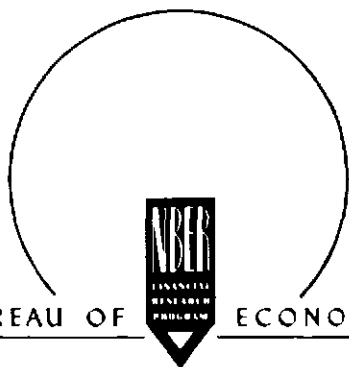

STUDIES IN BUSINESS FINANCING

FINANCING SMALL CORPORATIONS

IN
FIVE MANUFACTURING
INDUSTRIES, 1926-36

by

CHARLES L. MERWIN



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PREFACE

The Studies in Business Financing, of which this monograph is one, is the second major investigation to be initiated under the National Bureau's Financial Research Program, with the support of grants from the Association of Reserve City Bankers and the Rockefeller Foundation. Work on the project began early in 1940, with three major objectives: first, to trace from business accounting records the structural and cyclical changes that have occurred in the financial organization of business enterprise since the turn of the present century; second, to determine, for recent years, the cross-sectional pattern of business credit demands; and third, to describe the adaptations that financing institutions providing short- and medium-term credit have made over the past decade in response to changing demands for their services.

Project research activities have been carried on under two main divisions, one entitled "Changes in Financing American Business Enterprise, 1900-40," concerned primarily with the first objective, and the other, "Contemporary Relations Between Business Enterprise and Financial Institutions," devoted specifically to the second and third objectives. Because of the breadth of the field covered by the two divisions it has proved expedient to prepare a number of complementary technical studies under each, in order to develop and systematize materials in limited areas for later use in more general interpretative studies. While each of these technical studies is of restricted scope, together they build up into a more complete and detailed analysis of changes and adaptations in business financing than would otherwise be possible.

Dr. Merwin's study is one of the technical series under the first division of the project. Others to be published include a volume by Albert R. Koch on the financing of large corporations, 1920-39, and a cross-section study, for 1937, of the financial structure of manufacturing and trade corporations, by Walter A. Chudson. An interpretative analysis of the changes in business financing during the period 1900-40, based on the findings of

these technical studies as well as on other unpublished materials, is in preparation by Sidney S. Alexander.

When work on the Studies in Business Financing was initiated no comprehensive tabulations of corporate financial data covering the entire period of our investigation were available with which to measure changes in the financing practices of business enterprise. Furthermore, existing tabulations were of varying coverage as to time period, industry and size of enterprise represented. The first problem of the project's staff was to test the accounting and statistical consistency of available compilations; the second was to build up supplementary tabulations of corporate financial data from whatever sources that could be drawn upon. A number of public and private agencies cooperated generously in the solution of these problems, particularly the second, and with their assistance several new samples of business financial data were developed from investment manuals, state tax report files, federal corporate income tax returns, the industrial loan files of the Federal Reserve Banks of New York and Philadelphia, Dun and Bradstreet credit reports, bank credit files, and other sources. The complete set of business financial data utilized in this project is to be made available later under the title Data for Studies in Business Finance.

The basic data for the present study were obtained from federal corporate income tax returns. They were originally compiled for the United States Department of Commerce by the Income Tax Study, a Work Projects Administration study sponsored by the United States Treasury Department, for use in the preparation of a report to the Temporary National Economic Committee. The Department of Commerce generously made the tabulations available for our analysis, and in addition, the Income Tax Study prepared special supplementary tables that permitted us to extend the limits of our study. We are greatly indebted to the Department of Commerce, the Income Tax Study, the Work Projects Administration and the United States Treasury Department for their cooperation in making all of these data available for our work. While the period of coverage of the data is confined to 1926-36, the data themselves represent the first comprehensive factual information on the financial operations of small manufacturing corporations for so long a period as a decade, and

therefore constitute a singularly important body of information.

As a source of financial data, income tax returns offer several important advantages. In the first place, they provide both a balance sheet and an income statement for reporting companies. Second, the information contained in such returns is complete enough to permit analysis not only by conventional techniques, such as the ratio method, but also by the more novel method known as the sources and uses of funds analysis, whereby year-to-year changes in different financial statement items may be traced. In the present study we have combined the two types of procedure, and the resultant analysis is far richer in detail and more vividly illustrative of financial processes than an analysis confined to balance sheet relationships alone.

There are, on the other hand, certain limitations to an analysis based upon income tax data. For one thing, since the returns represent the businessman's appraisal of financial conditions, they may or may not accord with realities. Then there are the differences in accounting standards from one company to another; it is known that these standards vary widely, but it is impossible to determine the precise nature of the differences. Beyond this, there are changes in accounting practices of individual enterprises from year to year which influence in indeterminate ways the meaning of accounting categories. Moreover, financial statements obtained from income tax returns are conditioned by regulations and rulings of the Bureau of Internal Revenue, which are subject to modification from time to time. Finally, balance sheet data pertain solely to the end of a calendar or operating year, whereas income statement data pertain to a whole year; many significant variations in financial features occurring during the year, in consequence of seasonal and cyclical forces, are necessarily concealed by such annual data.

Smallness of size of business enterprises is a relative term, and any division between large and small must necessarily be arbitrary. We have taken the asset size of \$250,000 as a dividing line for smallness in manufacturing industry. In the field of distribution a \$250,000 company might be considered medium-size, but the invest-

ment required for entry into the distribution field is considerably smaller than in manufacturing. Most of the companies in the samples covered by this analysis possessed around \$50,000 in total assets.

Besides cooperating in making the basic tabulations for this study available to the National Bureau, the Department of Commerce granted to Dr. Merwin a leave of absence to conduct the study. Dr. Merwin is a member of the staff of the National Income Unit of the Bureau of Foreign and Domestic Commerce, and was originally in charge of planning the tabulations for the report of the Department of Commerce to the Temporary National Economic Committee; these tabulations have now been published in TNEC Monograph 15, Financial Characteristics of American Manufacturing Corporations, of which he is the author.

For general criticism as to method of treatment and many suggestions as to the interpretation of business accounting data, we are indebted to an advisory committee to the National Bureau appointed by the American Institute of Accountants, whose membership included Charles H. Towns, chairman, Charles J.J. Cox and Maurice E. Peloubet. The members of this committee gave generously of their time in reviewing and criticizing the first draft of this study and the present revision has benefited greatly from their help.

RALPH A. YOUNG
Director, Financial Research Program

September 1942

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The preparation of this study has placed me under many obligations. For patient guidance and keen critical judgment at every stage of the work I am deeply indebted to Ralph A. Young, Director of the Financial Research Program, and to Winfield W. Riefler, Chairman of the Committee on Research in Finance. The evidences of their generous assistance and unflagging interest are to be found on every page.

I am very grateful to Robert R. Nathan and Willard L. Thorp, formerly of the Department of Commerce, for advice and supervision in laying out the basic tabulations; and to the staff of the Income Tax Study, particularly John Benz, Lawrence Brokate, Albert A. Eisenstat, Earl D. Krickbaum and Thomas B. Rhodes, for the cooperative spirit in which they compiled the data.

Professor Simon Kuznets, of the University of Pennsylvania, made helpful suggestions regarding the organization and content of the study. Constructive criticisms of the analysis were made also by Professors J. Parker Bursk, Raymond T. Bye, Oscar S. Nelson and Charles R. Whittlesey, of the University of Pennsylvania. Advice on matters connected with particular aspects of the analysis was given by Solomon Fabricant, of the National Bureau's research staff. My coworkers on the Financial Research Program were unstinting in their cooperation, and discussions with them provided many valuable suggestions; I would mention particularly Carl Kaysen, to whom I am indebted for much of the mathematics of Appendix C.

Elizabeth Todd edited the final draft of the study, and supervised its format and publication; Bettina Sinclair edited the preliminary version. Both editors made many useful suggestions as to organization and content, and the study has benefited greatly from their skilful and enthusiastic work.

CHARLES L. MERWIN

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STUDIES IN BUSINESS FINANCING



FINANCING
SMALL
CORPORATIONS
IN
FIVE MANUFACTURING
INDUSTRIES, 1926-36

A large, thin-lined circle is centered in the lower half of the page. Inside the circle, the title "FINANCING SMALL CORPORATIONS" is written in a bold, sans-serif font, with "FINANCING" on the top line, "SMALL" on the second line, and "CORPORATIONS" on the third line. Below this, the words "IN FIVE MANUFACTURING INDUSTRIES, 1926-36" are written in a smaller, sans-serif font, with "IN" on the fourth line, "FIVE MANUFACTURING" on the fifth line, and "INDUSTRIES, 1926-36" on the sixth line.

SUMMARY AND CONCLUSIONS

Small business forms the backbone of the American system of free private enterprise, and the present study is an attempt to describe in general terms the manner in which one type of enterprise in this section of our economy finances its operations. [The initiating impulse was provided by the decline of the commercial bank loan during the 1920's and 1930's, but the scope of the study was broadened to include a general survey of the economic character of small manufacturing corporations. Stress is laid on the manner in which small companies obtain and utilize their funds, the profitability of such enterprises, and their susceptibility to discontinuance. In particular it has been attempted to clarify the meaning of profits, as applied to a small business, to point out the financial symptoms of approaching discontinuance, and to analyze the promptness with which these symptoms become evident.]

Data for such an analysis as that attempted here are not generally available. In recent years United States Treasury Department compilations of corporation income tax returns have permitted some financial analysis of small enterprises by broad industrial divisions; but the tabulations for the present study have made available, for the first time, detailed financial data on samples of small manufacturers in narrowly-defined industries over a period of 11 years, 1926-36. [The data are compiled from the federal income tax returns of about 1,000 corporations, whose assets in 1926 amounted to less than \$250,000 each, classified into samples of manufacturers of bread and cake, men's clothing, household furniture, stone and clay products, and machine tools and accessories.]

These five sample industries were selected as representative of the various types of production in which small enterprises are able to maintain themselves. Thus two of these industries manufacture non-durable goods (baking, men's clothing), and the others produce durable

goods; at least one (machine tool) is subject to a highly unstable demand, and in another (baking) demand is notably stable; some are big-inventory industries (for example, men's clothing), and in others inventory figures less prominently (for example, machine tool); one of the group (men's clothing) has very little investment in capital assets, while the others have a relatively large amount of capital tied up in land, plant and equipment. It is believed, therefore, that the samples studied here, although they constitute but a minor segment of all small manufacturing corporations, provide the basis for a fairly representative analysis.

The important observations drawn from the examination of these data, briefly summarized in the following pages, may be schematized as follows:

1. Small corporations provide little more than a living for their owner-operators; their profits, in the sense in which that term is customarily applied to large corporations, are meagre.
2. The failure rate among these small corporations is high, and the financial characteristics of ultimately discontinued companies begin to differ from those of more successful contemporaries several years in advance of the time of discontinuance.
3. Small corporations obtain a relatively large amount of their funds from short-term borrowings, among which accounts payable appear to be increasing in importance and notes payable (presumably bank borrowing) either decreasing or just holding their own.
4. During the prosperous years of the period covered, these small companies made some expansion of their land and plant; but in order to finance the enormous operating losses of the depression years and the necessary retirements of short-term obligations they were forced into a liquidation of assets which not only seriously impaired their working capital but also largely counteracted their pre-depression expansion of land, plant and equipment.

As to the first point, the profitability of large corporations is commonly measured by net income after all charges (including income taxes), but if this criterion is applied to small manufacturing corporations it reveals a poor profit record even for companies that weathered the great depression. The owners of a small corporation are generally also its officers and managers. A measure of profitability which ignores this fact - by considering officers' compensation as an expense of doing business - paints an unrealistic picture of the success of a small enterprise.

The owner of such a business considers it, in the first instance, as a job - a position that is his as long as he keeps the enterprise out of bankruptcy. Whether a net return is earned on the equity capital invested in the business is a secondary consideration. The owner makes no distinction between the return received for his managerial services and that for his capital. In fact, in many small corporations the relationship between officers' compensation and dividend disbursements is determined as much by tax requirements as by any other consideration.

Thus in the small manufacturing corporations under review, stock ownership appears to have had its main value as a claim to a job. But more than half of the companies discontinued operations during the years under survey, and therefore many of these would-be executives paid a stiff price for a temporary job. Fortunately for the owners, in the industry where the discontinuance rate was highest - men's clothing - their equity was relatively small.

Even though the discontinuance rate among small companies is high, the approach of impending collapse is reflected in their financial structure several years before the event occurs. A comparison of selected credit ratios for continuing and discontinuing companies reveals signs of comparative weakness in the latter as early as four or five years before the date of discontinuance. The men's clothing companies, whose existence is precarious at best, were more tardy in their response to unfavorable business conditions; but their distress signals are observable from their records for as many as three years prior to their disappearance from the business scene.

Three ratios proved to be particularly sensitive portents of discontinuance - net working capital to total assets, current assets to current liabilities, and net worth to total debt. The first two of these indicate the extent to which the working capital of an enterprise is being "frozen," while the last indicates the relative magnitudes of the owners' and creditors' claims on the assets of the enterprise.

But the conclusion that financial statements provide unmistakable signs of approaching failure several years before the unhappy event must not be abstracted from its industrial context. There is strong evidence that the length of this prediction period varies from one field of manufacture to another, with differences in the resistance of small enterprises to the forces of adversity. Furthermore, the present discussion is based on a post hoc analysis that does not provide an infallible method for foreseeing the approach of discontinuance.

The susceptibility of these small corporations to discontinuance provides the logical explanation of the infrequency of long-term debt among their obligations. Only the owners, whose ownership enables them to have a job and to reap the gains of prosperous years, dare take the risks involved in investing long-term funds.

Thus most of the borrowed capital is obtained through short-term obligations: notes and accounts payable constitute a larger percentage of total assets of small than of large corporations. Over the period covered by the present study, 1926-36, the accounts payable of these small manufacturers constituted an increasing proportion of their total assets, while notes payable either declined, in relation to total assets, or remained stable. Meanwhile, however, the total assets of these companies were decreasing, in dollar terms, partly because of a shrinkage of inventory holdings in dollar terms, itself a consequence of the fall in raw material prices during the 1930's. This decline in inventory values reduced the need for short-term financing, with bank loans being the first to be retired.

But this circumstance alone does not explain the constancy of notes payable and the rise in the relative importance of accounts payable. Several other forces must

have been operating in the same direction. First, competition among the large raw material suppliers undoubtedly caused these concerns to offer the small manufacturer sizable amounts of credit. Second, it is very likely that the conservative lending policies of the banks during the early 1930's served to discourage many small businesses from seeking bank credit in the 1933-36 recovery period, and to impel them to look elsewhere for funds. Finally, an additional factor operating to explain the shift from bank to trade credit might well be the bank's analysis of credit risk.

In their short-term financing the small corporations studied here tended not only to reduce their reliance on bank as compared with mercantile sources, but also - as the increase in their ratio of cash to notes payable indicates - to reduce the scope of their net debtor relationship to banks. At the same time they cut down their ratio of receivables to accounts payable, an indication that they were extending less trade credit in relation to the trade credit they received. Over the period 1926-36 their cash holdings were almost as large as their bank debts, and they obtained more credit grants from raw material suppliers than they extended to their own customers.

During the period as a whole these small manufacturers did not expand their land, plant and equipment. In the prosperous years of the late 1920's and the recovery years of the middle 1930's they made some net additions to their plant and equipment. But the severe operating losses sustained during the depression years - plus the necessity for retiring short-term obligations - required a liquidation of assets which not only nullified the fixed property expansion of the prosperous years but also cut sharply into working capital. The current items were particularly flexible during the course of the cycle. Current asset liquidation during cyclical contraction provided the bulk of the funds used to pay off current debts and to finance operating losses. During cyclical expansion, on the other hand, retained profits and short-term borrowings were utilized to increase current and fixed assets, especially the former.

From a study such as this, one is tempted to draw broad generalizations respecting the future of small business in the economic life of the United States. But

many of the factors bearing on this question - particularly the political and social ones - have not been discussed in the present study, and without an appraisal of small business from these other points of view a forecast of their future is not possible. The data examined here do indicate, however, that the financial affairs of small businesses cannot always be judged by the same criteria applied to large enterprises: profitability is a case in point. Also they reveal that large amounts were withdrawn from these corporations as officers' compensation and dividends during years when earnings were either meagre or actually negative, and when funds invested in new plant and equipment might have materially improved the companies' competitive positions. Such withdrawals are not necessarily an indication of imprudent management (the owners may have piled up personal savings as surpluses for their businesses), but they justify a presumption in that direction.

THE ECONOMIC CHARACTER OF SMALL BUSINESS

High on the list of the characteristic features of this country's economy is the impressive frequency of small business enterprises. In the United States today there are about 2.5 million business units (not counting the 6 million farmers or the 1 million professional persons), and of these the great majority are small, however we measure the size of an enterprise. Less than a tenth of these business units employ more than 30 persons each, or have total assets greater than \$250,000. Although the career of the man who rose from a shipping clerkship to the presidency of a million-dollar corporation has been more widely publicized, the story of the tailor who became a clothing manufacturer or the cabinetmaker who set up his own shop as an interior decorator has a stronger ring of familiar truth. For every millionaire industrialist who first passed through his factory gates as a humble workman, there are thousands of unsung smaller-scale enterprisers who entered their chosen field of production with very little more in the way of resources than the will to succeed. It is the small establishments of such men that have been widely regarded as the "backbone of the American economy," and these owners and proprietors have constituted a very large section of the American middle class, with its vested interest in political democracy and free private enterprise.

Numerically the small business unit dominates the economic scene in this country, but not in terms of business volume. Even when farmers and professional persons are included, not much more than half of the total national income is produced by enterprises with total assets under \$250,000; 1/ if farmers and professional persons were excluded the proportion would be far less. And this proportion has probably been decreasing, at least since the turn of the century, when the rise of industrial combinations served to diminish the market covered by the small concern, individually owned and operated. Moreover,

the weighty total of small units derives partly from the high mortality rate among such enterprises; nearly half a million enterprises disappear from, and an approximately equal number enter into, the business population each year, and almost all these discontinued and new enterprises are small businesses. 2/

The present study is confined to small corporations engaged in manufacturing, with "small" interpreted to mean a corporation whose total assets are less than \$250,000. Any dividing line is of course arbitrary, but this criterion has a basis in common usage and a definite advantage of convenience. A corporation with assets of \$250,000 is certainly small in comparison with those whose assets run high into the millions or even amount to one or two billion. Moreover, even if the limit had been set at a lower level, say at \$100,000, the results of this survey would probably not have been affected to any significant degree. Nor are total assets the only criterion of size that could be usefully employed. Other criteria in common usage are volume of business, number of employees and tangible net worth. A specific disadvantage of total assets is that they may be swelled by inclusion of intangibles, patents and the like at fictitious values. But even with this disadvantage they are the most satisfactory criterion of size for the purposes of the present study.

Manufacturing constitutes a sphere of our economy that is small numerically, comprising less than 170,000 establishments or plants, but important productively, accounting for a quarter of the total national income. The numerical importance of small business in this sphere, though less than in such fields as retail trade, is impressive: about 90 percent of the manufacturing establishments, producing about a fifth of the total output of manufacturers, have assets under \$250,000. 3/ It is true that certain fields of manufacturing are virtually closed to the man with little capital, and in others the "shoe-string" entrepreneur has slight chance of survival. But the small plant still predominates in some fields. Among these are baking, and the manufacture of men's clothing, furniture, stone and clay products, and machine tools - industries that form the subject of the present study.

About half of the manufacturing units in the country are incorporated, and since the incorporated units handle

more than nine-tenths of the total volume of manufacture, 4/ it is clear that practically all of the unincorporated enterprises are small businesses. Among the unincorporated enterprises those with a single proprietor far outnumber the partnerships. In small concerns, however, the legal form of organization has not very much connection with operating practices or with financial structure.

GENERAL CHARACTERISTICS OF SMALL MANUFACTURING CORPORATIONS

It is by no means only in the amount of their assets that small manufacturing corporations differ from large ones. In fact, there are so many essential differences that the two types are scarcely comparable.

For one thing, the owners' relationship to the enterprise is quite different in large and small corporations. In the largest corporations, which constitute more or less quasi-public institutions, ownership and management are separated. In the small, private corporations, on the other hand (as in many of the medium-size companies), ownership and management are practically identical. Not only are such corporations closely held, but the owners themselves operate the business. There are enough legal owners to make up a board of directors, as required by law, 5/ and usually a full complement of officers; but there are rarely any outside stockholders, and even the directors' stockholdings are usually purely nominal. In these small corporations the officer-owners work in the plant and sell the product. Indeed, it is not uncommon to find close family ties among the officers: a man as president (factory manager and salesman) and his wife as secretary-treasurer (office girl and bookkeeper); or a man as president (sales manager) and his brother-in-law as vice president (factory manager). Very often the de facto owner is a single individual.

In the case of large business enterprises one of the most important reasons for incorporating is the necessity for large amounts of capital; the original capital sum required by many of our large corporations can rarely be supplied by any individual or a small group, and must therefore be obtained by pooling funds from many sources.

Another basic consideration for large enterprises is the desire to assure continued existence; when many persons are interested in a company it is particularly necessary that the establishment be independent of the survival of a single individual. But small companies incorporate for quite different reasons. With them the pooling-of-capital motive counts for little, their main concern being to assure the owners a limited liability. There are many risks in the operation of a business enterprise, especially a small one, and the owners are under strong inducement to divorce as much as possible of their personal fortunes from the fate of their undertakings. 6/

In regard to financial characteristics the differences between large and small manufacturing corporations are not wholly due to size; some of these differences are undoubtedly due to type of industry and other factors. The statistical fact remains, however, that not only within manufacturing as a whole but also within each of the major subgroups of manufacturing, there are striking financial differences between large and small corporations.

The most striking of these differences is that the smaller corporations tend, on the whole, to record a lower rate of profit than the larger ones, if officers' compensation is regarded as an expense of doing business. It is true that among profitable companies there is a modest tendency for the profit rate to fall as assets increase. But among unprofitable companies there is a marked tendency for the smaller concerns to show the larger rates of loss, and this is the pattern that predominates when profitable and unprofitable companies are considered in the aggregate.7/ In addition, the earnings of the small companies are less stable cyclically than those of large ones: the "giant" class of corporations, with assets of 50 million dollars or more, is the only asset-size group which, as a whole, showed a net profit in every one of the three depression years 1931-33. It should be remembered, however, that these observations are based on aggregate figures for groups of corporations; it is quite likely that some of the highest individual rates of profit are earned by the smallest companies, and some of the lowest rates by the largest companies. Furthermore, the tendency of large companies' profit rates to be higher than those of small companies disappears if officers' compensation is included in profits. 8/

Such comparisons as these do not indicate that small companies are less efficient than large ones. It goes without saying that profitability is related to many more factors than size alone. For example, the fact that large companies are more integrated than small ones, both vertically and horizontally, 9/ explains, at least in part, the greater stability of the large companies' earnings, and the smallness of their losses. Again, in small corporations it is more difficult than in large ones to draw the distinction between remuneration for labor services and return on capital, and therefore the respective profit ratios may not be comparable even if accounting definitions are identical. In short, it is practically impossible to find manufacturing companies that are the same in every important respect save asset size, and therefore the relationship between size and profitability can be only roughly indicated. 10/

The financial characteristics of large and small manufacturing corporations differ also with respect to various operating and balance sheet relationships. The small enterprise relies more heavily upon short-term funds for its financing than the large corporation: in relation to total assets the smaller company has less funded debt and less net worth than the larger company, and more accounts payable and more notes payable. In addition, the general credit position of the small corporation appears to be not quite so strong as that of the large enterprise. For example, the small company has a lower ratio of current assets to current liabilities, less owned capital in relation to borrowed funds, 11/ and a higher proportion of total debt represented by current items. 12/

These comparisons indicate that small manufacturing corporations are more susceptible to failure than large enterprises. The latter, since they have a stronger liquidity position, can "live on their surplus" 13/ for a longer time, and thus during periods of business strain they are more able to continue their former policies, both financial and economic. Furthermore, the ownership structure of large companies - with a great many persons directly dependent upon the enterprise - is such that a reorganization to forestall general liquidation is usually arranged before the threat of insolvency becomes immediate. This higher failure rate among small companies,

with its consequent revaluation of properties, is perhaps not unrelated to the fact that during periods of cyclical contraction employment appears to decline more sharply in the large-scale sectors of our industrial economy than in those sectors where small concerns predominate. 14/

Differences in the relationships of various operating items and of various balance sheet items are, in fact, a fundamental criterion for any comparison of business concerns, and the analysis of such relationships in the small corporations of certain selected industries is the primary purpose of the present study. But before proceeding to a discussion of these specific industries it may be well to indicate certain typical relationships of this kind in the entire body of small manufacturing companies. The data are made available by a compilation of income tax returns, prepared annually by the Treasury Department, which shows the distribution of corporation assets and liabilities (including net worth). The following description is based on the returns for 1936, 15/ the final year of the span covered by this study. In that year the manufacturing corporations that submitted balance sheets were classified in sixteen industrial groups, each group broken down according to asset size. The figures used here pertain to the aggregate of corporations in the under-\$250,000 size class of each industrial group.

The assets of business concerns include the physical equipment necessary for the production of goods and services, and also such other items as cash, receivables and security holdings. To finance the acquisition and holding of these assets the concern acquires funds from various sources: owners, long-term creditors, short-term creditors. The relative importance of these various sources depends to some extent on technological factors, but other considerations, such as the personal wealth of the owner and the nature of the demand for the company's product, are also important.

In all but one of the sixteen groups of small manufacturing corporations distinguished in Table 1 owners' equity constituted in 1936 half or more of the total liabilities (including net worth), petroleum being the single exception. For most groups the proportion lay between 50 and 60 percent, but for a few - chemicals, tobacco and paper - it was slightly above this range. Long-

Table 1 - ALL MANUFACTURING CORPORATIONS WITH TOTAL ASSETS UNDER \$250,000
Selected Financial Proportions, by Industrial Group, 1936 ^{a/}

<u>Industrial Group</u>	<u>% of Total Assets</u>			<u>% of Total Sales ^{b/}</u>			<u>Compiled Net Profit ^{c/}</u>	
	Notes & Accounts Payable	Long-Term Debt	Net Worth	Inventory	Net Capital Assets	Total Assets	In % of Total Sales ^{b/}	In % of Net Worth
Food & kindred products	26.5%	8.1%	58.2%	7.0%	19.3%	39.2%	0.8%	3.3%
Liquors & beverages	26.2	8.4	55.9	8.4	24.6	51.4	5.4	19.0
Tobacco products	29.1	3.3	62.2	20.4	11.5	60.1	0.1	0.2
Textile mill products	32.7	6.1	52.7	12.1	15.6	45.0	0.2	1.0
Clothing & apparel	38.7	2.3	52.1	8.0	3.1	25.4	0.2	1.2
Leather & its manufactures	35.0	3.2	54.7	11.9	7.2	35.9	0.1	0.4
Rubber products	27.5	5.8	57.7	11.0	20.0	52.9	2.3	7.5
Forest products	29.5	7.2	54.4	17.3	24.5	67.0	0.4	1.1
Paper, pulp & products	26.1	5.4	60.8	11.3	19.7	53.4	2.2	6.8
Printing & publishing	24.8	7.8	57.5	6.5	23.7	65.5	1.4	3.7
Chemicals & allied products	24.2	4.7	63.1	11.8	18.8	64.4	2.5	6.1
Petroleum & allied products	39.4	6.7	42.9	4.9	19.2	41.9	1.2	6.4
Stone, clay & glass products	23.7	8.4	58.7	15.1	43.0	91.9	1.6	2.9
Metal & its products	25.2	6.4	59.4	14.8	23.1	66.3	2.8	7.0
Motor vehicles & parts	29.9	10.3	50.0	13.9	18.1	55.2	0.6	2.2
Mfg. not elsewhere classified	29.0	6.7	54.4	14.7	15.8	58.7	0.6	2.0
ALL SMALL MFG. CORPORATIONS	28.0	6.5	57.0	10.8	17.8	50.6	1.3	4.4

^{a/} Based on Treasury Department, Statistics of Income for 1936, Part 2 (Washington 1939) Table 6.

^{b/} Sum of "gross sales" and "gross receipts from operations."

^{c/} Before federal income taxes and undistributed profits taxes, items not shown separately in the source.

term creditors held only a small proportion of the claims on the total assets of these companies, their share amounting to as much as 10 percent only in the case of motor vehicles, and running around 6 percent for most of the groups. Notes and accounts payable, on the other hand, constituted a large part of total liabilities in every industrial group. Even in stone and chemicals the proportion was as high as 24 percent, while in clothing and petroleum it reached 39 percent. This difference between the relative importance of short- and long-term credits for small manufacturing corporations has important implications for the analysis of credit requirements presented in a subsequent chapter.

The distribution of a company's assets is more directly and more decisively influenced by technological factors than is the distribution of its liabilities: one type of production requires a much greater investment in plant, for example, than another type. But it is also true that in a dynamic economy, where frequent technological and price changes render it difficult for business enterprisers to make any long-time price and cost calculations, the longer an entrepreneur must keep his business funds tied up in physical assets the greater are the production risks that confront him as a result of cyclical fluctuations in general business. He is at the mercy of technological changes if he has a large investment in equipment that will not wear out for ten or fifteen years. And another entrepreneur with a large investment in inventory will stand to lose if prices decline sharply. Therefore a fundamental distinction between business enterprises is the relative amount and distribution of their physical assets.

Among the sixteen industrial groups in Table 1, clothing manufacture had by far the smallest investment in physical assets (inventory plus net fixed property) in relation to sales - only 11 percent; leather, next to clothing, had a percentage of 19. The industrial groups with the heaviest investment in physical assets were stone, clay and glass products, with a proportion of 58 percent, and forest products with 42 percent. Stone and forest products showed relatively heavy investments in inventory as well as in land, plant and equipment; clothing and leather registered a fairly average proportion of inventory, but a far less than average proportion of net

fixed property. Among the sixteen groups the inventory ratio varied less than that of net land and plant, but in general the figures in Table 1 are an inadequate indication of these variations because many of the industrial groups are so broad that they conceal or average-out important differences.

The total assets of small manufacturing corporations averaged about half their sales in 1936. The figure was as low as 25 percent in clothing, and definitely under the 50 percent mark in leather, food, petroleum and textiles. On the other hand, it was over the 60 percent level in tobacco, forest products, printing, chemicals and metals, and as high as 92 percent in the stone group, whose volume of business in 1936 had not recovered from the depression to the same extent as that of the other manufacturing groups.

In each of these industrial groups net income (before income taxes) was positive in 1936, but it represented only a small proportion of sales. The liquor group's 5.4 percent profit on sales was the highest proportion; the profits of the other groups were around 2 percent or lower, and in textiles, clothing, leather and tobacco they were 0.2 percent or less. The rate of return on owners' equity ran considerably higher, of course, but with little change in the comparative position of the various industries. In this relationship, too, tobacco, leather, textiles and clothing (also forest products) were at the bottom of the list, with percentages of 1 percent or less, and liquor was high, with 19 percent; rubber was a far second, with 7.5 percent return on net worth. These figures, however, are an inadequate representation of the return on the owners' actual investment, because in many instances the net worth figure reflects sizable accounting revaluations and because in small companies the officers' compensation sometimes includes what could more properly be called a return on equity. This last point will be elaborated presently in reference to the profitability of the sample corporations.

THE SAMPLE INDUSTRIES

Adequate data are not available for a detailed analysis of the financial structure of all small manufactur-

ing corporations over a period of years. But special data permit a detailed study, for the period 1926-36, of samples of small manufacturing corporations in the following five industries: baking (principally bread, but also pies and cakes - classified in the "food and kindred products" industrial group of Table 1); men's clothing (men's and boys' suits, coats and overcoats - classified in the "clothing and apparel" industrial group); furniture (chiefly for household use - classified in the "forest products" industrial group); stone and clay products (mainly brick and tile, but also cement blocks and cut stone - classified in the "stone, clay and glass products" industrial group); and machine tool manufacturers (including machine tool accessories - classified in the "metal and its products" industrial group).

These five industries were selected not only because they are characterized by small enterprises and constitute fairly homogeneous industrial divisions, but also because they exhibit fundamental differences in financial structure and represent significant classes in economic goods. The baking, men's clothing and household furniture industries produce consumer goods; stone-clay is both a consumer and a producer goods industry; machine tool manufacture is exclusively a producer goods industry. Both furniture and stone-clay are closely related to the important construction division of our economy, while machine tool manufacture is so vital to our heavy industries that it plays a key role, especially in a war economy. And in still another important respect the industries treated here are broadly representative: the product of the baking industry is perishable, that of men's clothing semi-durable, and that of the other three industries durable. Finally, the five chosen for study include a rapidly expanding industry (machine tool) and a declining industry (stone-clay).

There are numerous reasons, varying in significance in the different industries, why small companies are predominant in the fields of manufacture represented by the present samples. For one thing, these industries demand the relatively flexible management which is generally characteristic of small businesses. Another reason is that in the industries studied here a small investment is usually all that is necessary. Further relevant factors affecting size in greater or lesser degree are the bulk

and perishability of the product in relation to its market, and specialization of the manufacturing process.

This report is the first analysis of its kind devoted to small corporations. Heretofore studies of the financial structure of manufacturing corporations have been confined to the larger enterprises, simply because data on the smaller companies have not been available. It is not necessary for small concerns to publicize their financial statements, partly because there is no large body of outside investors to be kept informed, and partly because government regulation of their affairs has been relatively slight. Thus the only institutions likely to have information on their financial conditions are the governmental taxing authorities, the banks and other lending agencies, certain trade associations and mercantile credit organizations.

For corporations the income tax authorities can provide the most complete source of data, since every incorporated business is required by law to file an income tax return with the federal government. This return calls for a complete balance sheet, a rather detailed income statement and various supporting schedules. Although business accounting has grown rapidly since the turn of the century, there are undoubtedly many very small corporations today whose only financial statements are the duplicates of their tax returns. The data collected on income tax returns are not, of course, ideally suited to economic analysis. They are collected primarily for administrative reasons, and their use in such studies as the present one is subject to certain qualifications which will be elaborated in subsequent pages. They do, however, provide a very detailed and significant body of information.

The tabulations of federal income tax returns on which the present analysis is based were compiled for the Department of Commerce by the Income Tax Study, an undertaking of the Work Projects Administration sponsored by the Treasury Department. These tabulations were published in a monograph prepared by the Department of Commerce for the TNEC, 16 and were made available to the National Bureau in advance of publication. Two samples of corporate financial statements were drawn, one from the 1926 tax returns and one from the 1930 returns. The

first drawing consisted of 939 corporations, divided fairly evenly among the five industries; the second consisted of 262 corporations. The 1926 drawing represented, originally, perhaps about a tenth of the number of small corporations in these industries and about a fifth of the volume of business. 17 For both drawings returns for succeeding years through 1936 were then taken from the files. It was found that some of the corporations continued to file returns through 1936 and that a great many others ceased some time during the period covered.

Every attempt was made to ascertain whether these companies actually ceased filing returns. Companies involved in mergers and consolidations had been excluded from the drawing, a process that was comparatively easy because the tax return requires information concerning the predecessor business of the reporting corporation. Verification of apparent discontinuances was somewhat more difficult. It involved, first, a thorough search of the Bureau of Internal Revenue files in Washington. On the basis of this search a list was prepared of all companies that apparently ceased filing returns. This list was then sent to the various Collectors of Internal Revenue, who searched their records for further information on the listed corporations. As a result of these investigations it may be said that the companies finally remaining on the list of discontinuances are corporations that actually ceased filing returns, according to all the available records of the Bureau of Internal Revenue. This does not mean that all these companies were failures in the legal or even in the economic sense; some may have discontinued business voluntarily, and others may have changed to a sole proprietorship or partnership form of organization. Nor did the owners of these enterprises necessarily disappear from the business scene: of the many small enterprises that are launched every year, a considerable number are started by men who have failed in other ventures. But the corporate entities were dissolved, and probably in the great majority of instances the owners lost most, if not all, of their equity.

