

This PDF is a selection from an out-of-print volume from the
National Bureau of Economic Research

Volume Title: The Pattern of Corporate Financial Structure: A Cross-Section
View of Manufacturing, Mining, Trade, and Construction, 1937

Volume Author/Editor: Walter A. Chudson

Volume Publisher: NBER

Volume ISBN: 0-870-14135-X

Volume URL: <http://www.nber.org/books/chud45-1>

Publication Date: 1945

Chapter Title: Fixed Capital Assets and Long-Term Investments

Chapter Author: Walter A. Chudson

Chapter URL: <http://www.nber.org/chapters/c9214>

Chapter pages in book: (p. 81 - 93)

FIXED CAPITAL ASSETS AND LONG-TERM INVESTMENTS

FIXED CAPITAL ASSETS and long-term intercorporate investments both have characters somewhat different from the relatively short-term assets and liabilities discussed in previous chapters, since they represent past prices and revaluations to a considerably greater extent, on the average, than the working capital components. This fact is particularly relevant to the analysis of ratios involving fixed capital assets. A comparison of fixed capital assets with either sales or total assets involves two valuations which are, to some extent, related to different periods of time and to different levels of prices. Each ratio, therefore, provides a measure of operating relationships which is less accurate than the ratios for the current items, although we must hasten to add that the latter ratios are not completely free of the same criticism, particularly in periods of rapidly changing prices. On the other hand, since long-term assets are not subject to seasonal fluctuations, ratios of these items to sales may express inter-industrial differences more significantly than do the ratios for the current items. This is not necessarily true of the ratios based on total assets, however, since cyclical and seasonal fluctuations in the other balance-sheet components may affect the relative proportion of the long-term assets.

FIXED CAPITAL ASSETS

Industrial Variations

Fixed capital assets of all nonfinancial corporations in the United States in 1937 constituted 56 percent of total assets. This figure reflects the heavy fixed capital investments of public utilities and railroads; the ratios for manufacturing and trade were 39 and 20 percent, respectively. The turnover of fixed capital for all nonfinancial concerns, measured in terms of sales, was 1.4 times per annum; for manufacturing and trade as a whole, it was 2.8 and 11.5 times per annum, respectively. The trade figure reflects primarily the turnover in retail trade; in wholesale trade, where fixed

capital assets are not so important, the turnover was about three times as rapid as in retail trade. Measured in terms of commodity production, the fixed assets of manufacturing and trading concerns, incorporated and unincorporated, were the equivalent of six months' output.¹ For manufacturing, fixed capital assets (at current valuations) exceeded inventory by a half; in retail trade, the value was almost equal to that of inventory; and in wholesale trade, fixed capital assets were about one-third the size of inventory.

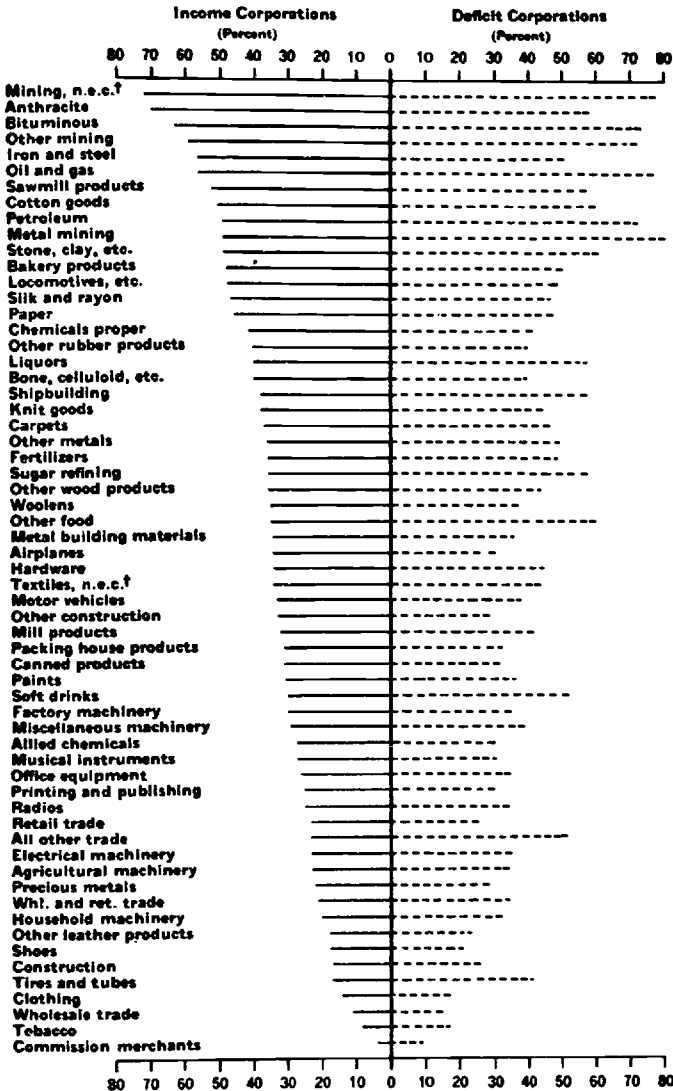
A comparison of the ratio of fixed capital assets to sales and the ratio to total assets reveals a high degree of similarity in the rankings of the minor industrial divisions for both income and deficit corporations—a condition that reflects the pronounced differences in fixed capital assets among industries (Chart 10 and Table C-28 in Data Book). Further indication of the marked differences in capital assets among industries is found in the fact that the industrial rankings of the ratios for 1937 and 1931 resemble each other closely and to a greater extent than in the case of any other balance-sheet account.²

