 1914-22^a
 (1916-20 average = 100)

INDEXES OF INVENTORY



INDEXES OF WHOLESALE PRICES



^a For the methods used in deflating inventory, see text footnote 33. Indexes of wholesale prices are from U. S. Bureau of Labor Statistics. For description of the samples see Appendix A.

the postwar inflation of wholesale prices, for manufacturing output in 1919-20 was below that of 1917-18. At the same time, however, the sharp advance in prices that took place in 1919-20, as well as the growth in physical inventory, operated to sustain the rise in the book value of inventory.

By the nature of business processes the dollar volume of inventory holdings is closely related to the dollar volume of sales. In the absence of any marked change in the operating conditions of a given industry, the ratio between these two accounts will show little or no upward or downward trend; it is characterized, however, by a short-run instability that stems in part from the financial policy of the enterprise and in part from the difficulty of gearing inventory purchases exactly to sales as business conditions change. During the wartime expansions the movement of the inventory turnover rate (sales divided by average year-end inventory), influenced by short-run factors, differed considerably among our industry-size samples (Chart 6). But the principal contrast in behavior was between the size groups. For the large corporation samples a falling tendency characterized inventory turnover from 1916 through 1920, although in trade the fall was interrupted in 1919 by a moderate rise; in 1916 turnover was more rapid for manufacturing, less rapid for trade, than it had been in 1915. For the medium and small company groups, on the other hand, inventory turnover fell from 1916 to 1918,³⁴ and then rose to a peak in 1920.

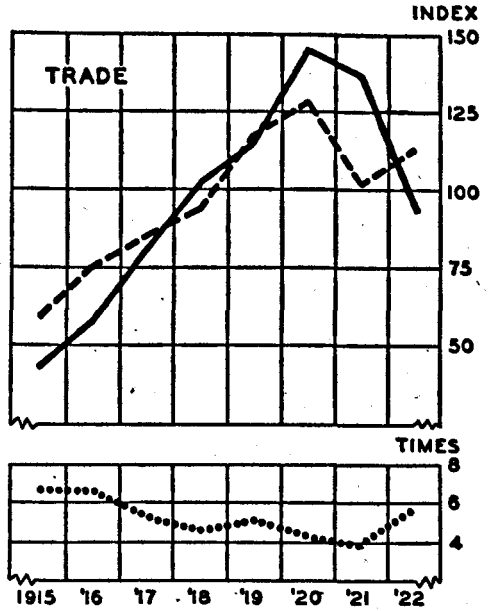
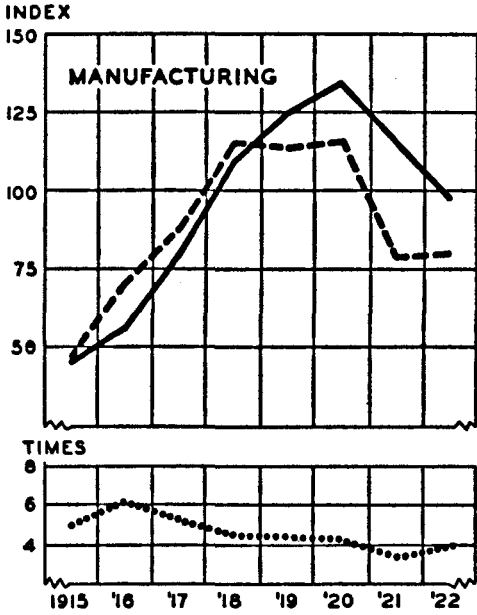
The striking difference, during the postwar expansion, between the movements of inventory turnover for the large and the medium and small company samples seems to indicate a less conservative inventory policy on the part of larger concerns. This was possibly the case in 1919, when large manufacturers and distributors were probably stimulated to make abnormal purchases as a matter of protection against threatened shortages and also as a speculation on future price rises. The same motives doubtless continued to operate in the first part of 1920, but in the spring of that year consumer resistance

³⁴ For the medium and small company samples an inventory-sales ratio for 1916 based on average year-end inventory could not be computed, as data on the years before 1916 are not available. It may be assumed, however, that this ratio decreased between 1916 and 1917, as the ratio based on single year-end inventory decreased between those years, and ratios calculated in these two ways indicate the same general pattern of movement.

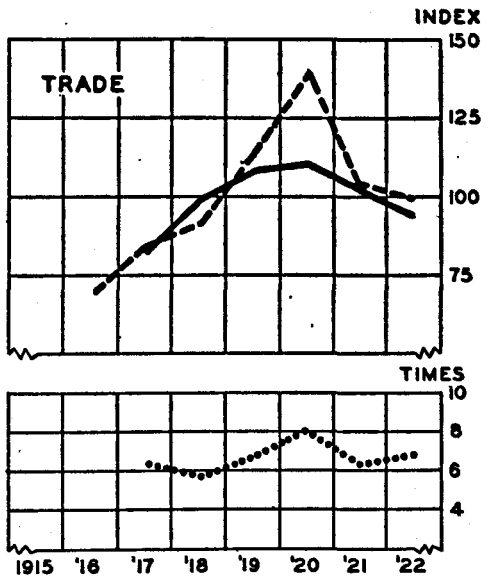
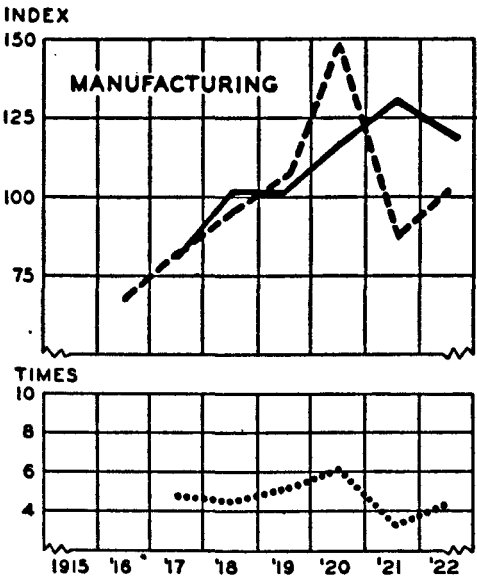
CHART 6—INDEXES OF AVERAGE TURNOVER AT BOOK VALUE AND OF SALES, 1915-22, AND INVENTORY TURNOVER RATES ^a
 (1916-20 average = 100)

— INVENTORY - - - SALES TURNOVER

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^aInventory indexes are based on averages of year-end data for two consecutive years. Inventory turnover rates represent sales divided by average year-end inventory. For description of the samples see Appendix A.

to higher retail prices began to make itself felt.³⁵ In trade, consumer buying below expectations meant rising inventory holdings in relation to sales, and this condition was soon, by cancellation of orders, transmitted back to manufacturing concerns.³⁶

In the last half of 1920 the curtailment of consumer buying and widespread cancellation of orders by both foreign and domestic buyers were undoubtedly major factors in physical and book value inventory accumulation. Late that year the Chamber of Commerce of the State of New York made an investigation of cancellations, and found them greater in volume than ever before, especially in lumber and in various highly competitive consumer goods lines.³⁷ Reputable concerns in these circumstances were confronted with a dilemma. In many cases, the enforcement of contracts to sell entailed converting inventory into receivables that might become bad debts. Commitments to buy, on the other hand, involved a concern's credit standing in the trade, future as well as current, and could not be lightly repudiated by responsible domestic corporations. One large rubber concern — the Goodyear Tire & Rubber Company — in its reorganization plan of 1920 set up a reserve of \$24 million to cover losses on its commitments for future delivery.³⁸ Manufacturing companies, whose postwar prosperity depended heavily on foreign orders, were especially vulnerable to cancellation of orders, since foreign buyers did not feel the same degree of responsibility in fulfilling commitments.

The advance in inventory book value during the war era was bound to have far-reaching effects on the operating results of business enterprise as well as on its financial structure. In manufacturing, for example, substantial short-run profits resulted from the pre-

³⁵ For a discussion of consumer buying resistance in this period see the Report of the Joint Commission of Agricultural Inquiry, 67th Congress, House Report No. 408, *Credit*, Part II, pp. 45-46; also Alexander P. Noyes, *The War Period of American Finance, 1908-1925* (New York 1936) pp. 333-34; Wilson F. Payne, *Business Behavior, 1919-1922*, School of Business, University of Chicago (1942) pp. 62-63 and 109-11; and William Hoyt Moore, *Post-Armistice Industrial Developments, 1918-1920*, U. S. Bureau of Labor Statistics, Historical Study No. 58 (January 1943) pp. 38-42.

³⁶ See Noyes, *op. cit.*, pp. 395-96; also Payne, *op. cit.*, Chapters III-VIII, pp. 55 ff.

³⁷ Chamber of Commerce of the State of New York, "Cancellations," *Monthly Bulletin* (November 1920) pp. 1-8 and 34-35.

³⁸ See the court testimony of George O. May on the Goodyear reorganization of 1920 reprinted in his *Twenty-five Years of Accounting Responsibility, 1911-36* (American Institute Publishing Co., New York, 1936) I, pp. 291-316.

vailing practice of charging raw materials into process on some average-cost basis, which, though including provision for valuation reserves in many cases, more nearly approximated the first-in, first-out ("fiffo") method of pricing inventory than any other.⁸⁹ Such short-run profits arose out of the time lag occurring between the purchase of the raw material and the sale of the finished product. So long as the trend of prices continued upward, and manufacturers generally followed procedures similar to the first-in, first-out method of valuation, the upward price spiral was bound to generate book profits; but when the upswing of prices was replaced by a downswing, beginning at the middle of 1920 and extending through 1921, it was equally inevitable that the write-down of inventory holdings should be a source of exceptional book losses. Similar book profits and losses arose for trade concerns; although trade procedure in accounting for inventory, known as the retail method, differed somewhat from the procedure current in manufacturing, as a mat-

⁸⁹ The different results that may be obtained in a period of rising prices from alternative methods of valuing manufacturing inventory may be seen from the following comparison of the first-in, first-out ("fiffo") method and the last-in, first-out ("liffo") method. In principle, average cost methods are more nearly related to the first-in, first-out basis of inventory valuation and over time yield a roughly similar pattern of results.

The first-in, first-out method assumes that materials are withdrawn from stock in the same order as they are purchased and at the original purchase price. Thus, in a period of rising prices, materials moving from stock into production are priced at lower figures than are newly purchased materials moving into stock. Therefore the rise in the cost of goods manufactured lags behind the rise in the price of finished goods, and profits as well as inventory values are inflated by advancing prices. The amount of the lag (and of the resulting profit differential) obviously depends upon the size of inventory, its rate of turnover, and the amount of price change.

The use of the last-in, first-out method of valuation, according to which materials withdrawn from stock are priced at the most recent acquisition cost, yields in a period of rising prices a higher cost of goods sold and a lower value for inventory on hand, that is, a smaller short-run book profit, than the first-in, first-out method. For an interesting discussion of the comparative results obtained by the use of the first-in, first-out, last-in, first-out, and average-cost methods of inventory valuation, see Charles J. Gaa, *Effect of Inventory Methods on Calculation of Profits and Income Taxes*, University of Illinois, Bureau of Economic and Business Research, Bulletin No. 63 (February 1943).

During the period of war and postwar price inflation, a few large companies set up valuation reserves for the difference between the current cost of inventory on hand and some average prewar cost, charging a like amount either to a loss account or to cost of goods sold, and thereby reducing both the book value of their inventory and the amount of their operating profits.

ter of operating practice the trade method appears to have had much the same results.⁴⁰

A substantial number of large concerns, in anticipation of a subsequent decline in prices, established or increased inventory reserves, charging the amount of such reserve provision against their war and postwar profits. A few of the more conservatively financed companies, such as the United States Steel and International Harvester Corporations, valued inventories in reports to stockholders at prewar prices and carried the difference between these values and cost as inventory reserves; other large companies included provision for inventory revaluation as part of their contingency reserves. Most inventory reserves, however, were inadequate, and many of the medium and small companies — perhaps the majority of them — did little about the matter. In consequence, a large number of manufacturing and trade companies found themselves suddenly faced with substantial operating losses when prices declined in 1920-21.

A total of 31 large manufacturing companies for which inventory revaluation data are available (21 of which are included in our sample) reported inventory write-downs of \$115 million for 1920, or 13 percent of the value of their inventory holdings at the beginning of the year. In regard to large trade companies it is not possible to obtain from published data an adequate impression of the extent of 1920 inventory write-downs; we do know, however, that 2 of the 8 companies in our sample had write-downs totaling \$8 million, or 19 percent of inventory at the beginning of the year. It is noteworthy that only one of the companies in our samples of medium and small manufacturing and trade corporations indicated inventory write-downs in 1920. Companies that did not take inventory losses as write-downs of course absorbed them in the cost of goods sold.

Quick Assets

The sharp expansion of business inventory was an outstanding feature of corporate financial development during the war and postwar years. But the increase in quick assets — cash, marketable securities and receivables — was also abnormally large between 1915 and 1920 if that period is compared with the subsequent peacetime

⁴⁰ See report prepared by the American Institute of Accountants Committee on Cooperation with Controller's Congress of the National Retail Dry Goods Association, "The Last-in, First-out Inventory Basis," *Journal of Accountancy* (February 1942) pp. 146-54, especially p. 148.

expansions of 1922-29 and 1933-37, or with expansions between 1904 and 1913 (according to such fragmentary evidence as is available). In some industries — such as steel, meat packing, transportation equipment, and building materials — quick asset expansion was relatively greater than the increase in inventory.

The growth in quick assets of our samples during the World War I expansions is compared in Chart 7 with the growth of inventory. (While inventory may be considered as part of quick assets in trade, we exclude it here for purposes of comparison with manufacturing industry.) Over the war years 1915-18 all four industry-size groups added substantially to both items, but the smaller corporations showed a greater increase in inventory than in quick assets.⁴¹ This difference reflects the larger companies' more rapid wartime increase in sales and profits, a spurt that, among manufacturing concerns, was due largely to war orders for munitions and supplies, and, among trade concerns, resulted from a prompt response to rising prices and volume of consumer demand. During the postwar expansion the quick assets of large manufacturers declined while their inventory increased. For the other groups, however, both quick assets and inventory — particularly quick assets — underwent further expansion, benefiting from the consumer buying wave of 1919-20; while the dollar sales of large manufacturers leveled off in 1918 and failed to rise in 1919 or 1920, the other groups enjoyed a substantial growth in their sales in the latter years.

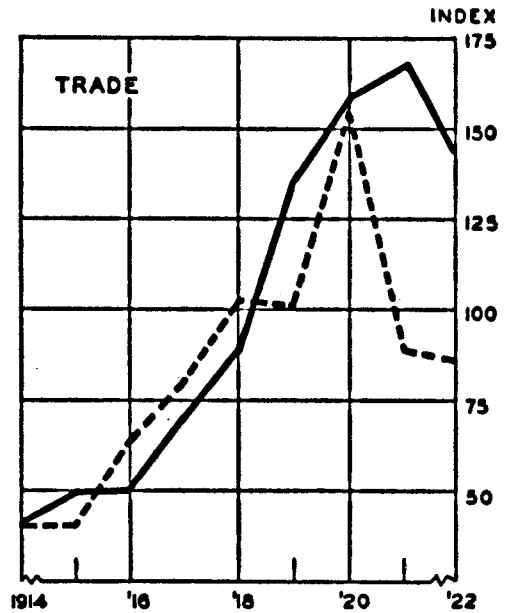
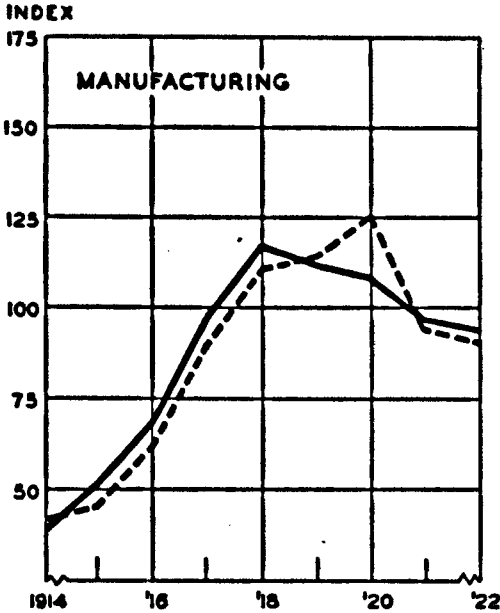
The wartime increases in corporate resources resulting from the investment of funds in quick assets and in inventory exceeded those of the interbellum expansions. This is clear from Table 3, which compares the increase in these accounts, in percent of total assets at the beginning of the year, on a weighted annual average basis. In all four industry-size groups both accounts made a larger average percentage addition to total assets in 1915-18 than in either of the postwar peace expansions. The 1919-20 period showed some irregularity among the samples, but over the 1915-20 period as a whole

⁴¹ Among an average of 83 large manufacturing companies included in our sample, 42 in 1915-18 and 48 in 1919-20 expanded their inventory in relation to their quick assets; for the large trade concerns the proportions were 5 out of 8 in 1915-18 and 4 out of 8 in 1919-20. Among the 73 medium and small manufacturing companies, the number expanding inventory in relation to quick assets amounted to 35 in 1917-18 and 32 in 1919-20; for an average of 30 medium and small trade concerns the proportions were 23 in 1917-18 and 14 in 1919-20.