The following figures, on the 1926 drawing, show the total number of companies in the various industries that ceased filing returns at some time during 1927-36, and also the number that discontinued during the prosperity years 1927-29, during the depression years 1930-32, and

	<u>Total</u> <u>1926</u> <u>Drawing</u>	<u>Total Dis-</u> <u>continu-</u> <u>ances</u>	<u>Discontinu-</u> <u>ances in</u> <u>1927-29</u>	<u>Discontinu-</u> <u>ances in</u> <u>1930-32</u>	<u>Discontinu-</u> <u>ances in</u> <u>1933-36</u>
Baking	185	104	38	37	29
Men's clothing	191	145	66	55	24
Furniture	194	128	58	44	26
Stone-clay	184	114	49	36	29
Machine tool	185	67	26	17	24
TOTAL	939	558	237	139	132

during the recovery years 1933-36. 18/ Three-fifths of the 939 corporations in the original 1926 drawing discontinued some time during the succeeding decade - a period marked by severe depression. Except in the machine tool group at least a fifth of the original number of companies went out of existence in the first three years after the drawing, and in men's clothing and furniture this proportion was about one-third. These high proportions of early discontinuances - especially since they occurred during the prosperous years 1927-29 - are evidence of the high mortality rate among small corporations, stressed above.

Over the entire period the highest proportion of discontinuances - three-fourths of the original drawing - occurred in the men's clothing group, and the smallest - about a third of the original drawing - in the machine tool group. The intermediate proportions found for the other industries were somewhat nearer the higher than the lower of these extremes; of this intermediate group baking fared best, and was followed by stone-clay and furniture. The industries appear in the same order whether the entire period 1927-36 is considered, or only the prosperity years 1927-29, and they appear in substantially the same order also in the depression years 1930-32. It should be remembered, however, that the samples become more biased each year in favor of the successful companies, and therefore it is not justifiable to calculate from these data a discontinuance rate purporting to show what proportion of all the companies in a given industry is likely to go out of business in a given year. This success bias makes it particularly noteworthy that practically as many of the machine tool companies disappeared in the 1933-36 recovery years as in the 1927-29 prosperity, a finding quite at variance with that for any other industry. And conversely, only one-fourth of the machine tool discontinuances occurred during the depression years

(1930-32), while for all the other industries a third or more of the total discontinuances occurred during this period. The relatively large number of discontinuances in the machine tool sample during 1933-36 suggests that in this industry the owners are able to postpone liquidation longer than in the other industries studied here. Men's clothing and furniture companies, on the other hand, liquidate quickly when business conditions become adverse, as is indicated by the fact that four-fifths of the discontinuances in these groups occurred before 1933.

Although these data do not permit temporal comparisons of discontinuance rates it is possible to compare such rates for a prosperity period (1927-29) and a depression period (1931-33) by examining the discontinuances found in the first three years after the 1926 drawing and those found in the first three years after the supplementary 1930 drawing. The following figures show these discontinuances, in percent of the number of companies in the respective original drawings. 19/ In every

	<u>Discont. 1927-29</u> <u>(1926 Drawing)</u>	<u>Discont. 1931-33</u> <u>(1930 Drawing)</u>
Baking	21%	28%
Men's clothing	35	46
Furniture	30	47
Stone-clay	27	20
Machine tool	14	20

industry except stone-clay the rate of discontinuance was higher in the 1931-33 period of depression than in the 1927-29 period of prosperity. The stone-clay exception is glaring, but it may be partially explained by the fact that in this industry a good deal of liquidation and consequent weeding-out occurred before the deflation of the 1930's. The postwar peak in the stone-clay industry was reached in the middle 1920's, and thereafter many of the weaker enterprises in this industry began to drop out.

This survey of the discontinuance record of small manufacturing corporations suggests that the present analysis of the capital and credit requirements of such enterprises suffers from an important limitation. Because the number of small manufacturing corporations did not decrease notably over the period covered, there must have been a heavy influx of new companies into these groups. The financial requirements of these new companies cannot

be studied by means of the present data, and there is no way of knowing whether they differ significantly from those of the surviving companies in the samples.

There is one more point of general interest regarding the companies in the present samples. Among the small corporations that continued to operate over the entire period profits, regarded as net income, were extremely low, especially in furniture, stone-clay and men's clothing. For the different industries the average net income 20/ over 1926-36 amounted to the following percentages of average net worth: 21/ baking 4.3; men's clothing 0.3; furniture -0.8; stone-clay 0.2; machine tool 1.8. The baking group's 4 percent return on owners' equity was high in comparison with the rates for the other groups; for furniture the rate was actually negative, and in the two other low industries it barely escaped being negative.

These low ratios of net income to net worth suggest that officers' compensation must be considered in any appraisal of the profitability of these corporations. In small manufacturing corporations officers' compensation is far more important in relation to net income than it is in large ones. Its dominating magnitude in the present samples is illustrated by the following figures, which show its percentage relationship to net income plus officers' compensation (1926-36 averages): 22/ baking 79; men's clothing 99; furniture 109; stone-clay 98; machine tool 91. These figures do not represent the situation that existed in each year, but they do mean that over the entire 1926-36 period the total compensation of officers amounted to virtually the entire amount (except in baking) of the aggregate net profits minus net losses plus officers' compensation. In other words, the return that accrued to the owners of these enterprises, whether for their labor services or their capital investment or their entrepreneurial activity, consisted almost entirely of the item referred to as officers' compensation on the records of account.

Probably the owners of these enterprises, and of small enterprises generally, regard their compensation as officers as part of the return on their investment. The owner usually has the option of retaining his earnings in the business, thereby letting them accumulate, or dis-

bursing them as dividends or officers' compensation. His decision as to which alternative he will follow is undoubtedly influenced by tax considerations. In the choice between retaining the earnings in the business and paying them out as dividends, the fact that the latter course involves taxation of the earnings both as corporate income and as individual income will carry considerable weight. A further determinant will be the size of the earnings: the tax on individuals in the upper income brackets is higher than that on corporations, whereas the income tax on corporations is higher than that imposed on individuals in the lower brackets. 23/

Because of these difficulties in measuring the profitability of our samples of small corporations, where the officers are also the owners, it is advisable to add officers' compensation to net income whenever it is desired to determine an upper limit of profitability. 24/ The question arises, however, as to how much of officers' compensation should be added. Since there is no satisfactory answer to this question two sets of figures have been computed, the one including all, and the other one-half, of the officers' compensation. The average net income of the five industries, plus these respective additions, represented the following proportions of average net worth over 1926-36: 25/

	<u>(Including Entire Officers' Compensation)</u>	<u>(Including One-Half of Officers' Compensation)</u>
Baking	20.5%	12.4%
Men's clothing	26.1	13.2
Furniture	8.7	4.0
Stone-clay	8.7	4.5
Machine tool	19.0	10.4

These figures - even those that include only one-half of officers' compensation in profits - suggest that these companies did not provide their owners such a meagre return as was indicated above: a handsome return is shown here for each industry except stone-clay and furniture. The ranking of the industries by profitability is not noticeably affected by the inclusion of only half instead of all the officers' compensation with profits, but the ranking shown in the present figures is markedly different from that shown when profits are regarded as net income alone. In the present computation men's clothing shifts from third to top place, baking drops from first

to second place and machine tool from second to third. In comparison with the other industries the men's clothing companies represent a small investment on the part of owners, and this fact may contribute to their shift from third to first place in the broader computation of profits. Furniture and stone-clay are at the bottom of the profitability listings regardless of whether officers' compensation is included in profits. 26/

During this period profit ratios showed a striking variation from company to company. Some corporations in these samples reported a net loss of 18 percent or more of tangible net worth 27/ in the same year that others reported a net income of 30 percent or more. The wide variation is illustrated by the following figures, which show, for a prosperous and for an unprosperous year, the number of companies for which net income or net loss amounted to 12 percent or more of tangible net worth. 28/

		(Net Income) <u>1928</u>	(Net Loss) <u>1928</u>	(Net Income) <u>1932</u>	(Net Loss) <u>1932</u>
Baking	(81 cos.)	30 cos.	7 cos.	5 cos.	30 cos.
Men's clothing	(46 ")	7	0	1	24
Furniture	(66 ")	14	10	1	42
Stone-clay	(70 ")	16	6	0	33
Machine tool	(118 ")	44	13	1	58

Even in the trough of the depression some of the companies were very profitable; some incurred serious losses even in prosperous years.

In another study under the Financial Research Program 29/ evidence is presented showing that among small manufacturing corporations the dispersion about the average profit rate is greater than that among large. It is because of this tendency that the average return of profitable small corporations is about as high as that of large corporations, even though small corporations in the aggregate have a lower earnings rate than large ones.

The foregoing discussion of profits suggests the conclusion that small corporations' earning power, and their success from the owners' point of view, are inadequately appraised if officers' compensation is ignored. The owner of a small corporation values the company for the job it provides him as well as for any return it may

make on his invested capital. In fact, most such owners probably make no attempt to break down their return into that on managerial services and that on capital. They set up in business primarily to provide themselves with a job, and from the relatively high number of discontinuances among small corporations it appears that many of these would-be entrepreneurs pay a stiff price for that objective.

THE FIVE INDUSTRIES: OPERATIONS AND FINANCIAL STRUCTURE

Each of the five industries whose small corporations we are studying is marked by peculiarities of its own - economic characteristics that distinguish it sharply from the others. The outstanding feature of the baking industry is the stable demand for its product. The manufacture of men's clothing is a particularly precarious undertaking. In comparison with other consumer goods industries furniture manufacture is strongly influenced by cyclical forces; moreover, it is closely correlated with the construction industry, in which activity lagged during the period covered by this study. The stone and clay products industry has been undergoing a secular decline in business during the past few decades. Finally, the production of machine tools, vital as it is to large-scale heavy industry, is particularly sensitive to cyclical forces; today it is of strategic military importance as well.

The present chapter will describe each of these industries in turn, 1/ presenting a dossier of five case studies which should serve as a useful background for the subsequent composite analyses. The less general observations, particularly the discussions of financial characteristics, are based on figures pertaining only to the corporations in the 1926 sample that continued in operation through the period 1926-36. These corporations are believed to be reasonably representative of small enterprises in their respective industries, 2/ and it is unlikely that the success bias causes any serious distortion of the general picture. Particular aspects of the financial structure of these concerns, such as profitability and liquidity, reveal sharp variation from successful to unsuccessful companies. Generalizations on other characteristics, however, such as the significance of land and plant in financial structure, may be equally valid for surviving companies and those that discontinue business.

A company that might be regarded as a typical small manufacturing corporation in any particular industry is of course a mere abstraction. In this chapter it is attempted, however, to present a rough sketch of such a company - its operations, physical appearance and financial structure - for each of the five industries covered. Descriptions of its physical appearance and the nature of its operations are based on general observation. Its economic situation is described largely from census reports covering the entire industry. And its financial characteristics are averages representing the sample corporations that remained in operation over the whole 1926-36 period. The resulting composite picture is not necessarily typical in the strictly statistical sense; but it introduces into the discussion a certain concreteness, the advantages of which outweigh the statistical limitations of the procedure.

BAKING

The baking industry, which is here understood to comprise small producers of bread, cake and pies, but to exclude manufacturers of biscuits and crackers, is characterized economically by a relatively local and dependable market. The small radius of the market is attributable to the bulk of the product in comparison with cost, and to its perishability. The demand for bread from commercial bakers has remained stable, both cyclically and seasonally, in spite of the fact that there has been a secular decline in per capita consumption of wheat. The reasons why this contraction has not been reflected in sales are probably the shift from home to factory baking and the increase in population.

The basic process of bread-making has always been simple. It is now generally mechanized, although in some of the smallest companies many of the operations are still manual. The development of dough-mixing machines, continuous ovens and, particularly, bread-cutters and wrappers has changed the mechanics of production somewhat, but it did not effect any substantial savings of labor during the period covered by this report. 3/

Many small bakeries operate in their own buildings, and most of them are located in small and medium-size

communities, leaving the baking chains and large commercial bakeries to predominate in the big cities. This tendency is evident from the following figures, which show, for cities of different sizes, the average number of wage-earners in baking establishments in 1933 (rounded off to the nearest whole number), and the average value of products. 4/ It should not be concluded, however,

<u>Population of City</u>	<u>Number of Wage-Earners</u>	<u>Value of Products</u>
Less than 2,500	4	\$18,000
2,500 - 5,000	5	21,000
5,000 - 10,000	6	26,000
10,000 - 25,000	8	39,000
25,000 - 100,000	11	52,000
100,000 - 500,000	16	76,000
500,000 and over	12	65,000
ALL CITIES	11	53,000

that very small bakeries, such as those in the present sample, are not found in the big cities. On the contrary, of the bakeries that employed no more than 5 wage-earners in 1933, more than a third were located in cities with a population of 500,000 or more. 5/

In what may be called the typical small bakery there are likely to be several ovens and two or three bakers with their assistants. 6/ There are also a few cutting and wrapping machines, perhaps operated by girls, and possibly a delivery truck or two. 7/ The front of the building may be devoted to a retail outlet for some of the baked goods. The bakery probably has contracts with local grocery stores, calling for the delivery of bread the morning after baking.

Such a small bread-baking corporation would have annual sales amounting to almost three times its total assets. The current debts of the enterprise would be slightly less than the current assets, and would consist largely of accounts payable to suppliers of flour and other raw materials. The balance of current debt would consist of notes payable, due within a year (probably bank loans for the most part), and accrued expenses for such items as taxes, insurance and interest. The officers of this fictitious corporation would receive some \$7000 in combined salaries, and another few thousand dollars in cash dividends, in a year such as 1936. 8/

Table 2 - 81 BAKING CORPORATIONS: Composite Balance Sheet and Selected Income Statement Items, in Thousands of Dollars and in Percent of Total Assets, 1926 and 1936 ^{a/}

Item	Thousands of Dollars		Percent of Total Assets	
	1926	1936	1926	1936
Assets				
Cash and government bonds	\$418	\$345	7%	7%
Receivables	553	557	10	10
Inventory	634	560	11	10
Total current assets	<u>1,605</u>	<u>1,462</u>	<u>28</u>	<u>27</u>
Investments	88	186	2	4
Land and plant (net)	3,619	3,338	62	62
Other assets	452	378	8	7
TOTAL ASSETS	<u>5,764</u>	<u>5,364</u>	<u>100</u>	<u>100</u>
Liabilities				
Accounts payable	587	709	10	13
Notes payable	657	283	11	5
Other current liabilities	91	173	2	3
Total current liabilities	<u>1,335</u>	<u>1,165</u>	<u>23</u>	<u>21</u>
Long-term debt	509	575	9	11
Other liabilities	5	17	b/	b/
Capital stock	3,073	3,046	53	57
Surplus	842	561	15	11
TOTAL LIABILITIES	<u>5,764</u>	<u>5,364</u>	<u>100</u>	<u>100</u>
Income Statement Items				
Sales	13,966	14,050	242	262
Officers' compensation	661	555	11	10
Depreciation	357	337	6	6
Income taxes	58	42	1	1
Net income	377	144	7	3
Cash dividends	217	208	4	4

^{a/} Based on TNEC Monograph 15 (previously cited) Table 1-A in Appendix F. These statements refer to the end of the calendar year.

^{b/} Less than 0.5 percent.

As for the actual baking companies in our sample, several of their financial characteristics (Table 2) are explained by the dependability of market demand for the product. These companies' relatively stable volume of sales and earnings obviously reflects the steady market, as do also their rather small net working capital and relatively large long-term debt. ^{9/} When a business is conducted largely on a cash basis, and its sales income remains fairly constant, its margin of current assets over current liabilities can safely be slender. By vir-

tue of their general stability and their relatively heavy fixed investment in land and plant, small baking companies are more attractive to long-term lenders, particularly mortgagors, than small companies in other industries are likely to be.

Raw material and fuel costs represent approximately half the value of products (at factory selling prices) of the baking industry. The chief raw material item is wheat flour,^{10/} which, like other agricultural products, underwent a sharp price decline over the period covered by this study. The importance of flour prices in the operations of the baking companies in the present sample is but inadequately indicated by the size of these companies' inventory holdings (about 10 percent of total assets); a better gauge of the significance of this item is afforded by the fact that raw material and fuel costs amount to more than half the selling price. The stability of the companies' operations, the rapid turnover of their inventory and the ease with which they can obtain additional supplies explain why their inventory holdings are small in relation to the volume of their business. In 1936 the sales of the 81 baking companies in the present sample were 25 times their combined inventory, a ratio more than three times as large as the corresponding figure for any of the other industries studied here. Moreover, the baking companies' inventory was composed almost entirely of raw materials and supplies. For the companies that classified their inventory the various items represented the following proportions of total classified inventory in 1936, and these proportions changed very little over the 11-year period: 11/

Raw materials	74%	(reported separately by 63 cos.)
Work-in-process	0	(" " " 0 ")
Finished goods	4	(" " " 20 ")
Supplies	22	(" " " 40 ")

In the baking industry labor costs are not a particularly large item - about a fifth of the value of products. Distribution costs and depreciation together form a more important item: in 1936 depreciation, in relation to the volume of business, was even larger for the sample of bakeries than for the sample of machine tool companies. For the bread-baking industry as a whole about half the value of output (at factory selling prices) represents value added by manufacture; the proportion tends to be

higher for large than for small bakeries, and for companies such as those in the present sample it is about 45 percent. 12/

The gross land and plant of these small baking corporations are divided fairly evenly between buildings and machinery. Almost all these companies own their ovens, and frequently the building in which they operate. For the companies in this sample that showed the breakdown of their land and plant, the constituent items represented the following proportions of total classified land and plant (gross) in 1936. 13/ Since these small bakeries

Buildings	42%	(reported separately by 51 cos.)
Machinery and equipment	46	(" " " 78 ")
Furniture and fixtures	2	(" " " 64 ")
Land	10	(" " " 49 ")

had more than half their fixed assets in the form of real estate it is not surprising that some 10 percent of their total liabilities represented long-term obligations - an unusually large proportion for such small manufacturers. There were scarcely any changes in the land-and-plant breakdown over the 1926-36 period.

To the outside observer competition among the smaller companies in the baking industry appears to be keen: producers' selling prices are much the same, and their profit margin is generally small. But the stability of prices and sales, and the small inventory, tend to minimize the danger of loss inherent in the slender profit margin. The aggregate net loss of the 81 companies in the present sample during the trough of the depression was considerably smaller, in relation to sales, than for any of the other four industries.

The profits of a business enterprise generally fluctuate directly with its volume of business, largely because overhead expenses are relatively inflexible. When sales volume is high, profits are high, and vice versa. But there are times when changes in costs and prices intervene to upset this relationship between sales and profits. It is difficult to discuss, with any degree of certainty, the varying cost and price situations that confronted the typical small bakery over the period 1926-36. Its sales and those items of expense (such as depreciation) that are customarily itemized on the income tax re-

turn can be estimated from the present sample, but movements in raw material and labor costs and in selling prices, which are especially important considerations, must be inferred from other data applicable to the entire industry. 14/

In 1926-29 the direct relationship between sales and profits seems to have been disturbed by a change in the cost and price structure. As Table 3 shows for the sample studied here, the volume of business increased steadily from 1926 through 1929, with no interruption in the depression year 1927. But the movements of officers' compensation, depreciation and flour prices caused net income to fluctuate over this period. The 1927 sales were the most profitable of this prosperity period, because then flour prices 15/ dropped sharply while bread prices 16/ held firm. By 1928 the increases in officers' compensation and in depreciation had apparently offset the fall in flour prices, for in that year profits reced-

Table 3 - 81 BAKING CORPORATIONS: Selected Income Statement Items, 1926-36 a/
(Dollar figures in thousands)

Year	Sales	Officers' Compensation	Depletion & Depreciation	Income Taxes	Net Income b/	Net Income b/in % of Sales	Cash Dividends
1926	\$13,966	\$661	\$357	\$58	\$377	2.7%	\$217
1927	14,826	708	412	81	583	3.9	264
1928	15,034	754	438	44	313	2.1	218
1929	15,725	834	442	59	538	3.4	223
1926-29	<u>59,551</u>	<u>2,957</u>	<u>1,649</u>	<u>242</u>	<u>1,811</u>	<u>3.0</u>	<u>922</u>
1930	15,130	811	447	41	308	2.0	238
1931	12,692	761	418	27	88	0.7	173
1932	10,246	616	398	21	-266	-2.6	77
1930-32	<u>38,068</u>	<u>2,188</u>	<u>1,263</u>	<u>89</u>	<u>130</u>	<u>0.3</u>	<u>488</u>
1933	10,462	540	373	23	-47	-0.4	40
1934	12,408	534	349	22	-72	-0.6	41
1935	13,438	518	340	30	-26	-0.2	56
1936	14,050	555	337	42	144	1.0	208
1933-36	<u>50,358</u>	<u>2,147</u>	<u>1,399</u>	<u>117</u>	<u>-1</u>	<u>c/</u>	<u>345</u>

a/ Based on TNEC Monograph 15 (previously cited) Table 1-A in Appendix F.

b/ After income taxes, and exclusive of profits or losses from sales of real estate.

c/ Less than 0.05 percent.

ed to their 1926 level. The second most profitable year, 1929, also was marked by a concurrent increase in sales and decrease in flour prices, and would have been a more profitable year than 1927 had not officers' compensation increased sharply. Throughout this period the wholesale price of white bread, as reported in Chicago and New York, remained stationary.

Over the entire period 1926-36 small bakeries were slow to lose and slow to gain. They were never in the red very deeply, however, as is indicated by the fact that for the bakeries studied here the annual losses over the 11 years came to only a small fraction of annual profits. Net losses do not appear until 1932, and were sizable only in that year. Sales began to recover in 1933, and rose sharply in 1934 and 1935. But net losses persisted through 1935, even though officers' compensation and depreciation continued to decline; the reason was sharp increases in flour prices, which rose \$2.50 a bushel in 1933, another \$.50 in 1934, and another \$1.00 in 1935. By 1936 these small bakers were comfortably in the black again, but officers' compensation was still below pre-1933 levels. Sales in 1926 and 1936 were at the same level, yet net income (before officers' compensation, depreciation and income taxes) was 10.4 percent of sales in the early year and 7.7 percent in the later. In view of the fact that 1936 flour prices were still under their 1926 level, we must explain this differential in profits per sales dollar in terms of the lower wholesale bread price, and the higher wage costs and taxes, that prevailed in the later year.

The owners and officers of these small bakeries drew out sizable amounts as officers' compensation and cash dividends. The compensation withdrawals were marked by their persistency. Dividends, however, fell off sharply in 1931 and 1932, and did not resume their pre-depression level until 1936. Even so, from 1931 to the end of the period dividends greatly exceeded the available net income (after income taxes), constituting in the aggregate a heavy drain on the resources of this group of small bakers. Not all companies that suffered increased losses continued to pay dividends; but it is clear from the aggregate figures that a good many of the companies disbursed dividends that were either equal to or greater than their net income. 17/

MEN'S CLOTHING

Men's and boys' clothing manufacturers, in sharp contrast to the bakers described in the preceding section, lead a precarious business existence. Especially is this true of small companies like those in our sample. The owners' equity in the concern is meagre, and often one or two bad seasons suffice to place the business in the hands of creditors. Style changes are less important than in some other divisions of the apparel trade, but even for men's outerwear the variety of fabrics needed usually means that suitings must be woven to order. The insecurity of the small-scale manufacturer of men's clothing is attested by the fact that of the 191 companies picked at random in the 1926 drawing only 46 continued in existence through 1936. 18/ Thus it is not surprising to find that in these companies the owner's financial interest is less than in other small manufacturing enterprises. The owner obtains most of the necessary raw materials and equipment on credit, and as a result keeps his loss not much more than that of the creditors in case of receivership, even though the latter's claims have priority over his own. Although he is likely to fail quickly, the entrepreneur in this business rebounds with astonishing agility: several months after a forced liquidation he may be back in business, under a new company name and with a few thousand dollars borrowed from a friend or relative. 19/

For some years the small manufacturer has been adversely affected by the growth of chains, such as Bond, Howard and Richman, which tie up the retail outlets and lead to similar vertical integration on the part of other large manufacturers. 20/ In New York and Chicago - from which the bulk of our sample was drawn - the small units have been harder hit by these difficulties than in centers like Baltimore, Philadelphia and St. Louis. 21/ In addition, there is evidence that the proportion of the consumer's dollar spent for men's clothing (suits, coats and overcoats) has been declining secularly, partly as a result of an increase in sportswear (not generally made in the men's clothing factories we are studying).

Men's clothing is a consumer good, but since it is semi-durable, expenditures thereon are temporarily postponable. Moreover, family buying habits are such that

the children's clothing requirements are met first, the mother's second, and the father's last. For this reason the men's clothing industry is quickly affected by a cyclical contraction in general business. As in most apparel lines, seasonal fluctuations in this industry are sharp, the two busy seasons of the year being spring and fall. 22/

A men's clothing concern more or less typical of the companies in our sample would have total assets around \$70,000, about 85 percent of which would consist of inventory, customers' accounts and notes receivable, and a small amount of cash and government bonds. The total claims upon these assets would be divided fairly evenly between the creditors and the owners, the former holding short-term claims almost exclusively. The company's annual sales would amount to a figure about three times its total assets. In a year such as 1936 the salaries paid to officers would aggregate some \$10,000, and the officer-owners would receive in addition about \$2000 in cash dividends, representing almost all of the net income. Probably there would be no more than two full-time officers, and thus the compensation of each would be fairly adequate. 23/

Table 4 reveals that the investment of the small manufacturers in the present sample is largely in current assets. From the very meagre outlay on land and plant we may infer that most of these companies either farmed out their tailoring to contract factories or rented their work shops, possibly both. Contracting is a common practice among small manufacturers of men's clothing. They buy and cut the cloth, send the trousers out to one contractor, the coats to another and the vests to a third. The contractors tailor the cut cloth, returning the finished garments to the manufacturer for assembling and selling. The latter bears the production risk and pays the contractors a definite fee. Manufacturers generally shift from one type of operation to another, or divide their output, tailoring some of their garments and farming out the remainder.

What little land and plant the sample companies had consisted mainly of machinery and equipment, plus furniture and fixtures. Only a third was in real estate, and this third was held by only a handful of concerns. Most

Table 4 - 46 MEN'S CLOTHING CORPORATIONS: Composite Balance Sheet and Selected Income Statement Items, in Thousands of Dollars and in Percent of Total Assets, 1926 and 1936 a/

<u>Item</u>	<u>Thousands of Dollars</u>		<u>Percent of Total Assets</u>	
	1926	1936	1926	1936
<u>Assets</u>				
Cash and government bonds	\$349	\$211	10%	7%
Receivables	1,579	1,173	45	36
Inventory	1,056	1,296	31	41
Total current assets	<u>2,984</u>	<u>2,680</u>	<u>86</u>	<u>84</u>
Investments	69	135	2	4
Land and plant (net)	276	289	8	9
Other assets	128	92	4	3
TOTAL ASSETS	<u>3,457</u>	<u>3,196</u>	<u>100</u>	<u>100</u>
<u>Liabilities</u>				
Accounts payable	718	819	21	26
Notes payable	447	419	13	13
Other current liabilities	171	134	5	4
Total current liabilities	<u>1,338</u>	<u>1,372</u>	<u>39</u>	<u>43</u>
Long-term debt	43	38	1	3
Other liabilities	1	4	b/	b/
Capital stock	1,622	1,673	47	52
Surplus	453	59	13	2
TOTAL LIABILITIES	<u>3,457</u>	<u>3,196</u>	<u>100</u>	<u>100</u>
<u>Income Statement Items</u>				
Sales	8,549	8,838	247	277
Officers' compensation	627	451	18	14
Depreciation	23	24	1	1
Income taxes	34	27	1	1
Net income	218	105	6	3
Cash dividends	142	82	4	3

a/ Based on TNEC Monograph 15 (previously cited) Table 1-B in Appendix F. These statements refer to the end of the calendar year.

b/ Less than 0.5 percent.

of the small companies in the sample probably rented a few rooms in an upper floor of a building in the heart of the metropolitan district. The constituent land-and-plant items that were reported represented these proportions of total classified land and plant (gross) in 1936: 24/

Buildings	24%	(reported separately by 3 cos.)
Machinery and equipment	49	(" " " 27 ")
Furniture and fixtures	19	(" " " 23 ")
Land	8	(" " " 4 ")

Raw material costs in the industry bulk large. According to the Census of Manufactures, expenditures for materials, and for what little power is used, run around one-half the factory selling price of the product; labor costs come to less than a fourth of the value of products, the remaining fourth consisting of overhead and profits. 25/

The composition of the inventory of men's clothing manufacturers, as well as its amount, varies sharply with the season. Little significance can be attached to the relative holdings of the various inventory items as reported by the sample of small manufacturers. Little more than half the total inventory was classified in 1936. In that year the reports showed raw materials and supplies constituting 38 and 16 percent respectively of total classified inventory, and work-in-process and finished goods 10 and 36 percent respectively. 26/ A tabulation pertaining to 10 large manufacturers in 1938 and 1939 shows raw materials and supplies constituting, together, a third of the total inventory, and work-in-process plus finished goods two-thirds. 27/ There are marked differences between the results of the two tabulations, due probably to the incomplete reporting in the small manufacturers sample, but possibly also to a difference in statement dates, a difference between large and small manufacturers, or even a difference in time period.

Because of the heterogeneous product, and the various kinds of raw materials used, it is difficult to ascertain the various price and cost relationships in the small-scale manufacture of men's clothing over the 1926-36 period. Here too this type of manufacture differs from the bread-baking industry, where both the raw materials and the final product are fairly uniform. There is enough evidence, however, to show convincingly that small-scale men's clothing companies experienced changes in prices and costs which exercised a strong effect upon their profits.

For example, although the dollar volume of sales made by the sample companies increased steadily over the 1926-29 period (see Table 5) net income did not go up proportionately. For this there were two reasons. In the first place, the prices that men's clothing manufacturers had to pay for raw materials and labor held firm - the

Table 5 - 46 MEN'S CLOTHING CORPORATIONS
Selected Income Statement Items, 1926-36 a/
(Dollar figures in thousands)

Year	Sales	Officers' Compensation	Depletion & Depreciation	Income Taxes	Net Income b/	Net Income % of Sales	Cash Dividends
1926	\$8,549	\$627	\$28	\$34	\$218	2.6%	\$142
1927	9,040	651	32	26	127	1.4	119
1928	9,173	630	35	19	163	1.8	87
1929	9,609	650	32	15	108	1.1	41
1926-29	<u>36,371</u>	<u>2,558</u>	<u>127</u>	<u>94</u>	<u>616</u>	<u>1.7</u>	<u>389</u>
1930	8,181	573	33	9	-119	-1.5	36
1931	6,792	458	24	5	-279	-4.1	1
1932	4,843	377	20	4	-357	-7.4	9
1930-32	<u>19,816</u>	<u>1,408</u>	<u>77</u>	<u>18</u>	<u>-755</u>	<u>-3.8</u>	<u>46</u>
1933	5,912	392	20	20	32	0.5	27
1934	7,467	452	17	18	2	c/	1
1935	8,599	430	20	24	65	0.8	2
1936	8,838	451	24	27	105	1.2	82
1933-36	<u>30,816</u>	<u>1,725</u>	<u>81</u>	<u>89</u>	<u>204</u>	<u>0.7</u>	<u>112</u>

a/ Based on TNEC Monograph 15 (previously cited) Table 1-B in Appendix F.

b/ After income taxes, and exclusive of profits or losses from sales of real estate.

c/ Less than 0.05 percent.

wholesale price of suiting remained fairly stable, 28/ and average hourly earnings dropped only a few percent 29/ - but there was a decline in the prices they received for their finished products. 30/ Second, as is evident from Table 5, there was no downward revision of officers' compensation. As a consequence of these two circumstances net income fell 50 percent during this period of general cyclical expansion.

In 1933 the wholesale price of men's suits almost doubled, outstripping the rise in raw material and labor costs and resulting in a modest profit for these small manufacturers, after a 1932 loss larger than that suffered in any other year of the 1926-36 period. Selling prices fell back slightly in 1934, while labor and material costs proceeded to catch up; hence a further increase in sales in that year failed to advance profits markedly. Thus the experience of these small clothing manufacturers appears to corroborate the thesis that in-

dustries requiring a large inventory and a relatively heavy raw material outlay suffer early in depression but prosper early in recovery.

Other evidence, too, suggests that men's clothing manufacturers enjoyed a profitable year in 1933. A study of 243 manufacturers, including the larger as well as the smaller units, shows net profit amounting to 2.3 percent of sales in 1933. 31/ For an identical sample of 229 of these manufacturers a loss of 3.5 percent of sales was reported in 1932, a profit of 2.7 percent in 1933 and a profit of 1.3 percent in 1934, 32/ a movement similar (though at a slightly higher level) to that of the sample of small companies studied here.

The dividend payments made by the sample of small clothing manufacturers were not particularly large over the 1926-36 period. They declined even during the 1926-29 prosperity years. Still, small as they were, they exceeded, over the 1926-36 period as a whole, the net profits minus the net losses of these companies in the aggregate. The evidence indicates, too, that particular companies in the sample paid out in dividends more than they earned. 33/ Officers' compensation was a large item in each year, and surprisingly stable. Practically none of it was earned in 1932, and less than half was earned during the 1930-32 period as a whole.

FURNITURE

Purchases of furniture involve relatively large outlays on the part of consumers, and sales fluctuate sharply with changes in general business. Individuality of design and finish is an important competitive factor, especially for the higher-priced grades of furniture. When demand for the more expensive products falls off relatively sharply, as during business depression, manufacturers tend to shift to cheaper designs and finishes.

The average asset size of the furniture companies in the present sample is about \$100,000, some \$30,000 larger than the average size of the small enterprises in the other industry samples. An enterprise that could be regarded as fairly typical, according to the convention outlined above, would consist of an office housing the owner

and a bookkeeper, and the factory proper. If the company manufactures upholstered furniture it probably buys the frames ready-made; otherwise they are made in a separate, woodworking section of the plant. In either case the plant buys the stuffing, the coil springs and the covering fabrics. The parts are put together on a series of tables, similar to an assembly line except for the absence of a continuous conveyor. The manufacturer may have a showroom at his factory, but it is not likely to be pretentious. If the purchasers do not actually visit the factory, selling is probably done by means of pictures of the finished product and swatches of the covering upholstery fabric. Probably a large part of the output is sold to the big urban stores, which give it a brand name of their own choosing. In a year like 1936 the sales of an average small furniture company might total about \$150,000, officers' compensation about \$7000, and cash dividends to the owner-officers about \$3000.34/

From the information given in the income tax returns it is not possible to distinguish with certainty between the companies that manufacture upholstered furniture and those that produce case goods such as dining-room and bedroom sets, but in our sample the former are probably in the majority. For one thing, the sample companies are small, and manufacturers of upholstered furniture tend to operate on a smaller scale than the makers of case goods. Second, the upholstered furniture manufacturers are most often located in the urban centers, while the case goods companies are situated mainly in the rural areas, and of the companies in our sample about one-third were in cities of 1,000,000 population or more, about two-thirds in cities of 50,000 or more. 35/ It has been estimated by one who is familiar with the furniture industry 36/ that in the present sample the upholstered furniture manufacturers probably outnumbered the case goods companies two to one.