Among the minor industrial divisions differences in the two fixed capital ratios appear to be based largely upon differences in techniques of production. Relatively high ratios (particularly on a sales base) are found in a number of industries making predominantly producers' goods, such as stone, clay, and glass products, railroad equipment, and various branches of metal products. At the other end of the scale are industries predominantly representative of consumers' goods, such as clothing and apparel, packing house products, boots and shoes, musical instruments, precious metals, and tobacco. A formal test of the classification according to producers' and consumers' goods for the ratio of fixed capital to sales reveals that producers' goods industries have a significantly higher average (43 percent) than the consumers' goods industries

¹ The fixed capital assets of unincorporated enterprises were estimated from census data on sales in the same manner as was inventory in Chapter 2. Data on commodity production were secured from unpublished estimates of Mr. George Terborgh, formerly of the Board of Governors of the Federal Reserve System.

² A test of the SEC data for the ratio of fixed capital to total assets reveals that industrial differences among major groups are statistically significant. The major industrial groups, however, are not a very satisfactory basis of classification with respect to fixed capital assets, since the industrial variation within these categories is considerable. For example, the food group includes packing houses, with a very low ratio of fixed capital to sales, and sugar refining, with a high ratio. Textiles and metals likewise include minor industrial groups with widely differing ratios.

Chart 10—RATIO OF FIXED CAPITAL ASSETS TO TOTAL ASSETS FOR INCOME AND DEFICIT GROUPS OF MINOR INDUSTRIAL DIVISIONS, 1937*



*Based on data from *Source Book of Statistics of Income for 1937*. For composite of income and deficit corporations, see Data Book (National Bureau of Economic Research) Table C-28.

†Not elsewhere classified.

(30 percent). This difference may reflect a greater degree of vertical integration as well as a greater use of heavy, elaborate, and more expensive machinery among concerns in the producers' goods classification.

Industrial differences in fixed capital assets are associated to some extent with differences in the average asset size of corporations, the capital assets being relatively greater among industries that include corporations of large average size. The relationship is stronger for the fixed capital/sales ratio than for the fixed capital/total assets ratio, possibly because of a greater tendency toward vertical integration among the large corporations.