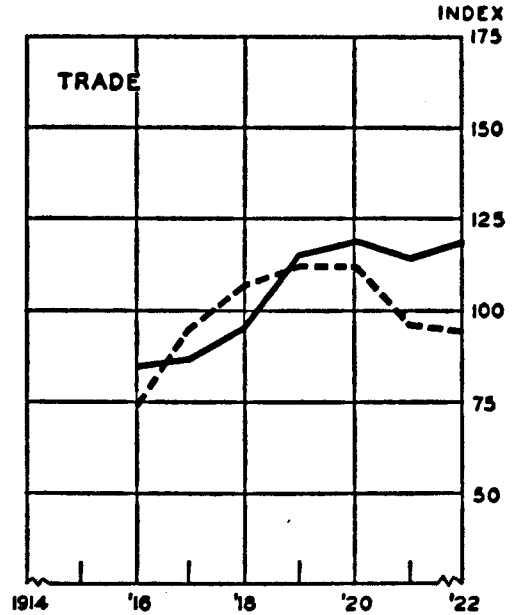
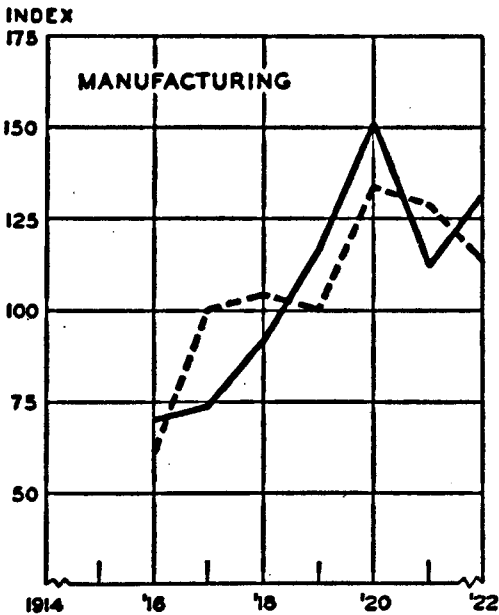
CHART 7—INDEXES OF QUICK ASSETS AND OF YEAR-END BOOK VALUE OF INVENTORY, 1914-22^a
 (1916-20 average = 100)

— QUICK ASSETS - - - INVENTORY

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a For description of the samples see Appendix A.

one or both items produced sizable increases in total assets for all groups.

TABLE 3—EXPANSION OF QUICK ASSETS AND OF INVENTORY, IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS, ANNUAL AVERAGE ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies				
Quick assets	6%	-1%	1%	^c
Inventory	5	2	1	2%
Medium and small cos. (Wisc.)				
Quick assets	4	9	3	^c
Inventory	6 } ^d	4	^c	1
TRADE SAMPLES				
Large companies				
Quick assets	3	6	2	2
Inventory	7	8	5	3
Medium and small cos. (Wisc.)				
Quick assets	2	4	^c	-1
Inventory	9 } ^d	1	1	2

^a See text footnote 27. For description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Less than 0.5 percent.

^d Average for 1917-18 only.

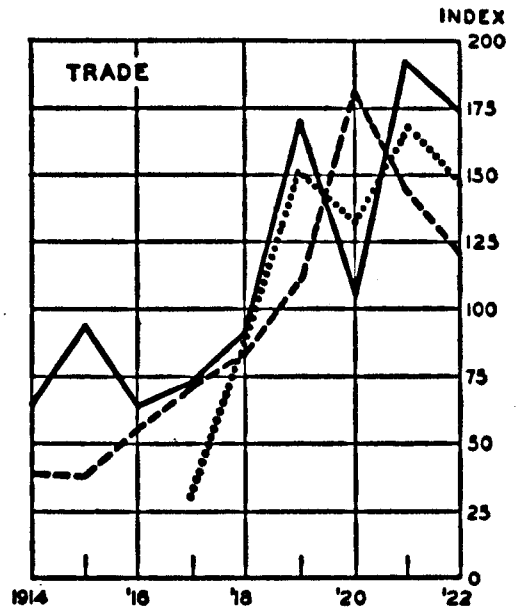
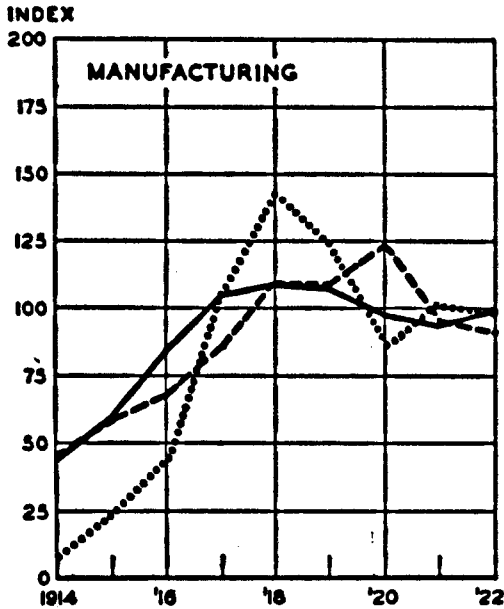
An analysis of changes in the various components of quick assets (Chart 8) reveals, for each of our samples, a notable growth of receivables, cash and marketable securities over the wartime period as a whole, though during the war itself the increases were more consistent for large corporations, and less consistent for smaller concerns, than during the postwar expansion. Receivables constituted the largest part of quick assets at the outset of the war expansion—roughly three-fifths among the large manufacturing and trade corporations, three-quarters among the medium and small manufacturing companies, and four-fifths among medium and small trade companies. For the trade groups, however, the relative importance of receivables declined through 1919, and for manufacturing through 1920.

The increase in cash balances shown by our samples between 1915 and 1919 or 1920 suggests that a significant change in the own-

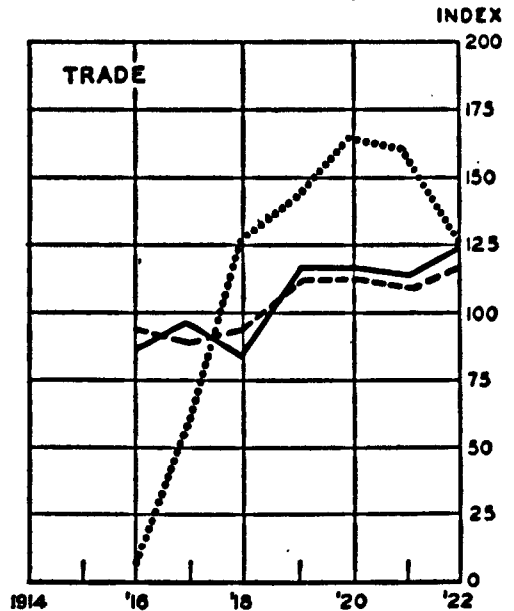
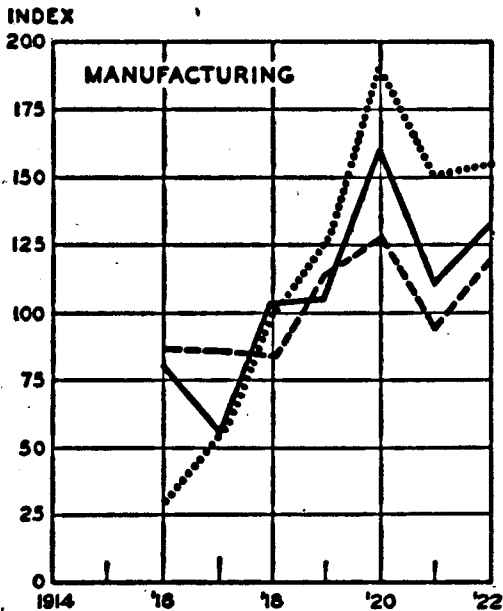
CHART 8—INDEXES OF CASH, RECEIVABLES, AND MARKETABLE SECURITIES, 1914-22^a
 (1916-20 average = 100)

— CASH - - - RECEIVABLES MARKETABLE SECURITIES

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a For description of the samples see Appendix A.

ership of bank deposits may have been associated with the wartime inflation process. During 1915-18 the total deposits of all banks rose at a per annum rate of 13 percent, and demand deposits at a rate of 11 percent; in 1919-20 both categories showed an average increase of 8 percent.⁴² Up to 1918 the cash balances of our large corporation samples (manufacturing and trade combined) increased faster than demand deposits of all banks (Chart 9), but then they leveled off and declined as these companies drew down their cash in order to finance fixed property expansion, war profits taxes and postwar inventory accumulation; but total demand deposits continued to rise into 1920. In contrast, the smaller corporations' increase in cash balances appears to have maintained a fairly steady relationship to the growth of demand deposits.

These sample data suggest that cash balances of large manufacturing and trade corporations may have grown more rapidly than consumer and other business balances through 1918, and that from 1918 to 1920 a change in the opposite direction occurred. Since such a change may have been an important factor in the development of the postwar boom, it needs to be confirmed by data relating to *all* large manufacturing and trade corporations (defined here as those with total assets in excess of \$5 million). Estimates indicate that cash balances of this entire group represented about 7 percent of the \$12 billion of demand deposits of all banks at the end of 1916, 8 percent of the \$15 billion of deposits in 1918, and 8 percent of the \$18 billion outstanding at the end of 1920.⁴³ In other words, cash balances of *all* large manufacturing and trade companies grew more rapidly than demand deposits from 1916 to 1918, and at about

⁴² Computed by the compound interest rule, from interpolated year-end adjusted demand deposits.

⁴³ An estimate of the number of manufacturing and trade corporations with total assets of \$5-10 million and \$10-50 million was obtained for the years 1916, 1918 and 1920 by adjusting the number of companies listed in the 1923 *Moody's Manual of Investments* for change in asset size during the period 1915-20. The estimated number of companies for each year was then multiplied by the average amount of cash holdings of companies in the same size groups, as determined from samples of companies listed in *Moody's Manuals* for 1916, 1918 and 1920. To determine cash holdings of manufacturing corporations of a total asset size of \$50 million and over, all such companies listed in *Moody's* in 1916, 1918 and 1920 were included; but for trade concerns of that size it was necessary, because of the small number of large trade concerns whose statements were published in *Moody's*, to follow the same procedure as for the manufacturing and trade concerns in the \$5-50 million total asset group.

the same rate from 1918 to 1920. The difference between this finding for the latter period and that for our sample in the same years reflects an increase in the number of concerns in the large corporation class rather than an increase in average cash balance. Taken together, however, these data suggest that over the entire wartime period there was some shift in deposit ownership in general, and also a considerable shift in deposit ownership within the population of large corporate enterprises.

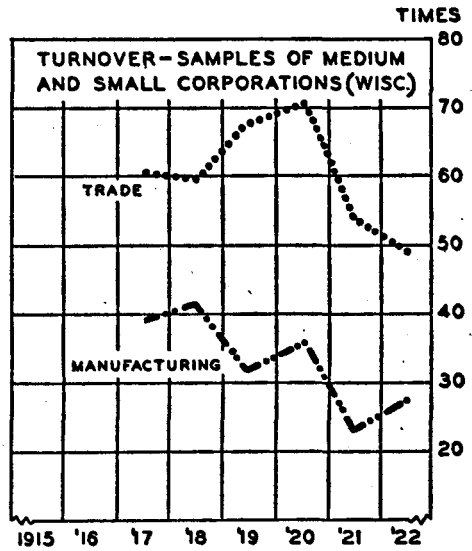
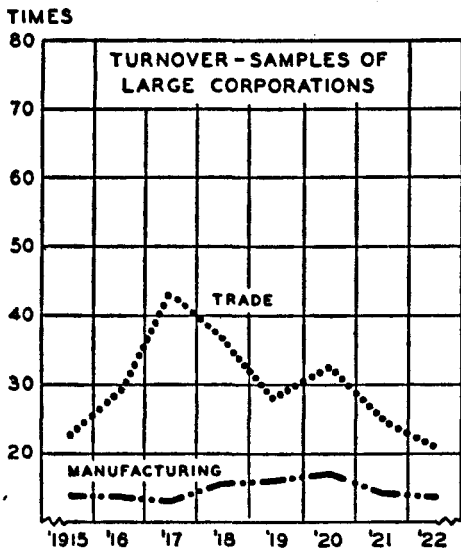
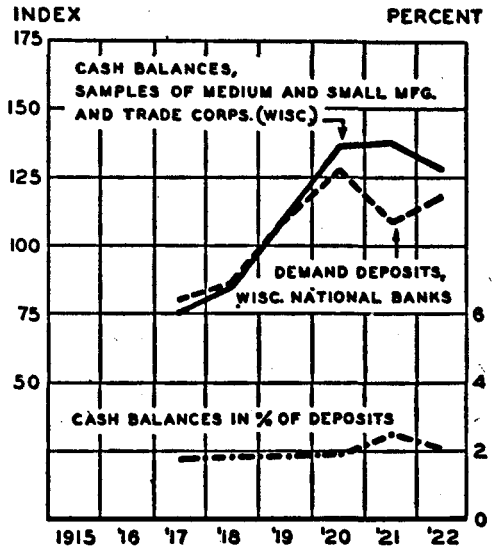
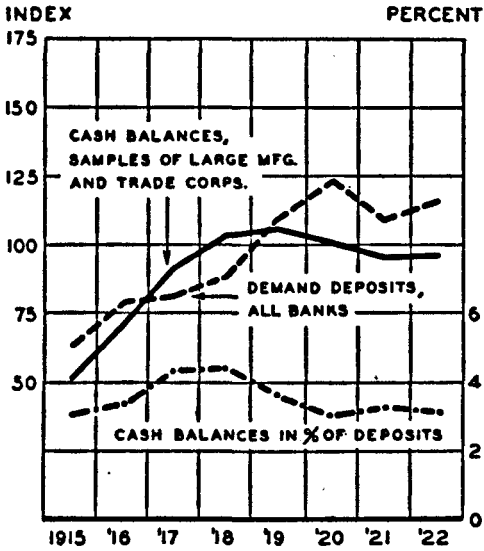
When business operations are relatively stable a sharp increase in corporate cash balances is reflected in a decrease in their rate of turnover, that is, a decline in the number of times a year that the average amount of cash on hand is spent. Under the inflationary conditions prevailing through 1915-17 the turnover of average cash balances of large manufacturing corporations remained relatively constant, with a slight decline in 1917, while that of the large trade concerns increased somewhat from 1915 to 1916, and by 1917 had practically doubled its 1915 level (Chart 9).⁴⁴ Between 1917 and 1920 the cash turnover of the large manufacturing corporations increased slightly, while that of the large trade concerns declined through 1919, then recovered somewhat in 1920. The cash turnover of the medium and small manufacturing corporations moved both up and down during 1917-20 but declined on the whole, while that of the medium and small trade companies rose noticeably in 1919 and 1920 above the 1917-18 level.

The growth in marketable security holdings during the war years was primarily a reflection of Liberty Bond purchases. From a neg-

⁴⁴In order to derive an annual rate of turnover of corporate cash holdings either cash receipts or cash payments may be divided by the average cash balance. For periods of stable cash balances the two methods yield the same result; if cash balances are growing the use of total cash payments yields a lower turnover rate than cash receipts; if cash balances are declining cash payments yields a higher rate than cash receipts.

For Chart 9 the total of cash payments, as compiled from the sources and uses of funds statements for individual companies, has been employed. Sales minus net funds from operations (net income plus non-fund charges to income, such as depreciation, depletion, losses on sales of fixed assets, amortization of deferred charges, and the like) minus increases in current payables, are assumed to equal operating expenses paid in cash; to this are added cash dividends, decreases in current payables, increases in assets other than cash and receivables, decreases in long-term debt, and repurchases of stock. As an estimate of total cash payments the result of the procedure is admittedly rough, based as it is on changes in year-end balances of asset and liability accounts.

CHART 9—INDEXES OF CASH BALANCES AND OF DEMAND DEPOSITS, 1915-22, AND TURNOVER RATES OF CASH BALANCES^a
(1917-20 average = 100)



^a Indexes of cash balances are based on averages of year-end data for two consecutive years. Turnover rates of cash balances represent cash payments made during the year, divided by average year-end cash balances; see text footnote 44. For description of the samples see Appendix A.

ligible sum at the end of 1916, the marketable security holdings of all large manufacturing and trade corporations grew rapidly to an estimated peak of some \$1.5 billion in 1919, then declined to around \$0.8 billion at the end of 1920. Much of the wartime purchase of government securities was a patriotic response to war loan drives and did not reflect a deliberate policy of building up corporate liquidity. Some large manufacturing corporations sold government bonds in 1919 in order to finance the reconversion and expansion of plant and equipment and the payment of income taxes, while in 1920 both large manufacturing and large trade corporations drew upon this source to finance inventory expansion and tax payments. In liquidating their government bond holdings in 1919 and 1920, these companies not only contributed to the break in prices of Liberty Bonds that occurred between mid-1919 and mid-1920, but also suffered some losses as a result of this price decline. The medium and small corporations, both in manufacturing and in trade, were purchasers of government bonds in 1919 and 1920 — a further indication of the extent to which the smaller corporations benefited from the postwar boom in consumer buying.