The manufacture of furniture, especially of the higher grades, is fairly concentrated in five principal centers: Grand Rapids, Michigan; Jamestown, New York; Evansville, Indiana; Chicago, Illinois; and High Point, North Carolina. These centers achieved their dominant position many years ago and have since maintained it, although there is some evidence that the manufacture of furniture has been decentralizing in recent decades. 37/ Wholesale

and retail sales are highly seasonal; manufacturers' shipments reach a primary peak in September or October, and a secondary peak around March, 38/ the fall peak resulting from the culmination of summer building activities and fall moving day. Seasonal fluctuations in plant operations appear to be considerably less marked. 39/

The small companies that make up our sample had a large net worth (almost three-fourths of their total li-

Table 6 - 66 FURNITURE CORPORATIONS: Composite Balance Sheet and Selected Income Statement Items, in Thousands of Dollars and in Percent of Total Assets, 1926 and 1936 a/

<u>Item</u>	<u>Thousands of Dollars</u>		<u>Percent of Total Assets</u>	
	1926	1936	1926	1936
<u>Assets</u>				
Cash and government bonds	\$633	\$415	9%	6%
Receivables	2,234	1,836	31	28
Inventory	2,068	1,779	29	27
Total current assets	<u>4,935</u>	<u>4,030</u>	<u>69</u>	<u>61</u>
Investments	174	231	2	4
Land and plant (net)	1,975	2,122	28	33
Other assets	81	120	1	2
TOTAL ASSETS	<u>7,165</u>	<u>6,503</u>	<u>100</u>	<u>100</u>
<u>Liabilities</u>				
Accounts payable	891	923	13	14
Notes payable	734	437	10	7
Other current liabilities	91	160	1	3
Total current liabilities	<u>1,716</u>	<u>1,520</u>	<u>24</u>	<u>24</u>
Long-term debt	89	284	1	4
Other liabilities	86	b/	1	c/
Capital stock	3,197	3,275	45	50
Surplus	2,077	1,424	29	22
TOTAL LIABILITIES	<u>7,165</u>	<u>6,503</u>	<u>100</u>	<u>100</u>
<u>Income Statement Items</u>				
Sales	11,484	10,049	160	155
Officers' compensation	602	478	8	7
Depreciation	144	112	2	2
Income taxes	67	63	1	1
Net income	374	226	5	3
Cash dividends	284	202	4	3

a/ Based on TNEC Monograph 15 (previously cited) Table 1-C in Appendix F. These statements refer to the end of the calendar year.

b/ Less than \$500.

c/ Less than 0.5 percent.

abilities) and a sizable volume of current assets (about two-thirds of total assets), as is evident from Table 6. Their large inventory reflects the wide variety of their products, and the size of their receivables indicates extensive credit sales.

In furniture manufacture the cost of materials 40/ is a relatively important item, constituting about 45 percent of the value of products. For case goods companies lumber is the principal raw material item, but for upholstered furniture manufacturers, which predominate in the present sample, the covering fabrics represent the bulk of the raw material cost. Persons familiar with the industry assert that in this field of furniture manufacture three-fourths of the outlays for raw materials and supplies goes for piece goods, and this observation is supported by a comparison of census data on the raw materials cost of furniture manufacturers, exclusive of their outlays on wood, with the total output of the upholstery wire-spring industry. Labor costs account for about a third of the value of products, and the remaining fifth represents overhead and profits. Woodworking machinery is extensively used in the manufacture of case goods, and in making frames for upholstered furniture, but since most of the companies in our sample produced upholstered furniture and bought frames ready-made, and since woodworking machinery has a comparatively long life, the machine cost for the sample as a group was relatively small.

Almost half of the gross land and plant of the small furniture companies in the present sample consisted of buildings, and much of the remainder was in machinery and equipment. In 1936 the total classified land and plant (gross) was divided as follows: 41/

Buildings	46%	(reported separately by 36 cos.)
Machinery and equipment	38	(" " " 61 ")
Furniture and fixtures	3	(" " " 53 ")
Land	13	(" " " 31 ")

Two-fifths of the inventory holdings of these companies represented finished goods, the balance being about evenly divided between raw materials and work-in-process. The accompanying figures show the 1936 breakdown of the total classified inventory of this sample. 42/ There were several changes in these proportions over the period

Raw materials	28%	(reported separately by 32 cos.)
Work-in-process	27	(" " " 28 ")
Finished goods	40	(" " " 35 ")
Supplies	5	(" " " 18 ")

1926-36, but the only ones that appear to be significant were an increase in the finished goods component and a decrease in the raw material component. Work-in-process increased in relation to total inventory, but some of this increase is probably explained by a more complete reporting of this item.

The 1926-28 decline in the profits of small furniture manufacturers, evident from Table 7, appears to be explained by a fall in selling prices 43/ not fully compensated for by declines in piece goods and lumber prices. 44/ The effect of changing price and cost relations during 1929 and the immediately following years is obscured by a large and extraordinary capital gain recorded in 1929, probably by a company in the sample which disposed of a piece of real estate that had appreciated enor-

Table 7 - 66 FURNITURE CORPORATIONS: Selected
Income Statement Items, 1926-36 a/
(Dollar figures in thousands)

Year	Sales	Officers' Compensation	Depletion & Depreciation	In-come Taxes	Net In-come b/	Net In-come b/in % of Sales	Cash Dividends
1926	\$11,484	\$602	\$144	\$67	\$374	3.3%	\$284
1927	10,984	617	158	58	285	2.6	186
1928	11,178	639	174	48	232	2.1	167
1929	12,160	764	182	158	215	1.8	284
1926-29	<u>45,806</u>	<u>2,622</u>	<u>658</u>	<u>331</u>	<u>1,106</u>	<u>2.4</u>	<u>921</u>
1930	9,338	683	177	69	-313	-3.4	242
1931	7,397	522	160	13	-339	-4.6	206
1932	4,446	339	131	6	-768	-17.3	164
1930-32	<u>21,181</u>	<u>1,544</u>	<u>468</u>	<u>88</u>	<u>-1,420</u>	<u>-6.7</u>	<u>612</u>
1933	5,557	333	132	21	-132	-2.4	33
1934	6,075	368	121	18	-178	-2.9	64
1935	7,988	379	120	31	-85	-1.1	70
1936	10,049	478	112	63	226	2.2	202
1933-36	<u>29,669</u>	<u>1,558</u>	<u>485</u>	<u>133</u>	<u>-169</u>	<u>-0.6</u>	<u>369</u>

a/ Based on TNEC Monograph 15 (previously cited) Table 1-C in Appendix F.
b/ After income taxes, and exclusive of profits or losses from sales of real estate.

mously in value.^{45/} This operation seems to have had the effect of boosting dividends, officers' compensation and, of course, income taxes in 1929, thereby decreasing the net income exclusive of capital gains and losses. It was probably because of this windfall gain that officers' compensation was maintained at an unusually high level in 1930 particularly, and also in 1931, thereby swelling the net losses reported in those years. But the large net loss in 1932 can be explained only by the very small volume of business. The fact that these companies' operations continued to be unprofitable through 1935 may be explained by the relatively modest recovery in their volume of business, in conjunction with increases in lumber prices and average hourly earnings ^{46/} and probable increases in piece goods prices.

Cash dividends for the present sample declined in 1927 and 1928, but rose abruptly in 1929, presumably because of the windfall gain. Dividends fell sharply in the years of cyclical contraction but in 1932 they were still as high as they had been in 1928, thus reflecting the continuing effect of the large 1929 capital gain. By 1933, however, the effect of this capital gain seems to have disappeared from the cash dividend series. Although dividends increased in 1934 it was not until 1936 that they returned to their pre-depression level.

STONE-CLAY

The manufacture of brick and tile ^{47/} has been undergoing a secular decline over the past several decades. This industry attained an all-time production peak, in terms of common-brick equivalents, early in the present century. ^{48/} Since then the development of competing materials, particularly structural steel, has cut down the market for common brick, the most important product of the industry. Also, since 1927, this field of manufacture has been strongly affected by the lag of construction activity. The financial statements of the present group of small, incorporated manufacturers of clay and stone products, largely brick and tile, reflect this slump in the industry. Their sales began to drop after 1928, falling off more than those of the other sample groups; in comparison with the other groups their depression losses were larger, in relation to sales, and in

1936 their volume of business indicated a less extensive recovery.

A small brick plant that might be regarded as more or less typical of those included in the present sample would have total assets of about \$75,000. In a year such as 1936 officers' compensation would average \$5000, and withdrawals in the form of cash dividends would run almost as high. 49/

Brick-making requires extensive physical equipment and a large number of workers; the labor is almost entirely unskilled. The plants are usually located near clay deposits, on the outskirts of a small city and in the general vicinity of a large urban center. The mined clay is taken to a storage bin, from which it is conveyed to a hopper on the top floor of a machine building. From the hopper the green clay works down through various grinding and milling operations to the brick-making machine. When the clay emerges from this machine, pressed into bricks, it is conveyed to drying rooms, frequently by hand. Once dried, the bricks are placed in kilns, again by hand, and baked for several days, after which they are sorted and removed to storage sheds. Deliveries are made by truck.

Most brick and tile products are distributed in a local market. There are several reasons for this localism: demand is geographically widespread; the necessary raw materials and unskilled labor can be found in most parts of the country; the product is heavy and bulky in relation to its value. Paving brick and some types of face brick are an exception, their essential raw material being found only in certain parts of the country.50/ Because of the local market for most brick and tile products the manufacturing establishments in the industry seldom reach large proportions. Even the consolidations and mergers - of which there have been quite a few - have not resulted in a marked increase in the size of the producing unit.

The manufacture and sale of brick and tile are characterized by a strong seasonal variation. With the advent of cold weather, mining of the clay and burning of the green bricks become increasingly difficult. Many plants shut down entirely for three or four of the winter

months. Also the demand for structural clay products falls, of course, with the winter slackening of building activity. Production holds to a high level in the summer and early fall; it declines with the approach of winter and reaches a low point in February. Shipments fluctuate less sharply, but follow a similar timing. Finished stocks fluctuate the least; they are at their peak (less than 10 percent above their annual average) in November and December, 51/ the balance-sheet date for most of the companies in the present sample.

Table 8 - 70 STONE AND CLAY CORPORATIONS: Composite Balance Sheet and Selected Income Statement Items, in Thousands of Dollars and in Percent of Total Assets, 1926 and 1936 a/

<u>Item</u>	<u>Thousands of Dollars</u>		<u>Percent of Total Assets</u>	
	1926	1936	1926	1936
<u>Assets</u>				
Cash and government bonds	\$645	\$461	9%	9%
Receivables	1,501	1,013	22	20
Inventory	1,055	714	15	14
Total current assets	<u>3,201</u>	<u>2,188</u>	<u>46</u>	<u>43</u>
Investments	69	221	1	1
Land and plant (net)	3,533	2,692	51	52
Other assets	161	61	2	1
TOTAL ASSETS	<u>6,964</u>	<u>5,162</u>	<u>100</u>	<u>100</u>
<u>Liabilities</u>				
Accounts payable	539	458	8	9
Notes payable	644	526	9	10
Other current liabilities	44	195	1	4
Total current liabilities	<u>1,227</u>	<u>1,179</u>	<u>18</u>	<u>23</u>
Long-term debt	234	344	3	7
Other liabilities	12	2	b/	b/
Capital stock	3,169	3,043	46	59
Surplus	2,322	594	33	11
TOTAL LIABILITIES	<u>6,964</u>	<u>5,162</u>	<u>100</u>	<u>100</u>
<u>Income Statement Items</u>				
Sales	7,605	4,561	109	88
Officers' compensation	594	343	9	7
Depreciation	287	193	4	4
Income taxes	85	75	1	1
Net income	490	267	7	5
Cash dividends	312	264	4	5

a/ Based on TNEC Monograph 15 (previously cited) Table 1-D in Appendix F. These statements refer to the end of the calendar year.

b/ Less than 0.5 percent.

As is evident from Table 8, the financial structure of the present sample of manufacturers is characterized by a relatively large investment in land and plant, a small amount of accounts payable, and an annual volume of sales barely equal to total assets. In addition to a factory building with heavy machinery, brick-making enterprises comprise clay deposits, drying sheds and burning kilns. Since the bulk of the raw material consists of the green clay, an item included under land and plant, accounts payable are small. Inventory is sizable, not because of the raw material item but because of stocks of finished goods.

The breakdown for 1936 of the total classified land and plant (gross) of these small stone-clay companies

Buildings	40%	(reported separately by 59 cos.)	
Machinery and equipment	45	(" " " ")	62
Furniture and fixtures	1	(" " " ")	47
Land	14	(" " " ")	51

further illustrates their reliance on buildings, machinery and land. 52/ Although the land component is larger for this industrial sample than for any of the other groups studied, it is nevertheless understated, because depletable assets were reported in the "all other capital assets" category. 53/ Thus most of the clay deposits, especially those that were being currently mined, have been classified as other capital assets; this item, which was reported by 55 companies in the sample, amounted to 20 percent of the total gross land and plant. It is probably safe to say, therefore, that as much as a fourth of the gross land and plant of these companies consisted of land, including not only land for the buildings but also clay deposits, and possibly even coal deposits.

As was already mentioned, the bulk of the inventory holdings of these companies consisted of finished goods. The dollar volume of raw materials was not large, the clay generally being mined as needed. There was some work-in-process, and a small amount of supplies. The 1936 breakdown of the total classified inventory was as follows. 54/ These statements refer, in general, to the

Raw materials	11½	(reported separately by 19 cos.)	
Work-in-process	10	(" " " ")	14
Finished goods	73	(" " " ")	39
Supplies	6	(" " " ")	26

end of the calendar year, when brick plant operations are slack and stocks of finished goods are at their peak.^{55/}

The data available on the cost and price relationships of the stone-clay companies differ in an important respect from those for the other industries. The cost of materials constitutes about a third of the value of products in stone-clay, but there is some question whether this item, as reported in the Census of Manufactures, includes depletion, which in Table 9 is shown together with depreciation. Fuel constitutes about half of the raw material cost and, when derived from coal deposits, may also figure in the depletion charge. Although payrolls are an important cost item - more than two-fifths of the value of products - data on average hourly earnings in this industry are scarce for the years before 1932.

The 1929 sales of small stone-clay companies, in current dollars, were about the same as in 1926, yet profits in 1929 stood at scarcely more than a fifth of their 1926

Table 9 - 70 STONE AND CLAY CORPORATIONS
Selected Income Statement Items, 1926-36 ^{a/}
(Dollar figures in thousands)

Year	Sales	Officers' Compensation	Depletion & Depreciation	Income Taxes	Net Income b/	Net Income % of Sales	Cash Dividends
1926	\$7,605	\$594	\$287	\$85	\$490	6.4%	\$312
1927	8,056	587	319	72	398	4.9	406
1928	8,199	550	344	68	507	6.2	406
1929	7,653	527	357	30	106	1.4	134
1926-29	<u>31,513</u>	<u>2,258</u>	<u>1,307</u>	<u>255</u>	<u>1,501</u>	<u>4.8</u>	<u>1,258</u>
1930	6,354	539	347	15	-113	-1.8	136
1931	4,098	386	313	7	-390	-9.5	144
1932	2,113	263	226	4	-683	-32.3	68
1930-32	<u>12,565</u>	<u>1,188</u>	<u>886</u>	<u>26</u>	<u>-1,186</u>	<u>-9.4</u>	<u>348</u>
1933	1,874	184	206	7	-344	-18.4	16
1934	2,322	189	186	14	-163	-7.0	47
1935	2,791	204	188	33	18	0.6	63
1936	4,561	343	193	75	267	5.9	264
1933-36	<u>11,548</u>	<u>920</u>	<u>773</u>	<u>129</u>	<u>-222</u>	<u>-1.9</u>	<u>390</u>

^{a/} Based on TNEC Monograph 15 (previously cited) Table 1-D in Appendix F.

^{b/} After income taxes, and exclusive of profits or losses from sales of real estate.

level (Table 9). The cause appears to have been a decline in selling prices between the two years. 56/ If there was any tendency in 1929 for wage rates to be higher than those prevailing in 1926 it was probably offset by the drop in the price of coal. 57/ The increase in depreciation from 1926 to 1929 was offset by decreases in officers' compensation and in income taxes.

Increasing net losses characterized the years 1930-32. Even these relatively successful small companies went into the red in 1930, and by 1932 reported an aggregate loss of 32 cents for every dollar of sales. Selling prices fell concurrently with sales, but the latter dropped the more sharply, indicating a decline in the physical volume of business. 58/

In 1933, when many industries enjoyed at least a modest upturn in business, the sales of the small stone-clay companies studied here were even lower than in 1932. The 1933 net loss was only half that of the preceding year, however, because selling prices started upward in 1933, wage rates lagged behind in turning upward 59/ and depreciation charges and officers' compensation continued to fall. The sharp increase in sales that occurred in 1936, in conjunction with a relatively stable production-cost structure, resulted in a profit two and a half times the 1929 net income, even though officers' compensation was more than two-thirds again as high as it had been in the preceding year.

The dividend policy of the small stone-clay companies in the present sample appears to have resulted in considerable liquidation of assets over the 1926-36 period as a whole. In the prosperous late 1920's they disbursed the bulk of their net income as cash dividends. When income fell in 1929, cash dividends were cut sharply, but the subsequent losses were not accompanied by further reductions in dividends until 1932. In other words, these companies maintained a fairly high rate of dividend distribution in the early years of the depression. In 1933, on the other hand, the entire 70 companies in the present sample paid out only \$16,000 as cash dividends. In 1936, after operations had again become profitable, cash dividends jumped sharply to a level closely approximating that of net income. Over the eleven years as a whole cash dividends were greatly in excess of net in-

come: the net losses incurred in 1930-34 wiped out practically all of the net profits earned in 1926-29 and 1935-36, whereas the cash dividends disbursed by these 70 companies over the eleven years reached practically 2 million dollars. As will be shown in the next chapter, this difference is to be accounted for largely by a liquidation of both current and fixed assets.

MACHINE TOOL

For the last two centuries machine tools have played a key role in the development of industry. The perfecting of the steam engine, for example, was dependent upon boring and turning machines capable of finishing cylinders and their pistons to close-fitting dimensions. The principle of interchangeable parts, to cite a more recent illustration, could not be applied to the problems of large-scale manufacture until various metalworking machines had been developed which could finish off a given part in any quantity, always with identical dimensions. In the present decade the key role of the machine tool industry has been enhanced even further by the demands of war. The manufacture of all kinds of armament is dependent upon machine tools, and the industry has been booming since the middle 1930's, originally from its export business - since military preparations were stepped up abroad some years ago - and now from domestic demand.

The machine tool industry is an important indicator of business trends. 60/ This sensitiveness to cyclical forces is due to the fact that machine tools are sold largely to manufacturers of producer goods, and reach virtually every segment of our industrial economy. Machine tool companies make the metalworking machinery which in turn is used by companies manufacturing special industry machines. The automobile industry demands new jigs and fixtures and possibly even new machine tools in its annual retooling for new models, and this industry alone absorbed about a third of the output of machine tools in prewar years. In this portion of their output, and in that used by manufacturers of articles such as refrigerators and sewing machines, the machine tool companies are relatively close to the ultimate consumer; in the rest, however, they are several stages removed from the consumer market.

The wide separation of a large part of machine tool output from the ultimate consumer market means that changes in consumer demand are swiftly transmitted to this industry. 61/ In a period of cyclical contraction it is among the first to curtail operations, and it suffers a sharper decline in business than do other industries. The converse is true in a period of cyclical expansion.

Machine tools are of many types and varieties. The most common are turning machines (lathes), which shave off the metal, and drilling machines are the next most numerous group; 62/ other types are milling machines, honing and lapping machines, which polish the metal surface, and, according to some definitions, 63/ forging machines and presses. Although machine tools make possible standardized, large-scale production, their manufacture is specialized and small-scale. As a result of patent rights and the predominance of technicians and skilled laborers in this field, machine tool manufacturers constitute a closely-knit industrial aristocracy. The National Machine Tool Builders Association, the trade association of the industry, contains fewer than 200 members. The Census of Manufactures, under its broader definition of machine tools, reported less than 300 such establishments for 1937.

Closely bound up with machine tool manufacture is the production of accessories used on machine tools - checks, vises, attachments, dies, jigs, small cutting tools and tool holders. A machine tool producer contracts out to these accessory manufacturers a large part of his work, and incidentally shares with them the peak loads in the industry.

It would be difficult to find a machine tool company that could be regarded as typical of those in the present sample. Some of these small corporations produce complete machine tools; a majority probably specialize in machine tool accessories, but in special situations may undertake the manufacture of, say, a lathe designed for preliminary rather than final cutting operations on metal. 64/ The total assets of an average company in the present sample are about \$70,000. In 1936 the compensation of officers totaled around \$10,000 per company, and cash dividends to owner-officers \$3000. 65/ A considerable part of the val-

ue of output of a machine tool company represents value added, and thus raw material purchases in the industry are not large. The most important raw materials are gray-iron castings, carbon and other steel, cold-rolled steel and pig-iron. 66/

The peculiarities of the industry are reflected in the financial structure of the companies in the present sample. As is shown in Table 10, these companies' assets are about evenly divided between current and fixed items,

Table 10 - 118 MACHINE TOOL CORPORATIONS: Composite Balance Sheet and Selected Income Statement Items, in Thousands of Dollars and in Percent of Total Assets, 1926 and 1936 a/

Item	Thousands of Dollars		Percent of Total Assets	
	1926	1936	1926	1936
<u>Assets</u>				
Cash and government bonds	\$517	\$1,045	7%	13%
Receivables	1,305	1,610	17	20
Inventory	1,793	1,487	24	19
Total current assets	<u>3,615</u>	<u>4,142</u>	<u>48</u>	<u>52</u>
Investments	89	298	1	4
Land and plant (net)	3,359	3,201	45	39
Other assets	465	395	6	5
TOTAL ASSETS	<u>7,528</u>	<u>8,036</u>	<u>100</u>	<u>100</u>
<u>Liabilities</u>				
Accounts payable	723	995	9	12
Notes payable	753	644	10	8
Other current liabilities	195	496	3	7
Total current liabilities	<u>1,671</u>	<u>2,135</u>	<u>22</u>	<u>27</u>
Long-term debt	329	580	4	7
Other liabilities	1	5	b/	b/
Capital stock	4,404	4,720	59	59
Surplus	1,123	596	15	7
TOTAL LIABILITIES	<u>7,528</u>	<u>8,036</u>	<u>100</u>	<u>100</u>
<u>Income Statement Items</u>				
Sales	9,778	11,665	130	145
Officers' compensation	1,055	1,146	14	14
Depreciation	311	241	4	3
Income taxes	60	128	1	2
Net income	332	430	4	5
Cash dividends	205	373	3	5

a/ Based on TNEC Monograph 15 (previously cited) Table 1-E in Appendix F. These statements refer to the end of the calendar year.

b/ Less than 0.5 percent.

while their current debts amount to only about a quarter of their total liabilities. Annual sales are about a third again as large as total assets.

Machinery and equipment accounted for two-thirds of the total classified land and plant (gross) of these small machine tool and accessory manufacturers in 1936, the complete breakdown for that year being as follows. 67/

Buildings	25%	(reported separately by 51 cos.)
Machinery and equipment	65	(" " " 114 ")
Furniture and fixtures	3	(" " " 91 ")
Land	7	(" " " 46 ")

These figures testify to the importance, in this industry, of heavy and costly metalworking machinery, and to the fact that a large number of the small enterprises rent their factory buildings.

Inventory holdings are divided fairly evenly among raw materials, work-in-process and finished goods, as can be seen from the following breakdown of total classified inventory for 1936. 68/ In this industry the work-in-proc-

Raw materials	30%	(reported separately by 69 cos.)
Work-in-process	30	(" " " 54 ")
Finished goods	36	(" " " 37 ")
Supplies	4	(" " " 34 ")

ess component is larger, in relation to total classified inventory, than in any of the other four, and even so, its relative magnitude is probably understated by the foregoing figures. 69/

Value of products in the machine tool industry is distributed almost equally among wages, raw materials (including fuel) and overhead plus profits. The production of a machine tool is a long job requiring skilled hands and expensive machinery. 70/ The "feast or famine" nature of the industry causes, however, a very wide temporal variation in the proportion of the value of products that is available for overhead and profits.

Information on selling prices and costs for the machine tool group is scanty, not only because the companies are small and closely held but also because their product is complex and their raw materials are constantly changing. The only factor on which usable data are avail-

able is labor cost, as represented by average hourly earnings. ^{71/} Raw material costs and selling prices depend on the particular types of machines produced, and it would be unjustifiable to offer estimates purporting to represent the corporations studied here.

The sensitiveness of machine tool companies to cyclical forces is clearly illustrated in Table 11. The 1927 contraction in general business was not particularly severe, yet it is easily recognized in these companies' net income figures: profits in 1927 were only half of what they had been the year before. The reaction to the depression of the 1930's was both prompt and intense. Sizable losses appeared in 1930. By 1932 the loss per dollar of sales was larger than the profit in any of the prosperity years covered, and the volume of business was not much more than a fourth of the peak it reached in 1929. By 1934, however, the losses had dwindled to the vanishing point, and in the next two years there were comfortable profit margins.

Table 11 - 118 MACHINE TOOL CORPORATIONS
Selected Income Statement Items, 1926-36 ^{a/}
(Dollar figures in thousands)

Year	Sales	Officers' Compensation	Depletion & Depreciation	Income Taxes	Net Income ^{b/}	Net Income ^{b/} in % of Sales	Cash Dividends
1926	\$9,778	\$1,055	\$311	\$60	\$332	3.4%	\$205
1927	9,550	1,040	326	52	174	1.8	131
1928	11,671	1,191	376	66	517	4.4	210
1929	15,232	1,456	410	131	1,211	8.0	338
1926-29	<u>46,231</u>	<u>4,742</u>	<u>1,423</u>	<u>309</u>	<u>2,234</u>	<u>4.8</u>	<u>884</u>
1930	9,843	1,149	382	32	-279	-2.8	342
1931	6,589	873	341	15	-503	-7.6	149
1932	4,341	606	341	5	-831	-19.1	27
1930-32	<u>20,773</u>	<u>2,628</u>	<u>1,064</u>	<u>52</u>	<u>-1,613</u>	<u>-7.8</u>	<u>518</u>
1933	4,793	562	259	24	-248	-5.2	35
1934	7,211	708	240	46	-14	-0.2	70
1935	8,782	841	242	88	294	3.3	105
1936	11,665	1,146	241	128	430	3.7	373
1933-36	<u>32,451</u>	<u>3,257</u>	<u>982</u>	<u>286</u>	<u>462</u>	<u>1.4</u>	<u>583</u>

^{a/} Based on TNEC Monograph 15 (previously cited) Table 1-E in Appendix F.

^{b/} After income taxes, and exclusive of profits or losses from sales of real estate.

The 1930 loss was so sizable and sudden that it warrants special consideration, particularly in view of the fact that sales in that year, although considerably smaller than in the preceding year, were larger than in 1926, 1927 or 1935 - years when these companies were in the black. It is likely that a considerable part of this 1930 fall in earnings - though we are unable to determine how much - was due to a divergence in the movements of selling prices and material costs. Another part is probably attributable to the maintenance of depreciation and officers' compensation at their 1928 levels (1930 sales were far below those in 1928) and to an increase in average hourly wages in the industry. ^{72/} Depreciation charged off by the companies studied here fell only slightly from 1929 to 1930, and was higher in these two years than in any other part of the period covered. Similarly, compensation of officers, although down considerably from its 1929 peak, was higher in 1930 than in any other year of the period except 1928 and 1929. Thus the abrupt and heavy loss of 1930 was probably due largely to the inflexibility of labor costs and of certain overhead items. Some of it may have been caused by inventory losses and a break in selling prices, but it is impossible even to estimate the amount of these.

The position of machine tool companies was very favorable as early as 1936, several years before the outbreak of the current war. In that year sales, as indicated by the present sample, were higher than in any earlier year of the period except 1928 and 1929, and were practically as high as they had been in 1928. Also the 1936 net income, on both a total and a per-dollar-of-sales basis, was outranked only by that of 1928 and 1929. The finding that in 1936 net income was somewhat below the 1928 figure, although sales in the two years were almost identical, may be largely explained by the fact that average hourly earnings were at their 11-year peak in 1936. Rises in raw material costs may round out the explanation, but this item is not likely to have been so important as the others.

A special tabulation, prepared by the Treasury-WPA Income Tax Study for the Securities and Exchange Commission, ^{73/} makes it possible to show for the years 1936-39 the financial operations of an identical sample comprising 62 of the 118 small machine tool manufacturers dis-

Table 12 - 62 MACHINE TOOL CORPORATIONS
 Selected Income Statement Items, 1936-39 ^{a/}
 (Dollar figures in thousands)

<u>Year</u>	<u>Sales</u>	<u>Officers' Compensation</u>	<u>Depletion & Depreciation</u>	<u>In- come Taxes</u>	<u>Net In- come b/</u>	<u>Net In- come b/in % of Sales</u>	<u>Cash Divi- dends</u>
1936	\$4,293	\$485	\$78	\$43	\$96	2.2%	\$135
1937	4,772	530	89	29	87	1.8	154
1938	3,286	376	84	6	-96	-2.9	34
1939	4,175	440	80	22	42	1.0	44
1936-39	<u>16,526</u>	<u>1,831</u>	<u>331</u>	<u>100</u>	<u>129</u>	<u>0.8</u>	<u>367</u>

^{a/} Based on Table B-6 in Data Book (see footnote 16 of Chapter 1).

^{b/} After income taxes, and exclusive of profits or losses from sales of real estate.

cussed above. The data on the smaller sample, presented in Table 12, reveal that the 1938 slump was keenly felt despite war preparations throughout the world. Sales fell off sharply, net profits turned into net losses, and both officers' compensation and cash dividends declined. The next year saw considerable recovery, but not back to 1936 levels. Over the four years as a whole net income amounted to less than 1 percent of sales.

The 1936-39 movement of sales of these 62 companies paralleled closely that of the sales of a sample of 18 large machine tool companies (with assets averaging about \$5,000,000), registered with the Securities and Exchange Commission. These large manufacturers, however, succeeded in reporting a profit (after income taxes) in every year of the period. On the other hand, a sample of 6 large manufacturers of machine tools (with assets averaging about \$4,000,000), not registered with the Securities and Exchange Commission, sustained a net loss not only in 1938 but also, apparently because of special deductions, in 1939. 74/

It is somewhat surprising that such a thriving industry should have the extraordinarily meagre net income per dollar of sales that is revealed in Tables 11 and 12. It must be remembered, however, that the net income shown here is calculated after deduction of officers' compensation as well as income taxes. In small, closely-held

concerns, in which the officers are also the owners, compensation is naturally adjusted to the available income, and a large excess of income available for distribution as cash dividends is not a desideratum. Moreover, many of the companies in this sample were manufacturers of accessories, a division in which the profit margin is narrower than in the production of such custom-built items as turret lathes, thread-grinding machines and borers.

CHANGING CREDIT NEEDS OF SMALL MANUFACTURING CORPORATIONS

The financial structure of representative groups of small businesses was described in the preceding chapter, industry by industry. From the experience of these companies over the period 1926-36 the present chapter will draw certain implications that have significance for the general problem of financing small enterprises. These eleven years encompass a period of cyclical expansion (1926-29), a period of cyclical contraction (1930-32) and another period of cyclical expansion (1933-36). 1/ The following pages deal only with particular samples of small enterprises that continued in existence throughout these years, but there is no reason to believe that the findings would not apply in large measure to small enterprises in general, and to both successful and unsuccessful ones.

LONG-TERM DEBT

An important characteristic of the financial structure of small manufacturing companies, as revealed by our samples, is their small amount of long-term debt. This was apparent from the case studies in Chapter 2, but it is sufficiently important to warrant elaboration here. For each industrial sample, considered as a group, long-term debt amounted to the following proportions of total assets, at the beginning and end of the period studied. 2/ These figures, however, pertain to the aggregate of all surviving corporations in each sample, and thus give no indication of the fact that the great majority of the

	<u>1926</u>	<u>1936</u>
Baking	8.8%	10.7%
Men's clothing	1.2	2.8
Furniture	1.2	4.4
Stone-clay	3.4	6.7
Machine tool	4.4	7.2

companies reported no long-term debt whatever: in men's clothing 87 percent, and in the other industries from 69 to 74 percent, of the companies reported no long-term debt in 1936, and in 1926 these proportions were even higher.

For the corporations that did have such debt the figures given in the tabulation above are of course a considerable understatement. In considering these companies, long-term debt cannot be directly computed in relation to total assets but it can be calculated in relation to net land and plant. On the latter base the proportions for the reporting companies in the various industries were as follows at the beginning and end of the period: 3/

	<u>1926</u>	<u>1936</u>
Baking	30% (28% of all cos.)	36% (31% of all cos.)
Men's clothing	46 (21 " " ")	53 (13 " " ")
Furniture	30 (9 " " ")	34 (27 " " ")
Stone-clay	23 (21 " " ")	35 (30 " " ")
Machine tool	34 (14 " " ")	51 (26 " " ")

We know the ratio of the net land and plant of all the companies in the samples to their total assets, 4/ and from this ratio it is possible to compute, for the companies that reported long-term debt, rough estimates of what such debt amounted to in relation to total assets. The resulting proportions are shown herewith. These

	<u>1926</u>	<u>1936</u>
Baking	19%	22%
Men's clothing	4	5
Furniture	3	11
Stone-clay	12	18
Machine tool	15	20

estimates, crude as they are, indicate that for particular companies in these samples of small manufacturing corporations long-term debt constituted an important source of financing, a source, too, that seems to have increased in importance over the 1926-36 period. This finding is corroborated by data on the net amount of funds derived from such debt, and the net amount expended on reducing it during three periods of the decade 1927-36; 5/ a tabulation of these data is presented on the following page, with minus signs used to indicate the net reductions of long-term debt.

	<u>1927-29</u>	<u>1930-32</u>	<u>1933-36</u>
Baking	\$ 23,000	\$ 63,000	\$11,000
Men's clothing	50,000	-12,000	9,000
Furniture	481,000	-214,000	-79,000
Stone-clay	0	68,000	84,000
Machine tool	390,000	-36,000	-31,000

It appears that in the 1927-29 period long-term debt constituted a fairly sizable source of funds for the furniture and machine tool samples. But despite such indications that long-term debt was of some importance for certain of these small corporations and in certain years, the fact remains that it was not a significant source of funds for the companies in the aggregate or over the period as a whole.

What long-term debt these companies had appears to have been mortgage debt rather than unsecured bond and note issues. Federal income tax returns in the period covered by this study called for the breakdown of long-term debt into two categories: unsecured bonds and notes; and mortgages and other similarly secured debt. The reporting of these items may have been incomplete, especially since these were small companies; but at least according to the reports practically all the long-term debt consisted of mortgages and similarly secured obligations. An exception is the machine tool sample; there one-half the long-term debt was listed as unsecured bonds and notes.^{6/}

It might be inferred that the long-term debt of these small manufacturers, since it appears to have consisted largely of mortgage obligations, was incurred mainly for the purpose of acquiring new assets. Probably more often, however, it represented a means of providing creditor relief to a financially embarrassed enterprise, through the funding of book or note credits under a mortgage indenture, or a means of making part payment, through the granting of a mortgage claim, when ownership was transferred by sale or inheritance.

The infrequency of long-term debt among the companies studied was due not only to the owners' unwillingness to jeopardize their control but also to the prospective lender's fear of loss. An investment in small enterprises has a large speculative element. The success of the business is usually dependent upon the skill of a single person, the owner-manager. The competitive situa-

tion is fraught with uncertainty, and the instability of the markets for supplies and sales makes accurate anticipation almost impossible. Therefore an investor in a small company would rather have an opportunity to share in any unusual or speculative profits, than accept a promise of a fixed but small return.^{7/} The failure rate is higher among small than among large enterprises, and as a rule the liquidation value of an unsuccessful small company is barely adequate to satisfy the claims of short-term creditors, not to mention those of long-term creditors. It is certainly true, however, that an important reason for the infrequency of long-term debt among the type of companies studied here lies with the owners themselves. Because the earning power of their business is unstable, they would naturally strive to avoid fixed charges and the accompanying danger of losing their property.

Among the five industries studied here, differences in the proportions of long-term debt can be traced to differences in the various industries' discontinuance rates, in the stability of their earnings, and in their relative investment in fixed assets. In men's clothing manufacture discontinuances were numerous and earnings were far from stable; because of these factors, and also because such companies have so little property to mortgage, the ratio of funded debt to total assets was small and there was a large proportion of companies with no long-term debt, even in comparison with the other samples of small manufacturers. In baking, on the other hand, earnings were stable, there were fewer discontinuances than in most of the other groups, and the investment in land, plant and equipment was relatively heavy; therefore the ratio of long-term debt to total assets was comparatively high and the proportion of companies with no funded debt was slightly less than in the other industries.^{8/} What long-term debt was recorded for the three durable goods industries can perhaps be traced to their extensive mechanization. Certainly the stability of their earnings would not encourage long-term lenders.

Small business enterprises cannot generally rely on the institutionalized capital market for long-term credit, because their assets and management are specialized, their salvage value is slight, and their credit needs are not subject to standardized appraisal. In these respects

the large enterprise is a direct contrast and hence its creditor-debtor relationship with the formal capital market is impersonal and standardized.^{9/} In addition, there is the important consideration that the cost of floating small issues on the capital markets would be prohibitive, even for companies much larger than those in our samples.