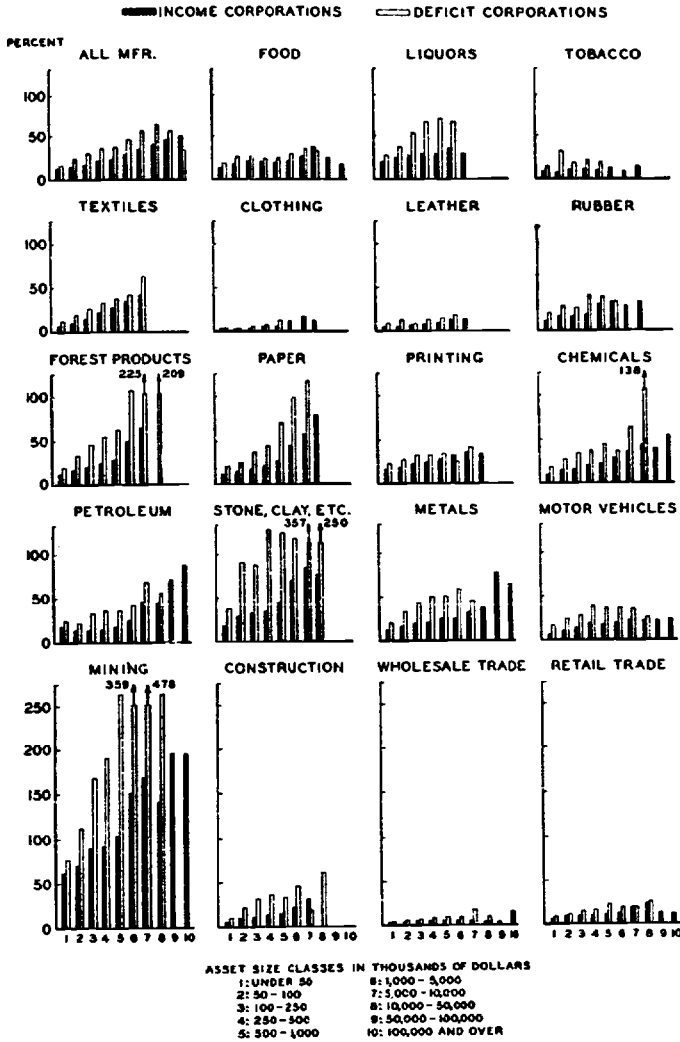
Industrial differences in profitability are not strongly related to industrial differences in the fixed capital ratios. The more profitable groups show a slight tendency toward having low ratios of fixed capital assets to sales, but no significant rank correlation is evident for the ratio of fixed capital to total assets. Such results are to be expected: A high turnover of fixed capital would be symptomatic of a relatively high level of profitability, other things being equal; on the other hand, there is little reason why profitable industries, compared with unprofitable groups, should have relatively smaller or larger investments in fixed than in current assets, despite the fact that they can afford larger investments in improved machinery and equipment. The reason for this is that the profitable industries also have larger investments in cash and marketable securities as well as in inventories and receivables, with the result that there is little difference between the fixed capital/total assets ratio among industries of varying profitability.

Variations with Corporate Size

A popular assumption has been that the larger the size of corporations the greater their ability to take advantage of more efficient techniques calling for large fixed capital investments. Do the data on fixed capital assets support this assumption?

When compared with sales, the fixed capital assets of most major industrial groups increase with size sharply and, on the whole, consistently (Chart 11). Comparisons of the ratios for income and deficit corporations of the same industry for the same year, and of those for 1937 and 1931, reveal a high degree of similarity. Superficially, this strong positive variation of the fixed

Chart 11—RATIO OF FIXED CAPITAL ASSETS TO SALES FOR INCOME AND DEFICIT GROUPS OF MAJOR INDUSTRIAL DIVISIONS, 1937, BY ASSET SIZE*



*Based on Table C-20 in Data Book (National Bureau of Economic Research). Wholesale and retail trade figures are for the year 1938.

capital/sales ratio might be taken as striking evidence of the substantial use of labor-saving machinery among large corporations. In all probability, however, the result is largely attributable to another factor, namely vertical integration, which, as we have seen in the analysis of the turnover of inventory, tends to increase with corporate size, and the general effect of which is to increase the volume of assets relative to the volume of sales. A large proportion of heavy equipment and vertical integration would contribute to the same result; the separate contribution of each factor cannot, of course, be determined.

The ratio of fixed capital to total assets shows less consistent and less pronounced variations with corporate size than the capital assets/sales ratio. In manufacturing as a whole and in slightly over half the major industrial divisions, a mildly direct relationship is evident between the ratio and the size of corporations, although the variations are not highly consistent from one size class to another. A large number of groups, such as food, tobacco, clothing, leather, printing, motor vehicles, construction, and wholesale and retail trade, exhibit inverse or highly erratic variations. (See Table C-8 in Data Book.)