Fixed Property Expenditures and Investments

The production emergency of 1915-18, like that of the current war, was met not only by conversion and by more intensive use of existing plant and equipment, but also by construction of new facilities. However, many companies followed the practice of charging wartime plant and equipment expenditures, in whole or in part, to current operating expense or to contingency or other reserves, and of burying depreciation reserves in other accounts, without fully disclosing such facts in their published statements. Moreover, in some industries war contracts provided for contract advances to finance the cost of special new facilities. Prior to our entry into the war, European belligerents financed plant expansion by this method, obtaining a large part of the funds advanced from proceeds of security sales in American markets. Some war contracts of our own government, 1917-18, provided for new plant financed in this way. For these reasons, any estimate of fixed property expenditures is necessarily rough. Nevertheless, some judgment may be formed concerning the relative magnitude of such expenditures in 1915-20 and in the peacetime expansions of 1922-29 and 1933-37.

Chart 10 shows, for 1915-37, fixed property expenditures (change in net fixed property account plus reported depreciation and depletion accruals) as a percentage of the net fixed property account at the beginning of the year — hereafter called the fixed property expenditure ratio. During 1915-17 (years for which data on the smaller companies are unavailable) the ratio rose for both samples of large corporations, thus reflecting the broad influence of expanding production and trade under wartime stimulus. But in 1918 wartime priorities, shortages of labor materials and bottlenecks in transportation brought about a reduction in the ratio for each group, though the decline was small among the large manufacturing concerns engaged in the output of war materials. For all groups the ratio recovered to some degree in 1919, and in 1920 it attained levels in trade and in smaller-scale manufacturing that were unequaled during either of the interbellum expansions; even for the large manufacturing group it rose almost as high as in the subsequent peak years 1929 and 1937.

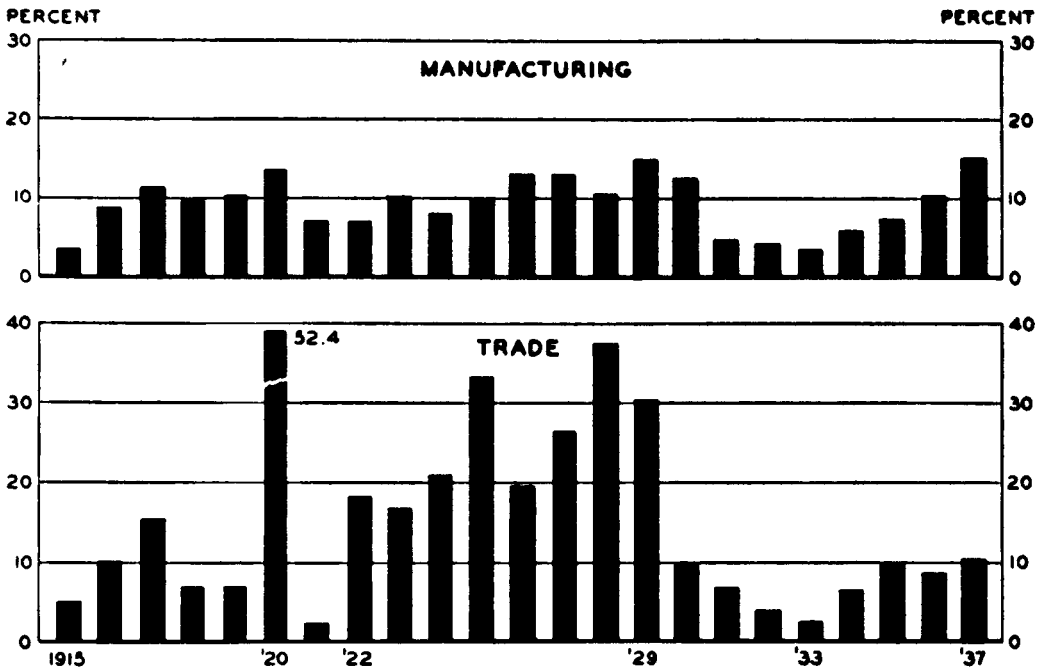
This rise in the fixed property expenditure ratio during the immediate postwar expansion reflected a large increase in dollar outlay for plant and equipment. In current dollars the total fixed property expenditures of all manufacturing companies reached in 1919-20 the high-water mark for the entire 1915-37 period.⁴⁵ It is true that actual additions to physical productive facilities were considerably less than the dollar figures imply, largely because of concurrent price increases; by April 1920 the Bureau of Labor Statistics wholesale price index of building materials had risen 71 percent over its 1918 level, and for the whole year 1920 the index averaged 52 percent higher than 1918. There is no doubt, however, that manufacturing and trade companies made important additions to their fixed property during the 1919-20 period, and particularly in 1920.

One reason for the postwar expansion of fixed property was the lifting of restrictions imposed by wartime priorities and shortages

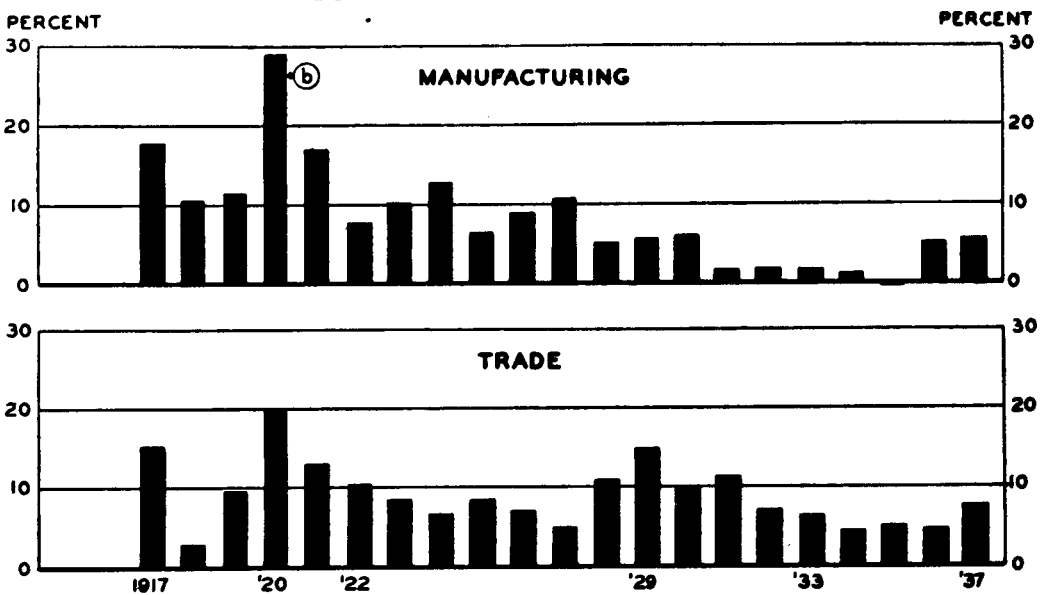
⁴⁵ Estimates of plant and equipment purchases of manufacturing concerns in the United States during the period 1915-39 reveal that the average expenditure during the war years 1915-18 was \$1,468 million, as compared with \$2,695 million in 1919-20, \$2,159 million in 1922-29 (exclusive of 1924 and 1927) and \$1,306 million in 1933-37. See Chawner, *op. cit.*

CHART 10—FIXED PROPERTY EXPENDITURES IN PERCENT OF FIXED PROPERTY ACCOUNT AT BEGINNING OF YEAR, 1915-37^a

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a See page 55, footnote a to Table 4.

^b Excluding the paper industry this figure becomes 20 percent; excluding one erratic paper corporation the figure becomes 25 percent.

of labor and materials. A more fundamental cause, however, was the optimism generated by the fact that prices did not recede seriously and were soon advancing under the impact of consumer spending and foreign demands for American goods. In addition, manufacturing expenditures on fixed property were stimulated by the competitive introduction of new models, products, and technological processes, some of which had been developed during the war years; the process of converting back to peacetime production may have led to higher outlays for plant and equipment, particularly among the large manufacturing companies; and the installation of labor-saving equipment became desirable as an aid in maintaining the high wage scales established during the war years.

In trade especially, the phenomenal 1920 rise in fixed property expenditures was prompted by the postwar spurt in consumer buying, financed partly from current income and partly from the liquidation of war savings by discharged soldiers and the civilian public. A number of large trade corporations launched ambitious expansion programs in that year; mail-order companies and chain stores added many new outlets; and urban department stores substantially enlarged or modernized their merchandising facilities.

An important question in this connection is the extent to which the postwar increase in fixed property expenditures represented replacement deferred from 1917 and 1918. But while it is known that a considerable amount of deferred replacement accumulated in the railroad industry, no precise data are available in regard to manufacturing, where the question has more significance than it has in trade. Possibly a rough measure of such deferment is the amount of decrease in the net fixed property account.⁴⁶ Out of a sample of 50 large manufacturing companies for which depreciation data are available, 35 postponed the full maintenance of their

⁴⁶ Decreases in the net fixed property account result not only from deferred replacement but also from the undisclosed sale or retirement of property not fully depreciated; from depreciation charges in excess of the actual decline in the value of productive assets; and from depreciation charges on assets which the company has no intention of replacing, such as those especially acquired for war production; both for taxation and for pricing purposes amortization rates allowed on munitions and armament production facilities were high during and immediately after the World War I period. Therefore the amount of decrease in this account is not a very accurate measure of deferred replacement, but it has some value as a rough indication.

fixed property investment in 1917 and 1918, for one reason or another; in 1919-20, on the other hand, all but 3 of these 35 companies reported net increases in their fixed property account. Among the medium and small manufacturing companies the proportion reporting net decreases in 1917-18 was about the same, and here too there was a conspicuous shift in 1919-20. In most cases, however, the amount of decrease in net fixed property account was small, and thus this measure would indicate that the volume of deferred replacement at the end of 1918 was not very great. Nevertheless, if the war had continued for several more years the accumulation of deferred replacement would probably have constituted a sizable sum for manufacturing industry as a whole, and the problem of maintaining the productivity of plant facilities would have attained major importance.

Further information on the fixed property accounts of manufacturing and trade enterprise during the World War I expansions is provided by the figures in Table 4. In that table the investment percentages differ from those for expenditures in that they are exclusive of depreciation and depletion accruals, that is, of capital consumption. It should be noted that differences between the expenditures and the investment percentages, as found from one expansion period to another, reflect changes in accounting practice with regard to depreciation and depletion charges, as well as the increase in those charges attendant on the growth in fixed property.

For each of the four industry-size groups the investment ratio as well as the expenditure ratio reached a level in the immediate postwar years that was higher than in any of the other expansion periods. The groups of medium and small corporations had higher average investment ratios in the 1915-18 expansion than in that of 1922-29, and for the large manufacturing companies this ratio was the same in the two periods; but the investment ratio of the large trade sample, although its extremely high level of 1919-20 was not approached in either interbellum expansion, was markedly higher in the 1922-29 period than it had been during 1915-18. It appears that the postwar period ushered in an era of accelerated growth in large-scale retailing, a corollary of the increasing importance of distribution in the national economy. The average investment ratios for the 1933-37 expansion contrast sharply with those of both wartime expansions and also with those of the 1922-29

TABLE 4—FIXED PROPERTY EXPENDITURES AND INVESTMENT, IN PERCENT OF BEGINNING-OF-YEAR FIXED PROPERTY ACCOUNT, ANNUAL AVERAGE ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies				
Expenditures	8%	12%	11%	8%
Investment	4	7	4	1
Medium and small cos. (Wisc.)				
Expenditures	14 } ^c	20 } ^d	9	2
Investment	7 }	13 }	1	-3
TRADE SAMPLES				
Large companies				
Expenditures	13	39	28	8
Investment	8	30	22	1
Medium and small cos. (Wisc.)				
Expenditures	10 } ^c	15	10	5
Investment	5 }	9	3	-1

^a For each year the figures are exclusive of the companies that did not report depreciation in that year. Fixed property investment represents the change in land, plant and equipment account, net of depreciation reserves. Fixed property expenditures represent investment plus depletion and depreciation accruals. For the World War I period the published financial statements were in almost every case insufficiently detailed to permit of adjustments for retirements of fixed property, or for profits or losses resulting therefrom. The large corporation samples for the peacetime expansions differ in composition from those for the wartime expansions; for description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Average for 1917-18 only.

^d Excluding the predominant industry (paper), expenditures and investments become 17 and 9 percent respectively; excluding one paper corporation with erratic behavior, the ratios become 18 and 10 percent respectively.

period: while the large manufacturing and trade companies failed to contract their fixed property investment in the expansion of the '30s, even in that group the average expansion was of nominal proportions. For the two wartime expansions and for that of 1922-29 the expenditure ratio could be described in almost exactly the same way as the investment ratio.

On the whole, the available evidence indicates that the military materiel of World War I was produced to a great extent with equipment on hand at the beginning of the war, and that additions to manufacturing facilities, though substantial, were not abnor-

mally large. But the outburst of domestic and foreign spending that followed the termination of hostilities was translated by enterprise into property expansion programs, commitments for which were entered into and carried through at the top of the postwar price inflation. While there were some property writedowns in 1921-22, most of the war and postwar additions to the value of productive facilities were apparently carried forward on the books at original cost, even though the reproduction cost at the level of prices of the '20s was substantially lower. Wartime tax laws permitted accelerated depreciation on war-built plant and facilities, but the amount was to be fixed after the war, when actual economic obsolescence could be determined under normal peacetime conditions. Writedowns on such property therefore occurred over the early '20s when tax allowances had been established and approved.⁴⁷

⁴⁷ See Brown and Patterson, *op. cit.*, pp. 630-36, especially pp. 634-35. Accelerated depreciation was allowed on war constructed facilities having a total value amounting to some \$672 million under the Revenue Acts of 1918 and 1921.

II. FINANCING WARTIME PROSPERITY

During the World War I expansion periods the need to increase business assets and to modify their composition presented serious financing problems to companies engaged in manufacturing and trade. Financing needs and methods of meeting them varied considerably from company to company and from industry to industry, but the response to war stimuli was sufficiently consistent to warrant the conclusion that the aggregate reactions of manufacturing and trade enterprise constituted a financial force of some magnitude.

Increases in the book value of business assets may result either from actual business transactions or from the arbitrary revaluations of asset accounts; but only the former additions result in actual expenditures and thus require financing. The term corporate asset investment is consistently used in the following discussion to mean changes in the book value of assets, net of disclosed revaluations.

Two major sources of financing asset increases may be distinguished: first, external sources, that is, short-term borrowing, chiefly from banks and trade suppliers, and long-term financing through the sale of bonds and stocks; and second, internal sources, that is, undistributed earnings prior to appropriations for contingency reserves.⁴⁸ In each of the expansion years of World War I external financing played a substantial role in enterprise development (Chart 11), both for large and for medium and small companies. This tendency was accompanied by an increase in financing needs themselves, an increase that resulted from the inflation process of the period and also stimulated it.

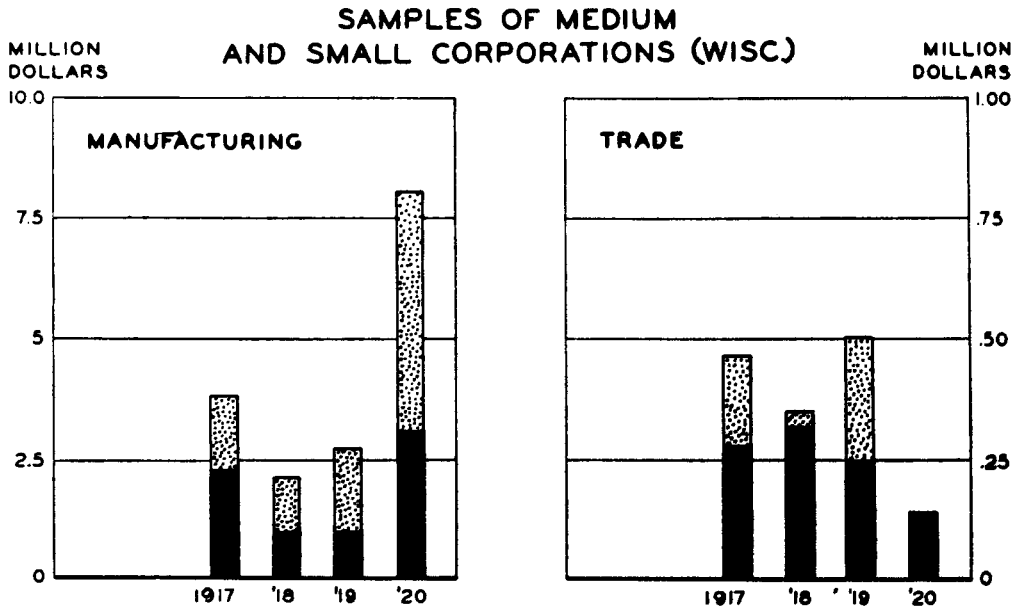
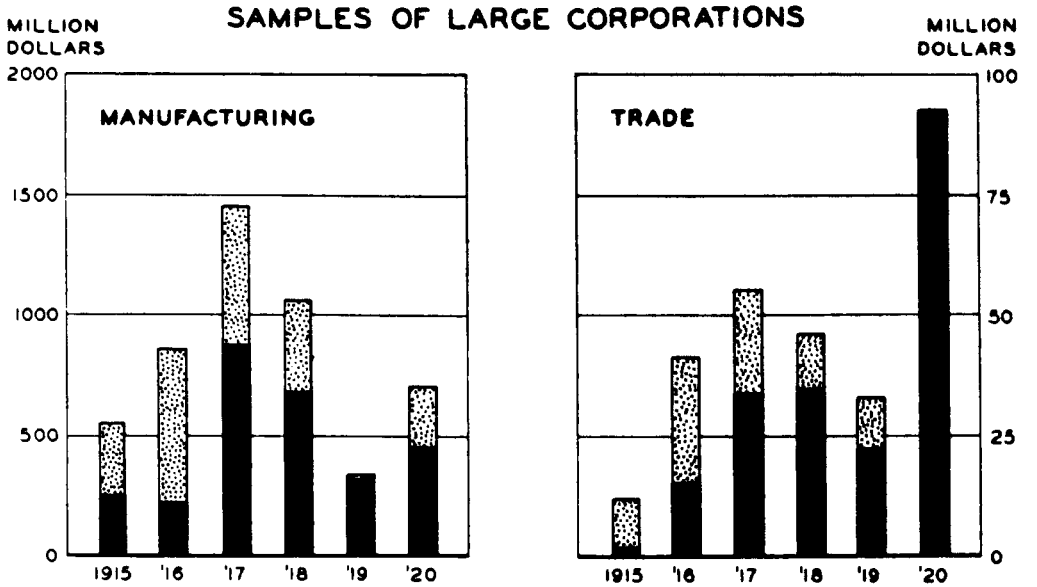
On the whole, average corporate asset investment, expressed in relation to total assets at the beginning of the year, was substantially higher in the wartime expansions than in those after 1920 (Table 5). The average proportion of this investment financed externally was not only heavy during the war expansions, but was also larger in the peacetime expansions than is commonly believed to have been the case.