The reasons put forward in explanation of the infrequency of long-term credit in the financial structure of small companies apply also to these companies' small use of preferred stock as a means of raising capital. Only in the furniture and machine tool samples were there any appreciable numbers of corporations reporting preferred shares in 1936 (21 and 17 percent, respectively), and among these establishments such shares were not particularly important; in the other industries less than a tenth of the companies reported any preferred shares in their capital structure.^{10/} It is probable that most of the preferred shares issued by these small companies were the result of special circumstances, as in the rare cases of long-term debt, and did not represent regular issues designed for the acquisition of new assets.

FIXED PROPERTY EXPENDITURES

It has already been pointed out that the long-term debt of these small corporations, so far as it existed, was probably not incurred for the purpose of expanding fixed property. This is suggested by the fact that it consisted largely of mortgage obligations, and it is corroborated by an analysis of fixed property expenditures. But it should be remembered that a small amount of long-term debt does not necessarily mean that land and plant are not expanded, for fixed property outlays are not necessarily financed by long-term borrowings. They may be financed by renewed short-term borrowings, by funds from operations or from the owners, or by asset liquidation. Thus these companies might have expanded and modernized their operating facilities by making use of some of the amounts withdrawn as officers' compensation, which, as we have seen, were sizable in each of the industries throughout the period studied.

There is a serious difficulty inherent in an attempt to estimate a company's property expenditures from the fi-

nancial statements it submits to the Bureau of Internal Revenue, for financial statements rarely show such outlays as a separate item. Expenditures for maintenance and repair - which in manufacturing industries are not technically regarded as property outlays - are frequently shown separately, as a charge to the profit and loss account, but those for replacements and extensions of operating facilities are presumably capitalized. 11/ These fixed property expenditures - outlays for replacement and expansion of land, plant and equipment - must generally be derived by comparing the annual change in fixed property with the annual depreciation charge and with any asset revaluations that may have been made. Net expansion of fixed property - outlays for expansion alone 12/ - is arrived at by subtracting from fixed property expenditures the part that represents replacements, or anticipated capital consumption. 13/

Depreciation charges have been regarded as representative of the anticipated capital consumption of these companies, 14/ although there are two important reasons why the figures should not be taken too literally. In the first place, wear and tear of plant and equipment are difficult to estimate, even where an appraisal of the annual depreciation is the only purpose. In the second place, it is known that some of the concerns in these samples revalued their property account from time to time by means of a charge of credit taken directly to surplus. When an owner thought he had failed in prior years to charge off enough depreciation against plant and equipment, he wrote down the account; if he feared (or if the Internal Revenue agent decided) that he had charged off too much, he wrote up the account. Like depreciation charges, these writeups and writedowns are in the nature of rough estimates; in addition, the year in which they are entered on the books of an enterprise is not a trustworthy indication of the time when an unanticipated depreciation or appreciation occurred.

These qualifications should be borne in mind 15/ in examining the figures on the following page, which pertain to the entire period 1927-36. 16/ Those on property expansion or contraction are derived by subtracting depreciation charges from fixed property expenditures and adding the positive or negative figure on property revaluation. All figures are given in thousands of dollars.

	<u>Fixed Property Expenditures</u>	<u>Accumulated Depreciation Charges</u>	<u>Net Write- up (+) or Writedown (-)</u>	<u>Fixed Property Expansion (+) or Contraction (-)</u>
Baking	\$3,975	\$3,953	\$-297	\$-275
Men's clothing	275	257	- 2	+ 16
Furniture	1,263	1,468	+357	+152
Stone-clay	1,885	2,679	- 48	-842
Machine tool	3,007	3,158	- 8	-159

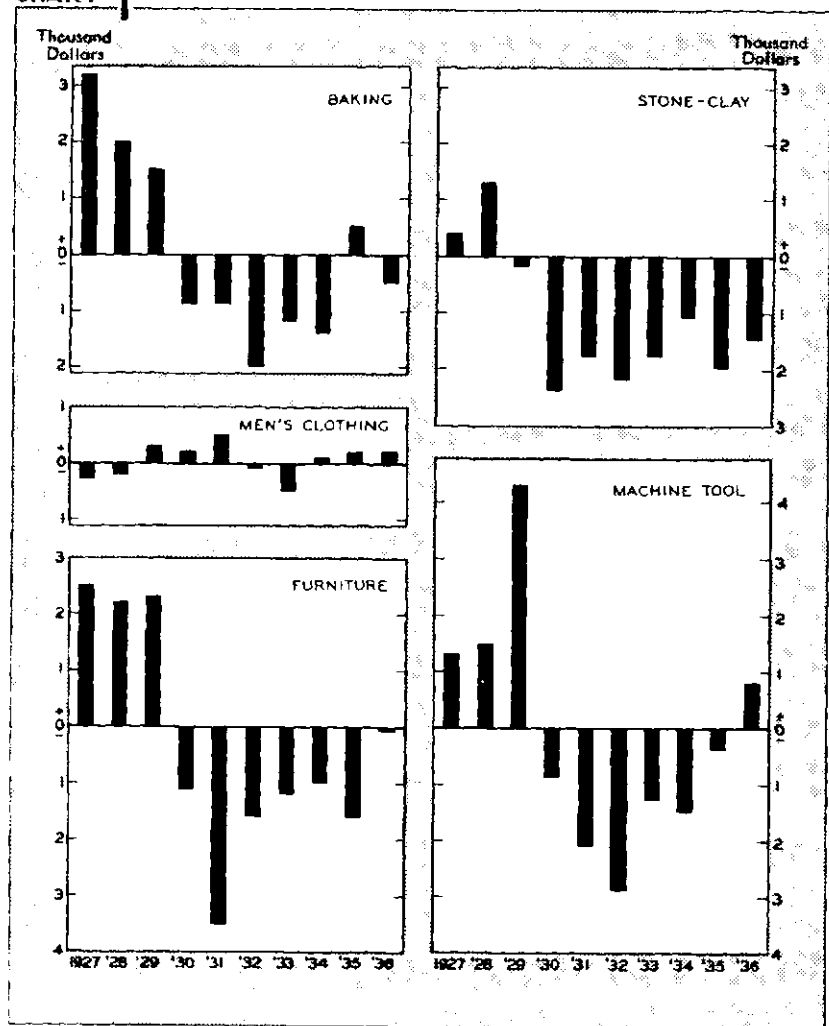
These figures indicate that in none of the industries except stone-clay was there a significant expansion or contraction in fixed property over the decade. And there the sizable contraction in land, plant and equipment probably represented a depletion of raw material resources rather than a failure to maintain operating plants, exclusive of clay deposits. It appears, too, that in these five industries the revaluations of plant and equipment were small, especially in comparison with depreciation charges. Over the decade as a whole only two of the industries had, in the aggregate, an important net writeup or writedown: the bakeries wrote down their plant and equipment, largely in the 1930's; and the furniture manufacturers wrote up this account, mostly in the late 1920's. ^{17/} Some of these writeups probably resulted from overdepreciation in the years before 1927, or perhaps from the optimism characteristic of 1929, but it is impossible to pin down revaluations to the precise year to which they are properly applicable without making a detailed case study of each company.

Annual estimates of the average net land and plant expenditures per company are shown in Chart 1. Because of the impossibility of precise allocation writeups and writedowns were ignored in the calculations of these estimates, and the depreciation charge alone was taken to measure the consumption of capital during the year. The figures were reduced to a per company basis in order to improve their industrial comparability, but they are still not fully comparable from one industry to another because the average size of these companies varies in the different industries. The 66 furniture companies, for example, have somewhat larger average assets than the companies in the other industries.

Chart 1 indicates that except in men's clothing, where property expenditures are generally unimportant, it was principally in the years 1930-35 that the net prop-

SAMPLE CORPORATIONS IN FIVE INDUSTRIES
Average Net Expenditures per Company on
Land and Plant, 1927-36^a

CHART 1



^a Based on Tables B-10 to B-14 in Data Book
(see footnote 16 of Chapter 1).

erty outlays of these companies were negative.^{18/} In the other years of the 1927-36 decade the companies somewhat expanded their plant and equipment. The stone-clay group stands out prominently in this chart because as early as 1929 it failed to maintain its plant and equipment (including clay deposits), and sustained a contraction in every succeeding year of the decade. This singular performance may not be wholly unrelated to the secular decline of the stone-clay industry, although probably a more important factor is depletion of the clay deposits.

Thus, on the whole, the available data suggest that the fixed property expenditures of these small manufacturers over the 1927-36 decade just about equaled the depreciation charged for the same period. In other words, the companies spent on land and plant little, if any, more than the funds from operations that were earmarked on the books of account for replacing worn-out plant and equipment. To be sure, the mere earmarking of such funds does not make them available for outlays on land and plant: they may become tied up in current assets or be absorbed by operating losses. But over a period of years, some of which were profitable ones, the former contingency would not be important and the latter would be only temporary. Therefore we may conclude, from the present data, that these small companies did not significantly expand their land and plant over the period studied. This means that they had little need for long-term funds, whether equity or creditor, and that credit facilities designed to provide such funds would have been largely unnecessary.

SHORT-TERM DEBT

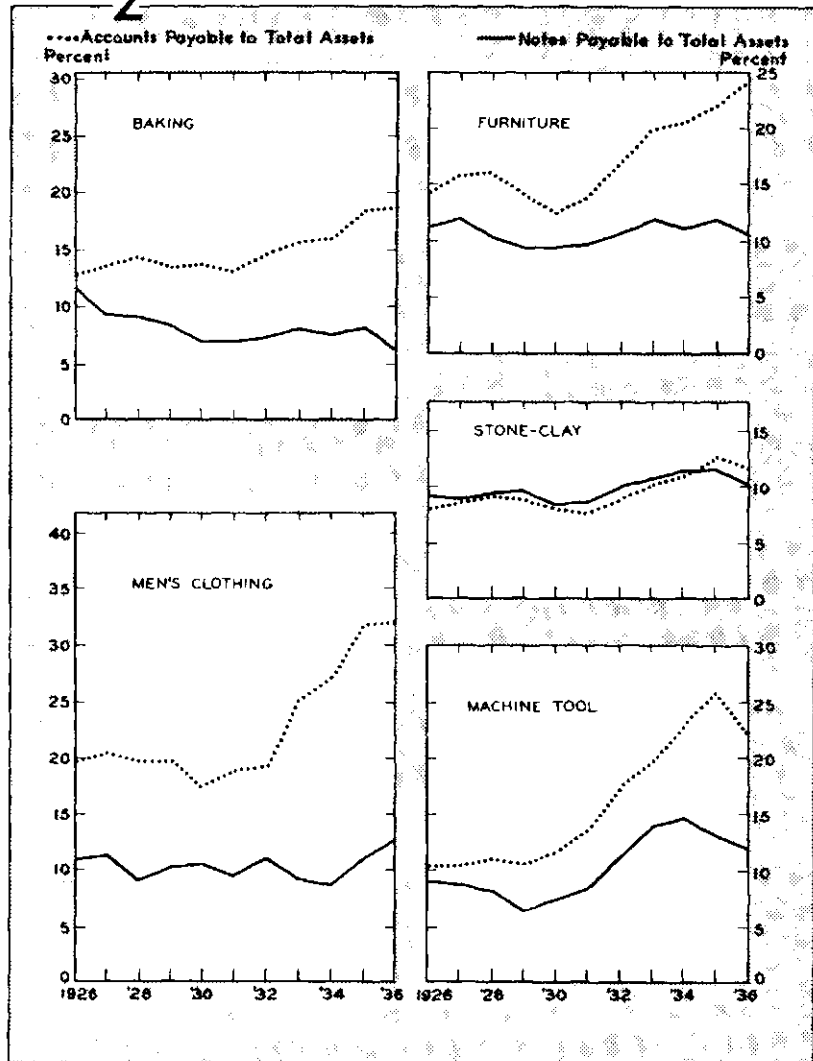
The current debt of these small manufacturers seems to have undergone notable changes over the 1926-36 period, both in regard to its distribution between accounts payable and notes payable and in regard to the importance of these two items in comparison with relevant items in current assets.

Distribution of Short-Term Debt

For an analysis of the comparative importance of accounts payable and notes payable we may take total assets as a basis of reckoning. Chart 2 and Table 13 indicate

SAMPLE CORPORATIONS IN FIVE INDUSTRIES
 Year-End Accounts Payable and Notes Payable,
 in Percent of Year-End Total
 Assets, 1926-36^a

CHART 2



^a Based on Table B-7 in Data Book (see footnote 16 of Chapter 1).

that on this basis mercantile credit increased during 1926-36 while notes payable - which may be assumed to have consisted largely of bank credit 19/- increased less markedly, remained stable or actually declined.

As can be seen from the chart, every industry represented here showed an increase, during 1926-36, in its proportion of accounts payable. In all of the industries this increase occurred largely in the last half of the period, during the depression and early recovery years.20/ The contrast in this respect between the beginning and end of the period is clearly evident from the figures on "all companies" in Table 13, where the average proportions for the first three years are shown in conjunction with those for the last three years. 21/ Statistically speaking, the increase between these two sets of years can be considered definitely significant (as an indication of trend not only within the sample but among all small corporations in the industry) in the baking, men's clothing and machine tool groups, less significant in stone-clay, and not significant in furniture. 22/

The relative amount of notes payable, on the other hand, decreased in the baking sample, remained approximately the same in men's clothing and furniture, and increased in the other two groups, especially in machine tool. The baking companies' decrease occurred in the first half of the period (Chart 2); in the stone-clay and machine tool samples the increase took place during the depression years. But even in these two industries, which showed increases in both items, the increase in the accounts payable proportion was more pronounced than that in the relative amount of notes payable. It cannot be determined whether any of these changes in the notes payable proportion is statistically significant; the safest conclusion to draw is that this ratio did not undergo any noteworthy change in the sum total of small corporations represented by each of these samples.

Table 13 indicates too that the increase in the proportion of accounts payable between the beginning and the end of the period was characteristic of both the larger and the smaller companies in the samples, though the greater rises were reported, on the whole, by the smaller companies; 23/ in fact, in the men's clothing and furniture samples the upward tendency in this item was pro-

Table 13 - SAMPLE CORPORATIONS IN FIVE INDUSTRIES
 Average Year-End Accounts Payable and Notes Payable, in Percent of Average Year-End Total Assets, by Industry and by Size and Profitability of Companies, 1926-28 and 1934-36 a/

Industry	Accounts Payable		Notes Payable	
	1926-28	1934-36	1926-28	1934-36
Baking (81 cos.)				
All companies	13.5%	17.8%	10.1%	7.5%
Larger companies	9.9	12.2	9.2	6.2
Smaller companies	17.1	23.2	11.1	8.7
More profitable companies	17.9	22.5	10.1	7.9
Less profitable companies	9.3	13.2	10.2	7.1
Men's clothing (46 cos.)				
All companies	20.0	30.3	10.4	10.8
Larger companies	22.2	22.0	8.8	7.8
Smaller companies	17.7	38.6	12.0	13.8
More profitable companies	22.3	39.4	11.7	15.9
Less profitable companies	17.7	20.8	9.1	5.7
Furniture (66 cos.)				
All companies	15.2	22.1	11.1	11.0
Larger companies	11.4	12.0	12.2	10.5
Smaller companies	19.1	32.5	9.9	11.6
More profitable companies	17.6	29.7	13.6	14.6
Less profitable companies	13.0	14.7	8.5	7.5
Stone-clay (70 cos.)				
All companies	8.6	11.7	9.1	11.0
Larger companies	7.2	10.9	7.8	11.1
Smaller companies	10.0	12.6	10.5	10.9
More profitable companies	9.3	11.5	9.5	12.3
Less profitable companies	8.0	12.0	8.8	9.7
Machine tool (118 cos.)				
All companies	10.7	23.8	8.9	13.2
Larger companies	10.3	13.9	8.8	8.4
Smaller companies	11.1	33.8	8.9	18.1
More profitable companies	12.5	32.0	6.6	16.2
Less profitable companies	8.8	15.6	11.1	13.6

a/ Based on Tables B-7, B-8 and B-9 in Data Book (see footnote 16 of Chapter 1). In each of the two periods indicated the figures represent simple averages of the proportions for each year of that period; these annual figures, in turn, represent simple averages of the proportions for the individual companies. The dividing line between "larger" and "smaller" is, for each industrial sample, the median of the average total assets of all companies in the sample over 1926-36. The dividing line between "more profitable" and "less profitable" is, for each industrial sample, the median of the average ratios of net income (plus officers' compensation) to net worth, for all companies in the sample over 1926-36.

duced entirely by the companies of less than median asset size. The less conclusive movement in the relative amount of notes payable shows no consistency when examined from the point of view of company size. In baking the decrease in this proportion was shared by the larger and the smaller companies. In the two industries that registered increases the evidence is conflicting: the increase was produced entirely by the larger companies in the stone-clay sample, and entirely by the smaller ones in the machine tool group. Slight decreases among the larger men's clothing and furniture companies were nullified by slight increases among the smaller companies in these industries.

Similarly, the relative increase in accounts payable was experienced by both the more profitable and the less profitable of these companies that continued operations throughout the period. And in regard to the notes payable proportion, both its decrease (in baking) and its increase (in stone-clay and machine tool) seem to have been unrelated to the profitability of the companies. In men's clothing and furniture, where the notes payable proportions for "all companies" were practically the same at the end as at the beginning of the period, there were increases among the more profitable companies and equivalent decreases among the companies whose net income plus officers' compensation (in percent of net worth) was under the median level.

Thus far these two types of short-term debt have been discussed as percentages of total assets. The story they tell is not changed, however, if their behavior over the 1926-36 period is viewed in relation to other items in financial structure. 24/ When compared to volume of business, accounts payable moved upward in every group except men's clothing, where they remained about the same, and notes payable tended to decrease in every industry except stone-clay; this industry, it will be remembered, was undergoing a marked secular decline. When inventory holdings are taken as a base, accounts payable increased, while notes payable decreased in three industries - markedly in baking and furniture, slightly in men's clothing. Since the movement of this ratio is due in part to the inventory item, which also declined during these years, the indicated decrease tends to understate rather than overstate the drop in notes payable. The magnitude and industrial variation of this ratio are interesting: in

all groups (except baking in some of the years between 1926 and 1932) notes payable amounted to less than inventory holdings, and in the men's clothing, furniture and machine tool groups they seldom reached as much as half of inventory.

A final indication of the movements in accounts payable and notes payable is the dollar volume of net change in each of these two types of debt over the years 1927-36. On this the figures are as follows, with net reductions indicated by minus signs. 25/ In all groups except

	<u>Accounts Payable</u>	<u>Notes Payable</u>
Baking	\$160,000	\$-385,000
Men's clothing	99,000	- 11,000
Furniture	40,000	-286,000
Stone-clay	-43,000	- 32,000
Machine tool	379,000	- 25,000

stone-clay there was an absolute substitution of account for note credit over this decade. The significance of the exception in stone-clay, where the two types of credit decreased about the same in dollar volume, is minimized by the fact that in this industry the cost of materials purchased - the customary cause of mercantile credit - is extraordinarily small, amounting to no more than an eighth of the total value of product. In the men's clothing group the relatively modest reduction in notes payable is somewhat misleading, for in 1936 the companies in this sample sharply increased their notes payable, thereby offsetting almost all of the contraction that had occurred in the preceding years.

On the exact composition of the notes payable item of these sample companies the income tax returns give no information, and, even for corporations in general, statistical data on this point are usually meagre. Notes payable consist of bank loans, trade credits and loans from officers, directors, stockholders and employees, and it is ordinarily assumed, in financial statements analysis, that bank loans constitute the preponderant proportion. That this assumption is reasonably valid in regard to the five industries represented here is suggested by two sources of information.

The first source is Federal Trade Commission tabulations covering the principal enterprises in each of the

five industries studied here and giving a detailed breakdown of current liabilities in 1938 and 1939. 26/ These figures indicate that at least for the larger companies in these industries notes payable were composed almost exclusively of bank loans. In every group except furniture either all or 99 percent of the total notes payable to trade, banks and individuals was bank debt in those years. In furniture (represented by a group of 15 companies) bank loans constituted about half of notes payable in 1938, with the rest divided fairly evenly between the other two items, and about four-fifths in 1939, with loans to individuals accounting for practically all of the remainder.

The second source of information on this point is a special tabulation of financial statements pertaining to a sample of companies that applied for industrial advances at the Federal Reserve Bank of New York and showing notes payable to banks and to trade during 1926-33. 27/ This sample includes some companies, mostly of medium size, in each of the industries studied here, the number ranging from 5 in stone-clay through 10 to 12 in clothing, furniture and machine tool, to 30 in food. In the clothing, furniture and machine tool groups bank loans constituted about three-fourths of the notes payable to banks and to trade, and in the food and stone-clay groups they amounted to about half.

Evidence such as that provided by these two sources does not show conclusively that in our sample industries bank debt constituted the bulk of the notes payable item, but it does indicate a presumption in that direction. And thus the entire body of data presented in this section patterns into a fairly strong indication that after the depression of the early 1930's mercantile credit bore a larger share of these small manufacturers' short-term financing than it did before, and that over the period as a whole bank credit was relied on less: while mercantile credit was increasing, bank credit was declining (baking) or remaining stable (men's clothing and furniture) or increasing less markedly (stone-clay and machine tool). 28/

What may have brought about such a shift in the relative importance of these two types of credit? The question, of course, cannot be answered definitively, but certain relevant considerations may be pointed out.

In the first place, short-term debt is incurred partly for the purpose of carrying inventory, and if a smaller amount of funds is needed for inventory businessmen usually prefer to cut down bank credit first, rather than trade credit, unless there are strong factors urging the opposite course. A decline in inventory does not necessarily mean a decline in short-term financing requirements, nor does that result necessarily mean an increase in the relative importance of accounts payable. But the probabilities are that both of these consequences will follow a decline in the dollar volume of inventory holdings.

Over the 1926-36 period such a decline occurred in all of these industries except men's clothing. The net funds received from the end of 1926 to the end of 1936 through inventory liquidation were as follows, for four of the industries:^{29/} baking \$76,000; furniture \$299,000; stone-clay \$329,000; machine tool \$272,000. In the men's clothing sample there was a net accumulation of inventory, amounting to \$240,000.

This evidence is at least not contradicted by the data on inventory in relation to total assets, though here the decline is not very pronounced, and again men's clothing is an exception. The following figures on inventory in percent of total assets are averages of annual proportions for the first three and the last three years of the period: ^{30/}

	<u>1926-28</u>	<u>1934-36</u>
Baking	10.5%	9.7%
Men's clothing	32.1	37.3
Furniture	29.1	27.1
Stone-clay	15.6	15.2
Machine tool	22.8	18.5

The reason for this decline appears to have been not a reduction in the physical volume of inventory but a general fall in raw material and finished goods prices during the period covered by the data. For example, in 1936 the wholesale price of Kansas City winter straights wheat flour was 75 percent of its average in 1926; the wholesale price of brick and tile was more than 10 percent lower in 1936 than in 1926; a composite wholesale price of furniture was down more than 20 percent. ^{31/} And these examples could easily be multiplied.

The assumption that it was a price fall rather than a decline in volume that produced the decrease in dollar volume of inventory is supported by data on inventory in relation to sales. On this basis inventory holdings do not appear to have moved decisively either upward or downward. It is true that they decreased slightly in baking and machine tool, but they increased fairly sharply in stone-clay, and remained stable in the other two industries. This may be observed from the following figures, which represent, again, averages of annual proportions (inventory to sales) for the first three and the last three years of the period: 32/

	<u>1926-28</u>	<u>1934-36</u>
Baking	4.4%	4.0%
Men's clothing	12.9	13.1
Furniture	20.2	21.7
Stone-clay	14.0	26.7
Machine tool	17.5	15.7

Thus it appears that one of the causes for the relatively greater importance of mercantile credit in the financing of these small manufacturers over the 1926-36 period was a decline in the dollar volume of inventory holdings. And there are indications that this, in turn, was due to the decline in prices that occurred during those years. 33/

Other factors may have worked more directly to increase the relative importance of mercantile credit, by increasing its supply. Competition, perhaps sharpened by the depression, among the raw material and equipment suppliers may have led them to seek more business from these small manufacturers by offering more trade credit. There is a strong presumption that at least the large suppliers were able to capitalize on cheap money rates, and thereby found themselves in a position to grant more credit to their customers. If the capital market did serve thus as a source of funds for the raw material suppliers, the paradox results that sizable resources not directly available to small businesses were used nevertheless to finance such enterprises indirectly. And the suppliers may, of course, have obtained additional funds for the financing of small manufacturers from sources other than the capital market, for instance from a reduction of their own inventory and receivables resulting from the decline in business.

But though there may have been an increase in credit granted, there is no evidence that credit was offered on more attractive terms. 34/ In fact, persons familiar with credit conditions in these industries report that trade credits in the middle 1930's were extended either on the same or on less liberal terms than they were in the 1920's. In general, the tightening of these terms came with the advent of the NRA. There may have been some competitive liberalization of trade credits in the early 1930's, or even in the late 1920's; but for the last three years of 1926-36 trade credits were offered on less liberal terms than at any other time during the period, a fact that would hardly be expected to encourage an expansion of mercantile credit on the part of these small manufacturers. Therefore any expansion that occurred must have been in spite of, rather than because of, the terms of purchase.

The tightening of credit terms occurred particularly in the men's clothing and furniture industries. In the late 1920's the selling terms of a prominent woolen manufacturer supplying the men's clothing trade were 10/10, 8/60 or 7/4, with season's dating as of December 1 or June 1 for the 7/4 terms. 35/ These were, obviously, very liberal terms, enabling the men's clothing manufacturer to get well along, if not through, his productive process before he was called upon for repayment of his mercantile credits. But since the NRA days terms of sale for woolens and worsteds have been fairly uniform at 1/10, n/60, the former being elected primarily by the large buyers, the latter by the small manufacturers, such as those that constitute the samples studied here; moreover, the practice of season's dating is no longer current. Before the depression of the 1930's suit linings were sold on the basis of net 60 days from the end of the month for the small buyers, and on 4 months e.o.m. for the large buyers. During the middle 1930's they were sold on 60 e.o.m. for all buyers, though today a few are again obtaining terms of 4 e.o.m. 36/

Manufacturers of upholstered furniture buy their piece goods, such as mohair and other fabrics, on terms of 2/10, n/70. These terms were established in 1933, and before that year had been 6/10 plus 60 extra, which is equivalent to terms of 6/70, or 7/10 because of the privilege of anticipating discounts to gain an annual rate

of 6 percent interest. In dollar volume the bulk of the raw material and supplies purchases by upholstered furniture manufacturers is for piece goods, with purchases of frames relatively insignificant. Some manufacturers make their own frames; others buy them, usually for cash. In fact, furniture manufacturers may even have to advance money to the frame manufacturers because the latter are frequently small backwoods shops with little, if any, working capital.

Flour purchases, particularly by the small bakeries, are largely on a cash basis. Sometimes terms of $n/30$ are allowed, but on the other hand bakers with poor financial ratings frequently have to buy their flour on a C.O.D. basis. There is no evidence that these terms changed markedly over the 1926-36 period, but there are indications that the flour millers have been tending to supply the bakers directly rather than through jobbers or wholesale grocers. The latter, it appears, found the credit risk too large for the profit margin involved in the transaction. 37/

Similarly, the machine tool manufacturers' purchases of raw steel, such as foundry billets and pig, are on the same terms now as in the 1920's: $\frac{1}{2}/10, n/30$. Parts for machine tools, such as gears and cutting tools, are and have been bought on terms of $1/10, n/30$, or, if the supplier happens to be a manufacturer of parts for the automobile industry, on the slightly more liberal terms of $1/10$ and 25. 38/ For manufacturers of stone-clay products raw material purchases, as was mentioned in the preceding chapter, are relatively unimportant, and therefore in regard to this industry the question of trade terms of purchase is largely irrelevant. Moreover, among the five industries that are studied here, this group gave the least indication of a shifting from notes payable to accounts payable.

A final reason for the relative increase in mercantile credit may have been the general tightening of bank credit during the depression. The fact, revealed by Chart 2 above, that these companies experienced their relative increase in accounts payable mainly in the second half of the 1926-36 period lends support to this hypothesis, but the question is one on which we can do no more than speculate, in the present instance.

Creditor-Debtor Relationships

Small manufacturers are creditors as well as debtors of the banks, and over the period 1926-36 the relationship between their credit balance and their debit balance became increasingly favorable to them. This was true of all the industries studied here except stone-clay, as is indicated by the following averages, for the first three and last three years of the period, of annual figures on cash in percent of notes payable: 39/

	1926-28	1934-36
Baking	70%	99%
Men's clothing	71	91
Furniture	57	97
Stone-clay	81	63
Machine tool	57	101

In this relationship the change is more marked than in those discussed above, and it shows clearly that in the aggregate these sample companies came to have practically as much cash on hand and in the banks as they had obligations due on notes (most of which were presumably to the banks). The notes payable item, moreover, was the active agent in this shift; cash holdings remained fairly stable. Because these figures refer to each sample as a whole, because not all the notes payable are due to banks, and because some companies in these samples reported no notes payable, the proportions given here are not necessarily illustrative of the creditor-debtor relationship existing between the ordinary small business and its bank. They do, however, indicate that after the depression the creditor position of these concerns taken as a group was about the same as their debtor position, as far as the banks were concerned, whereas before the depression this group of companies had been net debtors of the banks. Practically all of this change in creditor-debtor position can be attributed to a decrease in the use of bank credit.

In trade accounts, however, the relationship between current assets and current debt was quite different. The trade credits owed by these small manufacturers were, except in the baking sample, considerably less than their outstanding receivables, but the margin tended to shrink during the period studied. This is evident from the following tabulation, which shows, for the earlier and the

	<u>1926-28</u>	<u>1934-36</u>
Baking	90%	87%
Men's clothing	199	150
Furniture	245	217
Stone-clay	266	178
Machine tool	183	149

later years of the period, averages of annual figures on receivables in percent of accounts payable.^{40/} Even with the narrowing margin between the outstanding credit extensions of these companies and the outstanding credit granted them by their suppliers, their receivables still exceeded their accounts payable by 50 to 120 percent at the end of the period, except in baking. In that industry the equality between outstanding mercantile credit granted and received is explained by the relative rarity of credit sales; most bakers, especially the small concerns, sell their product on a cash basis.

What may be called the creditor relief obtained by these companies - the narrowing of the differential between outstanding customer credit granted and mercantile credit received - is strikingly indicated by the dollar figures. The following tabulation, which refers again to the period before and the period after the depression, shows for each industry the average of annual differences between year-end outstandings in receivables and accounts payable; ^{41/} the figures for baking, marked with a minus sign, represent an excess of accounts payable over receivables.

	<u>1926-28</u>	<u>1934-36</u>
Baking	\$-65,000	\$-94,000
Men's clothing	789,000	338,000
Furniture	1,397,000	815,000
Stone-clay	945,000	362,000
Machine tool	642,000	461,000

In any analysis of the receivables item in the financial statements of these companies, an important qualification is necessitated by the practice of receivables factoring. It is known that in some of the industries, particularly men's clothing, receivables are frequently sold to financing agencies. Factoring of this sort would lead to an understatement of receivables, since factored receivables and the contra-liability (if any) are not generally shown on the balance sheet.^{42/} There is no way of knowing how prevalent this practice was among the compa-

nies in the samples. 43/ Whatever its extent, however, it would only increase, not contradict, the observed difference between receivables and accounts payable; thus, while it might modify the decrease in that margin between the beginning and the end of the period, it is scarcely likely that it would account for the entire decrease.

The terms on which these companies sold their products, while they probably did not cause the relative decline in outstanding receivables, 44/ at least do not appear to have interfered with it. In most of these five industries selling terms at the end of the period studied here were no more liberal than in the middle 1920's; when a change occurred it was in the direction of less liberal selling terms.

The terms on which the manufacturers of men's clothing sold their product in the middle and late 1920's were in the neighborhood of 9/10, 7/70. Since the depression of the early 1930's they have rarely been more than 2/10, net 60 or 70, and today they are frequently straight net 60 or 70, with no discount. Manufacturers of upholstered furniture customarily sell their product on terms of 2/30, n/60, or sometimes straight 2/30. When the time consumed in transportation is an important factor (as in sales of an eastern manufacturer to a western buyer) terms of 2/30, n/90 are frequently offered. Persons familiar with this industry declare that these terms have not changed materially since the 1920's. The baking industry sells its product largely on a cash basis.

For machine tools the terms of sale are relatively unimportant and not particularly uniform. For complete machine tools, such as lathes and borers, regular terms are and have been n/30. A few companies are reported to have offered 1 percent for payment 10 days after date of invoice, but this practice has been quite generally abandoned since the depression of the early 1930's. Terms of sale for machine tool accessories vary widely, and depend on the prevailing terms in the industry to which they are sold. Cutting tools have customarily sold on terms of 2/10, n/30. The most important change in the selling practices of machine tool companies has been a tendency since the early 1930's toward increased instalment sales. This appears to have been brought about through the buyer rather than the seller, the sales finance companies tak-

ing an important part in the negotiations. Most of the instalment paper arising from these transactions is of 12- to 24-month maturity, with a 25 percent down payment, though a few of the contracts run for 36 months. When the instalment purchase of a machine tool is financed by a sales finance company the transaction appears as a cash sale on the books of the machine tool manufacturer. Therefore the increase of instalment purchases of machine tools has not affected the outstanding receivables and accounts payable of this industry.

Selling terms in the brick and tile industry are relatively short. Common brick frequently sells at a discount of 50 cents per thousand brick, and face brick at a \$1 discount, for payment in 30 days. On tile the discount ranges from 2/30 to 5/30, though sometimes the discount date is the 25th of the month for invoices dated from the 1st to the 15th, and the 10th of the following month for invoices dated from the 16th to the 31st. These terms vary from company to company as well as from area to area, and it is difficult to ascertain whether there has been a marked change from the middle 1920's to the middle 1930's. It has been declared that selling terms before the depression were frequently 2 percent discount for cash in 30 days for all the various brick and tile products. If this is true the discount today is more attractive than it was in the 1920's, but the discount period is no longer.

CYCLICAL BEHAVIOR

During the course of the strong business fluctuations of 1926-36 the small companies in the samples behaved in much the same way as their larger counterparts, except that their reaction was in some respects snarper. The large companies, with their strong liquidity position, were able to resist the forces of deflation more effectively than the small enterprises, as is indicated by the financial structure and discontinuance rate of the companies under review. But despite differences in magnitude, the cyclical changes in the financial structure of large and small concerns were of a similar pattern.

Economists have long recognized that that part of the economy which caters to the demands of consumers is more stable cyclically than that which serves the pro-

ducers, a difference due mainly to the fact that producer goods are usually more durable than consumer goods. This generalization is substantiated by indices of the volume of business done by our samples of small companies over the period 1926-36 (presented below in Chart 4). During the post-1929 depression the index of sales volume fell more sharply in the industries producing durable goods than in those manufacturing non-durable goods,^{45/} while in the prosperous years it rose to greater heights. These indices are based on sales at current prices, and since the prices of consumer goods fluctuated more sharply than those of producer goods, the curves in the chart tend to understate the difference between the two groups.

Similar variations between producer and consumer goods industries, and between durable and non-durable goods industries, are reflected in the profit ratios presented in Table 14. The losses suffered by these indus-

Table 14 - SAMPLE CORPORATIONS IN FIVE INDUSTRIES
Profit or Loss in Percent of Sales, 1926-36 a/

Year	Cyclical Turns in General Business b/	81 Baking Corps.	46 Men's Clothing Corps.	66 Fur- niture Corps.	70 Stone- Clay Corps.	118 Machine Tool Corps.
1926	Peak	2.7%	2.6%	3.3%	6.4%	3.4%
1927	Trough	3.9	1.4	2.6	4.9	1.8
1928		2.1	1.8	2.1	6.2	4.4
1929	Peak	3.4	1.1	1.8	1.4	8.0
1930		2.0	-1.5	-3.4	-1.8	-2.8
1931		0.7	-4.1	-4.6	-9.5	-7.6
1932	Trough	-2.6	-7.4	-17.3	-32.3	-19.1
1933		-0.4	0.5	-2.4	-18.4	-5.2
1934		-0.6	c/	-2.9	-7.0	-0.2
1935		-0.2	0.8	-1.1	0.6	3.3
1936		1.0	1.2	2.2	5.9	3.7
1937	Peak	d/	d/	d/	d/	d/

a/ Based on TNEC Monograph 15 (previously cited) Tables 1-A to 1-E in Appendix F. Profit or loss is net income after income taxes and exclusive of capital gains and losses.

b/ Calendar-year dates, as determined by W. C. Mitchell and A. F. Burns of the National Bureau of Economic Research.

c/ Less than 0.05 percent.

d/ Data for the sample companies terminate with 1936.