In interpreting the variations of the fixed capital/total assets ratio due weight must be given to the fact that the data have been taken from unconsolidated balance sheets, in which the ratio of intercorporate investments to total assets increases sharply with the size of corporation. Consolidated statements undoubtedly would show a stronger tendency for the ratio of fixed capital to total assets to increase with corporate size; but the rise of even this ratio would not be so sharp as that of the ratio of fixed capital assets to sales. The ratio of fixed capital to total assets, based on SEC data which are filed largely on a consolidated basis, varies erratically, except for a fairly sharp rise among corporations with total assets of more than \$100,000,000. A formal test shows that the differences among size classes are not statistically significant.³

³ The ratio of fixed capital assets to total assets, based on the SEC data, varies with corporate size as follows:

<i>Asset Size</i> (in millions)	<i>Ratio</i> (percent)	<i>Asset Size</i> (in millions)	<i>Ratio</i> (percent)
Under \$1	37.9	\$20- 50	43.5
1- 3	39.6	50-100	39.6
3- 5	37.2	100-200	47.9
5-10	39.6	200-500	50.9
10-20	40.0	500 and over	54.7

Variations with Profitability

Income corporations have a consistently smaller proportion of fixed capital assets than have deficit corporations, whether the basis of comparison is total assets or sales, although the difference is more pronounced in the case of the ratio based on sales. The SEC data confirm this inverse relationship and show it to be statistically significant, as among various profitability classes.

In the case of the fixed capital/sales ratio, the higher ratios for unprofitable concerns reflect the fact that sales have been reduced without a corresponding change in the value of the fixed assets, at least in the short run. As for ratios to total assets, the same contraction of sales is reflected in an eroded working capital position, so that the proportion of fixed to total assets is relatively high.

LONG-TERM INVESTMENTS

The statutory requirement since 1934 that balance-sheet data submitted to the Bureau of Internal Revenue be in an unconsolidated form, even when affiliates are fully owned, brings into relief, as it were, the widespread volume of intercorporate investments in non-financial as well as financial institutions, and has its repercussions upon the interpretation of practically all other balance-sheet accounts. On the one hand, it permits the sharper delineation of intercorporate financial relationships. On the other hand, it makes for a rigid separation of corporations which are in actuality operated as a single unit with respect to management policy and financing, and, therefore, it may obscure the broader outlines of financial structure. Fortunately, in *Statistics of Income for 1934*, Part 2, data are available which reveal the effect of the prohibition of consolidated returns upon financial structure. This question is dealt with in Appendix C. The present section is based entirely upon unconsolidated balance sheets.

In 1937 investments of all nonfinancial corporations, apart from their holdings of government securities, amounted to \$22,400,000,000, or 14 percent of their total assets; while for all manufacturing corporations, they equaled \$8,400,000,000, or 15 percent of total assets.⁴ The magnitude of intercorporate invest-

⁴ In *Statistics of Income for 1937*, Part 2, these investments are described as "investments other than government obligations." By far the largest component of this item is investments in affiliates, but those marketable securities that are not government

ments can also be appraised by comparison with the total of stocks and bonds outstanding. Investments of nonfinancial corporations were 21 percent, and of manufacturing corporations 8 percent, of the stocks and bonds of all nonfinancial corporations. If financial corporations are included, intercorporate investments are, of course, much larger, indicating that "approximately half of corporate America is owned by the other half of corporate America."⁵

Still another basis for appraising the volume of intercorporate investment is a comparison of corporate income from dividends with corporate dividend disbursements. All corporations, including financial and nonfinancial, received 34 percent of all corporate dividend disbursements in 1937; nonfinancial corporations received 15 percent, and all manufacturing corporations 7 percent. Over half of the dividend disbursements were received by corporations with assets of \$100,000,000 or more.

Industrial Variations

In general, a definite relation between the volume of intercorporate investments and particular industries—apart from such outstanding exceptions as utilities holding companies—is not to be expected, and the results confirm this expectation. For the minor industrial divisions the ratio of investments to total assets varies within limits of 5 and 27 percent, with the central half of the distribution between 8 and 17 percent. (See Table C-28 in Data Book.) Among the heterogeneous group with large intercorporate investments are metal mining, household machinery, electrical machinery,

obligations, as well as mortgages and various notes owned by corporations, are also included. Our analysis treats "investments other than government obligations" as if they were entirely investments in affiliated corporations, and for convenience we shall call them simply "investments."