⁴⁸To finance changes in the composition of assets (as distinguished from asset expansion) two additional financing sources, both internal, should be recognized. One is the liquidation of assets; the other consists of depreciation of plant, machinery and equipment, and depletion of natural resources, to the extent that these charges are covered by earnings and the funds so represented are not expended on replacements of existing assets.

CHART 11 – DOLLAR EXPANSION OF TOTAL ASSETS, AND AMOUNTS FINANCED FROM EXTERNAL AND INTERNAL SOURCES, 1915-20^a

INTERNAL SOURCES (UNDISTRIBUTED EARNINGS)

 EXTERNAL SOURCES (DEBT AND EQUITY)



^a For each year the figures are exclusive of the companies that did not expand their total assets in that year. In calculating the amounts of asset expansion financed from internal sources, funds used to retire short-term debt, and long-term debt exclusive of refundings, were deducted from undistributed earnings. The resulting figure of net internal sources was then compared with the total of external sources (bank and trade credit, other current liabilities and security sales). For description of the samples see Appendix A.

TABLE 5—CORPORATE ASSET INVESTMENT IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS, AND PROPORTION FINANCED FROM EXTERNAL SOURCES, ANNUAL AVERAGE ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies				
Asset investment	15%	5%	5%	2%
Proportion financed externally	51	76	46	63
Medium and small cos. (Wisc.)				
Asset investment	13	19	3	d
Proportion financed externally	49	33	58	..
TRADE SAMPLES				
Large companies				
Asset investment	13	14	15	6
Proportion financed externally	49	82	47	59
Medium and small cos. (Wisc.)				
Asset investment	13	7	2	1
Proportion financed externally	69	87	33	100

^a See text footnote 27. For description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Average for 1917-18 only.

^d Asset decrease.

Financing Current Asset Expansion

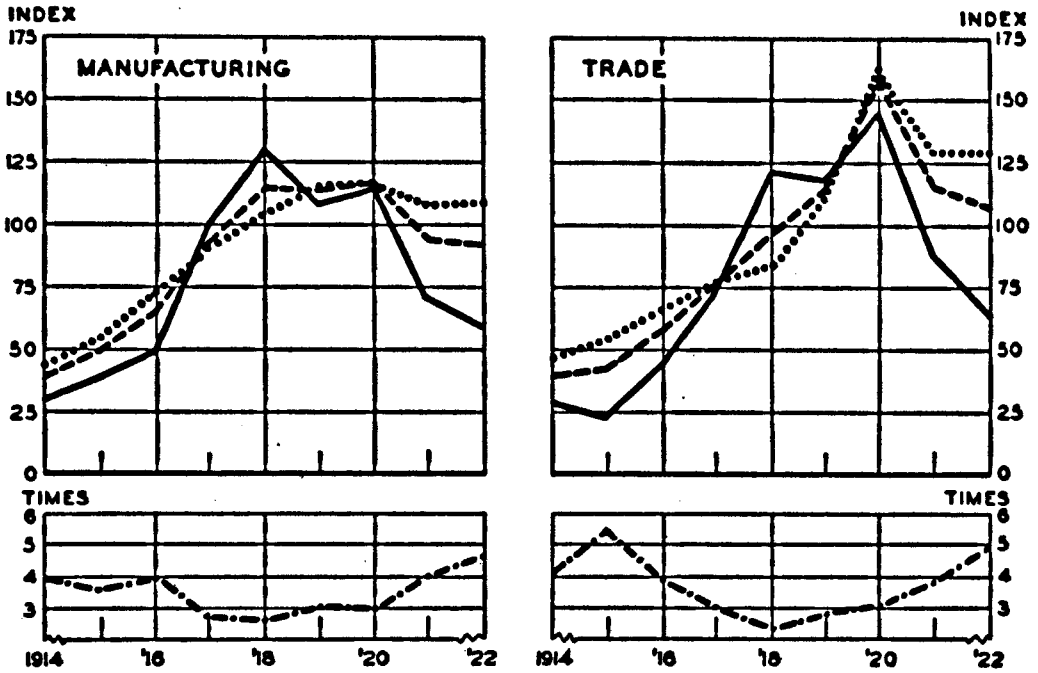
Short-term debt, the principal element in external financing during the years 1915-18, was important also in 1919 and 1920. Chart 12 compares the increase of current debt with that of current assets. Current liabilities, although smaller in dollar amount than current assets, showed for each sample a greater increase, during the war years proper, than the increase in current assets, with the result that current ratios were lowered. Quick ratios, shown in Chart 13, also declined during the war for each group of corporations, and remained below the early war year levels through the 1919-20 expansion.

Indexes of inventory expansion are also shown in Chart 13. Presumably such expansion was financed largely by notes and accounts payable, the chief component of total current debt; therefore it is not surprising to find that the curves representing current liabilities conform more closely to the inventory curves than to those for quick assets.

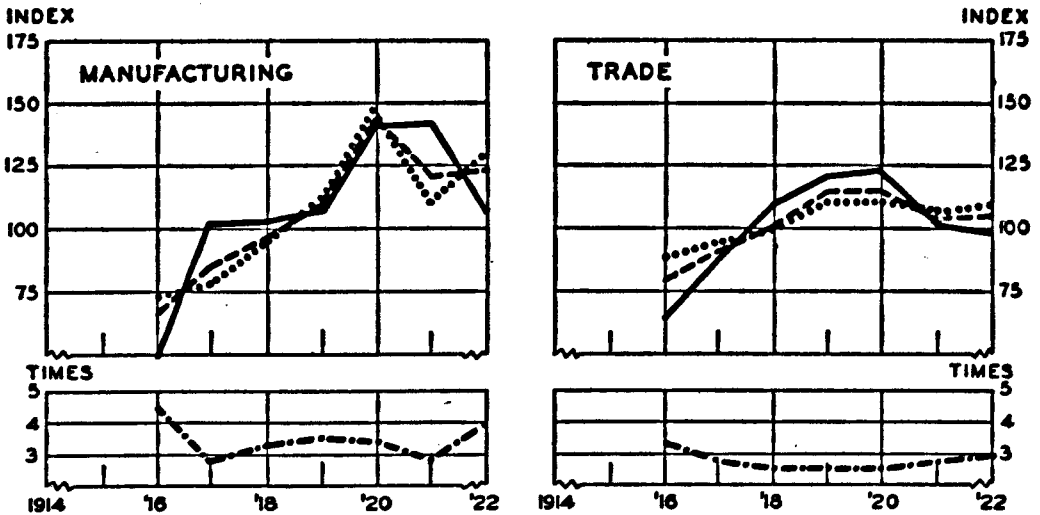
CHART 12—INDEXES OF TOTAL CURRENT LIABILITIES, TOTAL CURRENT ASSETS, AND WORKING CAPITAL, 1914-22, AND CURRENT RATIOS ^a
 (1916-20 average = 100)

TOTAL CURRENT LIABILITIES
 TOTAL CURRENT ASSETS
 WORKING CAPITAL
 CURRENT RATIO

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)

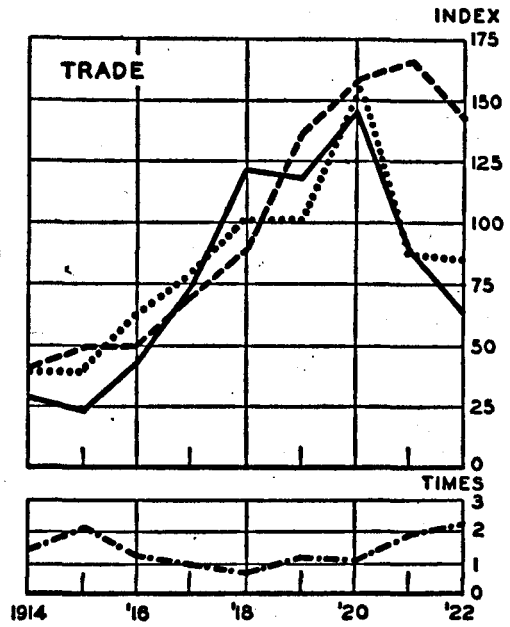
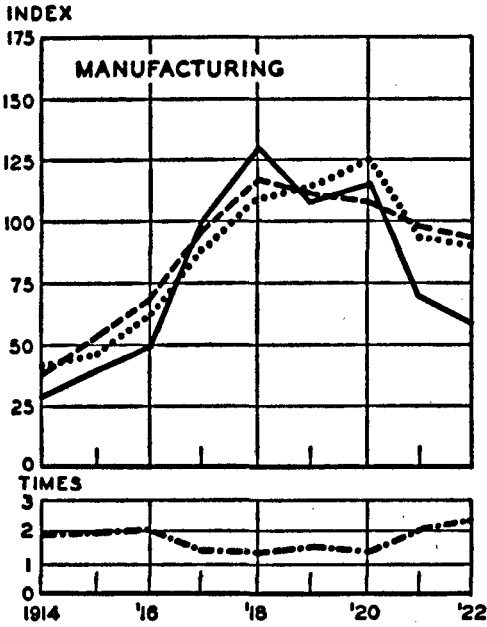


^a For description of the samples see Appendix A.

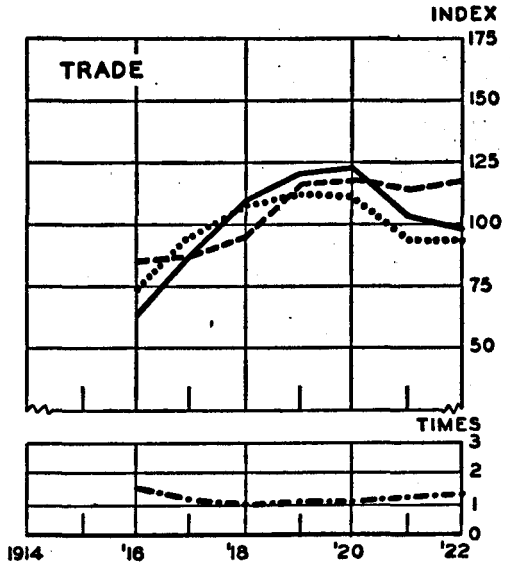
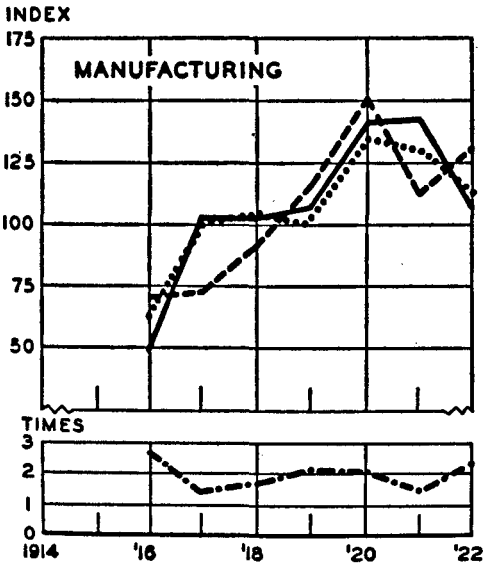
CHART 13—INDEXES OF TOTAL CURRENT LIABILITIES, QUICK ASSETS, AND INVENTORY, 1914-22, AND QUICK RATIOS^a
(1916-20 average = 100)

—— TOTAL CURRENT LIABILITIES - - - QUICK ASSETS INVENTORY
- · - · - QUICK RATIO

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a For description of the samples see Appendix A.

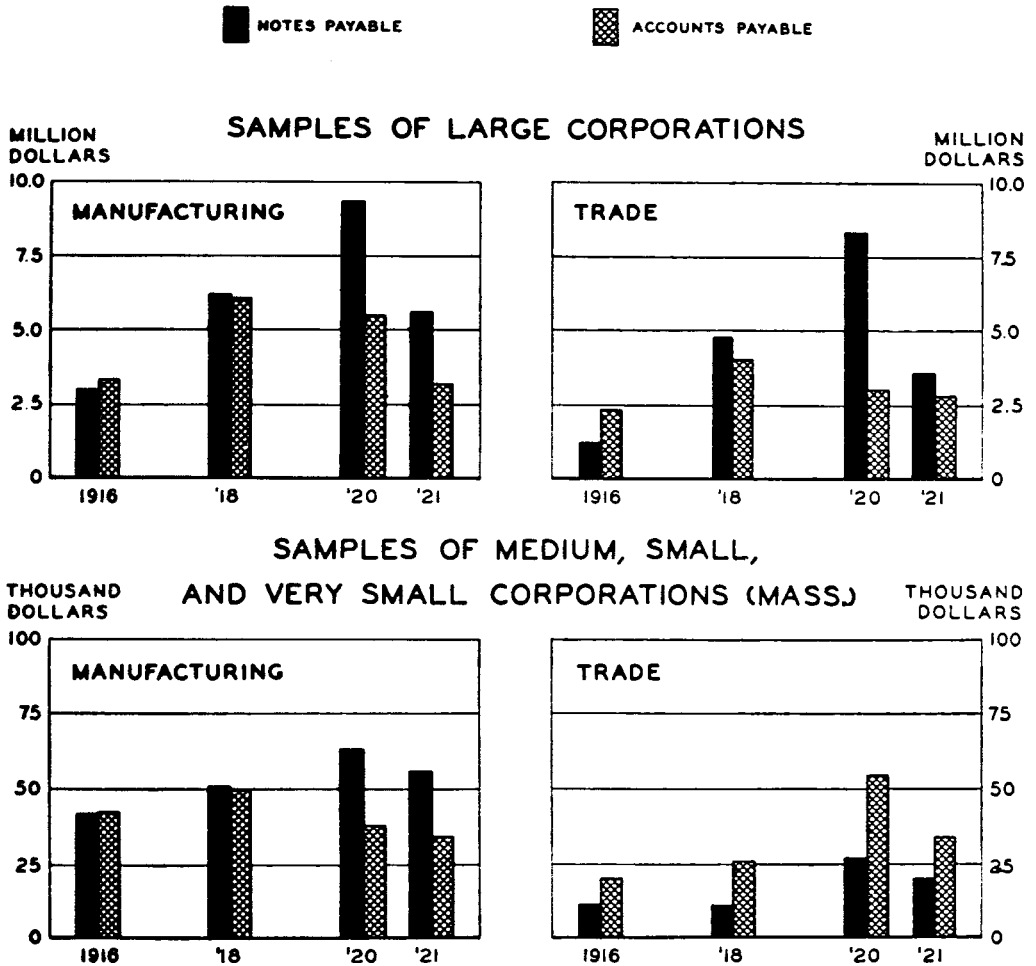
Despite some variation among industry-size groups, the expansion of quick assets over the entire period 1915-20 was paralleled, in general, by a growth in working capital (current assets minus current liabilities). Superficially, this growth in working capital represented a greater margin of protection for short-term creditors, in spite of lower quick ratios, and hence made the increase of short-term debt appear to be financially sound. But the rise in working capital was the product of an increase in inventory at book value as well as of the increase in quick assets; therefore working capital was extremely vulnerable to sudden sharp price declines such as occurred in 1920 and 1921. In view of the lower level of quick ratios, it would appear that among our industry-size groups there was actually a tendency toward a progressive immobilization of working capital in 1915-18, and that this tendency was accentuated in 1919-20. That is to say, working assets decreased in quality as they increased in quantity; the deterioration in quality over the war years was gradual, but during the two postwar years it was more rapid.

