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INVENTORY

EXPLORATION OF THE STRUCTURE of the balance sheet may well begin with an analysis of inventory holdings. Not only is inventory typically larger than any other of the current assets or any of the current liabilities of nonfinancial corporations—being rivaled only by receivables—but inventory holdings also may be regarded as a possible key to the composition of the other current items. The increasing attention given in the analysis of business conditions to inventory fluctuations reflects the view that inventory is a strategic element in the flow of industrial production. With respect to financial arrangements, this emphasis suggests that changes in other current assets and, particularly, in current liabilities may be looked upon partially as adjustments to prior decisions affecting inventory holdings.

The relationship between the expansion and contraction of inventory and the fluctuations in other balance-sheet items has been extensively analyzed in companion studies in the present series. Our interest here centers upon the question whether such relationships are revealed in the static, cross-section pattern of financial structure. For example, are relatively large inventory holdings associated with a large volume of notes and/or accounts payable? This type of question will be taken up in Chapter 4. In the present chapter we direct attention to the general variations of inventory holdings among corporations of different industries, size, and profitability.

As with the other current assets and liabilities, comparisons of inventory holdings with both total assets and sales are of value.[1] Of the two comparisons, however, that with sales is of greater interest for measuring the relation of inventory to "financial re-

[1] Inventory as a percentage of sales is not an accurate measure of the relationship between inventory and production, since the margin by which sales exceed value added by production varies among different industries. As a guide to financial requirements, however, sales are more significant than value added by production.

quirements" and to production; consequently, the following discussion allots a subordinate position to inventory as a percentage of total assets.

INDUSTRIAL VARIATIONS

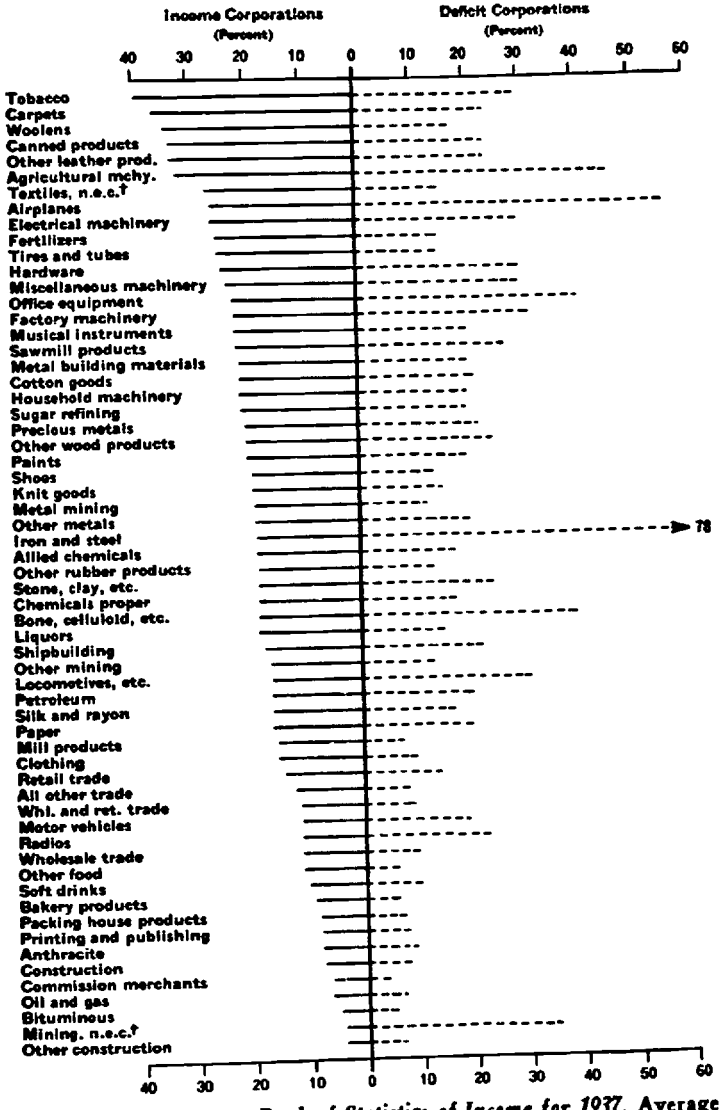
In the majority of industrial divisions of manufacturing, mining, and construction inventory amounts to between 10 and 25 percent of sales (Chart 1). For all industrial divisions (income and deficit corporations combined), the ratio varies between extremes of 5 and 39 percent, with a median value of 18 percent. (See Table C-28 in Data Book.) Interestingly enough, a number of minor industrial divisions which make very diverse types of products have similar turnover ratios. On the other hand, several major industrial groups—for example, "food" and "textiles"—exhibit a wide range of variation in the inventory turnover of the minor divisions within those groups. Chart 1 reveals that the range of variation is greater among deficit than among income corporations, and that the industrial rankings of the two groups are somewhat different. Nevertheless, a significant degree of correlation is evident between the industrial rankings of income and deficit corporations, demonstrating that industrial differences in inventory turnover tend to persist despite shifts in the level of profitability.

The fact that the ratio of inventory to sales for about two-thirds of the minor industrial divisions lies within the range of 10 to 25 percent suggests that under normal operating conditions the upper and lower limits to inventory holdings in relation to sales are fairly narrow.[2] If a concern is to remain solvent, finished inventory may not constitute too great a proportion of sales. At the same time, a minimum amount of raw materials and goods-in-process is necessary to maintain effective operations. Of course, a sharp change in the volume of operations in one branch of industry may alter notably the relative position of the inventory/sales ratio of that group.