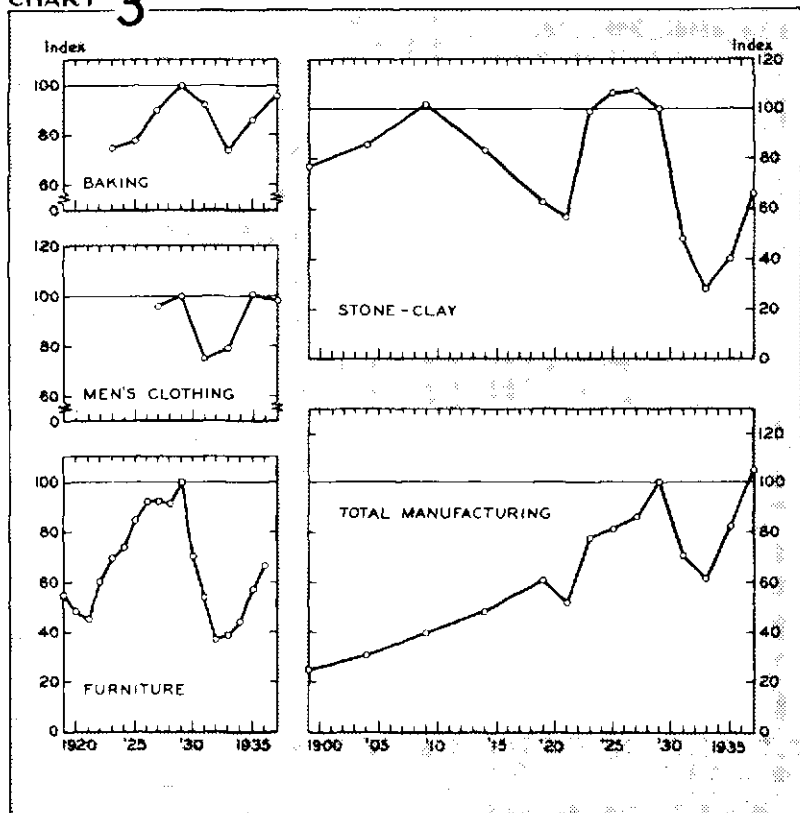
tries in the early 1930's were so large that they stand out much more prominently than the profits made in the late 1920's and middle 1930's. It was in the durable goods groups, however, that losses were most severe. In stone-clay, to take the extreme case, net losses averaged a third of sales in 1932, whereas in baking, to take the other extreme, they never amounted to more than 3 percent. The durable goods industries, on the other hand, experienced higher profit rates in the prosperous years.

Another economic theorem which is substantiated by the cyclical behavior of these samples is the observation that a growing industry tends to react earlier than others during expansion and to lag during contraction, whereas a declining industry tends to behave in the opposite manner. Of the five groups studied here, stone-clay is a declining industry, and machine tool an expanding one; the others are fairly stable. This is evident from Chart 3, which shows the physical volume of output of all the establishments in four of these industries, 46/ and in all manufacturing industries throughout the country, for periods as far back as the data are available. The secular decline in the stone-clay industry over the period 1899-1937 stands in sharp contrast to the secular increase over the same period in total manufacturing. For the other industries represented in Chart 3 the data cover a much shorter period, and therefore it is more difficult to detect a secular movement. Baking and men's clothing appear to have been relatively stable, for their trends closely follow that of total manufacturing; certainly there is no evidence of a long-time decline. Probably the same is true of furniture manufacture, though here the picture is influenced by the lag in the closely-correlated construction industry. As for the output of the machine tool industry, some notion of its long-run trends is afforded by data on value added by the manufacturing process. From 1899 to 1937 the value added by manufacture in the foundry and machine shop products industry (which includes machine tools) rose 548 percent, an increase 13 percent greater than the corresponding rise for all manufacturing industries combined. 47/

Here too - in regard to secular growth and decline - sales data may be taken as indicators of cyclical differences among the sample industries. In the declining stone-clay industry, as can be seen from Chart 4, our

FOUR MANUFACTURING INDUSTRIES AND TO-
TAL MANUFACTURING: Indices of Physical
Output, 1899-1937 (1929 = 100)^a

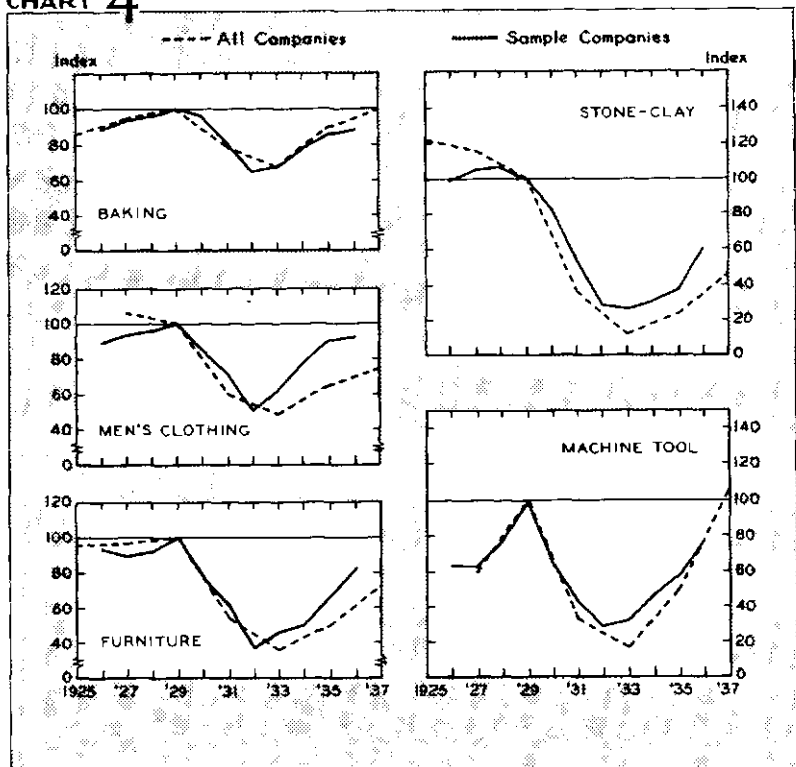
CHART 3



^a Data for furniture from National Research Project, *Production, Employment and Productivity*, by Harry Magdoff, Irving H. Siegel and Milton B. Davis (Philadelphia 1939) Pt. 2, p. 80. Data for other three industries, and for total manufacturing, from National Bureau of Economic Research, *The Output of Manufacturing Industries, 1899-1937*, by Solomon Fabricant (New York 1940) pp. 384, 423, 522, 525, 602.

FIVE MANUFACTURING INDUSTRIES: Indices of Sales for Sample Corporations, and of Total Value of Products for All Companies, 1925-37 (1929 = 100) ^a

CHART 4



^a Sales data are annual, and are based on TNEC Monograph 15 (previously cited) Tables I-A to I-E in Appendix F. Value-of-products data are biennial, and for baking, men's clothing and stone-clay are based on National Bureau of Economic Research, *The Output of Manufacturing Industries, 1899-1937*, by Solomon Fabricant (New York 1940) pp. 384, 423-24, 522-26; value-of-products data for furniture and machine tool are based on the Census of Manufactures.

sample of successful companies reached their sales peak in 1928, a year before the cyclical turn in general business, whereas in the other four industries the sample companies' sales peaks conformed with the reference cycle; and the stone-clay sample did not reach its subsequent trough until 1933, a year later than the others. The converse lag in contraction and lead in expansion that is to be expected in the expanding machine tool industry cannot be detected from these annual data, but Chart 4 does provide further evidence that this industry was experiencing a secular rise in volume of business, for its sales volume in 1936 was considerably higher than it had been in 1926. The sales of the baking and men's clothing groups were about the same at the end as at the beginning of the period, while those of furniture were somewhat lower and those of stone-clay were much lower. This divergency indicates again the secular decline in stone-clay, and suggests that the furniture industry was suffering from the effects of the lag in housing.

The volume of business done by the small manufacturers studied here seems to have followed much the same course during 1926-36 as that of all establishments in these particular lines of business. This is evident from a comparison of the sales index of the sample companies with the value-of-products index of all companies, also presented in Chart 4. 48/ Only in baking was the drop after 1929 more pronounced for the sample companies than for all companies in the industry. And during the subsequent recovery period the sample companies (except in the baking group) appear to have expanded their sales somewhat more sharply than did all establishments in the respective fields. In other words, the samples, composed of companies that continued in existence from 1926 through 1936, slightly increased their proportionate share of the business that was handled by all the enterprises in these industries.

These observations, however, are for the most part only confirmation of widely recognized economic facts. A more specific question on which the present data can throw some light is how the financial structure of these small corporations responded to the strong fluctuations that characterized the period under review. How did the companies utilize their profits in good years, and how did they finance their operations in unprofitable years?

<u>Sources of Funds</u>		<u>Uses of Funds</u>	
Funds from operations (net income of \$1,902 plus depreciation of \$1,112)	\$3,014	Gross outlay on land and plant	\$1,957
Long-term borrowings	390	Cash dividends	679
Mercantile borrowings	240	Accumulation of cash and government bonds	483
Equity funds	174	Increase of receivables	321
Increase in other cur- rent liabilities	200	Reduction of notes payable	204
Sundry	24	Purchase of investments	193
		Accumulation of inventory	175
		Sundry	30
TOTAL	4,042	TOTAL	4,042

During prosperity the companies in these samples, on the whole, used their net income, supplemented by borrowings, for land and plant expansion, cash dividend disbursements and the accumulation of current assets. The foregoing figures for the 118 machine tool companies may be regarded as roughly illustrative; the figures are in thousands of dollars, and pertain to the sum of operations for the three years 1927-29. ^{49/} The reduction of notes payable does not conform to the general pattern of financial adjustments during a prosperity period, but it offers further evidence of the declining importance of bank as compared with mercantile credit. It should be mentioned, however, that this bank debt reduction by the machine tool sample was concentrated in 1929, and was offset to some extent by modest increases in bank borrowings in the early 1930's.

For unprofitable years the picture is in general the reverse of that shown above. In such periods these small corporations financed their operations by liquidating their assets, both fixed and current. Here the figures for the 70 companies in the stone-clay group - presented below - may be regarded as more or less typical of the

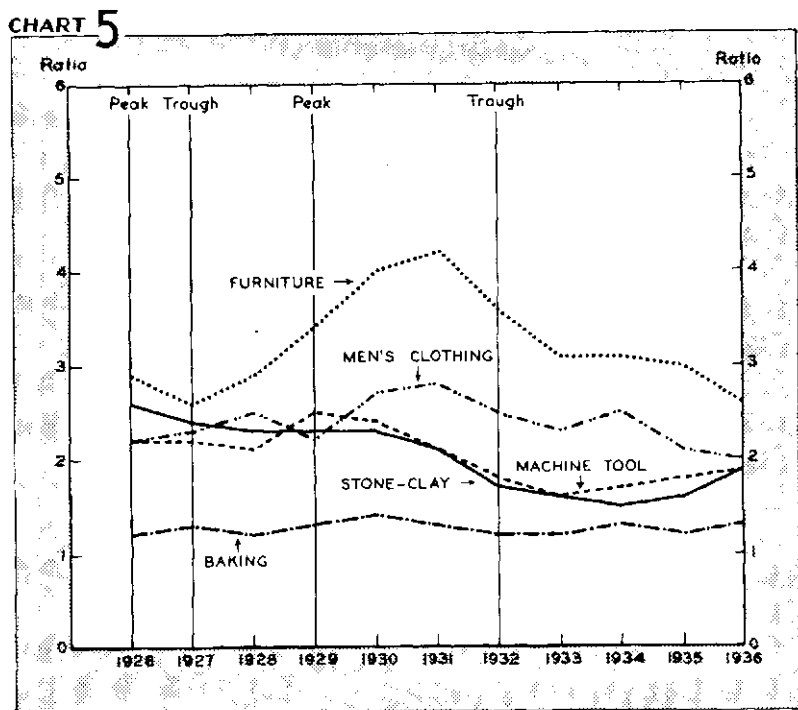
<u>Sources of Funds</u>		<u>Uses of Funds</u>	
Liquidation of re- ceivables	\$594	Gross outlay on land and plant	\$434
Liquidation of in- ventory	294	Cash dividends	348
Drafts on cash and sales of govern- ment bonds	165	Net operating losses (net loss of \$1,186 minus de- preciation of \$886)	300
Sundry	206	Reduction of accounts payable	105
		Reduction of notes payable	52
		Sundry	20
TOTAL	1,259	TOTAL	1,259

manner in which all five of the samples financed their depression losses and dividend disbursements; the data, again in thousands of dollars, refer to the sum of operations for the three years 1930-32. ^{50/} Land and plant outlays were less than half the depreciation accruals, implying that considerable amounts of fixed property were used up without being replaced. ^{51/} Cash dividends were even larger than the net operating losses that had to be financed, but it should be remembered that these figures are aggregates for a group of 70 companies, not all of which paid dividends.

These two sets of figures reveal that during fluctuations in business the brunt of the necessary financial adjustments is borne by the current items. In times of cyclical expansion inventory is accumulated and receivables are increased, and the funds needed for these purposes are obtained from short-term credits as well as from profits. During cyclical contraction a sharp liquidation of inventory and of receivables is necessary, in order to obtain funds for paying off short-term debts and for financing operating losses, and sometimes for disbursing dividends. Thus the credit structure of the companies in our samples is considerably more flexible than their capital structure. For example, during 1927-29 and 1933-36, both periods of cyclical expansion, the mercantile credits of these small manufacturers increased in dollar volume (from the beginning to the end of the period), and in some instances their bank borrowings also expanded. These credits helped to provide the funds needed for the accumulation of inventory and the financing of credit sales. During the years of cyclical decline, 1930-32, when funds were needed for a reduction in the amount of current debt, there was liquidation of current assets. In these years, however, the funds obtained through current asset liquidation (through cash and government bonds as well as through liquidation of inventory and receivables) greatly exceeded the funds required for current debt reduction, as is evident from the following figures on the opera-

	<u>Current Asset Liquidation</u>	<u>Current Debt Reduction</u>
Baking	\$ 411,000	\$292,000
Men's clothing	1,724,000	853,000
Furniture	2,645,000	811,000
Stone-clay	1,053,000	125,000
Machine tool	1,590,000	160,000

SAMPLE CORPORATIONS IN FIVE INDUSTRIES
Ratio of Current Assets to Current Liabilities, 1926-36^a



^a Based on TNEC Monograph 15 (previously cited) Tables I-A to I-E in Appendix F. The vertical lines indicate cyclical turning points in general business (calendar-year dates), as determined by W. C. Mitchell and A. F. Burns of the National Bureau of Economic Research.

tions of these three years, 1930-32, combined. ^{52/} The excess provided a cushion to finance other operating adjustments and in some cases to pay unearned dividends.

The concomitant reduction in current assets and current debt resulted in a fairly stable ratio of current assets to current liabilities, as can be seen from Chart 5. The cyclical movement observable here in the current ratio is much less marked than that found in the ratio of profits to sales (Table 14) or even in such ratios as current assets or current liabilities to total assets. Chart 5 reveals that in the three consumer goods industries, particularly in men's clothing and furniture, there was some evidence of a current ratio movement contrary to the course of general business, that is, of an upward movement in depression and a downward one in prosperity. In the two producer goods industries there is indication of a directly cyclical movement, but here the downward tendency in the ratio over the entire period tends to obscure its cyclical variation.

CONCLUSION

The foregoing analysis indicates that the financing requirements of small manufacturers, as typified by the present samples of companies in five different industries, run largely in terms of short-term credits and equity capital. Moreover, the proportion of short-term credits obtained from mercantile sources appears to have increased over the 1926-36 period, in relation to the proportion obtained through banking channels. But the terms of purchase in these industries were not liberalized over this period, and the greater part of the relative increase in mercantile credits occurred during and after the depression of the early 1930's. Therefore the permanency of this observed shift in the relative importance of bank and trade credit may be open to question. The 1936 increase in the dollar amount of bank debt shown by these small manufacturers suggests that the years of cyclical expansion subsequent to 1936 may have obliterated most of the tendency toward a relatively greater reliance on mercantile credit. We have no proof, however, that this reversion has taken place, and for the machine tool sample there is positive evidence that the increased share of accounts payable in the short-term financing of these

companies not only was maintained through 1939, but was augmented still further.

It is difficult to ascertain from the present analysis what types of financing, not already available, are needed by such companies as these. There are strong grounds - instability of earnings, high rate of discontinuance and the like - for believing that long-term credits would not serve their purposes. Their needs run, rather, in terms of equity capital and short-term credits. But equity capital from outside sources is probably one of the last things small entrepreneurs want; their sense of individuality and free private enterprise is strong, and they react quickly against any scheme that might jeopardize their control over their property. It appears, therefore, that what these small manufacturers need is equity capital from inside sources, and short-term credits from banks, other financing agencies and trade suppliers.

Equity capital from inside sources must, in most instances, come from retention of earnings in the business during profitable years, and from a minimizing of fund withdrawals during unprofitable years. These effects could be achieved by maintaining a close watch on ownership withdrawals, both officers' compensation and cash dividends. Such wariness demands, however, a longer range point of view than that exhibited by many small manufacturers. Thus it appears that unless something can be done to broaden entrepreneurial perspective the financing of small businesses will continue to be a pressing problem, particularly during and after periods of extended cyclical contraction, and that the most practicable avenue for relief is short-term, and possibly also medium-term, credits. 53/

PORTENTS OF DISCONTINUANCE

Credit analysis theory is based on the assumption that since the success of a business enterprise is measured in pecuniary terms it is possible to distinguish between the sound and the unsound, the successful and the unsuccessful, by examining certain "credit" ratios. 1/ That is to say, the theory assumes that if a designated credit ratio falls below or rises above some empirically determined level - depending on the relationship measured by the ratio - that deviation signals financial difficulty and even, if it persists, portends discontinuance of business operations. The data available for use in this study permit an experimental testing of this primary assumption, particularly the assumption that persistent deviation from an empirical norm foretells disappearance of an enterprise from the business scene. Such a testing is subject to limitations, but it can ascertain whether in this particular group of corporations a systematic ratio pattern was exhibited by the discontinuing companies.

For a test of the type to which this chapter is devoted our data should pertain only to the experience of companies that are known to have suffered severe financial difficulties resulting in reorganization or failure. The sample with which we have to work is not, however, of this character. Strictly speaking, all we know is that these companies ceased filing federal corporate income tax returns. Some may have changed to a non-corporate form of organization, and others may have discontinued business voluntarily. But we have reason to believe that the majority were what may be termed involuntary discontinuances.

The data on which this chapter is based were developed as follows. The primary samples for our study consisted of a drawing of about 200 eligible companies in each of the five industries from the 1926 federal income tax returns, and of another, smaller drawing from the 1930 returns. These companies were then traced through

the files for the succeeding ten and six years, respectively. The corporations studied in the foregoing chapters are those from the 1926 drawing that continued to file income tax returns through 1936. The remainder ceased filing returns some time before that year, as did nearly half of the companies in the 1930 drawing. Since companies involved in mergers and consolidations had been eliminated from the samples, and since federal law requires the filing of an income tax return by every active corporation, these companies that ceased filing returns may be assumed to have gone out of business as corporate entities. Presumably they were failures, although, as mentioned above, a few may have left business voluntarily or changed to a non-corporate form of ownership. 2/

The present analysis is based, therefore, on the returns of companies that discontinued after remaining in the sample six years or more. Thus it includes, from the 1926 drawing, the companies that discontinued some time during the years 1932-36, and, from the 1930 drawing, the companies that disappeared in 1936. These discontinuances number 200 in all, distributed among the five industries as follows: baking 47; men's clothing 41; furniture 38; stone-clay 43; machine tool 31. They are referred to as the identical sample of discontinuing companies. While the sample is small, it is, to our knowledge, the only one available for testing, in regard to small manufacturing concerns, the basic assumptions of credit analysis theory.

In studying the financial statements of enterprises that ultimately disappear from the business scene one of the most serious problems is the difficulty of reducing the tabulations to a basis adapted to temporal analysis. If all the disappearances occurred in a single year the problem would not arise, but in the present instance we are dealing with corporations that disappeared severally over a period of five years. A tabulation of their financial statements for a series of calendar years before discontinuance would not permit careful analysis, because the number of companies would change from year to year and in each year some would be nearer discontinuance than others. Therefore we have taken the year of disappearance as the point of reference, regardless of the particular calendar year it happens to be, and have tabulated the financial statements according to the number of years be-

fore discontinuance. 3/ Thus the statements of the 200 companies were grouped into six divisions, according to whether they covered the first, second, third, fourth, fifth or sixth calendar year 4/ before the company in question left the business scene. The statements in each of these divisions were then aggregated to yield a composite balance sheet and income account for each of the six year-before-discontinuance periods. The tabulations could not be carried beyond the sixth year before disappearance, for some of the corporations were in the sample only six years. 5/

FINANCIAL RATIOS AS INDICATORS

In the financial structure of our sample corporations there were many elements that gave advance evidence of ultimate discontinuance, but three ratios proved to be particularly sensitive indicators in this respect: current assets to current liabilities, net worth to total debt, 6/ and net working capital 7/ to total assets. These three were selected by the trial and error method, a large number of possible ratios being tested.

The first and third of these ratios reflect the "freezing" of working capital, the first by comparing the two determinants of working capital with each other, and the third by comparing the difference between these two components with the total assets of the company. The second ratio - net worth to total debt - reflects the relative positions of the owners and creditors in the enterprise. When the capital of an enterprise becomes less and less liquid, and the creditors' claims persist in increasing, in relation to the owners' equity, we have what are here called portents of discontinuance. It is significant that the profit ratio was a less sensitive and reliable indicator than any of the three ratios listed above. In the present chapter these three "indicator" ratios, computed for each year before discontinuance, are compared with the corresponding ratios for the continuing companies. 8/

In this comparison certain obvious difficulties have had to be surmounted. In the first place, the ratios for the surviving companies pertain to given calendar years, while those for the discontinuing companies cover given

years before discontinuance, each of which represents a different assortment of calendar years. And in the second place, a change in a ratio between, say, the fifth and the third year before discontinuance cannot be wholly attributed to the fact that the time of disappearance was drawing nearer: some of the change may have been due to the dominance of generally prosperous years in the fifth, and of generally unprosperous years in the third, year before discontinuance.

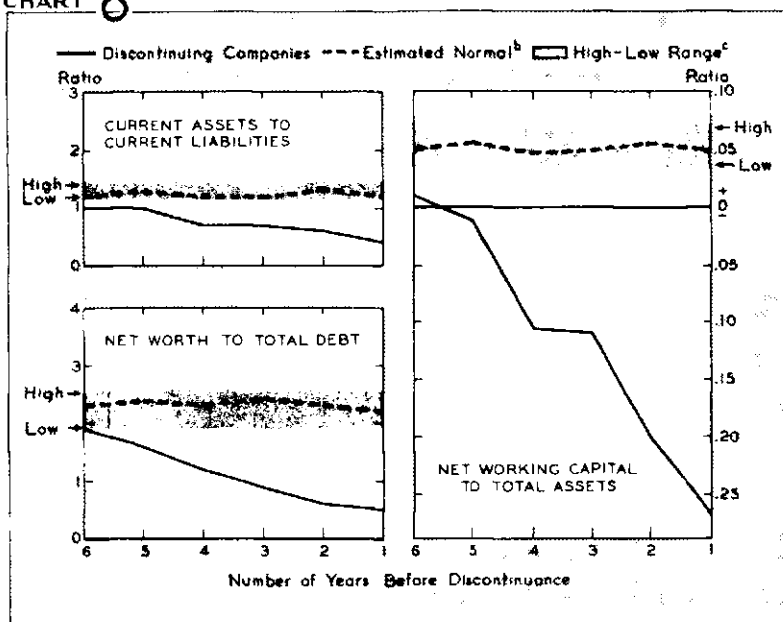
A rather crude means of solving these problems is to determine, for the surviving companies, the high-low range of each ratio's variation during all the years 1926-35. When this method is followed any given ratio for the discontinuing companies is not regarded as out of line until it has passed outside that ratio's high-low range as established by the surviving companies. For some purposes of comparison, however, this method of correction is too conservative, because in relatively prosperous or relatively depressed years a ratio for the discontinuing companies may be dangerously high or low and still fall within the high-low range for the continuing corporations. Therefore a standardizing technique has been applied to the three selected ratios in order to derive, for each of them, the "estimated normal," that is, a ratio for the surviving companies which pertains to the same combination of calendar years that is contained in each year before discontinuance. 9/

Although both of these bases of comparison give consideration to the cyclical factor they serve different purposes. The high-low range indicates the maximum cyclical variation and hence is particularly useful in determining when the level of the disappearing companies' ratio is out of line. The estimated normal allows roughly for the cyclical influences operative in each given year before discontinuance, and thus can be used to test the direction of movement as well as the level of the disappearing companies' ratio.

In Charts 6 to 10 the three ratios mentioned above - current assets to current liabilities, net worth to total debt, and net working capital to total assets - are presented for the discontinuing companies in each industry, and for each year before discontinuance, and are compared with the estimated normal and with the high-low range es-

47 DISCONTINUING AND 81 CONTINUING BAKING CORPORATIONS: Three Selected Ratios, by Number of Years Before Discontinuance^a

CHART 6



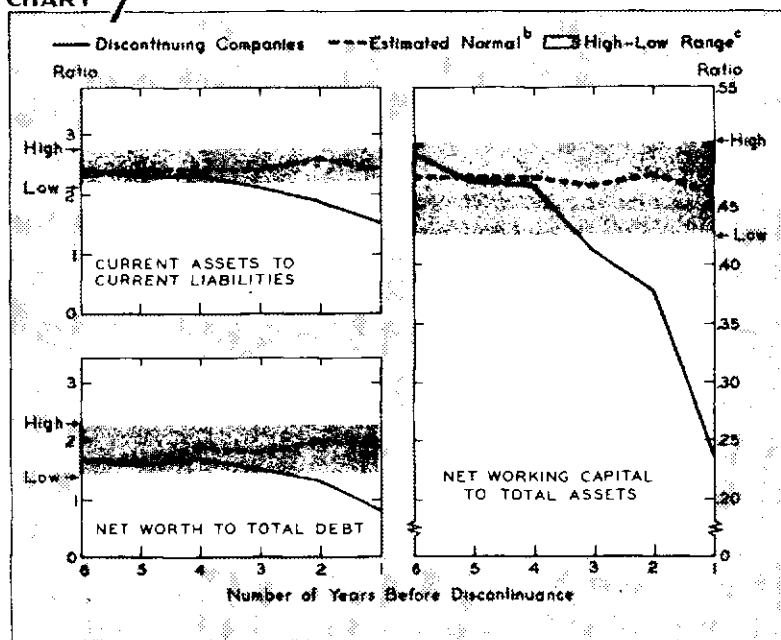
^a Based on Table D-2 in Appendix D and Table B-22 in Data Book (see footnote 16 of Chapter I).

^b Weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance; for method of estimate see Appendix D.

^c Range of 1926-35 annual ratios for sample of continuing companies.

41 DISCONTINUING AND 46 CONTINUING
MEN'S CLOTHING CORPORATIONS: Three Se-
lected Ratios, by Number of Years Be-
fore Discontinuance ^a

CHART 7



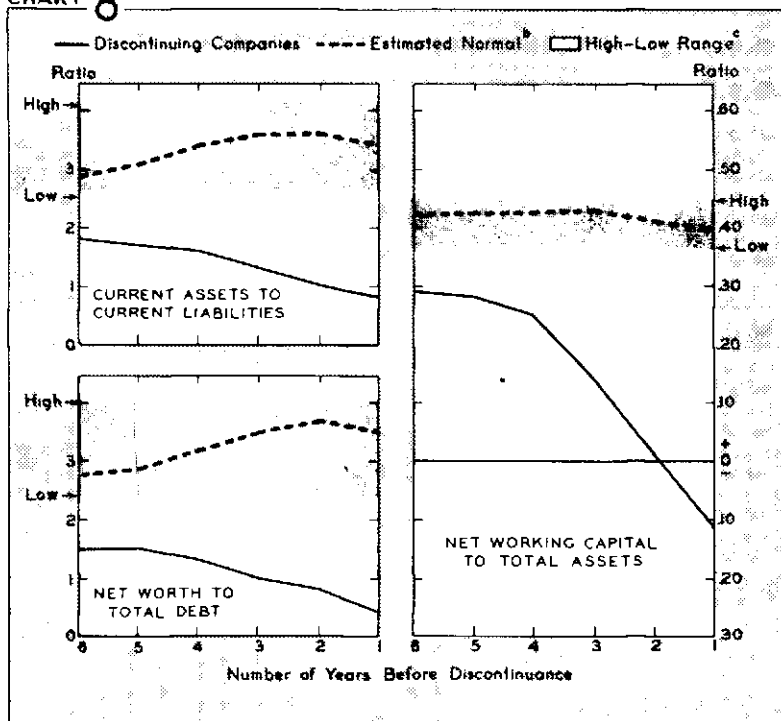
^a Based on Table D-2 in Appendix D and Table B-23 in Data Book (see footnote 16 of Chapter II).

^b Weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance; for method of estimate see Appendix D.

^c Range of 1926-35 annual ratios for sample of continuing companies.

38 DISCONTINUING AND 66 CONTINUING FURNITURE CORPORATIONS: Three Selected Ratios, by Number of Years Before Discontinuance^a

CHART 8



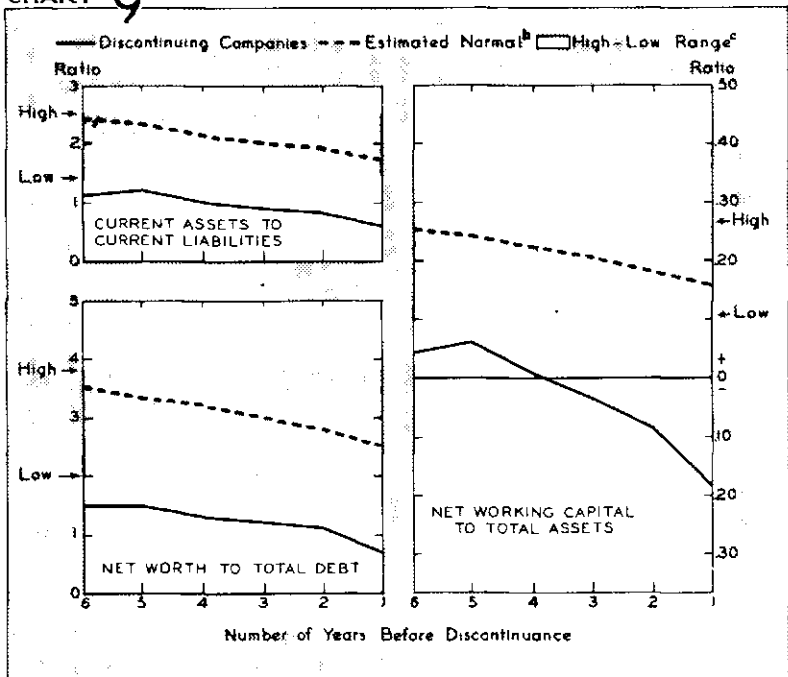
^a Based on Table D-2 in Appendix D and Table B-24 in Data Book (see footnote 16 of Chapter I).

^b Weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance; for method of estimate see Appendix D.

^c Range of 1926-35 annual ratios for sample of continuing companies.

43 DISCONTINUING AND 70 CONTINUING
STONE AND CLAY CORPORATIONS: Three
Selected Ratios, by Number of Years
Before Discontinuance^a

CHART 9



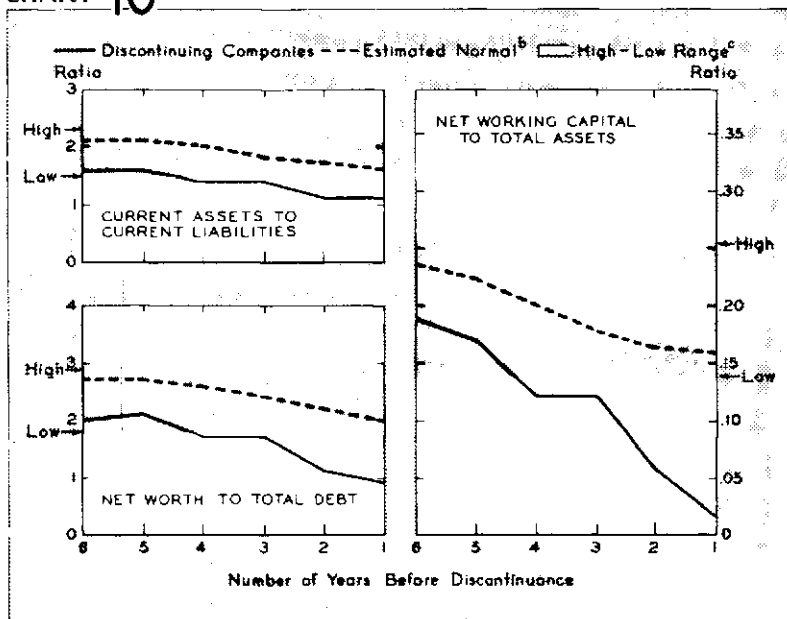
^a Based on Table D-2 in Appendix D and Table B-25 in Data Book (see footnote 16 of Chapter 1).

^b Weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance; for method of estimate see Appendix D.

^c Range of 1926-35 annual ratios for sample of continuing companies.

31 DISCONTINUING AND 118 CONTINUING
MACHINE TOOL CORPORATIONS: Three
Selected Ratios, by Number of Years
Before Discontinuance^a

CHART 10



^a Based on Table D-2 in Appendix D and Table B-26 in Data Book (see note 16 of Chapter I).

^b Weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance; for method of estimate see Appendix D.

^c Range of 1926-35 annual ratios for sample of continuing companies.

established by the surviving companies over the period 1926-35. 10/ From these charts it can be observed that except in men's clothing all three ratios were below the estimated normal as early as the sixth year before discontinuance. And in three of the industries they were out of line that early even if we adopt the very conservative standard of the high-low range for the continuing companies; here machine tool and again men's clothing are the exceptions.

Equally significant is the movement of the discontinuing companies' ratios as the year of discontinuance draws near. In all five industries they declined persistently, in most instances sharply, from the sixth to the first year before discontinuance, thereby increasing their divergence from the estimated normal. For the five industries combined this increasing divergence is found to be statistically significant: in each of the three ratios the probability that chance alone would account for this persistent divergence is less than one out of a hundred. 11/

Of the three ratios shown in Charts 6 to 10, that of net working capital to total assets provides the most definite indications of ultimate discontinuance. 12/ In each industry its downward movement was sharp - more so than that of either of the other ratios - and virtually uninterrupted. It was the only one of the three to fall decisively below the high-low range in the men's clothing sample. In the stone-clay and machine tool groups its downward movement was accompanied by a decline in the estimated normal, but its decline was greater than that of the estimated normal and its level was decidedly lower.

The ratios plotted in Charts 6 to 10 are ratios of aggregates, against which it may be argued that the influence of the larger companies in the sample has more weight than that of the smaller, and that the relative influence of an individual company may vary significantly during the period. While these ratios of aggregates are, in essence, the properly weighted averages of the ratios for the individual companies, the relative weights may vary somewhat through the period. Ratios of aggregates were employed here because the open-end classes in the available frequency distributions precluded the calculation of the correct mean ratio. Medians were similar-

ly indeterminate because of the necessity of interpolating within frequency distribution classes.