In each year of the war period there were some companies in our samples that apparently used short-term funds to finance fixed property expansion; that is, they reported fixed property expenditures exceeding the sum of the amount of funds available from operations, plus proceeds from the sale of securities, plus amounts derived from the disposal of assets. This was true of a few large manufacturing companies in 1915, 1916 and 1918, and of a few small manufacturing and trade companies in 1917, 1919 and 1920. While such financing proved less risky than usual in the early phases of the war period, the companies that practiced it in post-war years were undoubtedly confronted with an embarrassing financial problem in 1921.

Bank Credit vs. Trade Credit

The rise in short-term debt during World War I expansions was much more noticeable in the samples of large than in those of medium and small companies. Before the war large corporations in manufacturing and trade, unlike the medium and small companies, were not, as a rule, heavy short-term debtors. Therefore the rise in their current debt, shown in Chart 14, was one of the most significant features of the entire wartime financial development. The

CHART 14—AVERAGE YEAR-END AMOUNT PER CORPORATION OF NOTES AND ACCOUNTS PAYABLE OUTSTANDING, FOUR SELECTED YEARS ^a



^a The Massachusetts samples consist of 166 to 235 manufacturing corporations and 78 to 162 trade corporations, non-identical. For description of the samples see Appendix A.

short-term debt of smaller companies followed the same pattern, but to a lesser degree.⁴⁹

Assuming that the notes payable reported in corporate balance sheets represent, for the most part, borrowings from commercial banks (an assumption whose validity is stronger for the large concerns than for the small ones), it appears that large manufacturing

⁴⁹ The Wisconsin identical sample could not be used in Charts 14 and 15, because notes and accounts payable were combined as a single item in the tax returns of the Wisconsin State Tax Commission, from which the data were compiled.

and trade corporations borrowed heavily from the banks to finance both war and postwar operations. The larger company groups increased their bank borrowing by about the same amount from 1916 to 1918 as from 1918 to 1920, while the smaller company groups incurred a greater increase from 1918 to 1920.⁵⁰

Loans and discounts of all commercial banks increased by 59 percent during the 1915-18 expansion, and by 28 percent in the 1919-20 expansion, or at average annual rates of 12 percent and 13 percent respectively.⁵¹ The data of Chart 14 suggest that the short-term credit demands of large corporations—especially of large manufacturing corporations, which were numerically more important than large trade concerns—constituted a significant influence in this rise of bank credit.⁵² The same conclusion is suggested by the following tabulation, which shows, in percent of total loans and discounts of all banks, the notes payable of our large manufacturing and trade samples, together with estimated notes and accounts payable of *all* large manufacturing and trade corporations.⁵³

	1916	1918	1920	1921
Notes payable, samples of large manufacturing and trade corporations	1.5%	2.6%	3.1%	2.0%
Notes payable, all large manufacturing and trade corporations (estimated)	4.3	8.1	10.4	8.6

Although the average dollar amount of the bank debt owed by large manufacturing and trade corporations increased so sharply, the proportion of such companies having bank indebtedness did not increase (Chart 15). The percentage of large manufacturing companies indebted on notes payable was higher in 1914 than in any of the subsequent years checked, and the same was true in re-

⁵⁰ The movement of average notes payable shown by our samples of large manufacturing and trade corporations is confirmed, for the same years, by the average of all manufacturing and trade corporations whose statements were reported in *Moody's Manuals*.

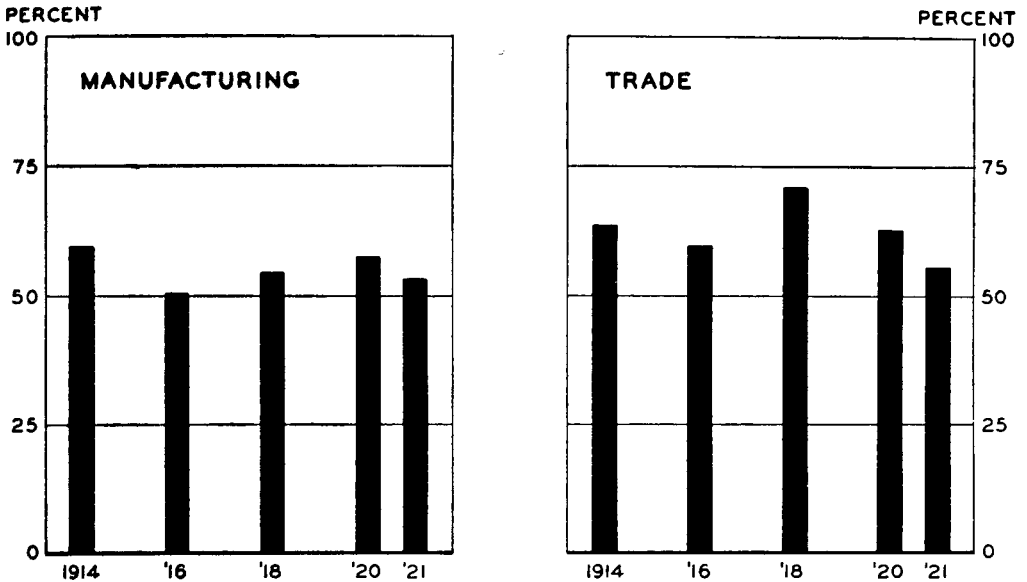
⁵¹ Computed by the compound interest rule from interpolated year-end figures.

⁵² Loans and discounts to manufacturing and trade enterprise amounted to 47 percent of the \$13.8 billion of total loans and discounts of all national banks on November 15, 1920, according to the *Report of the Comptroller of the Currency, 1920*, p. 38. Data on the industrial composition of national bank loans and discounts were not compiled by the Comptroller for earlier dates.

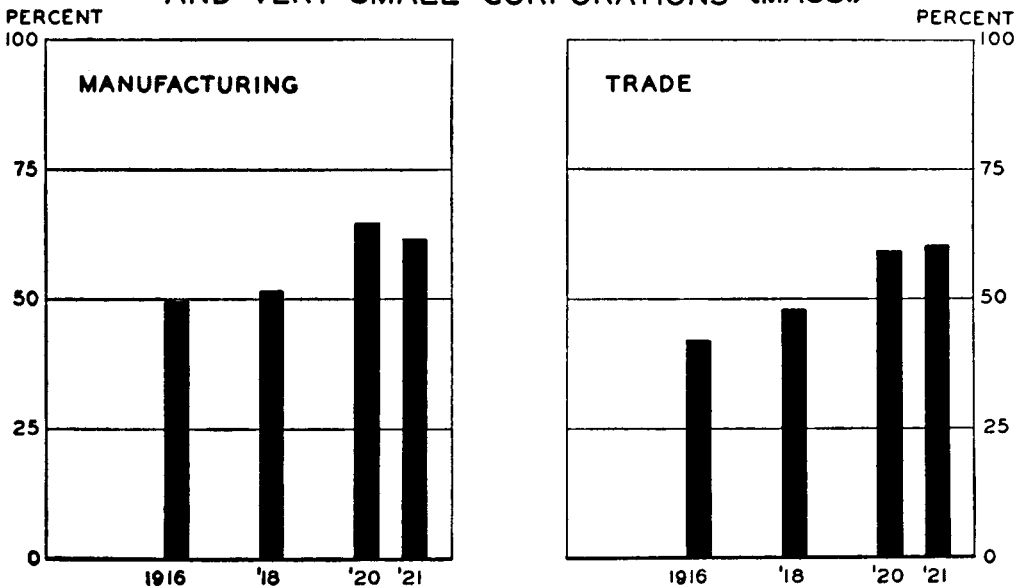
⁵³ The method of estimate was similar to that employed in determining the cash balances of all large corporations; see above, footnote 44.

CHART 15—PERCENTAGE OF CORPORATIONS REPORTING NOTES PAYABLE
OUTSTANDING, FIVE SELECTED YEARS ^a

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM, SMALL,
AND VERY SMALL CORPORATIONS (MASS.)



^a The samples of large corporations consist, for each year, of all domestic corporations in *Moody's Manuals* (industrials) which in that year recorded notes payable as a separate balance sheet item. The Massachusetts samples consist of 166 to 235 manufacturing corporations and 78 to 162 trade corporations, non-identical. For description of the samples see Appendix A.

gard to large trade corporations, except for 1918. In contrast, the percentage of smaller corporations having bank debt increased from 1916 through 1920, the greatest rise occurring between 1918 and 1920 in response to postwar stimuli.

A growth in the total population of manufacturing and trade enterprises seems to have occurred over the World War I period, and also a change in its composition by size classes, but the increase in the number of enterprises having assets in excess of \$5 million was apparently not large.⁵⁴ It therefore appears that the marked expansion of bank loans and discounts to manufacturing and trade during 1914-20 reflected increased borrowing by a relatively stable, or only slightly growing, number of large manufacturing and trade companies, and by an expanding number of medium and small companies. Borrowing by the smaller companies seems to have been an especially strong influence in the continued credit inflation of the 1919-20 expansion; in fact, the asset expansion of the thousands of smaller enterprises in the country, financed by current debt, was apparently a major stimulant in the immediate postwar boom. Circumstantial evidence in support of this conclusion is the fact that in these two years there were fewer business failures per

⁵⁴ The available evidence on this matter is by no means complete. The total number of business establishments listed by Dun & Bradstreet, Inc. increased from 1,655,000 in July 1914 to 1,821,000 in July 1920. The number of manufacturing and trade corporations reporting to the Bureau of Internal Revenue increased from 111,000 in 1916, the earliest year for which information by industry is available, to 157,000 in 1920. The magnitude of the year-to-year changes suggests that this increase resulted from changes in the classification practice of the Bureau of Internal Revenue as well as from a rise in the absolute number. The number of reporting manufacturing corporations was lower in 1918-19 than in 1916-17, but this may have reflected a disincorporation movement to avoid excess profits taxes. A comparison of the corporations in Moody's *Manual* for 1916 with those in the *Manual* for 1923 (there listed by date of incorporation), in combination with evidence compiled under the Financial Research Program's Studies in Business Financing, suggests that there were about 1000 manufacturing and trade corporations with assets exceeding \$5 million in 1916, and 1300 in 1920. We know of no reliable base from which to estimate the number of corporations having total assets between \$50 thousand and \$5 million (medium and small companies), but it is to be doubted that the number decreased between 1914 and 1920. For the purposes of the present discussion a shift from incorporated to unincorporated status would be of little consequence; according to another paper in the Financial Research Program's Studies in Business Financing, unincorporated enterprise does not differ substantially from incorporated enterprise as regards bank borrowing; see Carl Kaysen, *Industrial and Commercial Debt — A Balance Sheet Analysis, 1939* (ms. 1942).

10,000 enterprises, and a higher ratio of new business enterprises to discontinued enterprises, than in any other year between 1914 and 1939.⁵⁵

An interesting feature of the increased bank borrowing by business concerns in 1917-18 is its possible relation to the purchase of Liberty Bonds. Individuals often financed the purchase of Liberty Bonds by loans, and business concerns were also urged in the bond drives to adopt this method of financing if necessary or expedient. Among the companies included in our samples, particularly the smaller ones, there is some evidence of an increase in both marketable securities and notes payable in 1917 and 1918, and of a reduction of both in 1921 or 1922. It is obviously impossible, however, to establish any direct causal relationship from our data.⁵⁶

New Security Issues

Sales of securities to investors, net of refunding, were decidedly less important in financing the expansion of business assets during 1915-18 than during 1919-20 (Table 6). In the first period the combined sales of bonds and stocks were a much less important external

⁵⁵ Based on the Insolvency Index issued by Dun & Bradstreet, Inc., and on data concerning business names added to and dropped from the Dun and Bradstreet *Reference Book*. Data for the period 1915-37 are published in Temporary National Economic Committee, Monograph No. 17, *Problems of Small Business* (1941) pp. 66-67. The average number of commercial and industrial failures per 10,000 listed concerns, and the average ratio of new enterprises to discontinued enterprises listed in the *Reference Book* for the World War I and two peacetime expansions, are as follows (the 1922-29 period being exclusive of 1924 and 1927):

	<i>Number</i>	<i>Ratio</i>
1915-18	93	1.0
1919-20	43	1.4
1922-29	105	1.0
1933-37	63	1.0

⁵⁶ Among the 91 large manufacturing and trade corporations included in our samples, 14 increased both marketable securities and notes payable in 1917, and 20 in 1918. A considerably larger proportion of the medium and small companies in the Wisconsin identical sample increased "investments"—a category that includes marketable securities—simultaneously with an increase in notes and accounts payable. Unfortunately, these notes and accounts payable are combined in the tax reports, and cannot be broken down. Since the item "investments" was zero in 1916, we have assumed that during 1917-20 it represented chiefly holdings of government obligations, an assumption that appears warranted by the behavior of the account and also by the fact that smaller corporations do not customarily hold securities of other corporations as assets.

source than short-term debt; in the 1919-20 period they were a little more important than short-term debt for the medium and small groups, and roughly twice as important for the large concerns. Also in comparison with their use in the '20s new security issues were a minor source of funds in 1915-18.

In each of the years 1915-18 about 33 percent of the large corporations in our samples issued new securities, and in 1919 and

TABLE 6—PERCENTAGE OF CORPORATE ASSET INVESTMENT, FINANCED THROUGH NEW SECURITY SALES AND SHORT-TERM DEBT ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies				
Bonds	4%	7%	0%	0%
Stocks	10	42	34	18
Short-term debt	37	27	12	45
Medium and small cos. (Wisc.)				
Bonds	0	6	0	} ^d
Stocks	12 } ^e	11	55	
Short-term debt	31 }	16	3	
TRADE SAMPLES				
Large companies				
Bonds	2	42	0	0
Stocks	6	17	37	28
Short-term debt	41	23	10	31
Medium and small cos. (Wisc.)				
Bonds	0	4	18 ^e	0
Stocks	15 } ^e	43	13	0
Short-term debt	54 }	40	2	100

^a The external financing sources shown in Table 5 equal the sum of stocks, bonds and short-term debt as given above, except among the medium and small manufacturing companies in 1917-18, when "other liabilities" were a source of some slight importance. The large corporation samples for the peacetime expansions differ in composition from those for the wartime expansions; for description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Average for 1917-18 only.

^d Net contraction of total assets; very small amount of bonds sold; no stock sold.

^e This particularly high percentage was caused by 2 out of the 30 companies: one in one year of the 1922-29 period, and the other in another year, floated an unusually large amount of long-term debt, and since the net asset expansion of the entire 30 companies was small, these issues counted high in percentage terms.

1920 about 43 percent did so. Among the medium and small corporations, which are local enterprises and must rely on local funds to finance long-term indebtedness and new stock issues, the percentages for the 1917-18 and 1919-20 periods were 17 and 26 respectively. The highest percentages of any year occurred of course in 1920.

In 1918 two factors sharply restricted bond and stock financing. The first was the influence exerted by the Capital Issues Committee, organized early in the year to review and discourage new offerings with the object of facilitating Treasury financing. The second was the limitation of plant and equipment expenditure because of priorities and shortages of labor and materials. Soon after the termination of hostilities, however, the pressure exerted by Treasury financing of wartime expenditures through the capital markets, and the restraining influence of the Capital Issues Committee, came to an end. Corporate profits of the preceding years had been high and, despite a temporary recession in business activity, the outlook for postwar prosperity seemed reasonably bright. Taking advantage of the reopening of the capital markets under favorable conditions, manufacturing and trade concerns issued new securities in substantial volume. Proceeds were applied in some cases to the reconversion and expansion of productive facilities, in others to retirement or refunding of short- and long-term debt.

Large corporations have greater freedom than smaller ones in choosing between bond and stock financing. In the financing of manufacturing and trade enterprise, however, bond or long-term debt financing has always had a subordinate part compared to its use in the transportation and public utility fields. At the beginning of the World War I period such debt was carried by one-half of the companies represented in our large corporation samples, and by somewhat less than a quarter of those in the medium and small corporation samples. Among smaller companies long-term debt is likely to include mortgages, long-term notes to individuals, or other instruments not accurately describable as bonds. For the purposes of the present discussion, however, bond debt and long-term debt are sufficiently synonymous to justify using them interchangeably.

But though stock issues are the chief basis of permanent financing in manufacturing and trade, our samples indicate that during the wartime expansions, particularly during 1919-20, bond offerings

were relied on to a more than negligible degree. This is in striking contrast with the expansions of the '20s and '30s, and also with the three expansions preceding 1914.⁵⁷ Moreover, these relatively heavy bond offerings of 1919-20 were floated by a higher percentage of the companies in our samples than were the bond offerings of any other years from 1915 to 1939 inclusive. A conspicuous feature of the immediate postwar investment market was the bond issues of large trade companies: bond offerings in 1919-20 were more than twice as important as stock issues in financing the asset increases of our sample of such companies.

Wartime Earnings and Savings

The wartime expansions have been aptly described as years of profit inflation. Business failures decreased sharply, from an estimated 133 per 10,000 concerns in 1915 to 37 in 1919 and 48 in 1920.⁵⁸ Also, a larger proportion of all manufacturing and trade corporations reported profits to the Federal tax collector in 1916-20

⁵⁷ The evidence for this generalization is from scattered sources, including unpublished corporate financial data collected by the Financial Research Program. For the large corporations, which finance through the securities market, it is corroborated by the following data on the various expansion periods between 1904 and 1937; the figures show the percentage relationship of the average annual volume of new industrial bond offerings (manufacturing, trade, mining and agriculture) to the average annual volume of total new industrial, rail and utility bond offerings, and also, for purposes of comparison, the volume of all reported stock issues (of which the majority are rails and utilities), both sets of dollar figures being given in millions.