The extent to which "investments" are neither marketable securities nor investments in affiliates is indicated by data in *Statistics of American Listed Corporations*. An intermediate category, "other security investments," consists of nongovernmental securities, mortgages, long-term notes of various sorts, etc. In the consolidated balance sheets of the SEC, this category is actually larger than investments in affiliates, although this would not be true if unconsolidated statements were filed. The importance of such investments in the *Statistics of Income* data may be estimated indirectly by comparing them with marketable securities listed by the SEC and then comparing marketable securities with "other investments" in *Statistics of Income*. On this basis they would total 17 percent of the "other investments" of all manufacturing corporations, which represents an upper limit, since the proportion would probably be smaller in the smaller corporations.

⁵ See C. J. Hynning, *Taxation of Corporate Enterprise*, Temporary National Economic Committee, Monograph No. 9 (Washington, 1941) p. 40.

sugar refining, tires and tubes, and chemicals; and the group of industries with small intercorporate investments is equally diverse.

These industrial differences do not appear to be related to either the average asset size or the profitability of the minor industrial divisions. A low correlation between the rankings of income and deficit corporations provides further evidence of the unsystematic variation of intercorporate investments; and classification into producers' and consumers' goods industries also reveals no significant differences. Finally, the industrial rankings of 1937 and 1931 show little similarity, although part of this difference can no doubt be explained by the discontinuation of the privilege of filing consolidated returns in 1934.

Variations with Corporate Size

For all major industrial groups, the proportion of investments to total assets becomes progressively and substantially greater as size of corporation increases. (See Table C-7 in Data Book.) The ratio of investments to total assets for the income division of manufacturing corporations as a whole rises from 2 percent for the smallest size group to 24 percent for the largest size group; the corresponding range for the deficit divisions is from 2 to 15 percent. The difference between the smallest and largest size classes for manufacturing as a whole is about as great as that between the lower and upper extremes among the minor industrial divisions.⁶

The number of subsidiaries per corporation also increases sharply with corporate size. The SEC data show that the average number of subsidiaries varies from less than one for corporations with assets of less than \$1,000,000 to sixty for concerns with assets over \$500,000,000.⁷

Variations with Profitability

Although profitable corporations own a larger interest in other concerns than the unprofitable corporations in corresponding

⁶ Since consolidated returns were permitted in 1931, the increase with corporate size of the ratio of investments to total assets would be expected to be less in that year than in 1937. Surprisingly, the 1931 variations are much the same as those in 1937, with respect to both the absolute level and the relationship with size. For a further discussion of this puzzling result see Appendix C.

⁷ See *Statistics of American Listed Corporations*, Table 49, p. 166. The data refer to 1,741 corporations in manufacturing, trade, mining, and public utilities.

groups, the differences between income and deficit corporations are less pronounced than might be anticipated. The sharpest differences appear between income and deficit corporations of the larger concerns, in which intercorporate investments are heavy. Among the smaller size classes, in which investments are unimportant in general, the deficit corporations have slightly larger investments than the corresponding income concerns; this probably is due to adverse operations, which have reduced their current assets, rather than to an active policy with respect to investments.

That the link between investments and profitability is not very strong is indicated by the absence of any significant relationship between the profitability of the minor industrial groups and the relative volume of their investments. There is also little evidence that the variation of the ratio of investments to total assets with corporate size is related to the systematic differences in profitability among various size classes.

Other Aspects of Intercorporate Investments

Thus far we have dealt only with the relative volume of intercorporate investments, without giving attention to the frequency of their appearance in different groups of corporations or to the degree of ownership of the subsidiary by the parent. Such data are not available in *Statistics of Income*, but are found for large corporations in *Statistics of American Listed Corporations*. Fifty-six percent of the listed corporations had at least one subsidiary in 1937, and the total number of subsidiaries of all types was 13,233.⁸ According to the SEC's regulations, no subsidiary which is not at least majority owned (50 percent or more) may be consolidated. The total number of active, domestic subsidiaries of the listed

⁸ The SEC recognizes three types of subsidiaries: totally-held, majority-owned, and significant. A majority-owned subsidiary is defined as one of which securities representing in the aggregate more than 50 percent of the voting power are owned directly by its parent and/or one or more of the parent's majority-owned subsidiaries. A significant subsidiary is one with any of the following characteristics: (1) The parent corporation's advances to it exceed 5 percent of the parent's assets; (2) assets of the subsidiary exceed 5 percent of the assets of the parent and the parent's subsidiaries; (3) sales and operating revenues of the subsidiary exceed 5 percent of the sales and operating revenues of its parent and the parent's subsidiaries; (4) the subsidiary is the parent of one or more subsidiaries and together with such subsidiaries would, if considered in the aggregate, constitute a significant subsidiary. See Securities and Exchange Commission, *Regulation S-X Under the Securities Act of 1933 and the Securities Exchange Act of 1934* (Washington, 1940) pp. 1-2.