There are several reasons for believing, however, that the movements shown by the ratios plotted in these charts are representative not only of the sample companies in the aggregate, but also of the particular enterprises. In the first place, the companies in the samples are all relatively small; most had total assets between \$50,000 and \$150,000, with only a few over the \$200,000 level. Therefore there was not the opportunity - found in some simple aggregations of financial statements - for the influence of one or a few companies to outweigh that of a great many other concerns in the group. It is this factor, incidentally, which provides the basis for the representativeness of much of the analysis in the preceding chapters of this study.

Secondly, a special tally of the ratios of the particular companies in the samples of discontinuances revealed that the great majority in each group evidenced a downward movement similar to that shown in the charts. A count was made of the number of companies in each sample for which the given ratio fell with no more than two interruptions from the sixth to the first year before discontinuance; for some of the companies there was no interruption, and the majority had only one. The results, expressed as a percentage of the number of companies in each sample, are presented herewith. It can be seen that the proportion of companies recording what may be called a persistent decline ranged from 51 percent (net worth to total debt in the men's clothing group) to 76 percent (net working capital to total assets in furniture). In most of the samples from three-fifths to three-fourths of the companies experienced the indicated decline. The comparatively small proportions for the men's clothing sample accord with our earlier observation, based on the

	<u>Current Assets</u> <u>to Current</u> <u>Liabilities</u>	<u>Net Worth to</u> <u>Total Debt</u>	<u>Net Working</u> <u>Capital to</u> <u>Total Assets</u>
Baking (47 cos.)	62%	68%	68%
Men's clothing (41 cos.)	54	51	68
Furniture (38 cos.)	66	71	76
Stone-clay (43 cos.)	70	53	72
Machine tool (31 cos.)	61	65	61

charts, that the portents for this group were less well marked than those for the other samples.

For the companies that showed more than two interruptions the given ratio sometimes declined markedly, sometimes remained fairly stable and occasionally rose in the fifth and fourth years before discontinuance and then plunged downward. In each sample a handful of companies experienced a persistent rise in the ratio, indicating that these discontinuances were the voluntary liquidations mentioned earlier. There appear to have been four or five of these companies in each sample. If it could be established that they, and they alone, were voluntary liquidations, their elimination from these samples would further sharpen the contrasts pictured in Charts 6 to 10.

A final reason for trusting the movements shown by the ratios in these charts is provided by the fact that crudely calculated mean ratios give a similar picture. These mean ratios are characterized as "crudely calculated" because the assumed midpoint of the open-end class was held constant. Thus calculated, the mean ratios decline slightly less than the ratios of aggregates shown in the charts. But if the midpoints of the open-end and next lower classes had been moderately adjusted downward as the last year before discontinuance approached, the mean ratios would have fallen equally as sharply as the ratios of aggregates; and there is every reason to believe that the central tendencies of these upper classes in the frequency distributions actually underwent such a decline.

The fact that the mean ratios declined commensurately with the ratios of aggregates shown in the charts indicates merely that the downward movement was not brought about solely by the large companies. It would still be theoretically possible for the mean ratios to decline and the particular company ratios to fluctuate erratically over the distribution. That this did not occur is indicated by the foregoing tabulation, showing that the ratios for the majority of companies declined persistently.

Thus far we have seen that for the discontinuing companies as a group the three ratios were lower, at least from the fifth year and usually from the sixth year be-

fore discontinuance, than the estimated normals for the surviving companies as a group. But these comparisons can tell nothing about the range of variation in the ratios of the companies within each group. Such information is presented in Chart 11, which shows, for each ratio and each industry, how the discontinuing companies were distributed in the last year before discontinuance according to various ratio levels, and also the percentage distribution of the continuing companies according to the corresponding estimated normals. It is evident, as would be expected, that a greater proportion of discontinuing than of continuing companies had the more adverse ratios - those in the lowest two levels distinguished here.

But it should not be overlooked that there is a considerable area of overlap between the two groups of companies. In men's clothing, for example, about 40 percent of the discontinuing companies had a ratio of current assets to current liabilities ranging between 1 and 4, while only slightly more than 50 percent of the continuing companies had estimated normal ratios falling within this range; and two-fifths of these discontinuing companies had a ratio as high as 0.4 or more for net working capital to total assets, while as high a proportion of continuing as of discontinuing men's clothing companies had positive net working capital below the 0.4 level. In other words, there is no clearly marked dividing line between the ratios for the continuing and the discontinuing companies. Some companies in the samples survived through 1936 with relatively poor ratios, while others with relatively good ratios went out of existence before that year.

An obvious inference that might be drawn from the foregoing analysis is that these three ratios may provide an acceptable criterion for a credit analyst in evaluat-

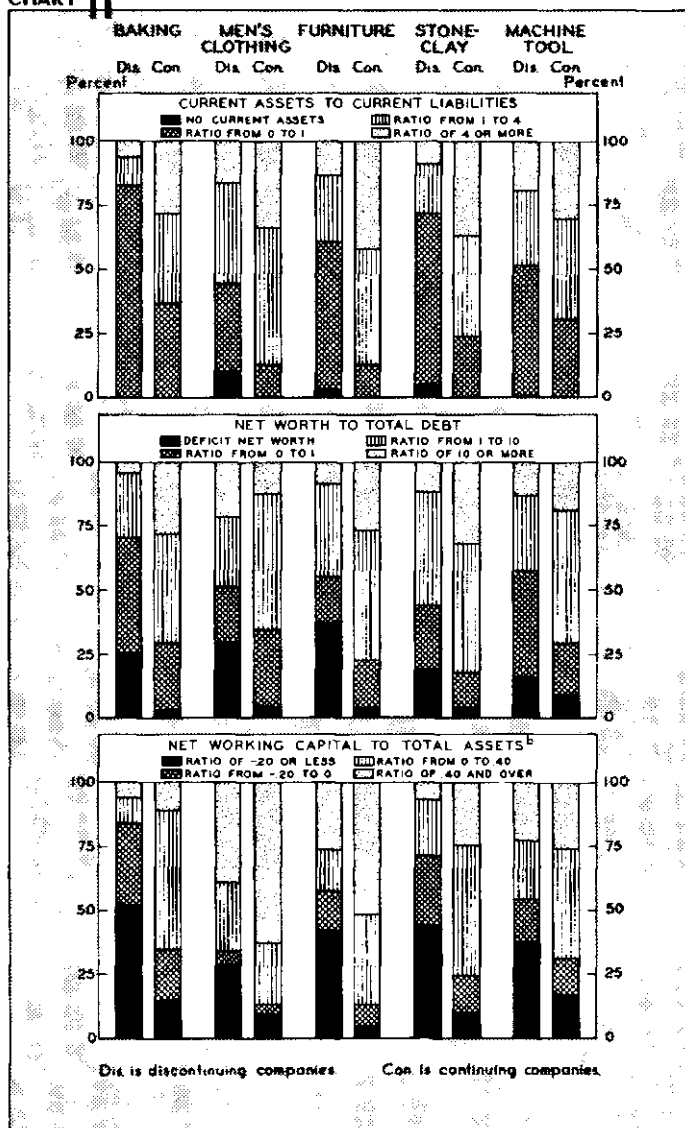
FOOTNOTES FOR CHART 11

a/ Based on unpublished tables prepared by the Income Tax Study, a WPA project sponsored by the Treasury Department. The estimated normal ratio, which forms the basis for each distribution of continuing companies, is the weighted average of these companies' ratios for the various calendar years contained in the first year before discontinuance; for method of estimate see Appendix D.

b/ The stone-clay and machine tool distributions of discontinuing companies are exclusive of a few corporations that reported neither current assets nor current liabilities.

SAMPLES OF DISCONTINUING AND CONTINUING CORPORATIONS IN FIVE INDUSTRIES: Percentage Distribution in First Year Before Discontinuance, by Three Selected Ratios for Discontinuing Companies and by Corresponding Estimated Normal Ratios for Continuing Companies^a

CHART 11



ing the tendencies exhibited by an individual enterprise. Such an inference, however, cannot be fully substantiated from the data in their available form. To justify such a conclusion the material presented here should be supplemented by a more detailed study based on individual company ratios rather than on aggregates. It seems probable that values of the ratios lower than the estimated normal may be accepted as portents of discontinuance. But it has not been possible to determine whether the proportion of companies exhibiting a persistent decline differs significantly between the continuing and the discontinuing groups.

Chart 11 brings out still another point that should be stressed at this juncture to avoid misinterpretation of our analysis. It will be seen that in each industry there was some small proportion of discontinuing companies with credit ratios that are high under customary standards of credit appraisal. The companies with these high ratios may have been the ones that discontinued operations voluntarily. We stressed at the outset that for the present samples there was no means of distinguishing the voluntary from the involuntary discontinuances. Because of this absence of information on the reason for discontinuance, it seemed unduly arbitrary to eliminate these companies from the sample. While their presence in the sample calls for caution in interpreting the findings, it strengthens the contention that the adverse movements of the three "sensitive" credit ratios are significant portents of discontinuance. Chart 11 also indicates that some of the continuing companies had amazingly poor credit ratios. Whether such conditions persisted is not known, but they may well have done so in some instances. In other words, a poor credit ratio is no more a sufficient than it is a necessary condition of discontinuance.

In spite of all the necessary qualifications there are important implications in the foregoing analysis. The present samples give clear evidence that in general the financial structure of the discontinuing companies as a group began to deviate from that of the surviving companies as early as six years before actual disappearance. Moreover, most of these deviations between the two groups of companies became increasingly marked as the time of disappearance approached. The indications of disappearance were relatively definite in four of the indus-

tries, but not so marked in the remaining industry, men's clothing. This exception is probably due to the fact that the existence of small-scale men's clothing companies is generally precarious. The demand for their products is whimsical if not capricious, and style and fabric changes are introduced too suddenly for the comfort of the entrepreneur. And after one or two unsuccessful seasons a clothing company is near exhaustion, for resistance to forces of economic contraction or deflation is not so sustained as in, say, the baking industry, where the owners' equity and the investment in fixed property are comparatively large.

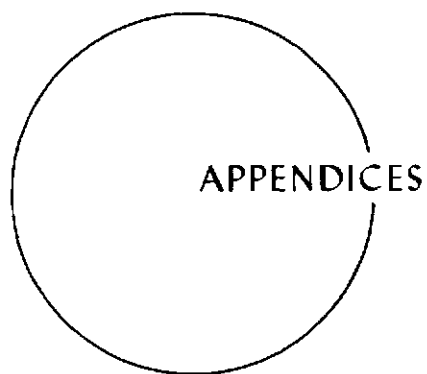
So far as credit analysis theory is concerned - the primary assumptions of which it has been the purpose of this chapter to test - our analysis has led to the conclusion that deviation of certain credit ratios from an empirically-determined level has definite diagnostic value. In other words, if the ratio persists in moving in an adverse direction, that movement is portentous of business discontinuance. This does not mean that a company having this financial experience will inevitably and necessarily discontinue operations. It does signify, however, that an unhealthy condition is developing which, unless corrected, will result in business discontinuance.*

The length of the period during which the financial structure of these companies gave indications of approaching discontinuance is a factor of particular importance for business cycle analysis because it reflects the ex-

*Note by Oswald W. Knauth, Director - The sample contains companies that discontinued voluntarily as well as companies that discontinued involuntarily. Even if the voluntarily-discontinuing companies were eliminated, this analysis does not establish that any company experiencing an unfavorable movement of any or all of these three "sensitive" credit indicators is necessarily destined to discontinue operations. The author does not stress sufficiently that when unfavorable developments occur many things can happen in a company to reestablish a normally-functioning enterprise. Per contra, it happens at times that a company changes from solvency to insolvency with startling rapidity. Unrecognized weaknesses uncover each other and spiral with increasing speed.

All that can properly be deduced from the data presented is that credit ratios are an important element in forecasting the continuance or discontinuance of individual enterprises; and that weak companies frequently show signs of distress several years in advance of their formal discontinuance. These facts are already generally recognized, and the further partial corroboration offered in this chapter does not materially add to our knowledge of the subject.

tent of the resistance offered to forces of deflation. Some economists have argued that the length and severity of a crisis vary directly with the resistance to liquidation and deflation that is offered by the various groups in the economy during the downturn. Consumers have been represented as particularly slow in accepting deflation and liquidation (in the matter of owned homes, for example). Among business enterprises, too, some groups are more responsive than others to the forces of liquidation. Of the industrial samples studied here, men's clothing appears to be more flexible in this regard than the others, although all small companies, as pointed out in Chapter 1, are probably more subject to liquidation than are large companies.



SOURCE OF DATA AND BASIC TABLES

It was mentioned in Chapter 1 that the data used in this study were derived from original tabulations of federal income tax returns. The Department of Commerce, in cooperation with the Temporary National Economic Committee, initiated these tabulations in 1938,^{1/} and they were compiled during 1939 and 1940 by the Income Tax Study, an undertaking of the Work Projects Administration sponsored by the Division of Tax Research of the United States Treasury Department. ^{2/}

A group of 939 returns, representing approximately 200 small corporations in each of the five industries, was pulled from the 1926 files. The returns of the same companies were then pulled for each succeeding year through 1936, or, in the case of discontinuing companies, through the last year in which a return was filed. In this process companies that were involved in mergers or consolidations, companies whose returns, known to have been filed, were missing or not available, and companies whose financial statements were grossly inadequate, were eliminated from the sample.^{3/} In addition to this original 1926 drawing, a supplementary drawing, smaller in size but similar in other respects, was made from the 1930 returns and was then carried through the six succeeding years.

The Department of Commerce set up the following requirements for a company's inclusion in the sample:

1. The corporation must be a manufacturer of bread and cake; of men's and boys' suits, coats and overcoats; of household furniture; of brick, tile, cement blocks and cut stone products; or of machine tools, taps, dies, gauges and other accessories.

2. In 1926 (or 1930, for the supplementary drawing) the corporation must have had total assets aggregating

less than \$250,000 (the depreciation reserve being considered a deduction from the land and plant account). Companies which subsequently grew above that size were not eliminated, however.

3. The corporation must have been in active operation in 1926 (or 1930, for inclusion in the supplementary drawing).

As a basis for the drawings 23 internal revenue collection districts were chosen $\frac{4}{5}$ - slightly less than half the total number of collection districts in the United States. Their distribution was such that they included about half the corporate returns filed in each of five major regions, these regions representing an arbitrary division of the states for the purposes of this project.^{5/} In seeking eligible corporations among the selected districts' returns, letters of the alphabet were chosen at random, with the result that each district had a reasonably fair opportunity to contribute companies to the sample. It is justifiable to assume, therefore, that the geographic distribution of the sample companies gives some indication of the location of small incorporated enterprises in the industries treated. The number of companies in the 1926 and 1930 drawings, classified by industry, region, and asset size, is shown in Tables A-1 and A-2. Some idea of the size of the cities represented by the sample companies may be had from Table A-3, which classifies, according to this criterion, the companies in the 1926 drawing which continued through 1936.

The federal income tax returns submitted by corporations are confidential. Identification of particular companies is impossible from the present tabulations because they are on a sample basis, because the samples comprise comparatively small segments of all small manufacturing corporations in these five industries, and because the data for particular companies have been grouped and aggregated.

Since all active corporations are required to file a federal income tax return, those which ceased filing returns during the period studied may be assumed to have ceased existence as corporate entities. Most of them were probably failures, although a few may have changed to a non-corporate form of organization or been liquidated at

Table A-1 - 1926 DRAWING OF CORPORATIONS IN FIVE INDUSTRIES
Distribution by Region and Asset Size a/

<u>Region and Asset Size</u>	<u>Baking</u>	<u>Men's Clothing</u>	<u>Fur- niture</u>	<u>Stone- Clay</u>	<u>Machine Tool</u>	<u>Total</u>
<u>New England</u>						
Less than \$50,000	22	7	13	5	27	74
50,000 - 100,000	6	9	9	8	6	38
100,000 - 150,000	2	2	5	3	1	13
150,000 - 200,000	-	1	5	2	1	9
200,000 - 250,000	2	-	-	2	1	5
TOTAL	<u>32</u>	<u>19</u>	<u>32</u>	<u>20</u>	<u>36</u>	<u>139</u>
<u>East</u>						
Less than \$50,000	33	54	23	9	17	136
50,000 - 100,000	12	28	9	8	4	61
100,000 - 150,000	4	16	7	5	1	33
150,000 - 200,000	2	8	7	1	4	22
200,000 - 250,000	1	9	4	2	-	16
TOTAL	<u>52</u>	<u>115</u>	<u>50</u>	<u>25</u>	<u>26</u>	<u>268</u>
<u>Middle West</u>						
Less than \$50,000	30	26	16	28	64	164
50,000 - 100,000	17	6	15	27	29	94
100,000 - 150,000	6	12	14	11	11	54
150,000 - 200,000	6	4	15	9	9	43
200,000 - 250,000	4	2	5	9	5	25
250,000 and over b/	1	-	-	-	-	1
TOTAL	<u>64</u>	<u>50</u>	<u>65</u>	<u>84</u>	<u>118</u>	<u>381</u>
<u>South</u>						
Less than \$50,000	13	2	5	19	1	40
50,000 - 100,000	5	1	8	11	-	25
100,000 - 150,000	-	1	7	3	-	11
150,000 - 200,000	1	-	8	5	-	14
200,000 - 250,000	3	-	5	-	-	8
TOTAL	<u>22</u>	<u>4</u>	<u>33</u>	<u>38</u>	<u>1</u>	<u>98</u>
<u>West</u>						
Less than \$50,000	8	-	5	6	1	20
50,000 - 100,000	3	3	1	6	3	16
100,000 - 150,000	2	-	2	3	-	7
150,000 - 200,000	1	-	2	-	-	3
200,000 - 250,000	1	-	4	2	-	7
TOTAL	<u>15</u>	<u>3</u>	<u>14</u>	<u>17</u>	<u>4</u>	<u>53</u>
GRAND TOTAL	185	191	194	184	185	939

a/ Based on TNEC Monograph 15 (previously cited) Tables 6-A to 6-E in Appendix F.

b/ The 1926 drawing inadvertently included one company that exceeded the stipulated asset size.

the desire of the owners. The number of remaining and of discontinuing companies in each year of the period is shown in Table A-4.

For the purposes of tabulation the corporations were divided into three broad groups. The first consists of

Table A-2 - 1930 DRAWING OF CORPORATIONS IN FIVE INDUSTRIES
Distribution by Region and Asset Size ^{a/}

<u>Region and Asset Size</u>	<u>Baking</u>	<u>Men's Clothing</u>	<u>Fur- niture</u>	<u>Stone- Clay</u>	<u>Machine Tool</u>	<u>Total</u>
<u>New England</u>						
Less than \$50,000	3	2	8	3	3	19
50,000 - 100,000	1	1	3	-	-	5
100,000 - 150,000	-	-	1	-	3	4
150,000 - 200,000	-	-	1	1	2	4
200,000 - 250,000	-	-	1	-	1	2
TOTAL	<u>4</u>	<u>3</u>	<u>14</u>	<u>4</u>	<u>9</u>	<u>34</u>
<u>East</u>						
Less than \$50,000	4	37	6	1	3	51
50,000 - 100,000	1	16	4	1	-	22
100,000 - 150,000	1	10	1	-	-	12
150,000 - 200,000	1	4	1	-	1	7
200,000 - 250,000	-	4	-	-	-	4
TOTAL	<u>7</u>	<u>71</u>	<u>12</u>	<u>2</u>	<u>4</u>	<u>96</u>
<u>Middle West</u>						
Less than \$50,000	7	3	7	7	7	31
50,000 - 100,000	4	-	5	4	5	18
100,000 - 150,000	2	-	-	5	3	10
150,000 - 200,000	4	-	3	2	2	11
200,000 - 250,000	-	1	3	1	1	6
TOTAL	<u>17</u>	<u>4</u>	<u>18</u>	<u>19</u>	<u>18</u>	<u>76</u>
<u>South</u>						
Less than \$50,000	9	1	3	3	2	18
50,000 - 100,000	1	-	4	2	-	7
100,000 - 150,000	1	-	2	-	-	3
150,000 - 200,000	-	-	-	4	-	4
200,000 - 250,000	-	-	2	-	-	2
TOTAL	<u>11</u>	<u>1</u>	<u>11</u>	<u>9</u>	<u>2</u>	<u>34</u>
<u>West</u>						
Less than \$50,000	5	-	-	5	-	10
50,000 - 100,000	1	-	1	-	2	4
100,000 - 150,000	1	-	1	2	-	4
150,000 - 200,000	-	-	-	-	-	-
200,000 - 250,000	-	-	1	3	-	4
TOTAL	<u>7</u>	<u>-</u>	<u>2</u>	<u>10</u>	<u>2</u>	<u>22</u>
GRAND TOTAL	46	79	58	44	35	262

^{a/} Based on TNEC Monograph 15 (previously cited) Tables 6-A to 6-E in Appendix F.

continuing companies - those which filed returns through 1936. This group is thus composed of two identical samples, one for each drawing. In Table A-4 the number of companies remaining in 1936 indicates, for each industry and each drawing, the number of companies contained in this group. 6/ The identical 1926-36 sample of continuing companies formed the basis of the analysis presented in Chapters 2 and 3 of this report; the identical 1930-36 sample of continuing companies was used infrequently, and then only as a check on the reliability of the 1926-36 sample.

The second broad group comprises all the corporations in both drawings which ceased filing returns by 1936 or before. In the compilations covering these discontinuances no distinction was made between the 1926 and the 1930 drawings. Thus the number of companies in this group, as indicated in Table A-4, is, for each industry, the sum of all the discontinuances in both drawings. This sample of discontinuing companies was not used directly in the present study; 7/ it was superseded by the third broad group of corporations, which was more convenient to analyze.

Table A-3 - 1926 DRAWING OF CORPORATIONS IN FIVE INDUSTRIES
Distribution of Continuing Companies, by Size of City a/

<u>Population of City</u>	<u>Baking</u>	<u>Men's Clothing</u>	<u>Fur- niture</u>	<u>Stone- Clay</u>	<u>Machine Tool</u>	<u>Total</u>
Less than 2,500	3	1	7	17	4	32
2,500 - 5,000	3	1	5	4	2	15
5,000 - 10,000	2	-	3	4	4	13
10,000 - 25,000	11	1	6	9	4	31
25,000 - 50,000	9	1	2	8	5	25
50,000 - 100,000	8	1	3	8	10	30
100,000 - 250,000	12	1	2	-	11	26
250,000 - 500,000	6	5	10	8	16	45
500,000 - 1,000,000	11	11	7	6	26	61
1,000,000 and over	16	24	21	6	36	103
TOTAL	81	46	66	70	118	381

a/ Based on unpublished tables prepared by the Income Tax Study, a WPA project sponsored by the Treasury Department; the tables are available in the Treasury Department's Source Book of Statistics of Income.

Table A-4 - 1926 AND 1930 DRAWINGS OF CORPORATIONS IN FIVE INDUSTRIES: Number of Companies Remaining and Number Discontinuing in Each Year, 1926-36 and 1930-36 a/

Sample and Year	Baking		Men's Clothing		Furniture		Stone-Clay		Machine Tool	
	Cos. Re- main- ing	Cos. Dis- con- tin.	Cos. Re- main- ing	Cos. Dis- con- tin.	Cos. Re- main- ing	Cos. Dis- con- tin.	Cos. Re- main- ing	Cos. Dis- con- tin.	Cos. Re- main- ing	Cos. Dis- con- tin.
<u>1926</u>										
<u>Drawing</u>										
1926	185	-	191	-	194	-	184	-	185	-
1927	168	17	171	20	176	18	175	9	175	10
1928	158	10	142	29	154	22	149	26	163	12
1929	147	11	125	17	136	18	135	14	159	4
1930	137	10	94	31	116	20	123	12	152	7
1931	125	12	84	10	103	13	111	12	146	6
1932 b/	110	15	70	14	92	11	99	12	142	4
1933 b/	104	6	64	6	84	8	89	10	136	6
1934 b/	97	7	54	10	74	10	83	6	129	7
1935 b/	88	9	52	2	70	4	79	4	123	6
1936 b/	81	7	46	6	66	4	70	9	118	5
<u>1930</u>										
<u>Drawing</u>										
1930	46	-	79	-	58	-	44	-	35	-
1931	39	7	62	17	52	6	42	2	32	3
1932	34	5	49	13	40	12	41	1	30	2
1933	33	1	43	6	31	9	35	6	28	2
1934	33	0	32	11	29	2	34	1	27	1
1935	30	3	30	2	29	0	32	2	26	1
1936 b/	27	3	27	3	28	1	30	2	23	3

a/ Based on TNEC Monograph 15 (previously cited) Tables 6-A to 6-E in Appendix F.

b/ The discontinuances in these years make up the identical sample covering six years before discontinuance. See Appendix D, below.

This third group includes only those discontinuing enterprises which were in the sample six years or more.^{8/} In Table A-4 the figures for the companies in the first drawing that discontinued at some time during 1932-36, and those for the companies in the second drawing that discontinued in 1936, indicate the number of enterprises that were eligible for this group. These companies, identical for six years before disappearance, provided the basis for the analysis of portents of discontinuance, presented in Chapter 4. They are described further in Appendix D.

Several accounting characteristics of the sample companies should be mentioned. In the first place, most of them filed their federal income tax returns on a calendar-year basis. In the two identical samples of continuing enterprises, combined, about 10 percent of the companies in each industry filed 1936 returns for a 12-month period not ending December 31 (Table A-5). These so-called fiscal-year statements have been grouped with the returns of the calendar year most nearly corresponding. Thus "leading" returns (those covering a year ending between July 1 and December 31) have been grouped with those for the succeeding December 31; and "lagging" returns (ending between January 1 and June 30) have been grouped with those for the preceding December 31. These fiscal-year statements were so few, and were so largely concentrated in the months immediately before and after the calendar-year end, that they introduced no serious discrepancy into the tabulations.

Table A-5 - 1926 AND 1930 DRAWINGS OF CORPORATIONS
IN FIVE INDUSTRIES: Accounting Periods Used by
Continuing Companies, 1936 ^{a/}

<u>Accounting Period</u>	<u>Baking</u>	<u>Men's Clothing</u>	<u>Fur- niture</u>	<u>Stone- Clay</u>	<u>Machine Tool</u>
Calendar-year returns	95 cos.	63 cos.	86 cos.	96 cos.	125 cos.
Fiscal-year returns					
Leading ^{b/}	6	6	7	3	5
Lagging ^{b/}	6	2	4	3	8
Leading or lagging ^{b/}					
1 or 2 months	$\frac{5}{2}$	$\frac{5}{1}$	$\frac{2}{4}$	$\frac{4}{2}$	$\frac{4}{6}$
3 or 4 months	$\frac{2}{4}$	$\frac{1}{2}$	$\frac{4}{4}$	$\frac{2}{0}$	$\frac{6}{2}$
5 or 6 months	$\frac{4}{4}$	$\frac{2}{2}$	$\frac{4}{4}$	$\frac{0}{0}$	$\frac{2}{2}$
Not specified	1	2	1	0	3
TOTAL	108	73	98	102	141

^{a/} Based on TNEC Monograph 15 (previously cited) Table 7-9 in Appendix F. The present table pertains to all the companies in the identical 1926-36 and 1930-36 samples, and also to a few additional furniture and stone-clay companies for which 1936 data were available.

^{b/} "Leading" returns cover a 12-month period ending between July 1 and December 31, and are grouped with the succeeding December 31 returns. "Lagging" returns cover a 12-month period ending between January 1 and June 30, and are grouped with the preceding December 31 returns.

Second, the accrual method of accounting was followed by most of the companies in these samples, but a few stated that they kept their books on a cash basis. Among the continuing companies in the two identical samples, combined, the proportions using the cash basis were as follows in 1936: baking, 13 percent; men's clothing, 14 percent; furniture, 11 percent; stone-clay, 21 percent; machine tool, 13 percent.^{9/} This discrepancy, too, is not considered serious for purposes of the present survey, especially since some of the companies which reported the cash basis may actually have followed the accrual system, at least in part, without realizing it; others which stated that they used the accrual basis may not fully have accrued all items.

Finally, in preparing financial statements for income tax returns some of the corporations valued their ending inventory at cost, others at "lower of cost or market," and the remainder according to an unspecified method. On the basis of these three types of inventory statement the percentage distribution of the two identical samples of continuing companies was as follows, for 1936: 10/

	<u>Cost</u>	<u>Lower of Cost or Market</u>	<u>Method Unspe- cified</u>
Baking	52%	43%	5%
Men's clothing	20	69	11
Furniture	18	74	8
Stone-clay	53	41	6
Machine tool	30	52	18

In two of the industries, men's clothing and furniture, there was a strong preference for the lower-of-cost-or-market method. In two others, baking and stone-clay, the preference was slightly in favor of the cost method, perhaps because of the peculiar inventory situations in these industries. Inventory turnover is large in baking, and use of the lower-of-cost-or-market method would not give results significantly different from those obtained by valuing inventory at cost; therefore it is not surprising that more than half of the baking companies followed the easier cost method. The reason why the majority of stone-clay companies used that method is probably the preponderance of finished goods in such companies' inventory, and the fact that their raw material comes from their own clay deposits (making a market price

nominal). Although a majority of the machine tool companies preferred the lower-of-cost-or-market method, nearly one-third stated that they valued their inventory at cost; this sizable proportion may be explained by the large work-in-process and finished-goods holdings of such companies, and by the fact that the common practice of manufacturing machine tools on order, rather than for stock, is a strong inducement to use the cost method.

In the supplementary Data Book (see footnote 2 to this appendix) Tables B-1 to B-5 present, for each of the five industries, percentage figures on basic balance sheet and income statement data for the companies that continued in existence during 1926-36, and Table B-6 presents the same data for the 1936-39 extension of the machine tool sample.¹¹ In Tables B-7 to B-9 are shown the mean ratios of accounts payable to total assets and of notes payable to total assets, for the same companies covered by B-1 to B-5. In Table B-7 the ratios are presented for all companies in the identical samples and also, separately, for those that reported either of these items. The other two tables cover all companies, whether or not they reported accounts payable or notes payable; but in B-8 the mean ratios are shown separately for the larger and the smaller companies in the samples, and in B-9 they are shown separately for the more profitable and the less profitable companies. The dividing line between larger and smaller companies was the median asset size of each sample over the entire 1926-36 period, and the dividing line between more profitable and less profitable companies was, for each sample, the 1926-36 median ratio of net income plus officers' compensation to net worth.

Frequent references have been made in this study to the importance of certain financial statement items as "sources and uses of funds." This term has a more or less technical meaning, and is fully discussed in the Data Book, along with tabulations covering basic sources and uses of funds statements (Tables B-10 to B-14), accounting revaluations (B-15 to B-19), realized capital gains and losses (B-20) and surplus donations (B-21), for each of the five industry samples making up the 1926-36 identical group of continuing small corporations. Basic data on the identical sample of discontinuing companies, discussed in Chapter 4, are presented in Tables B-22 to B-26 of the Data Book.

COVERAGE AND GEOGRAPHIC REPRESENTATIVENESS OF THE SAMPLES

The continuing corporations analyzed in Chapters 2 and 3 of this study constitute only small proportions of the total number of small manufacturing corporations operating in the five selected industries. It is impossible to ascertain precisely the coverage of our samples, in number of companies and in volume of business, but rough estimates can be made.

In calculating the total number and the volume of business of the small corporations (assets less than \$250,000) in these five industries two bodies of data have been used. The first is the Treasury Department's annual Statistics of Income; since 1931 this has supplied an asset size breakdown of all corporations, but its basis of classification is major industrial divisions, not the narrow industrial groups represented in the present study. The second is the Biennial Census of Manufactures, published by the Department of Commerce; this classifies establishments by industrial groups as narrow as those followed here, but it does not show an asset size breakdown and it defines establishments as operating rather than ownership units, making no distinction between corporate and non-corporate enterprises.^{1/}

Tables B-1 to B-5, showing the derivation of sample coverage estimates for each of the five industries, pertain to 1935, the last year of the 1926-36 period for which a Census of Manufactures is available. For furniture, stone-clay and machine tool these estimates have been derived by eliminating from the census classification of narrow industrial groups those establishments with assets over \$250,000; this is done by applying percentages derived from Statistics of Income asset-size breakdowns for the major industrial divisions which include these particular lines of business. In making the computations numerous and important assumptions were necessary, especially in regard to the baking and men's

clothing industries, where unincorporated enterprises are predominant. The assumptions need not, however, be explained in detail; they are clear from the procedures outlined in the following tables.

In estimating the geographic representativeness of the samples it has been assumed that in our five industries corporations have the same geographic distribution as all establishments, corporate and non-corporate, and that the proportion of companies with assets of less than \$250,000 is about the same from one region of the country to another.

The 1927 Biennial Census of Manufactures gives the number of establishments in each state, for each of the following industries, corresponding roughly to those represented in the samples: baking products other than biscuits and crackers; clothing, men's, youths' and boys' (except work clothing); furniture, including store and office fixtures; clay products (other than pottery) and non-clay refractories; machine tools. In Appendix A it was mentioned that for purposes of sample selection the states were arbitrarily classified in five major regions. When the sample companies, and the establishments listed in the census, are classified according to these regional divisions it is found that the two geographical distributions correspond fairly closely, as can be seen from Table B-6. In view of the assumptions that underlie this comparison the differences shown between the two distributions are not large.

Table B-1 - 81 BAKING CORPORATIONS
 Derivation of Sample Coverage, in
 Number and in Volume of Business

<u>Datum a/</u>	<u>In No.</u>	<u>In Vol. of Business b/</u>
1. Corporations manufacturing "bakery and confectionery products" c/	3,788	\$1,352
2. Small corporations in percent of total "food and kindred products" corporations c/	82%	14%
3. Small corporations in (1) (est.; 1 x 2)	3,106	\$189
4. Establishments manufacturing "bread and other bakery products" except "biscuits and crackers," in percent of "bread and other bakery products" plus "confectionery" d/	92%	70%
5. Small corporations manufacturing bakery products except biscuits and crackers (est.; 3 x 4)	2,858	\$132
6. Identical 1926-36 sample	81	\$13.4
7. Sample coverage in 1935 (est.; 6 ÷ 5)	2.8%	10.2%

a/ A "small" corporation is regarded as one with less than \$250,000 in total assets.

b/ Dollar figures in millions.

c/ From Treasury Department, Statistics of Income for 1935, Part 2 (Washington 1938).

d/ From Department of Commerce, Biennial Census of Manufactures, 1935 (Washington 1938).

Table B-2 - 46 MEN'S CLOTHING CORPORATIONS
 Derivation of Sample Coverage, in
 Number and in Volume of Business

<u>Datum a/</u>	<u>In</u> <u>No.</u>	<u>In Vol. of</u> <u>Business b/</u>
1. Establishments manufacturing "men's, youths' and boys' clothing n.e.c." <u>c/</u>	2,981	\$615
2. Small corporations in percent of total "clothing and apparel" corporations <u>d/</u>	92%	53%
3. Small establishments in (1) (est.; 1 x 2)	2,743	\$326
4. Corporations manufacturing "custom-made, factory-made, coats, underwear, millinery, and clothing n.e.c." <u>e/</u> in percent of establishments in "cutting-up industries" <u>c/</u>	53% <u>f/</u>	75% <u>f/</u>
5. Corporations in (3) (est.; 3 x 4)	1,454	\$245
6. Identical 1926-36 sample	46	\$8.6
7. Sample coverage in 1935 (est.; 6 ÷ 5)	3.2%	3.5%

a/ A "small" corporation is regarded as one with less than \$250,000 in total assets.

b/ Dollar figures in millions.

c/ From Department of Commerce, Biennial Census of Manufactures, 1935 (Washington 1938); n.e.c. is "not elsewhere classified."

d/ From Treasury Department, Statistics of Income for 1936, Part 2 (Washington 1939). In the years before 1936 the narrowest industrial group which includes men's clothing companies and for which the asset-size breakdown is available in this source is "textiles and their products."

e/ From Treasury Department, Statistics of Income for 1935, Part 2 (Washington 1938).

f/ These percentages are regarded as pertaining to the incorporated establishments in the men's clothing industry; but they constitute a weak link in the derivation of these coverage estimates, since they assume that the Statistics of Income and Census industries are identical and that the incorporated enterprises comprise only one establishment each.