1904-07	11%	of \$ 842;	stock issues \$ 553
1908-10	16	" 786;	" " 452
1912-13	13	" 871;	" " 678
1915-18	35	" 675;	" " 479
1919-20	57	" 1,016;	" " 1,377
1922-29	35	" 1,473;	" " 2,178
1933-37	37	" 317;	" " 253

The data on bond issues, which pertain to all cash offerings on the securities market, exclusive of refundings, of domestic corporations in the industrial divisions indicated, were assembled by the National Bureau's Corporate Bond Project. The data on stock issues, which include conversions, are from the *Journal of Commerce*; in the 1904-07 period they pertain only to 1906-07, information on the earlier years being unavailable. All data on the period 1922-29 are exclusive of 1924 and 1927.

⁵⁸ Based on the Insolvency Index issued by Dun & Bradstreet, Inc. In the 1915-20 period the highest rate for insolvencies occurred in January 1915 (161), and the lowest in January 1920 (31).

than in either of the subsequent peacetime expansions, as shown by the following figures:⁵⁹

	1916-18	1919-20	1922-29	1933-37
Manufacturing	73%	69%	59%	41%
Trade	79	75	63	40

Sales of each of our samples rose sharply in the 1915-18 expansion (Chart 16), and continued to increase during the 1919-20 expansion except among large manufacturing concerns. For large corporations, net income after taxes rose in relation to sales in both 1915 and 1916, but then declined, on the whole, through 1920. Also for the medium and small company samples, net income after taxes tended to decline after 1916 in relation to sales, though the fall was interrupted by an increase for both industry groups in 1919, and for the manufacturing sample in 1920 as well.

This tendency for profit per sales dollar to decline after the second year of wartime sales expansion reflected the interplay of many factors, among them rising costs of labor, material and maintenance; utilization of plant and equipment beyond the point of lowest average cost; resort to stand-by equipment and facilities; and increased normal and excess profits taxes. Although it is difficult to judge the relative importance of these various factors, taxation was certainly one of the most significant. Data on corporate profits taxes are not available for all of our samples; but the aggregate of all net income corporations in the country reported to the Treasury the following percentages of total net income paid out in normal, excess and war profits taxes:⁶⁰

	1916	1917	1918	1919	1920	1921
Manufacturing	2%	23%	45%	26%	24%	22%
Trade	2	22	36	26	21	20

For all of our samples, however, corporate profits, even after heavy taxes, were high in relation to net worth (Table 7). They were higher on the average in the 1915-18 expansion than in that

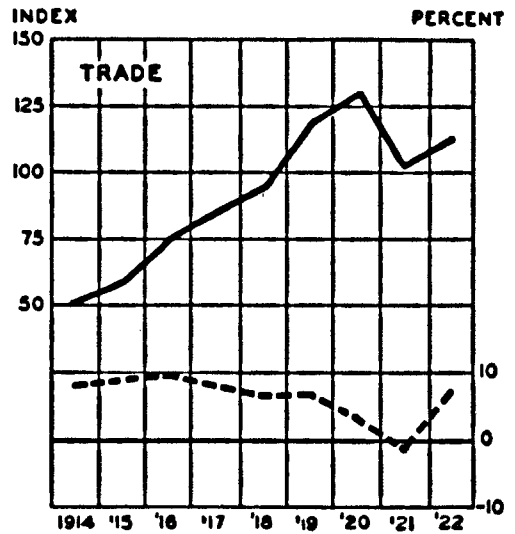
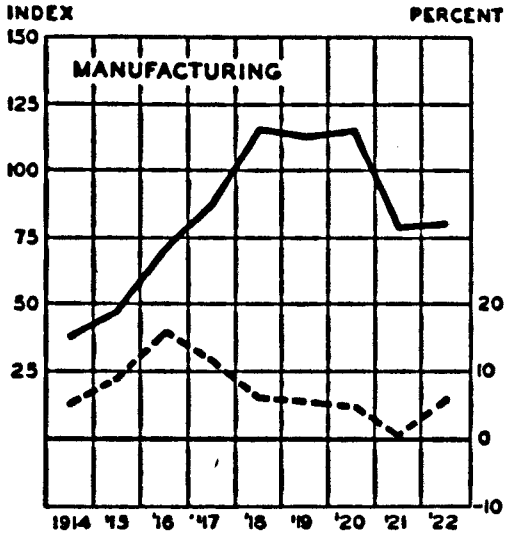
⁵⁹ Computed from U. S. Bureau of Internal Revenue, *Statistics of Income*, 1916-37. Figures for 1914 and 1915 not available. Figures for 1922-29 are exclusive of 1924 and 1927.

⁶⁰ Based on U. S. Bureau of Internal Revenue, *Statistics of Income*, 1916-21. See also *Hearings before the Special Committee Investigating the Munitions Industry*, United States Senate (73rd Congress, S.R. 206) Part 26, pp. 7941-8090.

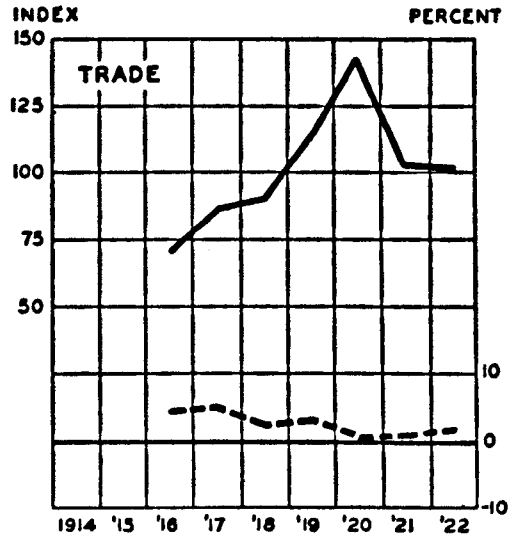
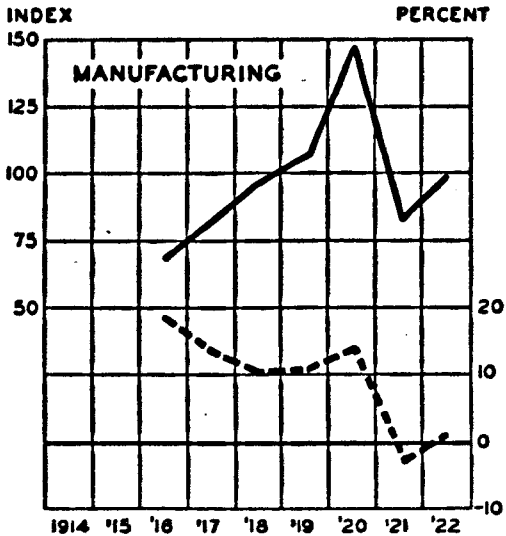
CHART 16—INDEX OF SALES, AND NET INCOME (AFTER TAXES) IN PERCENT OF SALES, 1914-22^a
 (1916-20 average = 100)

— SALES - - - NET INCOME (AFTER TAXES) IN PERCENT OF SALES

SAMPLES OF LARGE CORPORATIONS



SAMPLES OF MEDIUM AND SMALL CORPORATIONS (WISC)



^a For each year the figures are exclusive of the companies for which no sales figures are available. Net income represents book net income adjusted for all non-cash expenditures and receipts, other than depreciation and depletion; the amount of such adjustment was relatively small. For description of the samples see Appendix A.

TABLE 7—NET INCOME (AFTER TAXES) IN PERCENT OF YEAR-END NET WORTH, AND PERCENT OF NET INCOME SAVED, ANNUAL AVERAGE ^a

Industry-Size Group	World War I Expansions		Peacetime Expansions	
	War 1915-18	Postwar 1919-20	1922-29 ^b	1933-37
MANUFACTURING SAMPLES				
Large companies				
Net income to net worth	16%	11%	10%	6%
Net income saved	62	57	45	25
Medium and small cos. (Wisc.)				
Net income to net worth	18	18	9	1
Net income saved	53 } ^c	72	29	d
TRADE SAMPLES				
Large companies				
Net income to net worth	14	11	17	11
Net income saved	56	48	63	37
Medium and small cos. (Wisc.)				
Net income to net worth	14	9	6	2
Net income saved	40 } ^c	13	30	d

^a Net income represents book net income adjusted for all non-cash expenditures and receipts, other than depreciation and depletion; the amount of such adjustment was relatively small. The large corporation samples for the peacetime expansions differ in composition from those for the wartime expansions; for description of the samples see Appendix A.

^b Exclusive of 1924 and 1927.

^c Average for 1917-18 only.

^d Dividends greater than net income.

of 1919-20, and, except among large trade companies, they were higher in both wartime expansions than in the peacetime expansions of 1922-29 and 1933-37.

A large part of these high-level wartime profits was reinvested, the proportion being higher for manufacturing than for trade concerns in the same size group. During the 1915-18 expansion large manufacturing companies earned a little less, in relation to owner's equity, and saved more of these earnings, than did medium and small ones; in 1919-20 they not only earned less but saved less; but in the two peacetime expansions they both earned and saved more. Large trade companies, on the other hand, although their average earnings in relation to net worth were the same as those of the smaller trade companies in 1915-18, otherwise both earned more and saved more than the smaller companies in all four expansions.

The wartime savings effected by the manufacturing and trade companies in our samples constituted a large percentage of high profits, and their magnitude was of great importance to these companies in the postwar economy. In view of the wartime accumulation of inventory at inflated prices, financed to a large extent by short-term debt, it seems self-evident that the retention of a high proportion of large earnings contributed much to the capacity of these companies to make peacetime adjustments and thus to survive through the '20s and '30s.

III. POSTWAR LIQUIDATION

One of the strategic factors influencing the course of business activity is corporate asset investment. The average rate of dollar investment in new assets — especially inventory and fixed property — of our several samples was exceptionally high during the World War I expansions. The dollar volume of corporate asset investment was greater for manufacturing and trade companies in 1920 than in any other war expansion year; yet by the middle of 1920 business recession had set in, and by the end of the year a liquidation bordering on panic was in process.

Six factors appear to have been vitally important in the financial situation of 1920 — commodity prices, inventory, short-term business debt, foreign trade, stringency in the money market, and commitments and cancellations. During the spring of that year, the first three were carried to levels substantially higher than those of November 1918 by what the Federal Reserve Board described as “an unprecedented orgy of extravagances, a mania for speculation, overextended business in every part of the country, and general demoralization of the agencies of production and distribution.”⁶¹ Regarding foreign trade, the dollar volume of exports and the balance of foreign trade attained record levels for the entire period between the two World Wars. The dollar value of manufactured exports in many industrial lines, e. g., automobiles, textiles, machinery, and the like, was twice as great as it had been in 1918.

Stringency in the money market, the fifth factor, was partly attributable to the sustained outflow of gold that followed the removal, in June 1919, of the wartime embargo on gold exports, and contributed to the sharp reduction in reserve ratios of Federal Reserve Banks; the stringency was accentuated by heavy demands for credit to carry speculative positions in primary commodities and in securities. The last factor, commitments to buy and sell and cancellation of orders, was a phenomenon associated with the postwar price advance, speculative inventory buying, transportation bottlenecks and the unprecedented expansion of foreign trade.⁶²

While confidence in continued prosperity dominated the public statements of business leaders at the opening of 1920, there were some in high financial and business circles who viewed the entire

⁶¹ Federal Reserve Board, *Annual Report for 1920*, p. 1.

⁶² See above, p. 40.

national situation apprehensively, a fact attested by the increase in the discount rate on commercial paper of the New York Federal Reserve Bank on January 22 from 4.75 to 6 percent. In a number of important lines of activity there were signs of extreme tension, and misgivings over business prospects were openly expressed.⁶³ Confidence received a setback in April, when a sensational collapse of prices took place in Japanese markets; again on May 3, when John Wanamaker offered \$20 million of "best merchandise" at a 20 percent markdown; and again on May 29, when the New York Federal Reserve Bank rediscount rate was raised to 7 percent, the highest in its entire history. Price recession spread from one area to another, and with price recession there developed a glut of inventory, an extensive cancellation of orders, a scramble to liquidate current assets, and pressure from short-term creditors for repayment of debt. Speculative excesses had been widespread, and in certain industries — automobiles, textiles, rubber, paper, retailing and wholesaling, for example — financial overextensions were numerous and in some cases conspicuous.

While profitable operations and asset expansion were the rule for the majority of manufacturing and trade corporations in 1920, widespread losses and contraction characterized 1921, when the full effect of deflation was recorded in business accounts. The financial history of the year was written large in total asset shrinkage, inventory liquidation and write-downs, bad debt write-offs, short-term debt retirement, and operating losses. Industrial production was 19 percent lower in 1921 than in 1920.⁶⁴ The index of wholesale commodity prices, which averaged 222 for 1920 as a whole (1915=100), ended the year at 174; in 1921 it averaged 140 and stood at 134 at the year end.

Not only did the drastic fall in prices bring direct operating losses; responsible concerns assumed additional losses by fulfilling excessive commitments to buy and by accepting cancellations of orders (too often duplicates of orders placed with other companies) rather than enforce contracts and run the risk of converting orders to sell into bad debts.⁶⁵ Cancellation of orders from abroad, and uncollectible foreign debts, were especially damaging. One con-

⁶³ For an interesting account of the strains characterizing this period see Payne, *op. cit.*

⁶⁴ Babson's index of the physical volume of business activity.

⁶⁵ See above, p. 40.

temporary commentator estimated the floating debt of Europe to private American creditors at \$3.5 billion.⁶⁶

The charts previously presented indicate the main features of the 1920-21 financial contraction.

Inventory Liquidation and Write-down

Just as the increase in business assets resulting from the inflation of inventory was greater in the wartime expansions for large concerns than for medium and small corporations, so the decrease in assets from inventory liquidation in the postwar collapse was greater for large companies, and greater for those in trade than for those in manufacturing. For three of our industry-size groups, funds obtained through the sale of inventory represented a larger proportion of total assets in 1921 than in either of the subsequent peacetime contractions (Table 8); the exception was the medium and small manufacturing group, for which the contraction of 1930-32 was the most severe in its effects on inventory. These funds from sale of inventory, and others obtained from the liquidation of assets, were applied to the financing of losses and the retirement of current debt. Also the total inventory shrinkage through sale and write-down, in relation to beginning-of-year inventory, was higher in 1921 than in either of the later peacetime contractions,⁶⁷ the smaller manufacturing corporations again constituting an exception. The 1921 reduction in inventory was especially violent for the large trade companies; in this group the book value of inventory was almost cut in half during that year.

The then prevailing methods of pricing inventory — methods approximating the first-in, first-out procedure in manufacturing and the retail method in trade — had given rise to substantial book profits while prices were rising. When prices collapsed these

⁶⁶ B. M. Anderson, "Three and a Half Billion Dollar Floating Debt of Europe to Private Creditors in America," *Chase Economic Bulletin* (October 5, 1920).

⁶⁷ Reduction in the book value of inventory was not only substantial in total amount but also widespread among the individual companies in our samples, both in 1921 and 1922. For 1921 such reductions were reported by 65 out of 82 large manufacturing corporations; by 51 out of 72 medium and small manufacturing corporations; by 7 out of 8 large trade corporations; and by 23 out of 30 medium and small trade corporations. For 1922 the figures are: large manufacturing, 34 out of 81; medium and small manufacturing, 40 out of 73; large trade, 2 out of 8; medium and small trade, 17 out of 30.

TABLE 8—PERCENTAGE DECREASE IN BOOK VALUE OF INVENTORY, AND INVENTORY REDUCTION THROUGH SALE IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS *

<i>Industry-Size Group</i>	<i>World War I Contraction</i>	<i>Peacetime Contractions</i>	
	1921	1930-32	1938
MANUFACTURING SAMPLES			
Large companies			
Percentage decrease in book value	22%	13%	11%
Reduction through sale, in percent of total assets	5	2	2
Medium and small cos. (Wisc.)			
Percentage decrease in book value	4	15	9
Reduction through sale, in percent of total assets	1	2	2
TRADE SAMPLES			
Large companies			
Percentage decrease in book value	43	13	5
Reduction through sale, in percent of total assets	18	4	2
Medium and small cos. (Wisc.)			
Percentage decrease in book value	14	10	11
Reduction through sale, in percent of total assets	7	4	5

* See text footnote 27. Percentage decrease in book value, here computed by the compound interest rule, refers to decreases due to sale of inventory plus those due to writedowns. The figures for 1930-32 represent annual averages. For description of the samples see Appendix A.

methods brought about book losses, whether the decline in book value was recognized separately as a charge to income or surplus or was buried in the cost of goods sold.