corporations which were consolidated in 1937 was 6,175, amounting to 47 percent of all subsidiaries and 75 percent of all active, domestic subsidiaries.⁹ The number of subsidiaries per corporation varied considerably among industrial groups. Utilities ranked highest with an average of 21 per corporation. Manufacturing corporations as a whole had 6 subsidiaries per corporation, while merchandising concerns had 5. Among manufacturing concerns, the largest average number of subsidiaries was found in petroleum refining, followed by rubber and nonferrous metals. At the other end were textiles, tobacco, and beverages.¹⁰ Practically all registrants with assets of over \$50,000,000 had active subsidiaries, while only 45 percent of those with assets of less than \$10,000,000 had such subsidiaries.

The SEC data also throw light on the extent to which subsidiaries may be consolidated when that privilege is available. In 1937, 70 percent of the total number of subsidiaries were consolidated. The categories of consolidated and completely owned subsidiaries are not identical, although they are closely associated. Of the active, domestic subsidiaries 75 percent were consolidated. Ninety percent of these consolidated subsidiaries were fully controlled. The remaining 10 percent of the consolidated subsidiaries were majority owned. Only 41 percent of the unconsolidated subsidiaries were fully controlled.

INTANGIBLES

Although of minor importance in the balance sheet as a whole, patent rights, goodwill, bond discount, and related items are substantial in some corporations. This group of intangibles is not given separately in the Internal Revenue reports, which provide a somewhat broader category called "other assets." "Other assets" in 1937 amounted to 5 percent of total assets and 14 percent of the fixed capital assets of all manufacturing corporations. From *Statistics of American Listed Corporations* we find that 3 percent of the total assets and 6 percent of the fixed capital assets of listed manufacturing corporations were net intangibles. On the basis of

⁹ Among the listed corporations themselves 141 registrants were consolidated subsidiaries of other registrants, with assets of over \$13,000,000,000. In the various tabulations of financial characteristics in *Statistics of American Listed Corporations*, these concerns have been removed to avoid duplication.

¹⁰ See *Statistics of American Listed Corporations*, pp. 161 ff.

this information we may infer that between one half and two thirds of "other assets" are intangibles. SEC data show that 50 percent of all listed corporations and 67 percent of listed manufacturing corporations reported some intangibles in 1937.

Since "other assets" are a relatively unimportant component of the balance sheet, the data in Table 9 are presented only for broad industrial groups; and the comparisons are made in terms of fixed

Table 9—RATIO OF "OTHER ASSETS" TO FIXED CAPITAL ASSETS, 1937, BY INDUSTRIAL GROUPS^a
(in percent)

Industry	"Other Assets" to Fixed Assets	
	Income	Deficit
All corporations	10.1	11.8
Mining and quarrying	5.7	5.0
All manufacturing	12.6	17.7
Food	14.3	11.3
Liquors	23.2	13.6
Tobacco	98.1	88.1
Textiles	6.1	8.5
Clothing	41.7	24.2
Leather	27.0	20.6
Rubber	36.9	12.6
Forest products	5.9	8.9
Paper	6.8	12.7
Printing	79.7	66.0
Chemicals	19.3	52.9
Petroleum	3.7	5.1
Stone, clay, glass	6.2	10.2
Metals	9.3	28.3
Motor vehicles	11.0	21.1
Trade	20.5	27.8
Wholesale	32.4	32.1
Retail	15.0	22.4
Service	7.8	5.3
Finance	37.3	33.5
Transportation and public utilities	4.6	6.2

^a Ratios for all groups except Trade are based on data from *Statistics of Income for 1937*, Part 2; those for Trade are based on data from *Statistics of Income for 1938*, Part 2.

capital assets, because of the small size of "other assets" relative to total assets. Industrial variations in "other assets" are sizable. Tobacco, printing and publishing, clothing, rubber products (in-

come group), and chemicals (deficit group) have particularly large intangibles in relation to the investment in fixed capital. The ratio of intangibles to fixed capital assets varies irregularly with corporate size, although corporations with assets under \$250,000 have considerably higher percentages than corporations of larger asset size. The differences between the ratios of income concerns and those of deficit corporations are unsystematic.