Table B-3 - 66 FURNITURE CORPORATIONS
 Derivation of Sample Coverage, in
 Number and in Volume of Business

<u>Datum a/</u>	<u>In No.</u>	<u>In Vol. of Business b/</u>
1. Establishments manufacturing "household furniture" c/	2,118	\$326
2. Small corporations in percent of total "forest products" corporations d/	78%	32%
3. Small establishments in (1) (est.; 1 x 2)	1,652	\$104
4. Identical 1926-36 sample	66	\$8
5. Sample coverage in 1935 (est.; 4 ÷ 3)	4.0%	7.7%

a/ A "small" corporation is regarded as one with less than \$250,000 in total assets.

b/ Dollar figures in millions.

c/ From Department of Commerce, Biennial Census of Manufactures, 1935 (Washington 1938).

d/ From Treasury Department, Statistics of Income for 1935, Part 2 (Washington 1938).

Table B-4 - 70 STONE AND CLAY CORPORATIONS

Derivation of Sample Coverage, in
Number and in Volume of Business

<u>Datum a/</u>	<u>In</u> <u>No.</u>	<u>In Vol. of</u> <u>Business b/</u>
1. Establishments manufacturing "clay products (other than pottery)," "concrete products" and "marble, granite, slate, and other stone, cut and shaped" c/	3,659	\$192
2. Small corporations in percent of total "stone, clay and glass products" corporations d/	79%	22%
3. Small establishments in (1) (est.; 1 x 2)	2,891	\$42
4. Identical 1926-36 sample	70	\$2.8
5. Sample coverage in 1935 (est.; 4 ÷ 3)	2.4%	6.7%

a/ A "small" corporation is regarded as one with less than \$250,000 in total assets.

b/ Dollar figures in millions.

c/ From Department of Commerce, Biennial Census of Manufactures, 1935 (Washington 1938). This industrial classification is perhaps too broad, and may cause the resulting coverage estimates to be conservative; actually, the great bulk of the companies in the identical 1926-36 sample belong in the category "clay products (other than pottery)," of which there were only 1,031 establishments in 1935, with a value of product aggregating 90 million dollars.

d/ From Treasury Department, Statistics of Income for 1935, Part 2 (Washington 1938). Corporations with assets of 10 million dollars or more were eliminated before the computation of these proportions, on the assumption that such large corporations were confined primarily to the glass, cement and pottery industries, groups not represented by the present sample. Failure to eliminate these big companies would result in an impossible sample coverage estimate with respect to volume of business.

Table B-5 - 118 MACHINE TOOL CORPORATIONS
 Derivation of Sample Coverage, in
 Number and in Volume of Business

<u>Datum a/</u>	<u>In No.</u>	<u>In Vol. of Business b/</u>
1. Establishments manufacturing "machine tools" and "machine-tool accessories and machinists' precision tools" c/	990	\$219
2. Small corporations in percent of total "metal and its products" corporations d/	78%	20%
3. Small establishments in (1) (est.; 1×2)	772	\$43.8
4. Identical 1926-36 sample	118	\$8.8
5. Sample coverage in 1935 (est.; $4 \div 3$)	15%	20%

a/ A "small" corporation is regarded as one with less than \$250,000 in total assets.

b/ Dollar figures in millions.

c/ From Department of Commerce, Biennial Census of Manufactures, 1935 (Washington 1938).

d/ From Treasury Department, Statistics of Income for 1935, Part 2 (Washington 1938). Corporations with assets of \$10,000,000 or more were eliminated before the computation of these proportions, on the assumption that such large corporations were mainly the big steel and machinery companies, groups not represented by the present sample. Failure to eliminate these big companies would result in an impossible sample coverage estimate with respect to volume of business.

Table B-6 - SAMPLE CORPORATIONS IN FIVE INDUSTRIES: Percentage Distribution, Compared with That of All Establishments in These Industries, by Region a/

<u>Industry</u>	<u>New</u> <u>Eng.</u>	<u>East</u>	<u>Mid.</u> <u>West</u>	<u>South</u>	<u>West</u>	<u>To-</u> <u>tal</u>
<u>Baking</u>						
Sample (81 cos.)	17%	28%	35%	12%	8%	100%
All establishments	10	32	37	10	11	100
<u>Men's clothing</u>						
Sample (46 cos.)	10	60	26	2	2	100
All establishments	6	72	18	2	2	100
<u>Furniture</u>						
Sample (66 cos.)	16	26	34	17	7	100
All establishments	9	30	38	12	11	100
<u>Stone-clay</u>						
Sample (70 cos.)	11	14	45	21	9	100
All establishments	5	25	36	23	11	100
<u>Machine tool</u>						
Sample (118 cos.)	19	14	64	1	2	100
All establishments	22	19	56	1	2	100
<u>TOTALS</u>						
Sample (381 cos.)	15	29	40	10	6	100
All establishments	9	36	35	10	10	100

a/ For sample corporations based on Table A-1 in Appendix A; for "all establishments" based on Department of Commerce, Biennial Census of Manufactures, 1927 (Washington 1930). The states included in each region are listed in Appendix A, footnote 5.



STATISTICAL RELIABILITY OF THE SAMPLES

Throughout the analysis presented in this study it has been sought to avoid unqualified assertions that the financial characteristics of the sample companies apply also to all small manufacturing corporations in the five industries. Obviously it would be unjustifiable to claim rigorous representativeness for samples as small as those treated here, particularly in view of the fact that financial characteristics vary widely from company to company. Strictly speaking, the findings relate to the samples alone and not to all small corporations in the selected industries. Yet some statistically-minded readers will seek to go beyond this limitation, and to appraise for themselves the validity of applying the sample companies' ratios to all small corporations in the five fields. This appendix, by examining the statistical significance of the two types of ratios used in the study, may provide answers to some of the questions such readers will ask.

MEAN RATIOS

Most of the discussion of accounts payable and notes payable in Chapter 3 was based on arithmetic mean ratios. 1/ In the following examination of statistical reliability the movement of the mean ratio of accounts payable to total assets will be used for purposes of illustration. The test employed is Student's t-test, which need not be discussed here in detail. 2/ The test has been applied to 3-year averages (1926-28 and 1934-36) of the mean ratios given in Tables B-7 and B-8 in the Data Book (see footnote 2 of Appendix A, above). The formula used is as follows, with \bar{x}_1 representing the average of the mean ratios for 1926-28 and \bar{x}_2 the average for 1934-36, $\sum d_1^2$ and $\sum d_2^2$ the sum of the squared deviations from \bar{x}_1 and \bar{x}_2 , and n the number of companies in the sample:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\sum d_1^2 + \sum d_2^2}{2(n-1)}}} \cdot \sqrt{\frac{n}{2}}$$

The application of the t-test is based on the assumption that the standard deviations of the two universes are the same. Although the standard deviations of the samples rose from the earlier to the later period, this increase does not necessarily invalidate the underlying assumption. The change was largely due to the fact that a few companies reported ratios of 1 and over in the 1934-36 period. In both groups of years the ratio of accounts payable to total assets was sufficiently normal for all companies in each sample to make it possible to apply the t-test with a reasonable degree of confidence. On the other hand, the distribution of the companies according to their ratios of notes payable to total assets was erratic, and did not warrant the use of the t-test. It is for this reason that only the ratio of accounts payable to total assets was tested statistically.

In the various industries' mean ratios of accounts payable to total assets (1926-28 average) ^{3/} the percentage movements that would be necessary for statistical significance at the 5 percent level are found to be as follows.^{4/} In other words, if the baking companies' ra-

	<u>All</u> <u>Companies</u>	<u>Larger</u> <u>Companies</u>	<u>Smaller</u> <u>Companies</u>
Baking	25%	28%	34%
Men's clothing	24	22	45
Furniture	54	25	84
Stone-clay	38	50	54
Machine tool	50	33	89

tio (all companies) moves by 25 percent or more we may say that there are only 5 chances out of 100 that this change results from sampling errors.

The probability that the upward movements of the ratios from 1926-28 to 1934-36 were due to sampling errors ^{5/} are indicated by the following figures, representing the number of chances out of 100.^{6/} Where these figures are 5 or below the statistical reliability of the

	<u>All Companies</u>	<u>Larger Companies</u>	<u>Smaller Companies</u>
Baking	1	11	4
Men's clothing	less than 0.1	90	less than 0.1
Furniture	11	70	11
Stone-clay	6	5	36
Machine tool	less than 0.1	4	less than 0.1

ratio movements falls within the 5 percent limit. The statistical reliability of 3-year averages of mean ratios is of course greater than that of the ratios for any single year.

RATIOS OF AGGREGATES

Not all of the analysis in the text of this study was based on arithmetic mean ratios. Aggregate ratios were also used, computed in the following fashion. For the sample companies in a given industry in a given year the ratio, say, of current assets to current liabilities was obtained by summing the current assets of all the companies, summing the current liabilities of all the companies, and dividing the sum of the current assets by the sum of the current liabilities. The nature of the tabulations made such a procedure necessary in some instances. It may be justified not only on grounds of convenience, but also because all the companies in the samples were small (assets less than \$250,000), with the result that there was relatively little chance of a few large companies dominating the picture. It is true, however, that in the aggregate ratios the larger companies in the samples have more weight than the smaller ones. Therefore where these ratios are used it should be borne in mind that they represent groups of small companies in the aggregate, and do not necessarily define the characteristics of a typical or modal small company.

While it is possible to decide with a fair degree of accuracy whether a particular mean ratio falls within prescribed limits of the true mean ratio for the universe,^{7/} it is a difficult, if not impossible, undertaking to make such a judgment for an aggregate ratio. In the present situation, however, it is possible to reach rough approximations of the statistical reliability even of aggregate ratios, because certain supplementary information is available.

Two ways are open for gauging in a general fashion the statistical reliability of the aggregate ratios computed for the identical sample of continuing companies, analyzed in Chapters 2 and 3. One method is to observe whether there is a year-to-year consistency in the various ratios. The other is to compare the ratios of the identical sample of continuing companies (covering the years 1926-36) with those of the identical supplementary sample derived from the 1930 drawing (covering the years 1930-36), and to analyze the observed differences.

The year-to-year consistency of the ratios found for the sample companies is one of the strongest defenses of their statistical reliability. Observation of the basic tables in the Data Book shows that the ratios rarely fluctuated erratically; most of them remained stable, followed a cyclical course, or moved gradually upward or downward over the 11-year period. Such consistency of movement provides good reason for trusting the picture shown by the data.

If a particular aggregate ratio is found, for example, to rise gradually but steadily over the entire 11-year period, the movement can be regarded as reliable evidence even if it amounts to less than, say, 10 percent of the ratio, and even if the standard error of the mean is relatively large. If we assume that, as a result of chance fluctuations, the ratio was as likely to fall as to rise from year to year, the probability that it would rise consistently over the 11-year period would be in the neighborhood of $(\frac{1}{2})^{10}$ or 1 in 1,024, regardless of its standard error. Hence, even if the ratio had a large standard error of the mean in a given year, its indicated movement might still be reliable.^{8/} If its movement followed a consistent pattern there would be a large probability that it was significant. This is the principal reason why it may be held that the statistical "scatter" of the data does not seriously affect the major conclusions drawn from the analysis.

It can be shown also that, given aggregate ratios to total assets from two independent samples (say the 1926 and 1930 drawings), and making several qualifying assumptions, we can compute the standard deviation of the ratio for the 1926 sample by means of the following formula. ^{9/} In this formula R stands for aggregate ratio, d for the

$$\sigma_{R26} = \sigma_d \sqrt{\frac{\frac{\sum(A_{26}^2)}{(\sum A_{26})^2}}{\frac{\sum(A_{26}^2)}{(\sum A_{26})^2} + \frac{\sum(A_{30}^2)}{(\sum A_{30})^2}}}$$

differences between the aggregate ratios for the two samples (they overlap for the years 1930-36), A for the total assets, in dollars, of each particular company in the samples, and the subscripts 26 and 30 for the identical samples of continuing companies derived from the 1926 and 1930 drawings, respectively.

The formula rests on the fact that an aggregate ratio can be reduced to a weighted mean ratio, the weights being the denominators of the component mean ratios. From the dispersion of the differences between the two samples' ratios of aggregates for the same years we can derive an estimate of the dispersion of the individual company ratios for which the ratio of the aggregates is the weighted mean. In other words, we can estimate the standard deviation of the mean ratio of the universe from the standard deviation of these differences (σ_d in the above formula). This standard deviation of the mean ratio for the universe yields the standard deviation of the corresponding ratio of aggregates when consideration is given to the weights implicit in these ratios of aggregates. Since we know the asset-size distribution of the companies in the two samples we can derive, for any given mean ratio in which total assets are the denominator, 10/ the weights necessary to convert the mean ratio into the corresponding aggregate ratio. These weights are represented in the above formula by the ratio of $\sum(A^2)$ to $(\sum A)^2$, that is, the sum of the squares of the total assets of each particular company divided by the square of the sum of the total assets of all the companies in the sample.

In the derivation of the formula three assumptions were made. First, it was assumed that the 1926 and 1930 samples were drawn from the same universe, and that they therefore furnish estimates of the same characteristics.

Second, it was assumed that in each industry the asset-size distribution of the companies in these samples is the true distribution - that is, the distribution prevailing for the universe of small manufacturing corporations in the particular industry - and did not change over the period 1930-36. And, finally, it was assumed that the standard deviation of the mean of a given ratio for the universe of small manufacturing corporations in a particular industry was the same in each of the 7 years 1930-36.

It cannot be maintained that all of these assumptions accord strictly with the facts. We know, for example, that the companies in the 1926-36 identical sample were in existence for at least 11 years, and that those in the 1930-36 sample were in existence at least 7 years. Therefore the record of success of the former is somewhat better than that of the latter, a fact that stands in contradiction to the first assumption. Again, although the asset-size distribution of the sample companies may have been the true distribution at the time of the drawings, it certainly shifted somewhat over the periods of depression and recovery in the years 1930-36. The second of these exceptions is relatively unimportant, but the first may be significant; if so, it would have the effect of exaggerating the standard deviation of the aggregate ratio computed by our formula.

Of the ratios of aggregates used in this study, that of inventory to total assets has been chosen for the present test. This ratio is shown in Table C-1 for the continuing companies in each industry and for the 1926 and 1930 drawings. From the data in this table, and from the 1936 asset-size distribution of the companies in the two drawings,¹¹ the following estimates of the standard deviation of the aggregate ratio of inventory to total assets (1926 sample) were derived, by means of the formula just described: baking .013; men's clothing .019; furniture .016; stone-clay .018; machine tool .018.

We may assume that a range equal to four times the standard deviation - two above and two below the aggregate ratio - constitutes the ratio's fiducial limits; there are only about 5 chances out of 100 that the true ratio lies outside these limits. At the 5 percent level of significance these fiducial limits, in percent of the

Table C-1 - 1926 AND 1930 DRAWINGS OF CORPORATIONS IN FIVE INDUSTRIES: Continuing Companies' Aggregate Ratio of Inventory to Total Assets, 1930-36 ^{a/}

Industry	1930	1931	1932	1933	1934	1935	1936
<u>Baking</u>							
1926 drawing	.087	.076	.069	.090	.093	.093	.104
1930 drawing	.107	.086	.088	.102	.122	.118	.146
<u>Men's clothing</u>							
1926 drawing	.319	.319	.290	.376	.313	.401	.406
1930 drawing	.313	.327	.315	.408	.341	.405	.353
<u>Furniture</u>							
1926 drawing	.265	.269	.269	.282	.266	.272	.274
1930 drawing	.305	.289	.267	.342	.295	.288	.281
<u>Stone-clay</u>							
1926 drawing	.182	.166	.160	.147	.160	.157	.138
1930 drawing	.149	.129	.112	.128	.119	.121	.130
<u>Machine tool</u>							
1926 drawing	.208	.210	.184	.190	.192	.179	.185
1930 drawing	.165	.150	.147	.160	.145	.148	.162

^{a/} For 1926 drawing based on TNEC Monograph 15 (previously cited) Tables 1-A to 1-E in Appendix F; for 1930 drawing based on *ibid.*; Tables 3-A to 3-E in Appendix F.

average 1930-36 aggregate ratio for the 1926 sample are as follows: baking ± 29 ; men's clothing ± 11 ; furniture ± 12 ; stone-clay ± 22 ; machine tool ± 19 . These percentages are intended to provide some notion of the general magnitude of the movement in the given ratio that would be necessary for statistical significance. The standard errors of these aggregate ratios are fairly large, but other studies in preparation under the Financial Research Program indicate that they are not unusually large for samples of financial statements data.

When the ratios were analyzed in the text (particularly in Chapter 3) we took the precaution of averaging the annual ratios for the first and last three years of the 1926-36 period. This procedure not only revealed any upward or downward tendency in the ratio over the 1926-36 period, but also served to narrow the fiducial limits by approximately 40 percent. Since the fiducial limits for the inventory to total assets ratio run less than 30 per-

cent, the corresponding limits for the average of three annual ratios would be less than 20 percent. In men's clothing a 7 percent change in the ratio would probably be significant.

It needs to be emphasized again, however, that the fiducial limits calculated in the first section of this appendix for selected mean ratios used in the text are of a far higher order of reliability than those presented in this section. The chief purpose of the present discussion is to outline a method that offers some promise of measuring the statistical reliability of aggregate ratios where the scatter of the denominator is known.

DATA ON THE SAMPLES OF DISCONTINUING COMPANIES, AND TECHNIQUES OF ANALYSIS

It was explained in Chapter 4 that the year-before-discontinuance analysis of financial ratios makes it necessary to compute an "estimated normal" if the data for disappearing companies are to be effectively compared with those for surviving companies. This procedure is needed because each year before discontinuance represents a different assortment of calendar years, each with its own cyclical implication. Table D-1 shows, for the five industries, the number of times each of the calendar years 1926-35 was represented in each of the six year-before-discontinuance periods.

The method of calculating the estimated normal 1/ may be illustrated by showing how it was used for the baking companies' ratio of current assets to current liabilities. For the 81 surviving baking corporations as a whole this ratio was as follows during the 1926-35 period: 2/

1926	1.18	1931	1.27
1927	1.28	1932	1.22
1928	1.15	1933	1.19
1929	1.23	1934	1.24
1930	1.35	1935	1.18

From Table D-1 it may be observed that for the sample of 47 discontinuing bakeries the calendar years represented were as follows: 1926, 15 times; 1927, 6 times; 1928, 7 times; 1929, 9 times; 1930, 10 times. The other calendar years did not appear at all in the sixth year before discontinuance for the present sample.

If the surviving corporations' current ratios for these various calendar years are weighted by the number of times each calendar year appears in the given year before discontinuance it is possible to ascertain what

Table D-1 - SAMPLES OF DISCONTINUING CORPORATIONS IN FIVE INDUSTRIES: Number of Times Each Calendar Year is Represented in Each Year Before Discontinuance a/

<u>Industry and Year Before Discontinuance</u>	<u>1926</u>	<u>1927</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>
Baking										
(47 companies)										
Sixth	15	6	7	9	10	-	-	-	-	-
Fifth	-	15	6	7	9	10	-	-	-	-
Fourth	-	-	15	6	7	9	10	-	-	-
Third	-	-	-	15	6	7	9	10	-	-
Second	-	-	-	-	15	6	7	9	10	-
First	-	-	-	-	-	15	6	7	9	10
Men's Clothing										
(41 companies)										
Sixth	14	6	10	2	9	-	-	-	-	-
Fifth	-	14	6	10	2	9	-	-	-	-
Fourth	-	-	14	6	10	2	9	-	-	-
Third	-	-	-	14	6	10	2	9	-	-
Second	-	-	-	-	14	6	10	2	9	-
First	-	-	-	-	-	14	6	10	2	9
Furniture										
(38 companies)										
Sixth	11	8	10	4	5	-	-	-	-	-
Fifth	-	11	8	10	4	5	-	-	-	-
Fourth	-	-	11	8	10	4	5	-	-	-
Third	-	-	-	11	8	10	4	5	-	-
Second	-	-	-	-	11	8	10	4	5	-
First	-	-	-	-	-	11	8	10	4	5
Stone-Clay										
(43 companies)										
Sixth	12	10	6	4	11	-	-	-	-	-
Fifth	-	12	10	6	4	11	-	-	-	-
Fourth	-	-	12	10	6	4	11	-	-	-
Third	-	-	-	12	10	6	4	11	-	-
Second	-	-	-	-	12	10	6	4	11	-
First	-	-	-	-	-	12	10	6	4	11
Machine Tool										
(31 companies)										
Sixth	4	6	7	6	8	-	-	-	-	-
Fifth	-	4	6	7	6	8	-	-	-	-
Fourth	-	-	4	6	7	6	8	-	-	-
Third	-	-	-	4	6	7	6	8	-	-
Second	-	-	-	-	4	6	7	6	8	-
First	-	-	-	-	-	4	6	7	6	8

a/ Based on TNSC Monograph 15 (previously cited) Tables 6-A to 6-E in Appendix F.

their aggregate current ratio would have been under the year-before-discontinuance chronology. This theoretical current ratio for the bakeries in the sixth year before discontinuance is thus calculated from the following data:

<u>Calendar Years Represented</u>	<u>Current Ratio, 81 Surviving Cos.</u>	<u>Weighted Current Ratio</u>
1926 - 15 times	1.18	17.70
1927 - 6 times	1.28	7.68
1928 - 7 times	1.15	8.05
1929 - 9 times	1.23	11.07
1930 - 10 times	1.35	13.50
TOTAL 47		58.00

Division of 58.00 by 47 gives 1.2, the estimated normal current ratio for the sixth year before discontinuance. That is to say, if the current ratio of the 47 disappearing companies, taken together, had been the same as that of the 81 surviving companies, it would have been 1.2 in the sixth year before discontinuance.

The estimated normals for the other year-before-discontinuance periods, and for the other ratios, are calculated in the same way. It is obvious that any estimated normal is applicable only to the particular ratio, sample and time period under consideration. For practical reasons this theoretical ratio has been calculated only for financial relationships which appear to be early and definite indicators of approaching discontinuance. These are the three ratios analyzed in Chapter 4, and their estimated normals are presented in Table D-2 for each of the five industries and each of the six years before discontinuance.

A test of statistical significance was applied to the year-before-discontinuance data analyzed in Chapter 4. This procedure, Friedman's test of ranks, $\frac{3}{/}$ makes it possible to appraise the significance of the observed widening of the gap between the estimated normals and the ratios for the discontinuing companies as time of discontinuance drew near.

Table D-3 shows the ranking of the differences between the two groups of ratios. For each ratio and each industry these differences have been given a value, the smallest difference being valued at 6 and the largest

at 1, 4/ and the values have been ranked by year before discontinuance, from small to large. The purpose of the test is to determine the probability that this arrangement would occur by chance.

The first step in the procedure tests whether the ranks in all five industries follow the same pattern. This is done by comparing the actual distribution of ranks with the distribution to be expected if the ranks

Table D-2 - SAMPLES OF CONTINUING CORPORATIONS CORRESPONDING TO SAMPLES OF DISCONTINUING CORPORATIONS IN FIVE INDUSTRIES
Estimated Normals for Three Selected Ratios
in Six Years Before Discontinuance a/

<u>Ratio and Year Before Discontinuance</u>	<u>Baking</u>	<u>Men's Clothing</u>	<u>Furni- ture</u>	<u>Stone- Clay</u>	<u>Machine Tool</u>
<u>Current Assets b/ to Current Liabilities</u>					
Sixth	1.2	2.3	2.9	2.4	2.1
Fifth	1.3	2.4	3.1	2.3	2.1
Fourth	1.2	2.4	3.4	2.1	2.0
Third	1.2	2.4	3.6	2.0	1.8
Second	1.3	2.6	3.6	1.9	1.7
First	1.2	2.4	3.4	1.7	1.6
<u>Net Worth to Total Debt c/</u>					
Sixth	2.3	1.7	2.8	3.5	2.7
Fifth	2.4	1.7	2.9	3.3	2.7
Fourth	2.3	1.9	3.2	3.2	2.6
Third	2.4	1.8	3.5	3.0	2.4
Second	2.3	2.0	3.7	2.8	2.2
First	2.2	1.9	3.5	2.5	2.0
<u>Net Working Capital d/ to Total Assets</u>					
Sixth	.050	.47	.42	.26	.24
Fifth	.056	.47	.42	.24	.22
Fourth	.047	.47	.42	.22	.20
Third	.049	.47	.43	.20	.18
Second	.054	.43	.41	.18	.16
First	.048	.46	.39	.16	.16

a/ Based on Tables B-1 to B-5 and B-22 to B-26 in Data Book (see footnote 2 of Appendix A, above) and Table D-1 above. The estimated normal ratio is the weighted average of the continuing companies' ratios for the various calendar years contained in each year before discontinuance.

b/ Exclusive of government bonds.

c/ Current liabilities plus long-term debt.

d/ Current assets minus current liabilities.

Table D-3 - SAMPLES OF DISCONTINUING AND CONTINUING CORPORATIONS IN FIVE INDUSTRIES: Application of Friedman's Test of Ranks to Three Selected Ratios for Six Years Before Discontinuance a/

<u>Ratio and Industry</u>	<u>Ranking of Differences Between Estimated Normal and Ratio of Discontinuing Companies in Six Years Before Discontinuance b/</u>					
	Sixth	Fifth	Fourth	Third	Second	First
<u>Current Assets to Current Liabilities</u>						
Baking	6	5	3.5	3.5	1.5	1.5
Men's clothing	6	4.5	4.5	3	2	1
Furniture	6	5	4	3	1.5	1.5
Stone-clay	1	4	4	4	4	4
Machine tool	5	5	2	5	2	2
TOTAL	24	23.5	18	18.5	11	10
Probability that this ranking would occur by chance: less than 1 in 100						
<u>Net Worth to Total Debt</u>						
Baking	6	5	4	3	1.5	1.5
Men's clothing	6	5	4	3	2	1
Furniture	6	5	4	3	2	1
Stone-clay	1	4	2	4	6	4
Machine tool	4.5	5	3	4.5	1.5	1.5
TOTAL	23.5	25	17	17.5	13	9
Probability that this ranking would occur by chance: less than 1 in 100						
<u>Net Working Capital to Total Assets</u>						
Baking	6	5	4	3	2	1
Men's clothing	6	5	4	3	2	1
Furniture	5	5	4	3	2	1
Stone-clay	5	6	4	3	2	1
Machine tool	6	5	3	4	2	1
TOTAL	29	26	19	16	10	5
Probability that this ranking would occur by chance: less than 1 in 100						

a/ Based on Tables B-22 to B-25 in Data Book (see footnote 2 of Appendix A, above) and Table D-2 above.

b/ The smallest difference is represented by 6, the next largest difference by 5, and so forth.

were drawn at random. Under the condition of random drawings the totals of all columns would be expected to be equal; the test therefore consists in measuring the probability of these totals' deviating from equality. The second part of the test compares the order of the average ranks, or column totals, with the order 6, 5, 4, 3, 2, 1; in other words, it determines the degree to which the sixth year before discontinuance shows the least difference between the estimated normals and the discontinuing companies' ratio, the fifth year before discontinuance the next smallest difference, and so forth. The last step combines these two procedures to show the probability that, for the five industries combined, the observed increase in the divergence would occur by chance as time of discontinuance approached. It was found that for all three ratios this probability was less than one chance in a hundred.

The basic data on the identical sample of discontinuing companies, for the last six years before discontinuance, are presented in the Data Book (see footnote 2 of Appendix A, above), Tables B-22 to B-26, which also show the 1926-35 high-low range for the corresponding data on the identical sample of surviving companies.

CHAPTER ONE

- 1 Based on Twentieth Century Fund, Big Business, Its Growth and Its Place (New York 1937) Table 25. The "under \$1,000,000" asset size class shown in that table was further broken down, by the same method used by the Twentieth Century Fund, to obtain an estimate for the "under \$250,000" class, and it was assumed that the great majority of the unincorporated enterprises had total assets of less than \$250,000 each.
- 2 For an especially illuminating discussion of the business population in this country see the testimony of Willard L. Thorp before the Temporary National Economic Committee, Hearings, Part 1, "Economic Prologue," 75th Congress, 3rd Session (Washington 1939).
- 3 Estimated from Biennial Census of Manufactures data for 1937 in Department of Commerce, Statistical Abstract of the United States, 1940 (Washington 1941) p.803, by assuming that the establishments whose value of product is under \$500,000 are roughly the same as those whose assets are under \$250,000.
- 4 These observations are equally valid for 1929 and 1939. See Department of Commerce, multilith report on "Types of Organization of Manufacturing Establishments" (Census of Manufactures: 1939, 16th Census of the U. S., 1940), dated October 1941, p. 3.
- 5 State laws of incorporation generally require three directors.
- 6 This factor alone may not be the whole explanation of why small manufacturing enterprises incorporate, in the face of the added tax liability which incorporation frequently involves for such companies. Perhaps there is a certain class consciousness in business organization which prompts small manufacturers to like the appearance of "Inc." in their business name.
- 7 These conclusions appear to hold, with relatively minor modifications, for the various customary definitions of profit rate: the ratio of net income after income taxes to net worth (the one on which the above description is based), or to total capital, or to total assets, or to total sales. The increase of profitability with asset size appears to be most marked for the last-mentioned of these ratios, net income to sales. The findings are not altered by taking net income before income taxes, or before income taxes and interest payments, but for manufacturing corporations the profit rate tends to decline slightly as asset size increases if net income is taken before income taxes, interest and officers' compensation. The peculiar role played by officers' compensation in the profitability of small corporations is elaborated below.
- 8 For details on asset size differences in profit rate see W. L. Crum, Corporate Size and Earning Power (Cambridge, Mass., 1939), especially Chapter 19; Twentieth Century Fund, How Profitable is Big Business? (New York 1937), especially Part 2; and Temporary National Economic Committee, Monograph 15, Financial Characteris-

- tics of American Manufacturing Corporations, by Charles L. Merwin (Washington 1940), especially Chapter 2. For discussions of pre-1931 data see W. L. Crum, Corporate Earning Power (Stanford University 1929), especially pp. 145-53; National Bureau of Economic Research, Industrial Profits in the United States, by R. C. Epstein (New York 1934), especially pp. 131-40, and Corporate Profits as Shown by Audit Reports, by W. A. Paton (New York 1935), especially pp. 76, 77; and Donald Woodward, testimony of June 22, 1939, in Hearings of a subcommittee of the Senate Committee on Banking and Currency (76th Congress, 1st Session), on S. 1482 and S. 2343 (introduced by Senator James M. Mead, of New York), especially pp. 374-79.
- 9 The distinction here is between a combination of plants making products in successive stages of manufacture and a combination operating in the same stage of manufacture.
- 10 The Federal Trade Commission, which has been tabulating corporation statements for narrowly defined manufacturing industries, pertaining to the year 1940, had released reports on seven such groups by June 1942. Three, including two relating to industries covered in this study (furniture, 71 companies; machine tool accessory and machinists' precision tool, 29 companies; and fruit and vegetable canning, 49 companies), showed a definite and persistent tendency for the rate of return on total investment to increase with asset size. Two industries (bolt, nut, washer and rivet, 33 companies; and steel castings, 39 companies) showed a tendency for this rate to decline. In the two remaining groups (rayon and allied products, 14 companies; and screw machine products, 25 companies) the concerns were divided into three asset size classes; the large and small companies showed about the same rate of return, and the medium-size companies were the most profitable. Rate of return was interpreted as the ratio of net income plus long-term debt interest to net worth plus long-term debt. The above observations remain the same whether net income is taken before or after income taxes. The asset size classes were so chosen as to include, for a given industry, approximately the same number of companies in each class. See Federal Trade Commission, Corporation Reports, 1940 series (undated photostats of typescript).
- 11 Very small concerns, those with assets of \$10,000 to \$25,000, have a relatively small amount of debt. But the proportion of total debt to total assets rises rapidly, reaching a peak in the \$100,000 to \$250,000 asset class, and then declines as asset size increases. See National Bureau of Economic Research (Financial Research Program), Industrial and Commercial Debt - A Balance Sheet Analysis, 1939, by Carl Kaysen (ms. 1942).
- 12 See National Bureau of Economic Research (Financial Research Program), The Financial Structure of Incorporated Business, A Cross-Section View, 1937, by Walter A. Chudson (ms. 1942); and W. L. Crum, The Effect of Size on Corporate Earnings and Condition, Harvard University Business Research Study No. 8 (June 1934).

- 13 This is not intended to imply that surplus constitutes a liquid reserve out of which operating losses may be financed and dividends paid. Actually, the funds needed to pay operating expenses and dividends during unprofitable years must come from asset liquidation or borrowing, once cash balances have been drawn down to the minimum. Surplus is convenient as an account against which such operating losses and dividends can be charged. See O. J. Curry, Utilization of Corporate Profits in Prosperity and Depression, University of Michigan Business Studies, vol. 9, no.4 (Ann Arbor 1941), especially Chapters 1, 5, 6.
- 14 National Bureau of Economic Research, Business Cycles: The Problem and Its Setting, by Wesley C. Mitchell (New York 1927) vol. 1, pp. 86-90. Professor Mitchell states (p. 88) that "as a rule, large establishments were more affected by the depression than medium-sized establishments, and the latter were more affected than small establishments." It appears that during cyclical contraction large companies either have more flexible costs than small enterprises, or have more liquid assets with which to finance operating losses. Perhaps both forces are at work, with the result that during cyclical contraction production falls off more sharply in large than small companies, and discontinuances are more common among small than large enterprises. This suggestion, however, requires further study before it can be considered established.
- 15 See Treasury Department, Statistics of Income for 1936, Part 2 (Washington 1939) Table 6.
- 16 Temporary National Economic Committee, Monograph 15, Financial Characteristics of American Manufacturing Corporations, by Charles L. Merwin (Washington 1940), cited hereafter as TNEC Monograph 15. Certain of the figures in the basic tables in Appendix F of Monograph 15 were revised after publication. Further tabulations pertaining to the corporations covered in the present study are collected in a separate volume, available to those who wish to examine the data in greater detail: National Bureau of Economic Research (Financial Research Program), Data for Studies in Business Finance (ms. 1942), hereafter referred to as Data Book. For a detailed description of the source and nature of the tabulations see Appendix A of the present study.
- 17 Appendix B contains detailed estimates of sample coverage for the companies in the 1926 drawing that continued in existence through 1936.
- 18 Based on Table A-4 in Appendix A.
- 19 Based on Table A-4 in Appendix A.
- 20 After payment of income taxes but before disbursement of dividends; profits and losses from real estate sales also have been excluded. This definition of net income is followed in the present study wherever reference is made to the sample companies.

- 21 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. These figures are not averages of annual ratios, but, for each industry, the ratio of average profit or loss over the 11 years as a whole to the average of the year-end net worth figures over the same period.
- 22 Based on the same source and computed in the same manner as the figures referred to in footnote 21.
- 23 Another determinant, but one of considerably less importance, is the fact that unearned income of individuals (for example, dividends) is taxed at a somewhat higher rate than earned income (such as salaries).
- 24 Even this may not represent the upper limit in those cases where the owners of these enterprises have misreported certain of their living expenses as business costs. Such misreporting may not be uncommon among small corporations, and would result in an understatement of the profit rates actually earned by the business enterprises.
- 25 Based on the same source and computed in the same manner as the figures referred to in footnote 21. Strictly speaking, net worth may not be the proper denominator for the present ratios, but it has been used in order to clarify the comparison with the profit rates shown on an earlier page.
- 26 These conclusions regarding the profitability of the small manufacturing corporations in the sample are not altered seriously if profits are compared with sales or total assets rather than with net worth. These alternative profit ratios have not been shown here, but they may be derived from the basic data.
- 27 That is, net worth minus intangibles such as goodwill.
- 28 Based on TNEC Monograph 15, Table 73 in Appendix F. The figures given here are exclusive of companies with negative net worth.
- 29 National Bureau of Economic Research (Financial Research Program), The Financial Structure of American Business, by Sidney S. Alexander (ms. 1942).

CHAPTER TWO

- 1 Most of these industries, and also a large number of others, are described in considerable detail in various "Evidence Studies" and "Work Materials" prepared by the National Recovery Administration. A complete file of this material is available in the Department of Commerce library in Washington.
- 2 Rough estimates of the coverage of the samples are presented in Appendix B.
- 3 See Work Projects Administration, National Research Project, Pro-

duction, Employment and Productivity in 59 Manufacturing Industries, by Harry Magdoff, Irving H. Siegel, and Milton B. Davis (Philadelphia 1939) Part 2, p. 18.