In the 1921 deflation inventory write-downs, treated as a separate charge to surplus or to current earnings, were more common among large than among small companies. Only 2 out of the 103 medium and small manufacturing and trade concerns in the Wisconsin sample reported such revaluations in 1921, and only 3 during the entire three-year period 1920-22.⁶⁸ While information on the write-downs of large corporations is available only from scattered sources and for a small number of companies, it is known that of 64 large

⁶⁸ Whether these small proportions resulted from an absence of inventory speculation, from a conservative policy of inventory valuation, or from sheer ignorance of proper accounting practice, cannot be ascertained from the record. There is reason to believe, however, that the third factor was more operative than the first two.

companies (37 of them included in our sample) 49 wrote off \$187 million in inventory book value during 1921.⁶⁹ This huge write-off amounted to 13 percent of the inventory book value of these companies at the beginning of the year, and accounted for nearly one-half of their total 1921 reduction in inventory book value. Not all inventory write-offs incident to the postwar price deflation were taken in 1921, however; 33 of the 64 companies had taken a total of \$122 million in the preceding year, and 9 companies marked off another \$35 million in 1922.

Retirement of Short-Term Debt

The crisis in the commodity markets made business creditors anxious to collect debts and debtors anxious about their retirement. Within the single year, 1921, billions of dollars of short-term business debt owed to banks and trade creditors were repaid. The debtor-creditor tension prevailing in that year is evident from Table 9, which shows the short-term debt repayments by our samples in 1921, in comparison with repayments in the two major contractions of the postwar era.

Only one group, medium and small manufacturing companies, failed to repay short-term debt to any significant extent in 1921. Their repayments, however, were merely deferred one year: in 1922 their current debt was reduced by 25 percent, a reduction amounting to 4 percent of total assets. Among the large manufacturing and smaller trade companies the greater part of the short-term debt retirement took place in 1921, but these companies too made further reductions — 17 percent and 4 percent respectively — in 1922. The debt retirement of large trade companies was high in both years — 39 percent in 1921 and 29 percent in 1922.

There are three principal sources of funds for the retirement of short-term business debt: first, cash "throw-off" or funds from current operations, that is, net income before depreciation, depletion and other non-cash charges; second, the liquidation of assets; and third, the sale of stocks and bonds. Operating losses in 1921 greatly reduced the volume of funds from operations: for two of our industry-size groups — medium and small manufacturing compa-

⁶⁹ This information was obtained from investment manuals, through direct inquiry to companies covered in our large corporation samples, and from the *Hearings* before the Ways and Means Committee of the House of Representatives on the Revenue Revision of 1941 (77th Congress) Vol. 2, p. 1150.

TABLE 9—PERCENTAGE DECREASE IN BOOK VALUE OF SHORT-TERM DEBT, AND SHORT-TERM DEBT LIQUIDATION IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS ^a

<i>Industry-Size Group</i>	<i>World War I Contraction</i>	<i>Peacetime Contractions</i>	
	1921	1930-32	1938
MANUFACTURING SAMPLES			
Large companies			
Percentage decrease in book value	39%	22%	20%
Liquidation in percent of total assets	4	2	2
Medium and small cos. (Wisc.)			
Percentage decrease in book value	b	7	7
Liquidation in percent of total assets	b	1	1
TRADE SAMPLES			
Large companies			
Percentage decrease in book value	39	10	c
Liquidation in percent of total assets	8	2	b
Medium and small cos. (Wisc.)			
Percentage decrease in book value	17	12	5
Liquidation in percent of total assets	6	3	1

^a See text footnote 27. Percentage decrease in book value is here computed by the compound interest rule. The figures for 1930-32 represent annual averages. For description of the samples see Appendix A.

^b Increase of 1 percent or less.

^c Increase of 4 percent.

nies and large trade companies — funds from operations were negative in that year. Even among the companies that reported net profits, not all of the funds from operations were available for debt retirement, since corporate managements continued, for one reason or another, to pay cash dividends to stockholders; after the payment of such dividends even the large manufacturing and smaller trade groups had little or nothing left for debt retirement. The burden of short-term debt retirement therefore fell largely upon asset liquidation and new security sales. And since capital market conditions were not favorable to the sale of corporate investments and fixed property, or to security sales except by companies of the highest investment standing, most debt retirement came from liquidation of current assets. All our groups of concerns liquidated such assets in order to repay debt, a necessary procedure in the circumstances, but one that somewhat depleted working capital.

The process of debt retirement in the World War I liquidation is detailed in Table 10, which also gives comparable data for the

TABLE 10—SOURCES OF FUNDS FOR THE RETIREMENT OF SHORT-TERM DEBT, IN PERCENT OF BEGINNING-OF-YEAR TOTAL ASSETS ^a

Industry-Size Group	World War I Contraction	Peacetime Contractions	
	1921	1930-32 ^b	1938
MANUFACTURING SAMPLES			
Large companies			
Funds from operations	5%	6%	7%
Less: Cash dividends	3	4	3
Retained funds	2	2	4
Current asset liquidation	6	4	e
Security sales	2	e	2
Medium and small cos. (Wisc.)			
Funds from operations	-1	1	3
Less: Cash dividends	2	3	2
Retained funds	-3	-2	1
Current asset liquidation	7	4	2
Security sales	e	e	-1
TRADE SAMPLES			
Large companies			
Funds from operations	-1	8	11
Less: Cash dividends	2	5	6
Retained funds	-3	3	5
Current asset liquidation	-3	-5	-2
Security sales	16	e	e
Medium and small cos. (Wisc.)			
Funds from operations	3	2	1
Less: Cash dividends	4	2	2
Retained funds	-1	..	-1
Current asset liquidation	7	5	4
Security sales	1	e	-2

See text footnote 27. For description of the samples see Appendix A.
^a Annual average.
^b Less than 0.5 percent.

to peacetime contractions of the '30s. The table highlights the part played by current asset liquidation in the 1921 debt retirement. In 1921 (and also, on the whole, in the later contractions) more funds were made available from this and other sources than were actually used for the reduction of short-term debt shown in table 9. This suggests that before the contractions set in, our sample companies had made commitments for fixed property outlays; so, it may be that even during the contraction periods invest-

ments and other assets were acquired by the more aggressive and farsighted concerns.

The acuteness of the short-term debt problem that confronted manufacturing and trade enterprise during 1921, and the need to solve it by liquidating current assets, are further illustrated by the fact that at the end of 1920 about half of the concerns represented in our samples had short-term indebtedness that exceeded, in some cases very substantially, the highest amount of "cash throw-off" from operations of any single year during the entire period 1915-20.⁷⁰ This condition, it should be emphasized, refers to surviving companies, for all but one of these concerns weathered not only the liquidation of 1921 but also the prolonged depression of 1930-32 and the sharp contraction of 1938. Since these concerns were among the more conservatively financed, the current debt position of the less conservatively financed companies, with smaller or less consistent earning capacity, must have been critical indeed. Apparently many business debtors had depended on future sales transactions at inflated price levels, rather than on cash funds from earnings and other operating sources, to liquidate current debt. When these expectations could not be realized, debtors had practically no choice but to dispose of inventory, accelerate the collection of receivables, sell marketable securities, and draw down cash balances. The necessity in some cases, and the desirability in others, of liquidating current assets in order to retire current debt, in all likelihood contributed greatly to the demoralization of commodity markets and to the sharp deflation of prices that occurred between mid-1920 and mid-1921.

⁷⁰ In the large corporation sample, 39 out of 82 manufacturing and 4 out of 8 trade companies had outstanding current debt commitments at the end of 1920 that exceeded the highest amount of cash funds provided through operations in any one year, 1915-20, and in some cases the excess was as much as three or four hundred percent. For the medium and small corporation samples, the proportions of such companies were 36 out of 71 and 20 out of 29 respectively for the period 1917-20.

Appendix A

Data, Methods and Limitations of Study

CHARACTER OF THE SAMPLES

historical records of business financial transactions available for a number of this type are far from complete, a fact that is particularly true in the case of the medium and small corporations. Neither time nor the available resources permitted any extensive compilation of whatever accurate financial statistics might be accessible from the records of individual business concerns. Consequently it was necessary to rely chiefly on small samples of such data as were compiled by the Financial Research Program in connection with its Studies in Business Financing.¹ The characteristics of the individual samples—including their industries, industrial coverage and size, which must be known in order to interpret correctly the significance of the financial developments which they may reveal—are summarized briefly in the following paragraphs.

Samples of Large Manufacturing and Trade Corporations

Two samples, one covering the period 1914-22 and the other the period 1920-39, were chosen for the purpose of analyzing changes in the financial structure of large manufacturing and trade corporations. The war period sample (1914-22) was compiled especially for use in the present study, while the interbellum period sample (1920-39) had been described previously by Albert R. Koch.² In so far as the available data permit, the two samples consist of the same companies.

World War I Samples. Our samples of large manufacturing and trade corporations (total assets of \$5 million and over), covering the period 1914-22, include manufacturing concerns from 11 durable and non-durable goods industries, and trade concerns engaged in mass retailing of a chain, mail-order or department store variety. The manufacturing group included 84 companies in 1914, but as a result of corporate consolidation the number was reduced to 81 in 1922; the trade group consists of 8 companies for the entire period.

¹ The data for all samples used in this and other studies of business financing trends under the National Bureau's Financial Research Program are collected in a separate volume, *Data for Studies in Business Financing, 1900-42* (ms. 1943).

² Albert R. Koch, *The Financing of Large Corporations, 1920-39*, National Bureau of Economic Research, Financial Research Program (1943).

In 1920, these two groups of corporations represented about 10 percent of the total number, and their sales amounted to approximately one-fifth of the total value of product, of all large manufacturing and trade concerns. Total assets of the manufacturing concerns amounted to about 25 percent of the total assets of all large manufacturing companies (practically all of which are incorporated); but the total assets of the 8 trade companies accounted for only 3 percent of the total assets of all large trade concerns, chiefly because most large trade concerns were not incorporated, or if they were, their stocks were closely held and hence their financial statements were not published.

Interbellum Samples. These samples include 84 large manufacturing and 10 large trade corporations, and cover the period 1920-39. Sales of the large manufacturing companies amounted to 26 percent of the value of product of all manufacturing companies in 1937, while the sales of the trade group were around 3 percent of the value of product of all trade concerns for that year. Total assets of the large manufacturing companies amounted to roughly 30 percent of the total assets of all *large* manufacturing companies; total assets of the trade group were about 15 percent of those of all *large* trade concerns.

Other Large Corporation Data

In addition to these sample data pertaining to large manufacturing and trade corporations, use was made of certain figures on inventory holdings compiled by George Terborgh of the Federal Reserve Board, and by Willard Thorp and Helen Russell of Dun & Bradstreet, Inc.

Terborgh's figures pertain to inventory holdings of a varying number of manufacturing corporations, and were compiled from Moody's *Manuals*, 1916-23.⁷³ These corporate balance sheet figures were classified by major and minor industry groups, and by size (the criterion of size being amount of inventory rather than the amount of total assets or sales of the corporation), and were weighted by Kuznets' estimates of inventory values at the end of 1923.⁷⁴ Those differences which occur between our figures and Terborgh's with regard to the over-all growth in dollar volume of inventory holdings are attributable in part to Terborgh's inclusion of the smaller companies, and in part to the weighting he employed in combining the separate industry figures.

The inventory figures of Thorp and Russell are for an identical sam-

⁷³ See Terborgh, *op. cit.*, especially p. 617.

⁷⁴ Simon Kuznets, *Commodity Flow and Capital Formation* (National Bureau of Economic Research, 1938) I, p. 412.

ple of 106 manufacturing corporations in 15 industry groups, and 5 mass distributors, and cover the period 1913-22.⁷⁵ The dollar figures for each industry group were combined into a total for manufacturing industry, the weights employed for this purpose being determined on the basis of the inventory holdings of different industry groups, as given in the 1937 *Census of Manufactures*, with allowance for varying rates of industry growth. The results of Thorp and Russell's calculations agree closely with ours, in spite of the fact that we did not weight our inventory figures in proportion to the relative importance of the various industry groups included in our samples.

Samples of Medium and Small Manufacturing and Trade Corporations

Measured by the same criteria — number of companies, total assets, and sales — the three samples of financial statement data of medium and small manufacturing and trade corporations (total assets \$50 thousand to \$5 million) are very small indeed. Altogether, four separate samples of such corporations have been employed in the study.

Wisconsin Samples. Corporations domiciled in Wisconsin were selected from the files of the Wisconsin State Tax Commission, and data were transcribed from their income tax returns.

Wisconsin Identical. This sample includes 73 manufacturing corporations in 8 industries, and 30 identical trade corporations in 2 retail and 1 wholesale lines, and covers the period 1916-39 inclusive. The fact that all are companies which survived, for a period of at least 25 years, the numerous vicissitudes to which small business concerns are subject, imparts an element of bias to their behavior patterns. It is this sample of 103 companies that is referred to in the text and charts as "the Wisconsin sample."

Wisconsin Non-Identical. This is a supplementary sample of medium and small manufacturing and trade concerns, likewise drawn from the files of the Wisconsin State Tax Commission. The number of companies included varies with the particular year, but ranges from 72 to 94 corporations in 7 manufacturing industries, and from 29 to 45 companies in 3 trade lines — 2 retail and 1 wholesale. The years for which this supplementary sample provides data are 1916, 1918, 1920 and 1921.

Massachusetts Samples. Because of the fact that the breakdown of

⁷⁵ See Thorp and Russell, *op. cit.*, especially p. 22.

certain asset and liability items as reported in the Wisconsin state income tax returns is not sufficiently detailed for the purposes of our analysis, and in order to have some check on the financial developments that characterized the Wisconsin companies, occasional use was made of data obtained from the certificates of condition which corporations are required to file with the Massachusetts Corporation Commission. Two samples were obtained from this source, each with a different composition, as follows:

Massachusetts Non-Identical, consisting of approximately 390 medium, small and very small corporations (non-identical in all years), and covering the years 1916, 1918, 1920 and 1921; around 230 of these companies were from 10 manufacturing industries, and about 160 were from 2 trade lines — 44 to 107 in retail and 34 to 55 in wholesale trade.

Massachusetts Identical, consisting of 56 identical companies, of which 39 were in manufacturing and 17 in trade, for the years 1914 through 1922.

In the country as a whole there were, in 1920, roughly 73,000 manufacturing and trade corporations with an asset size of \$50 thousand to \$5 million, their combined total assets amounting to some \$24 billion. Therefore our samples of medium and small concerns constitute a very small part of the total number of such corporations, and in this sense are not representative of the whole group. When measured by the criterion of behavior, however, they do seem to typify their size class, for all of the evidence coming to our attention indicates that the wartime financial behavior of medium and small corporations contrasted strikingly with that of large corporations.

The use of samples of medium and small companies drawn from two states as widely separated as Wisconsin and Massachusetts may be questioned. But a number of tests of corporate financial data pertaining to different periods disclose that geographical differences are far less important in determining the pattern of corporate financial structure, as reflected by samples, than are the size of concern and its industrial classification. Comparison of changes in specific items as between geographically different samples of comparable size composition reveals some inconsistencies in behavior; but these are primarily attributable to differences in industrial composition, and only in a few instances does the influence of regional economic variation seem to be significant.

GENERAL LIMITATIONS OF THE DATA

Any analysis based on historical financial records is subject to certain general limitations, as well as to those arising from the particular sam-

ples used. A financial statement represents an individual businessman's appraisal of the current financial condition of his company, and his estimates may or may not be realistic. Also, there are differences in accounting standards from one company to another, and from one period to another; it is known that these standards vary widely today, and the variation was probably even greater during the period of World War I, but there is no way of appraising the differences accurately from the available records. Moreover, individual concerns change their accounting practices from time to time, and such changes influence balance sheet amounts and categories indeterminately. Finally, data assembled from tax file sources (as were those for the Massachusetts and Wisconsin medium and small corporation samples) are necessarily influenced by the way in which the laws require reports to be submitted.

In order to give perspective to changes in business financial structure during the World War I period, 1914-21, we have compared the record of these years with that of expansion and contraction periods of the interbellum years 1922-39. As we had only annual data at our disposal we were obliged to define our expansion and contraction periods in terms of years; the years selected for inclusion in particular periods do not always agree with the reference cycle chronology of the National Bureau, as corporate financial data differ somewhat in behavior from the time series customarily used in business cycle analysis. Annual balance sheet data of individual corporations may show an expansion of financial structure in years when general business activity is undergoing mild contraction, and vice versa. Therefore expansion years were defined as those in which more than half of the companies in our samples reported an increase in the dollar volume of sales, in dollar volume of inventory, in total assets, and in net profits from operations. It was on this basis that 1915-18, 1919-20, 1922-29 (exclusive of 1924 and 1927) and 1933-37 were established as years of financial expansion, and 1921, 1930-32 and 1938 as periods of contraction.

To a certain extent the years 1913 through 1920 constituted one continuous period of inflationary finance. We divided this period into two parts, however, first because we were interested in the differences between the financial responses of enterprise in the years of the war itself and in the years immediately after; and second, because the period was actually interrupted by a contraction in industrial activity, beginning in the late fall of 1918 and extending to the late spring of 1919, although the recession was too mild to be visible in the annual financial statements of either year. The periods 1915-18 and 1919-20 are therefore considered in our tables as two World War I expansion periods, while 1922-29 and 1933-37 are regarded as peacetime expansion periods. Fig-

ures for the years 1924 and 1927 were excluded from the period 1922-29 because annual financial statements for these years do not reflect the general expansion tendencies of the period as a whole.