- 4 Based on National Recovery Administration, Division of Review, The Baking Industry, Evidence Study No. 46 prepared by the Industry Statistics Unit (mimeograph, October 1935) p. 21, derived from a special tabulation made for the NRA by the Bureau of the Census, covering "bakery products other than biscuits and crackers." Establishments with annual production of less than \$5000 are not included.
- 5 Ibid., p. 24. About two-thirds of the 14,483 bakeries covered had 5 or fewer wage-earners in 1933.
- 6 Continuous ovens have been introduced in many bakeries, but it is likely that quite a few of the small companies in the sample discussed here did not have such ovens.
- 7 From the NRA report cited above it may be inferred (p. 23) that none of the companies in our sample was likely to employ more than 50 persons. Undoubtedly the majority employed far fewer.
- 8 The 1939 Census of Manufactures indicates that in the bread-baking industry there is, on the average, about one salaried officer per incorporated establishment.
- 9 The baking companies' long-term debt is large only in comparison with that of other small manufacturing corporations. In absolute terms the long-term debt of small companies is characteristically small, for reasons given in Chapter 3.
- 10 Of the raw material expenditures of the entire baking industry (including biscuits and crackers) 55 percent were for flour in 1929, with white flour by far the most important type bought; we may assume that for the bread-making division of the industry, the importance of flour purchases was even greater. Expenditures for butter, lard, their substitutes and other shortening constituted 15 percent of the total, outlays for milk (in all forms) another 5 percent, and purchases of sugar and eggs about 10 percent each. See Department of Commerce, Bureau of the Census, Manufactures, 1929, vol. 2 (Washington 1933) pp. 59, 60. These figures are based on reports from about half the establishments in the industry, but the value of their products amounted to 91 percent of the aggregate for the industry. The other establishments did not report their cost of materials in sufficient detail for the purposes of this tabulation.
- 11 Figures based on TNEC Monograph 15, Table 1-A in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified inventory amounted to about 4 percent of the aggregate inventory of all 81 companies. Except for a slightly larger proportion of supplies and smaller proportion of raw materials, the inventory breakdown for a group of large bread-makers is similar

to that given here; see Federal Trade Commission, "Bread and Bakery Products Manufacturing Corporations," Industrial Corporation Reports (October 22, 1940) p. 9, which covers 7 of the principal concerns in the industry.

- 12 Among the entire group of companies that produce "bakery products other than biscuits and crackers" the value added by manufacture represented 52 percent of the value of products in 1933. The figure varied as follows, for companies of different sizes: companies with no wage-earners, 42 percent; with 1 to 5 wage-earners, 46 percent; with 6 to 20 wage-earners, 48 percent; with 21 to 50 wage-earners, 51 percent; with 51 or more wage-earners, 56 percent. See NRA, op. cit., p. 23. The value added by manufacture is the difference between the value of product (at factory selling price) and the cost of materials, containers, fuel and purchased electric energy. The above figures indicate that for the small bakeries the cost of materials was somewhat higher than for the large ones, in relation to the value of their products.
- 13 Figures based on TNEC Monograph 15, Table 1-A in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified land and plant amounted to about 15 percent of the aggregate land and plant of all 81 companies.
- 14 Even such items as depreciation and officers' compensation are not fully segregated on income tax returns, but they are more complete than a separate series on wages or materials cost is likely to be.
- 15 See, for example, the wholesale prices of Kansas City winter straights wheat flour, compiled in Department of Labor, Bureau of Labor Statistics, Wholesale Prices in the United States (issued monthly), December issues for each year.
- 16 For wholesale prices of white bread, as reported in Chicago and New York, see ibid.
- 17 See TNEC Monograph 15, Table 24 in Appendix F.
- 18 The average business life of the manufacturing unit in the men's clothing industry has been estimated at seven years. See National Recovery Administration, Division of Review, The Men's Clothing Industry, by J. W. Hathcock, Work Materials No. 58 (mimeograph, March 1936) p. 52.
- 19 This characteristic is still more common among women's clothing manufacturers, whose product is subject to an even more fickle market demand.
- 20 The integration inaugurated by the chains has multiplied the problems of many of the larger as well as the smaller companies in the industry.
- 21 Especially during the 1923-29 period the men's clothing industry

displayed a notable tendency to move out of the major manufacturing centers into smaller cities and even country districts. See Hathcock, op. cit., p. 97.

- 22 It has been argued, however, that these seasonal fluctuations are being smoothed, especially with respect to manufacturing and financing. See Hathcock (ibid., p. 66): "Today [1936], with less favorable [credit] arrangements with the mills, higher labor costs, and shorter working weeks, most manufacturers of men's clothing find themselves producing garments twelve months a year, largely for stock, with two selling seasons, and no period when the average plodding manufacturer is able to liquidate a sufficient proportion of his larger inventories to get out of debt to his bank."
- 23 The 1939 Census of Manufactures indicates that in the men's clothing industry (excluding contract factories) there are, on the average, about two salaried officers per incorporated establishment.
- 24 Figures based on TNEC Monograph 15, Table 1-B in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified land and plant amounted to about 14 percent of the aggregate land and plant of all 46 companies.
- 25 For contract factories the materials cost is naturally a much smaller proportion of the value of products than it is for regular factories (about 6 or 7 percent as against 50 percent).
- 26 Based on TNEC Monograph 15, Table 1-B in Appendix F.
- 27 See Federal Trade Commission, "Men's, Youths' and Boys' Clothing Manufacturing Corporations," Industrial Corporation Reports (January 21, 1941) p. 12.
- 28 See, for example, the wholesale prices of 13-ounce unfinished worsted suiting at factory, in Bureau of Labor Statistics, Wholesale Prices ..., cited above.
- 29 For average hourly earnings in the men's clothing industry in 1926, 1928, 1930 and 1932 see Bureau of Labor Statistics, Bulletin 594; for 1934-36 see Bureau of Labor Statistics, "Hours and Earnings in Manufacturing and Nonmanufacturing Industries, 1932 to 1940" (mimeograph, December 1941) p. 23.
- 30 See, for example, the wholesale prices of men's 3-piece 13-ounce blue serge suits (Chicago) and of men's 4-piece 15-ounce blue serge suits (New York), in Bureau of Labor Statistics, Wholesale Prices ..., cited above.
- 31 Hathcock, op. cit., p. 61. These tabulations were prepared for the NRA by the National Credit Office, Inc., in New York City. It is not clear whether profits were taken before or after income taxes. Interesting breakdowns of these 243 companies' net profit in percent of sales, according to their net worth and the

selling price of their products, are also given in this source for 1933 (pp. 61 and 63 respectively), as follows. The profit rate

<u>Net Worth</u> (000)	<u>No. of Cos.</u>	<u>Profit in % of Sales</u>	<u>% of Cos. Showing Profit</u>	<u>Selling Price Ranges</u>	<u>No. of Cos.</u>	<u>Profit in % of Sales</u>	<u>% of Cos. Showing Profit</u>
Up to \$25	62	2.1%	79%	Up to \$10	56	2.2%	96%
25 - 50	98	2.3	91	10.50- 15	77	2.8	90
50 - 75	41	2.0	95	15.50- 22.50	87	2.2	86
75 & up	42	2.6	93	22.50 & up	23	1.3	78

did not rise or fall persistently with an increase in net worth, but it is significant that the largest companies had the highest profit rate and the smallest size class had the lowest proportion of profit-making companies. Manufacturers of suits wholesaling for less than \$22.50 were definitely more profitable in 1933 than those making more expensive grades.

32 Ibid., p. 60.

33 See TNEC Monograph 15, Table 24 in Appendix F.

34 The 1939 Census of Manufactures indicates that in the furniture industry there are, on the average, about two salaried officers per incorporated establishment.

35 See Table A-3 in Appendix A.

36 Walter L. Mitchell, Jr., Director of Research, Dun & Bradstreet, Inc., New York City.

37 In 1914 the 9 states that were the largest producers of furniture (including store and office fixtures) accounted for 81 percent of the total value of products; in 1935 the 9 top states accounted for 72 percent. The 5 states mentioned above retained their share almost intact, however, accounting for 53 percent in 1914 and 51 percent in 1935. See Bureau of the Census, Census of Manufactures, 1914, vol. 2, pp. 958-61, and Biennial Census of Manufactures, 1935, p. 453.

38 See Natural Business Year Council, "Furniture Manufacturers," Bulletin No. 11 (Dun & Bradstreet, Inc., March 1939).

39 The seasonal indices of retail furniture sales made by a group of New England department stores during the years 1926-30 showed an average deviation of 21.8; for furniture plant operations in the Grand Rapids district during the years 1923-31 the corresponding figure was 2.7. See National Bureau of Economic Research, Seasonal Variations in Industry and Trade, by Simon Kuznets (New York 1933) pp. 395, 409.

40 Including fuel and purchased electric energy, which together constituted no more than 4 percent of the total cost of materials.

- 41 Figures based on TNEC Monograph 15, Table 1-C in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified land and plant amounted to about 6 percent of the aggregate land and plant of all 66 companies.
- 42 Ibid. In 1936 the total unclassified inventory amounted to about 28 percent of the aggregate inventory of all 66 companies. Proportions slightly different from those given above were found for a sample of 15 larger furniture manufacturers in 1939: for this group finished goods amounted to 32 percent of total inventory, work-in-process 23 percent, and raw materials plus supplies 45 percent. See Federal Trade Commission, "Furniture Manufacturing Corporations," Industrial Corporation Reports (June 3, 1941) p. 12.
- 43 See, for example, the wholesale prices of wooden beds, dining room chairs (sets of six) and living room davenport, in Bureau of Labor Statistics, Wholesale Prices ..., cited above.
- 44 The Bureau of Labor Statistics compiles several series of lumber prices, but none of piece goods or upholstery fabric prices over the period covered by this study.
- 45 The net income figure shown in Table 7 is exclusive of realized capital gains and losses. In the sample studied here profits and losses from the sale of real estate are normally so small as to be insignificant. Only a handful of companies report any gain or loss, and these, combined, had only an \$11,000 gain in 1926, a \$12,000 gain in 1931, and a \$10,000 loss in 1933. In other years the item ran even smaller - except in 1929, when a capital gain of \$1,093,000 was reported. This bonanza appears to have been absorbed by an increase in cash and government bond holdings and by investments in other enterprises, cash dividends, officers' compensation and income taxes. Because of the two latter items this inordinate gain is reflected as a loss in Table 7.
- 46 For an index of average hourly earnings in the furniture manufacturing industry see National Industrial Conference Board, Wages, Hours, and Employment in the United States, 1914-1936, by M. Ada Beney (New York 1936) pp. 104-07.
- 47 This discussion centers primarily around the industrial situation of brick and tile manufacturers, since it is mainly they who constitute the present sample.
- 48 National Research Project, Brick and Tile, by Miriam E. West (Philadelphia 1939) p. 12. In that study the output of the brick and tile industry is converted into units of 1,000 common brick, on the basis of the average relative values of the various products; for a detailed description consult ibid., pp. 23, 24, 194, 195.
- 49 The 1939 Census of Manufactures indicates that in the brick industry there is, on the average, about one salaried officer per incorporated establishment.

- 50 For example, deposits of Darlington clay, widely used for fine face brick, are found primarily in eastern Ohio and western Pennsylvania.
- 51 West, op. cit., pp. 29-35.
- 52 Figures based on TNEC Monograph 15, Table 1-D in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified land and plant amounted to about one-fifth of the aggregate land and plant of all 70 companies.
- 53 Depletable assets were not shown separately on the income tax return balance sheet until 1935, and in the present study were tabulated with "all other capital assets" throughout the period covered.
- 54 Figures based on TNEC Monograph 15, Table 1-D in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified inventory amounted to about 17 percent of the aggregate inventory of all 70 companies.
- 55 For a sample of 6 principal manufacturers in the clay products industry the inventory composition differed somewhat from that shown here. Finished goods constituted roughly 60 percent of total inventory, raw materials about 30 percent, work-in-process about 10 percent, and supplied a scant 2 to 4 percent; see Federal Trade Commission, "Clay Products (Other than Pottery) Manufacturing Corporations," Industrial Corporation Reports (December 24, 1940) p. 14. These differences, however, may merely indicate differences in the two industries
- 56 For composite wholesale prices of brick and tile see Bureau of Labor Statistics, Wholesale Prices ..., cited above.
- 57 For composite wholesale price of bituminous coal, mine run, see ibid.
- 58 West, op. cit., p. 84, observes that "Prices in the [brick and tile] industry are more stable than production, reflecting the relative inelasticity of demand and elasticity of supply which operate drastically when prices fall below the cost of production."
- 59 For average hourly earnings in 1929 and 1935 see ibid., p. 143; for average hourly earnings in the brick, tile and terra cotta industry, 1932-36, see Bureau of Labor Statistics, "Hours and Earnings ..." (cited above) p. 16.
- 60 The significance of business conditions in this industry as a cyclical indicator is attested by the fact that an index of machine tool orders running back as far as 1919 is widely circulated.
- 61 This is the effect of the so-called acceleration principle. For a highly simplified illustration of this principle we may assume

a machine tool manufacturer A, a textile machine manufacturer B, and a textile mill C, with B and C under the necessity of replacing their machines every 10 years. If the demand for C's products falls 5 percent C can curtail half his machinery purchases from B, other things remaining equal, because he can use machines that would otherwise be idle instead of replacing those that are worn out. This, however, is sufficient inducement for B to stop all purchases of machine tools from A. Actually, of course, the operation of the principle is much more complex than this illustration suggests.

- 62 Based on the 1930 inventory of metal working equipment reported in American Machinist (February 12, 1931), cited in C. E. Fraser and G. F. Doriot, Analyzing Our Industries (New York 1932) p. 189.
- 63 For example, that followed in the Tariff Act of 1922 and the Census of Manufactures. The definition of machine tools followed by the National Machine Tool Builders Association excludes such items as forging machines and presses.
- 64 Higher-class, more accurate lathes are usually constructed by manufacturers that operate on a larger scale and are more fully equipped than most of the companies in our sample.
- 65 The 1939 Census of Manufactures indicates that in the machine tool industry there are, on the average, about two salaried officers per incorporated establishment.
- 66 See Manufactures, 1929 (cited above) vol. 2, pp. 1155, 1162.
- 67 Figures based on TNEC Monograph 15, Table 1-E in Appendix F, where the breakdown is presented by years. In 1936 the total unclassified land and plant amounted to about 6 percent of the aggregate land and plant of all 118 companies.
- 68 Ibid. In 1936 the total unclassified inventory amounted to almost a third of the aggregate inventory of all 118 companies. This meagreness of classification is probably to be attributed to the length of the manufacturing process as well as to carelessness in reporting.
- 69 Figures for 1939 covering 8 large manufacturers of machine tools and 7 large manufacturers of accessories show the work-in-process component to constitute 51 percent of total inventory for the former and 39 percent for the latter; see Federal Trade Commission, "Machine Tool Manufacturing Corporations" and "Machine-Tool Accessory and Machinists' Precision Tool Manufacturing Corporations," Industrial Corporation Reports (December 31, 1940, p. 12, and April 1, 1941, p. 12, respectively).
- 70 This is not so true of accessory manufacturers.
- 71 For average hourly earnings in the "machines and machine tools" industry see Beney, op. cit., pp. 88-91.

- 72 Since the workers who were dismissed during the early part of the depression were those that received relatively low wages the average hourly earnings of the remaining workers increased.
- 73 The figures are presented and analyzed in C. L. Sutula, "Machine Tool Companies, 1936-1940" (ms., April 17, 1941), a report prepared in the Research and Statistics Subdivision of the Securities and Exchange Commission.
- 74 For tabulations covering these samples of 18 registered and 6 un-registered companies see ibid.

CHAPTER THREE

- 1 Strictly speaking the 1926-29 period was not entirely one of expansion; there was a mild recession in 1927. But the 1927 decline was not marked in the annual data analyzed here, and for convenience in analysis we have grouped all four years, 1926-29, into one period.
- 2 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. These financial ratios, and also most of the others analyzed in this report, are ratios of aggregates. For the distinction between a ratio of aggregates and a mean ratio see Appendix C.
- 3 Mean ratios, based on TNEC Monograph 15, Table 67 in Appendix F.
- 4 See Tables 2, 4, 6, 8 and 10 in Chapter 2.
- 5 Tables B-10 to B-14 in Data Book (see footnote 16 of Chapter 1).
- 6 See TNEC Monograph 15, Tables 1-A to 1-E in Appendix F.
- 7 Further evidence of this attitude is the fact that these small enterprises also had very little preferred stock in their capital structure, as will be shown presently.
- 8 A contributing cause may be the fact that instalment purchases of equipment are fairly common among bakeries.
- 9 It is true that some of the largest companies are too big for even the capital market to treat them in an "impersonal and standardized" manner. But the distinction brought out above has general validity.
- 10 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F.
- 11 Federal income tax regulations require that they be capitalized.
- 12 A net contraction of fixed property occurs when the depreciation charge exceeds fixed property expenditures. The term "outlays" is frequently used in the text as synonymous with "expenditures," although in accounting practice a distinction is sometimes made between the two.

- 13 This is a simplified statement, for it assumes that no undepreciated retirements are changed to the profit and loss account, and it excludes from fixed property expenditures an amount equal to the total of any cash sales of land and plant that may have occurred. See detailed explanation in Data Book, discussion of Tables B-10 to B-21.
- 14 Depreciation charges are notoriously defective as measures of obsolescence, and wear and tear of plant and equipment. It is especially hazardous to rely on them in an analysis of the income tax returns of small companies, such as those in the present samples, for such establishments tend to charge all the depreciation the Bureau of Internal Revenue will allow. In a random and fairly large group of companies this overstatement of depreciation is probably minimized by the fact that under the regulations no further depreciation is allowed on fully depreciated property. The Bureau of Internal Revenue's depreciation allowances are not necessarily liberal; indeed, some accountants regard them as inadequate. Nevertheless, the amounts reported may deviate widely from actual capital consumption, not only because of misreporting but also because the statutory concept of depreciation is not wholly in accordance with the economic concept.

A disturbing factor of somewhat greater importance is the understatement of depreciation resulting from the inclusion of this item in "cost of operations" or "other deductions." Since this charge is important in the determination of taxable income, there is considerable pressure to show it separately somewhere on the return, and where this was done it has been picked up and included in the present tabulations. Cases undoubtedly exist, however, where depreciation was lumped with some other deduction, and hence could not be identified.

A guess as to the net effect of all these forces on the reliability of the depreciation estimates shown here would be hazardous. Some of them make for an overstatement, others for an understatement. In the present situation the depreciation charges of these companies are taken to represent anticipated capital consumption because they are business data (on which most of this study is based) and because they are the nearest approximations to the desired figures on anticipated requirements for plant replacements. For a thorough discussion of this problem see National Bureau of Economic Research, Capital Consumption and Adjustment, by Solomon Fabricant (New York 1938).

- 15 There is also another qualification, elaborated below, regarding the validity of attributing all of the accounting revaluations made during the period 1927-36 to capital consumption occurring in this period.
- 16 Based on Tables B-10 to B-20 in Data Book. A special adjustment, explained there, has been made in the figures for the furniture sample.
- 17 For annual data on writeups and writedowns see Tables B-15 to B-19 in Data Book.



- 18 The sharp falling off of fixed property expenditures in 1930 is in conspicuous contrast to the experience of large corporations, whose expenditures of this nature declined a bare 4 percent in that year. See National Bureau of Economic Research (Financial Research Program), Financing Large Corporations, 1920-39, by Albert R. Koch (ms. 1942).
- 19 The validity of this assumption is examined below.
- 20 For a group of 62 of the 118 machine tool companies the increase continued through 1939, the last year for which data are available; the figure rose steadily from 15 percent in 1936 to nearly 22 percent in 1939. See Table B-6 in Data Book.
- 21 It should be noted that these proportions are derived from averages of individual company ratios rather than from ratios of aggregate accounts payable or aggregate notes payable to aggregate total assets. These so-called mean ratios have been used here because they give no more weight to the experience of relatively large companies in the samples than to that of relatively small ones, and because they permit calculations of the statistical significance of the ratio movements - a consideration of some importance in this instance.
- 22 In this industry the figures appear to indicate a considerable change, but because of the sample's large standard deviation for this particular ratio, the change is not statistically significant. The movements of the ratios for baking, men's clothing and machine tool are significant even at the 5 percent level, which is rigorous for financial statements data; for stone-clay the change is significant at the 6 percent level, and for furniture only if the criterion be raised to 11 percent. For a detailed discussion of the test see Appendix C.
- 23 Among large corporations - those of more than several million dollars in assets - accounts payable seem to have decreased during this period, in relation to total assets. See Koch, op. cit., Chapter 4.
- 24 The supplementary ratios discussed here can be derived from TNEC Monograph 15, Tables 1-A to 1-E in Appendix F.
- 25 Based on Tables B-10 to B-14 in Data Book. The figures have been adjusted for accounting revaluations, as explained there.
- 26 Federal Trade Commission, Industrial Corporation Reports, pertaining to "Bread and Bakery Products Manufacturing Corporations" (October 22, 1940), "Men's, Youths' and Boys' Clothing Manufacturing Corporations" (January 21, 1941), "Furniture Manufacturing Corporations" (June 3, 1941), "Clay Products (Other than Pottery) Manufacturing Corporations" (December 24, 1940), "Machine Tool Manufacturing Corporations" (December 31, 1940), and "Machine-Tool Accessory and Machinists' Precision Tool Manufacturing Corporations" (April 1, 1941), Exhibit A in each report.

- 27 See National Bureau of Economic Research (Financial Research Program), Capital and Credit Requirements of Federal Reserve Bank Industrial Loan Applicants, by Charles L. Merwin and Charles H. Schmidt (ms. 1942) Table D-1 in Appendix D.
- 28 It might be contended that the year-end data analyzed here can give no accurate indication of changes in the sources of short-term credit, since they do not reflect the seasonal patterns of these industries. In none of the five industries, however, was there a marked change in seasonal pattern. There is statistical evidence that the amplitude of the seasonal fluctuation diminished somewhat in brick production (see National Research Project, Brick and Tile, by Miriam E. West, Philadelphia 1939, p.35); and one writer (see National Recovery Administration, Division of Review, The Men's Clothing Industry, by J. W. Hathcock, Work Materials No. 58, mimeograph, March 1936) has alluded to a flattening of the production seasonal in men's clothing. But changes of this character could have had only a negligible effect on short-term financing requirements over the 1926-36 period, and in the other industries there was either no seasonal pattern to speak of (baking and machine tool) or no apparent change in the pattern (furniture).
- 29 Based on Tables B-10 to B-14 in Data Book.
- 30 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. Of the sample of 118 machine tool companies a group of 62 reported the following percentages for subsequent years: 15.5 for 1936; 19.1 for 1937; 19.4 for 1938; and 19.5 for 1939. These figures are based on Table B-6 in Data Book.
- 31 See Department of Labor, Bureau of Labor Statistics, Wholesale Prices in the United States (issued monthly).
- 32 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. Of the sample of 118 machine tool companies a group of 62 reported the following percentages for subsequent years: 11.0 for 1936; 12.2 for 1937; 17.6 for 1938; and 14.3 for 1939. These figures are based on Table B-6 in Data Book.
- 33 A similar conclusion respecting the decline of the commercial loan from 1928 to 1937 has been advanced in another study of the National Bureau's Financial Research Program, The Financial Structure of American Business, by Sidney S. Alexander (ms. 1942). There it is suggested that even though notes payable may not have fallen sharply in relation to total assets, there was a sizable fall of total assets and a corresponding fall in commercial loans. The principal decline in the commercial loan, however, is attributed by Alexander to the large corporations in the period 1920-27.
- 34 This discussion of trade credit terms is based largely on interviews with specialists at the National Credit Office, Inc., and at Dun & Bradstreet, Inc., in New York City, and on letters from trade association officers and others in the industries concerned.

- 35 These terms represent 10 percent discount if payment is received in 10 days from date of invoice, 8 percent in 60 days, or 7 percent in 4 months; if the 7/4 terms are chosen, the invoice is dated December 1 or June 1, depending on whether the goods are shipped in the fall season or the spring season.
- 36 Slide fasteners (such as Talon), which came onto the market in the early 1930's, have consistently sold on terms of n/25 proximo (net on the 25th of the following month).
- 37 Bakers frequently purchase ovens, machinery and other equipment on instalment terms, and some of these purchases (but probably not many) may enter into their accounts payable. Sellers of such equipment try to get 10 to 25 percent down, with the balance payable in from 12 to 36 months, in equal monthly instalments at a charge of 6 percent. Such terms are as liberal now as before the depression of the 1930's.
- 38 These terms, introduced in the late 1920's, mean that the discount is granted if parts shipped from the 1st to the 15th of the month are paid for by the 25th, and if parts shipped after the 15th of the month are paid for by the 10th of the following month.
- 39 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. Of the sample of 118 machine tool companies a group of 62 reported the following percentages for subsequent years: 139 for 1936; 125 for 1937; 109 for 1938; and 120 for 1939. These figures are based on Table B-6 in Data Book.
- 40 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. Of the sample of 118 machine tool companies a group of 62 reported the following percentages for subsequent years: 160 for 1936; 121 for 1937; 105 for 1938; and 102 for 1939. These figures - which are based on Table B-6 in Data Book - suggest that in the machine tool group the excess of outstanding customer credit over mercantile credit virtually vanished after 1936.
- 41 Based on TNEC Monograph 15, Tables 1-A to 1-E in Appendix F. These are book figures; accounting revaluations have not been eliminated.
- 42 Such statements sometimes do show, as a current asset, the margin of receivables withheld by the factor, or the money left on deposit with him.
- 43 Accounts receivable financing is relatively common among small, undercapitalized enterprises, but while it is known that the companies in the present samples are small, it is not certain that they are also undercapitalized. See National Bureau of Economic Research (Financial Research Program), Accounts Receivable Financing, by Raymond J. Saulnier and Neil H. Jacoby (ms. 1942).
- 44 The receivables of large manufacturers, too, appear to have declined. Cf. Koch, op. cit.

- 45 Non-durable includes semi-durable (men's clothing) as well as perishable (baking).
- 46 Corresponding data for the machine tool industry are not available because of the heterogeneity of the products.
- 47 See National Bureau of Economic Research, The Output of Manufacturing Industries, 1899-1937, by Solomon Fabricant (New York 1940) p. 294.
- 48 It is not possible to make a detailed comparison of the cyclical turns in the business done by the sample companies and by the industries they represent, because the value of products series for the industries as a whole are biennial rather than annual.
- 49 Based on Table B-14 in Data Book, where the nature of the sources and uses of funds statement is explained.
- 50 Based on Table B-13 in Data Book.
- 51 On the other hand, not all the consumption of fixed assets could be called productive; some of the depreciation charged by these companies undoubtedly represents the expiration of fixed assets in idle capacity.
- 52 Based on Tables B-10 to B-14 in Data Book. The figures have been adjusted for accounting revaluations, as explained there.
- 53 See National Bureau of Economic Research (Financial Research Program), Term Lending to Business, by Neil H. Jacoby and Raymond J. Saulnier (New York 1942) and Merwin and Schmidt, op. cit.

CHAPTER FOUR

- 1 The Robert Morris Associates, under the leadership of Alexander Wall, have pioneered in the work of credit analysis. The method they follow is that of preparing average balance sheet and income account relationships for each of many industries. These relationships, expressed in the form of a common-size balance sheet and income account, may then be used by credit managers of the client banks in order to ascertain whether the financial ratios of a loan applicant are above or below the average in the given industry. The data underlying the Robert Morris Associates' tabulations are taken from the financial statements in the credit files of the client banks.
- 2 The possibility that a few companies discontinued for technical or voluntary reasons makes it necessary to refer to the group as "discontinuances" rather than use the much more convenient term "failures." To the extent that the group includes such companies our findings represent an understatement of the portents of actual failure.

- 3 It was assumed that discontinuance occurred during the twelve months following the year covered by the last income tax return, unless that return contained a definite indication to the contrary. Thus a company whose last return covered 1934 was presumed to have disappeared in 1935; its first year before disappearance was 1934, its second 1933, and so on. A corporation that filed a 1936 return was regarded as a surviving company even though it may have gone out of business in 1937 or thereafter; the year 1936 does not figure in any of the year-before-discontinuance tabulations of the present sample. R. F. Smith and A. H. Winakor, in their pioneering study entitled Changes in the Financial Structure of Unsuccessful Industrial Corporations (University of Illinois, Bureau of Business Research, Bulletin 51, 1935), seem to have been the first to use this type of analysis. Their study covers 185 companies that failed some time during the period 1921-31.
- 4 Strictly speaking, some of these financial statements covered a 12-month period other than the calendar year; these have been grouped with the statements covering the nearest calendar year.
- 5 Comparable tabulations for all the disappearing companies, covering up to ten years before discontinuance, also are available (see TNEC Monograph 15), but have not been used in this study because the tables covering the identical sample are more amenable to analysis. The two samples, identical and non-identical, show, however, essentially the same picture. A student who wishes to extend the analysis presented here by bringing in other financial statement items, more years before discontinuance, and larger samples, may safely be referred to the larger body of tabulations.
- 6 Current liabilities plus long-term debt. In computing the net worth to total debt ratio credit analysts commonly restrict the numerator to tangible items by subtracting from the net worth shown on the books any intangibles, such as goodwill, that appear on the asset side of the balance sheet. Limitations of the available data prevented us from following the same procedure here.
- 7 Current assets minus current liabilities.
- 8 Details of the differences between the financial structures of the discontinuing and continuing small corporations are presented in Tables B-22 to B-26 in Data Book (see footnote 16 of Chapter 1).
- 9 The method of deriving the estimated normal is explained in detail in Appendix D.
- 10 The analysis in this chapter is based on ratios of aggregates unless otherwise indicated. For the distinction between mean ratios and aggregate ratios see Appendix C.
- 11 For details of this test see Appendix D. There were not enough

cases to apply this test of significance to each industry separately.

- 12 R. F. Smith and A. H. Winakor, op. cit., found that in their sample this ratio gave the first indication of approaching failure.

APPENDIX A

- 1 Willard Thorp, then Director of TNEC studies in the Department of Commerce, originally proposed these tabulations; the undertaking was supervised by Robert R. Nathan, then chief of the National Income Division of the Bureau of Foreign and Domestic Commerce.
- 2 In Monograph 15, published by the TNEC under the title Financial Characteristics of American Manufacturing Corporations, by Charles L. Merwin (Washington 1940), these tabulations were examined cursorily; their compilation was described in detail in Appendix D of that monograph (pp. 183-95), and the more important tables were presented in full in Appendix F (pp. 199-416). Before their publication the Department of commerce made all of these tabulations available to the National Bureau of Economic Research for analysis in connection with a study of the financial requirements of business. All the tables, whether or not published in the monograph just cited, are available to accredited students in the Source Book of Statistics of Income, maintained in worksheet form by the Treasury Department in Washington. Adaptations of Monograph 15 tables, for the purposes of the present study, and also certain basic tables not published in the monograph, are collected in National Bureau of Economic Research (Financial Research Program), Data for Studies in Business Finance (ms. 1942), referred to in this study as Data Book.
- 3 A great deal of care was taken in this process, which included not only a thorough search of the Bureau of Internal Revenue files in Washington but also a check of the Collectors' records in the districts covered.
- 4 The collection districts represented by the samples are:
 - New England - Massachusetts; Rhode Island (for machine tools only).
 - East - New York second and third; Pennsylvania first.
 - Middle West - Ohio first, tenth, eleventh and eighteenth; Illinois first and eighth; Missouri first and sixth.
 - South - North Carolina; South Carolina; Georgia; Kentucky; Alabama; Texas first and second.
 - West - California first and sixth; Colorado.
- 5 The regions, and their component states, are:
 - New England - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.
 - East - New York, New Jersey, Pennsylvania, Delaware, Maryland and the District of Columbia.

Middle West - Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas.

South - Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma and Texas.

West - Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon and California.

- 6 By special request of the Securities and Exchange Commission the Treasury-WPA Income Tax Study carried forward through 1939 the tabulations for an identical sample of 62 of the 118 small corporations manufacturing machine tools. See Table B-6 in Data Book for basic data on this special tabulation.
- 7 The tabulations for this sample are available, however, in TNEC Monograph 15.
- 8 These tabulations are not presented in Monograph 15 because they were compiled after its publication. They are available, however, in the Source Book of Statistics of Income, mentioned above (footnote 2). The original tabulations, which show an asset-size breakdown, cover, in addition to the sample used in the present study, another sample identical for the last five (rather than the last six) years before discontinuance. Naturally the samples covering only five years before discontinuance are somewhat larger than those covering six.
- 9 Based on TNEC Monograph 15, Table 7-9 in Appendix F.
- 10 Ibid.
- 11 The ratios used in the text are calculated from the dollar figures available in TNEC Monograph 15; their calculation from the percentages given in the Data Book tables will sometimes give slightly different results.

APPENDIX B

- 1 In using the Statistics of Income data, volume of business has been interpreted as gross sales plus gross receipts from operations: in using the Census of Manufactures data it has been interpreted as value of product.

APPENDIX C

- 1 The arithmetic mean ratio is the average of the ratios for the individual companies, each company being weighted equally. For example, the arithmetic mean ratio of A to B for 5 companies is

$$\frac{A_1/B_1 + A_2/B_2 + A_3/B_3 + A_4/B_4 + A_5/B_5}{5}$$

- 2 Standard references on this subject include: R. A. Fisher, Statistical Methods for Research Workers (London and Edinburgh, 6th ed. 1936) Chapter 5; G. Udney Yule and M. G. Kendall, An Introduction to the Theory of Statistics (London, 11th ed. 1937) Chapters 20 and 23; and George W. Snedecor, Statistical Methods Applied to Experiments in Agriculture and Biology (Ames, Iowa, 1937) Chapters 2, 3 and 4.
- 3 The ratios tested here are presented in Tables B-7 and B-8 in the Data Book, and pertain to all continuing companies in each sample, not only to those that reported accounts payable separately.
- 4 For the men's clothing companies the percentage changes given here are based on estimates, because a relatively large number of companies fell in the open-end class.
- 5 The indicated probability is based on the null hypothesis that the ratios for the universes remained constant.
- 6 On men's clothing see footnote 4 above; for the larger men's clothing companies the ratio moved downward rather than upward.
- 7 This term is used in its statistical sense, to mean universe of discourse, which in the present instance includes all the incorporated enterprises with assets under \$250,000 in the precise industries represented by these samples.
- 8 This principle is used also in Appendix D, in testing the significance of the divergence between selected ratios for continuing and disappearing companies, a divergence that widens persistently as year of disappearance draws near.
- 9 For this ingenious formula the writer is indebted to Sidney S. Alexander and Carl Kayser, of the Financial Research staff of the National Bureau of Economic Research.
- 10 Total assets were frequently employed in Chapters 2 and 3 as the denominator or base of reference, and therefore this limitation of applicability is not serious in the present instance.
- 11 Presented in TNEC Monograph 15, Tables 6-A to 6-E in Appendix F.

APPENDIX D

- 1 The analysis in this appendix is based on ratios of aggregates; the distinction between mean ratios and aggregate ratios was discussed in Appendix C.
- 2 Based on TNEC Monograph 15, Table 1-A in Appendix F. Since the tabulations covering the identical sample of discontinuances do not show government bonds separately from other investments, the current ratio for the discontinuing companies does not include government bonds in the numerator. Therefore in computing esti-

mated normals this item has been omitted from the current assets of the identical sample of continuing companies.

- 3 Milton Friedman, "Use of Ranks to Avoid the Assumption of Normality Implicit in the Analysis of Variance," in Journal of the American Statistical Association, vol. 32 (1937) pp. 675-701.
- 4 When the values of the differences in two, or more, years before discontinuance are equal, each is given the same rank, that rank being an average of the combined ranks which the values could be assigned. For example, if the values of the differences in the sixth and third years before discontinuance were equal and the lowest of all the values appearing, each would be given a rank of 5.5 as the average of the two ranks to be shared, 5 and 6.

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