The wartime inflation period culminated in a financial crisis that began in 1920, but since it was not reflected in annual financial statements until 1921 the latter was designated as the year of wartime contraction; liquidations of 1930-32 and 1938 are called peacetime contractions.

METHODOLOGY

Use of Aggregate Financial Statements

Since we are primarily concerned with changes in business financial structure for the entire economy, rather than with individual company behavior, we analyzed our data in the form of aggregate financial statements of groups of companies.⁷⁶ The approach has limitations, because it does not take account of differences in the financial structure of individual enterprises. Such differences reflect any one or more of a number of factors: the technical character of the industry in which an enterprise is engaged (conditions which greatly affect the type and composition of business assets); variations in business organization from one industry to another — for example, the presence of special agencies that help to provide materials, financing and distribution for the product; size of enterprise, which exerts a considerable influence on the composition of assets and of liabilities; policy factors, both financial and technological, of individual concerns; differences occurring between incorporated and unincorporated concerns; and, by no means least important, profitability of operations. Furthermore, many of these differences in financial structure are unstable; they change with temporary swings in business activity, and shift with structural changes in the economic system.

While there is still a great deal to be learned about differences among the financial structures of individual enterprises, it has not been possible

⁷⁶ Our aggregates are unweighted, that is, no systematic weighting adjustment was made for the relative importance of the industries represented in the samples. Counts of changes in selected financial statement items revealed that there was a substantial degree of conformity in financial behavior among the different industries represented, and among the individual corporations constituting the size groups. Consequently little additional information concerning the general pattern of change in financial structure could be gained by systematic weighting. In addition, weighting would not have solved the problem of year-to-year changes in the relative importance of the industry groups covered, unless the weights were adjusted annually. One feature of the transition from a peace to a war economy and back is a change in the character of industrial activity; war supply industries become more important than industries engaged primarily in civilian supply, and vice versa.

to deal intensively with them in this paper. We distinguish between the aggregate behavior of manufacturing corporations and of trade corporations, and between the behavior of two size groups — large corporations (over \$5 million total assets) and medium and small corporations (\$50 thousand to \$5 million total assets).

A finer industry or size grouping — for example, subdivision of manufacturing corporations into those producing durable and those producing non-durable goods — would have made the study more useful. But such a subdivision was deemed feasible in only a few phases of the analysis, partly because of the small size of our samples. Other studies of business financial structure for the years 1900-40, developed by the National Bureau's Financial Research Program, support the view that the broad classification herein employed yields significant results.

Problem of Comparability of Financial Statements

Published corporate financial data of the period of World War I suffer from lack of completeness, and this complicates the problem of obtaining comparable balance sheets and income statements for the period 1914-22 as a whole. To use only those companies whose statements were complete in every respect throughout the period would have resulted in samples substantially smaller than those employed; in some cases the representation of an industry would have been reduced to one or two concerns. It was therefore necessary to estimate the breakdown of consolidated items of a few companies in each year, and for missing years to interpolate statements from those available. The number of missing statements was greatest in 1914-15 for the large companies, and in 1916-17 for the smaller companies.

A somewhat different problem was encountered in the analysis of changes in balance sheet accounts occasioned by inflows and outflows of funds. As these changes are presented in the form of percentages of total assets there is no need for an identical sample of companies throughout the period: both the numerator and the denominator of the fraction vary proportionately as the number of companies changes. What is essential is that the aggregate balance sheets for any two consecutive years be strictly comparable, so that the first differences in the accounts shall represent changes in actual amount rather than changes in the number of companies involved. In order to assure this desired condition, forward- and backward-comparable balance sheets were employed; thus for a given year, B, two balance sheets were prepared, one comparable with the preceding year, A, and the other with the following year, C. In computing flows of funds in relation to total assets as a base, the source or use of funds for the year B was then divided by the

total assets of the same companies at the end of year A; and so on for each year of the series.

Source and Use of Funds Relatives

In discussing changes in balance sheet accounts brought about by actual inflows or outflows of funds, as distinguished from changes that are merely the result of accounting transfers and revaluations, we have followed the practice of presenting the figures as percentages rather than as absolute amounts. These percentages, prepared for industry-size sample groups, take the form of averages, and are computed by dividing the net flow of funds into or out of a particular account during a given period by the total of all assets on hand at the beginning of each year included in the period. The reasons for adopting the relative in preference to the absolute form are three. In the first place, there was a marked secular growth of manufacturing and trade assets over the period of the '20s, which made for larger absolute flows of funds during the latter years in comparison with those of the World War I period; therefore in order to judge correctly the importance of wartime changes in financial structure it was necessary to relate the different sources and uses of funds to the total resources of business concerns. In the second place, the absence of uniformity in the coverage of the large corporation samples, 1915-21 and 1922-37, limits the comparability of absolute dollar amounts. In the third place, with such extreme differences in size of the companies represented in our large and in our medium and small corporation samples, proper perspective on the relative behavior of the two groups can be obtained only by reducing the dollar magnitudes involved to some common denominator, preferably one having a functional relationship to the forces studied.

Appendix B

Aggregate Balance Sheet and Income Statement Data, Samples of Large and of Medium and Small Manufacturing and Trade Corporations, 1914-22

FOLLOWING TABLES present adjusted balance sheet and income statement figures for the identical samples of large corporations (total assets \$5 million and over), 1914-22, and for the identical samples of medium and small companies (total assets, \$50 thousand to \$5 million), 1914-22, which form the basis of this study. Sources and uses of funds are not, however, presented here.

In each of the years 1914-18 for each sample, certain of the companies were not in existence and balance sheets for others were not available. The number of such companies is small in any one year, however. In order to obtain comparable balance sheet figures over the period 1914-22 as a whole, it was necessary to inflate the figures in the early years, on the assumption that the increase in total assets of the missing corporations was proportionate to the increase of total assets of the aggregate of corporations for which information was available. Net income and cash flows were not inflated in any of the tables.

Complete source data for this and other Studies in Business Financing are collected in a separate volume: National Bureau of Economic Research (Financial Research Program), *Data for Studies in Business Financing, 1900-42* (ms. 1943).

TABLE 11—81 LARGE MANUFACTURING CORPORATIONS,
Composite Balance Sheet and Income Statement Items, 1914-22* (in millions)

Item	1914	1915	1916	1917	1918	1919	1920	1921	1922
Cash	\$ 245.8	\$ 331.5	\$ 471.2	\$ 583.4	\$ 609.2	\$ 602.7	\$ 543.7	\$ 427.6	\$ 549.9
Marketable securities	30.0	99.7	190.4	446.9	608.5	530.9	369.2	431.8	414.2
Receivables	483.7	608.8	709.7	911.3	1,123.4	1,119.8	1,266.4	988.2	930.3
Inventory	804.1	894.5	1,227.1	1,732.1	2,159.2	2,243.8	2,466.5	1,838.8	1,770.7
Total current assets	1,563.6	1,934.5	2,598.4	3,673.7	4,500.3	4,497.2	4,645.8	3,786.4	3,665.1
Investments and advances	264.3	308.8	313.6	429.4	470.5	566.5	651.7	775.7	827.8
Fixed property (net)	3,206.9	3,302.3	3,461.6	3,696.1	3,866.3	4,136.2	4,652.5	4,874.9	4,689.5
Other assets	371.5	418.4	432.9	461.5	503.3	493.4	513.5	478.3	489.5
TOTAL ASSETS	5,406.3	5,964.0	6,806.5	8,260.7	9,340.4	9,693.3	10,463.5	9,915.3	9,671.9
Notes payable	207.9	203.4	250.6	425.2	515.7	638.0	789.4	476.3	247.5
Accounts payable	130.9	256.6	282.5	427.0	508.7	489.9	465.0	263.3	336.4
Other current liabilities	57.7	71.5	130.9	489.5	712.5	332.0	301.7	208.5	206.1
Total current liabilities	396.5	531.5	664.0	1,341.7	1,736.9	1,459.9	1,556.1	948.1	790.0
Long-term debt	1,057.7	1,038.1	1,075.8	1,122.9	1,221.1	1,204.0	1,286.2	1,470.6	1,435.4
Other liabilities	23.2	123.4	69.0	83.0	79.9	88.4	47.2	63.0	41.3
Capital reserves	79.0	127.7	151.2	239.4	370.6	440.7	474.1	439.1	401.9
Preferred stock	1,095.5	1,158.4	1,182.3	1,246.0	1,298.4	1,404.2	1,453.6	1,450.1	1,547.4
Common stock	1,919.5	1,970.8	2,124.2	2,356.0	2,472.9	2,610.5	2,959.6	3,028.0	3,440.3
Surplus	834.9	1,014.1	1,540.0	1,871.7	2,160.6	2,485.6	2,686.7	2,516.4	2,015.6
Sales ^b	3,098.3	3,779.4	5,877.8	7,677.2	9,629.3	9,606.8	10,032.1	671.8	683.0
Net incomes ^c	190.5	381.5	914.5	875.2	627.4	610.6	587.7	139.4	493.6
Cash dividends ^d	154.2	172.6	303.7	357.4	322.5	297.2	311.4	314.5	310.2
Annual rate of depreciation ^e	..	2.6%	4.0%	4.3%	5.3%	4.2%	4.2%	3.9%	4.1%

* In 1914 balance sheets for 8 corporations and 2 subsidiaries were not available, in 1915 for 2 corporations and 1 subsidiary and in 1916 and 1917 for 1 subsidiary. Inflated, as described in Appendix B, p. 91.

^b Estimated for missing corporations, using ratio of sales to total assets of corporations for which data were available.

^c Data not available for 11 companies in 1914 and 6 companies in 1915, 1 in 1916, 1 in 1920, and 1 in 1921.

^d Data not available for 4 companies in 1914, 2 in 1915 and 1 in 1916.

^e Annual rate of depreciation obtained by dividing depreciation charge of companies reporting depreciation by the net fixed property of the preceding year end.

ERRATA

Table 11 . . . Cash, 1921 — \$ 527.6

Sales, 1921 — 6,717.7

1922 — 6,830.5

TABLE 12—8 LARGE TRADE CORPORATIONS,
Composite Balance Sheet and Income Statement Items, 1914-22^a (in millions)

<i>Item</i>	1914	1915	1916	1917	1918	1919	1920	1921	1922
Cash	\$ 12.4	\$ 17.9	\$ 12.1	\$ 14.1	\$ 17.5	\$ 32.5	\$ 20.2	\$ 38.1	\$ 33.4
Marketable securities	b	b	b	3.1	9.3	16.1	14.0	17.7	15.7
Receivables	17.4	17.2	24.3	32.6	37.6	49.8	80.9	65.4	55.0
Inventory	51.9	52.8	82.2	103.8	132.8	132.5	200.7	114.2	112.8
Total current assets	81.7	87.9	118.6	153.6	197.2	230.9	315.8	235.5	216.9
Investments and advances	22.8	20.7	27.6	38.6	40.5	37.3	7.4	20.1	21.1
Fixed property (net)	39.5	39.7	43.4	49.7	52.8	56.3	83.7	86.4	96.2
Other assets	117.7	124.6	126.5	129.3	130.1	142.3	138.1	136.7	117.7
TOTAL ASSETS	261.7	272.9	316.1	371.2	420.6	466.8	545.0	478.7	451.9
Notes payable	7.1	3.1	9.3	25.9	38.0	20.6	66.2	28.5	1.5
Accounts payable	11.6	11.2	18.4	17.1	31.7	40.8	24.1	22.3	31.3
Other current liabilities	1.5	1.7	2.2	8.3	14.1	20.9	10.6	11.0	10.8
Total current liabilities	20.2	16.0	29.9	51.3	83.8	82.3	100.9	61.8	43.6
Long-term debt	4.5	4.1	4.1	10.2	7.5	7.2	60.0	44.7	25.4
Other liabilities	2.8	2.3	2.0	b	b	b	3.6	7.0	5.9
Capital reserves	b	b	.2	6.5	6.7	1.8	1.8	2.1	2.1
Preferred stock	42.3	42.8	42.3	41.4	44.0	43.0	50.2	42.6	41.4
Common stock	144.9	172.6	177.4	197.0	196.8	221.8	264.6	270.4	260.4
Surplus	47.0	35.0	60.2	64.8	81.8	110.7	63.9	50.1	73.1
Sales ^c	319.9	345.2	406.1	496.1	547.2	682.3	746.5	599.4	656.0
Net income	21.5	27.8	40.5	38.0	34.0	45.6	23.6	-6.5	47.1
Cash dividends	11.6	12.9	14.3	18.1	18.8	19.3	22.0	15.3	15.2
Annual rate of depreciation ^d	..	4.6%	5.8%	6.6%	5.9%	6.8%	6.3%	3.9%	5.5%

^a In 1914 data for one corporation were not available. Inflated, as described in Appendix B, p. 91.

^b Zero or less than \$50,000.

^c Estimated for missing corporations using ratio of sales to total assets of corporation for which data were available.

^d Annual rate of depreciation obtained by dividing depreciation charge of companies reporting depreciation by the net property assets of the preceding year end.

TABLE 13-73 MEDIUM AND SMALL MANUFACTURING CORPORATIONS,
Composite Balance Sheet and Income Statement Items, 1916-22^a
(in thousands)

<i>Item</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>	<i>1919</i>	<i>1920</i>	<i>1921</i>	<i>1922</i>
Cash	\$ 864	\$ 602	\$1,101	\$1,126	\$1,728	\$1,206	\$1,460
Receivables	4,349	4,207	4,145	5,620	6,230	4,579	5,801
Inventory	4,244	6,855	7,159	6,919	9,190	8,847	7,750
Total current assets	9,457	11,664	12,405	13,665	17,148	14,632	15,011
Investments	712	1,416	2,516	3,172	4,793	3,773	3,881
Fixed property (net)	10,960	12,194	12,848	12,968	17,150	18,878	18,974
Other assets	284	137	156	300	497	323	342
TOTAL ASSETS ^b	21,413	25,411	27,925	30,105	39,588	37,606	38,208
Notes and accounts payable	2,067	3,665	3,355	3,988	4,952	5,534	4,046
Other current liabilities	152	914	1,210	800	1,347	846	737
Total current liabilities	2,219	4,579	4,565	4,788	6,299	6,380	4,783
Long-term debt	1,623	1,290	1,172	1,238	1,743	1,616	2,820
Other liabilities	220	272	295	178	162	1,353	807
Net worth ^b	17,351	19,270	21,893	23,901	31,384	28,257	29,798
Sales	22,103	26,053	31,270	35,288	49,156	28,883	33,497
Depreciation ^c	814	823	805	863	1,041	1,101	1,178
Net income ^d	3,922	3,467	3,165	3,621	6,460	-1,258	385
Cash dividends ^d	1,083	1,625	1,424	1,358	1,494	1,011	1,541

^a In 1916 and 1917 balance sheets were not available for 6 and 2 corporations respectively. Inflated, as described in Appendix B, p. 91.

^b Exclusive of intangibles.

^c Estimated, using ratio of depreciation to fixed assets for companies reporting depreciation.

^d Data not available for 5 corporations in 1916 and for 1 corporation in 1917 and 1918.

TABLE 14—30 MEDIUM AND SMALL TRADE CORPORATIONS,
Composite Balance Sheet and Income Statement Items, 1916-22 ^a
(in thousands)

<i>Item</i>	<i>1916</i>	<i>1917</i>	<i>1918</i>	<i>1919</i>	<i>1920</i>	<i>1921</i>	<i>1922</i>
Cash	\$ 191	\$ 216	\$ 185	\$ 258	\$ 264	\$ 251	\$ 276
Receivables	1,084	1,020	1,065	1,285	1,297	1,255	1,343
Inventory	1,465	1,870	2,128	2,225	2,214	1,908	1,860
Total current assets	2,740	3,106	3,378	3,768	3,775	3,414	3,479
Investments	11	86	184	209	239	233	183
Fixed property (net)	731	865	866	928	1,033	1,096	1,128
Other assets	8	14	15	28	23	22	55
TOTAL ASSETS	3,490	4,071	4,443	4,933	5,070	4,765	4,845
Notes and accounts payable	797	1,054	1,341	1,484	1,570	1,248	1,235
Other current liabilities	20	81	61	84	35	82	44
Total current liabilities	817	1,135	1,402	1,568	1,605	1,330	1,279
Long-term debt	35	5	10	10	34	81	88
Other liabilities	^c	1	^c	1	13	12	3
Net worth ^b	2,638	2,930	3,031	3,354	3,418	3,342	3,476
Sales	8,919	10,703	11,713	14,666	17,849	13,211	12,718
Depreciation ^d	28	49	36	49	66	72	77
Net income ^e	347	463	335	455	92	90	182
Cash dividends ^f	152	227	221	192	278	183	138

^a In 1916 balance sheets were not available for 8 corporations; in 1917 and in 1918 for 1 corporation. Inflated, as described in Appendix B, p. 91.

^b Exclusive of intangibles.

^c Between zero and \$500.

^d Estimated, using ratio of depreciation to fixed assets for companies reporting depreciation.

^e Data not available for 5 companies in 1916, 2 in 1917 and 1 in 1918.

^f Data not available for 6 companies in 1916, 2 in 1917 and 1 in 1918.

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*(Resolution adopted October 25, 1926,
and revised February 6, 1933, and February 24, 1941)*

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