Factors that suggest themselves as the most likely determinants of industrial variations in the inventory/sales ratio are the length

[2] This conclusion refers only to the relative position of industrial groups at a given time, and not to the level of inventory/sales ratios at different phases of business cycles. In 1931 the level of the inventory/sales ratios was generally higher than in 1937, but the range of variation among most industries was about as narrow as in the later year. Furthermore, most industrial groups retained the same ranking in the two years, indicating a high degree of stability of industrial differences.

Chart 1—Ratio of Average Inventory to Sales for Income and Deficit Groups of Minor Industrial Divisions, 1937*



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

†Not elsewhere classified.

and technical character of the production process, the perishability of the product, transportation facilities, marketing relationships both with the source of supply of raw and semifinished materials and with the agencies for distributing the finished product, and, finally, different seasonal patterns of operations. Such factors as speculative accumulation, managerial efficiency, accounting practices with respect to valuation, and changes in the price of raw materials probably do not play a significant part in determining industrial differences although they undoubtedly contribute to variations among corporations within an industry. In connection with industrial differences in inventory holdings, it is important to note that inventory may take three forms—raw materials, goods-in-process, and finished products—and that industrial variations may reflect differences in the types of inventory held.[3]

In certain lines of industry one factor apparently dominates the inventory turnover. For example, the fact that tobacco production has the highest ratio of inventory to sales of all minor divisions among income corporations probably is the result of the large volume of goods-in-process required by the long curing period, and of established marketing practices according to which the farmer disposes of all his crop to the producer who also possesses the curing facilities. The low turnover of inventory in certain branches of the machinery industry, notably electrical and agricultural machinery, also reflects the long production period, which requires a larger percentage of goods-in-process. In general, the more vertically integrated an industry is, the larger will be the proportion of its inventory-in-process to sales, other things being equal. The high ratio of inventory to sales in canning is probably related to the seasonal element in production, the balance-sheet date occurring when the season's pack has not yet been distributed to wholesalers. For carpet production, the low turnover may reflect the seasonal element in demand combined with a fairly regular

[3] Estimates based on the *Biennial Census of Manufactures: 1937* indicate that finished goods formed 44 percent of manufacturers' inventories, while "materials, supplies, fuel, work in process, and all other inventories" made up the remainder. If stocks in manufacturers' sales branches and mining inventories are included, the ratio of finished goods to total inventory is raised to 51 percent. (This latter estimate is taken from an unpublished memorandum by Mr. George Terborgh, formerly of the Board of Governors of the Federal Reserve System.) Undoubtedly this high percentage of finished goods inventory reflects the sharp recession at the end of 1937 which followed a large inventory boom.

rate of production, in contrast to the canning industry. This assumes that the date of the balance sheet refers to a seasonal low point in demand, while production continues at a rate only mildly affected by seasonal factors. Hardware products and precious metals have high inventory/sales ratios, probably reflecting a large inventory in finished products as well as raw materials and goods-in-process. Since in each of these last two cases the product is durable and short-run style changes are unimportant, large and diversified inventory of finished products may be held at small cost.

For several industries with low ratios of inventory to sales, specific explanations may also be offered. Low ratios in coal mining and in oil and gas production reflect the technical nature of the extractive process. No raw materials are essential, and stocks of goods-in-process are small in relation to sales, the length of the production process being negligible. Finally, finished stocks may be small owing to the passage of the coal and oil into the hands of separately incorporated distributors shortly after mining. In the case of oil production, the relative size of finished stocks varies as between the integrated and non-integrated companies. The low inventory/sales ratios in meat packing and baking are undoubtedly accounted for by the perishability of the product; both goods-in-process and finished inventories are relatively small. The low ratio for the construction industry reflects both the fact that construction is a service industry and the seasonal character of the industry. The balance sheet usually refers to the fiscal year-end, when the level of operations is low.

The small inventory holdings in relation to sales of the printing industry may be traced to the fact that finished inventory is negligible. Most printing work is done to order, the percentage of value added is very high, and raw materials are a minor part of the total cost. Since the production process is not long, the total effect is a very high turnover of inventory. Furthermore, printing is combined with publishing in the Internal Revenue data, and the rate of turnover in the latter is, of course, high.

Trade as a whole has a greater inventory turnover than the majority of manufacturing corporations, although many branches of manufacturing exceed trade. Wholesale trade, as might be expected, has a somewhat more rapid turnover than retail trade. Within the various branches of retail trade, the inventory/sales

ratio shows a wide range of variation.[4] Eating and drinking places have the lowest ratio, while hardware dealers have the highest; the range between the two is as great as that between the first and third quartiles of the minor industrial divisions as a whole. In general, durability of the product appears to be the most significant factor determining differences in inventory turnover among the branches of retail trade.

The ratios of inventory to total assets for the industries studied (Chart 2) exhibit a greater range of variation than the inventory/sales ratios. The rankings of minor industrial divisions, however, are roughly the same according to the two ratios, particularly among income corporations, although there are several outstanding exceptions to this generalization. Wholesale and retail trade are the most important of the exceptions. These two groups have a relatively large investment of funds in inventory, but their exclusively merchandising function produces a low inventory/sales ratio.[5]

The relative size of certain balance-sheet accounts may be associated not only with specific minor industrial divisions but also with such general categories as producers' and consumers' goods.[6] When inventory holdings are examined in this light, we find that the average ratio of inventory to sales for industries manufacturing consumers' goods (which are on the whole more perishable and have a shorter period of processing than producers' goods) is significantly lower than the average ratio for producers' goods industries, the percentages being 16 and 22, respectively. On the other hand, with respect to the ratio of inventory to total assets, the difference between producers' goods and consumers' goods industries is small.

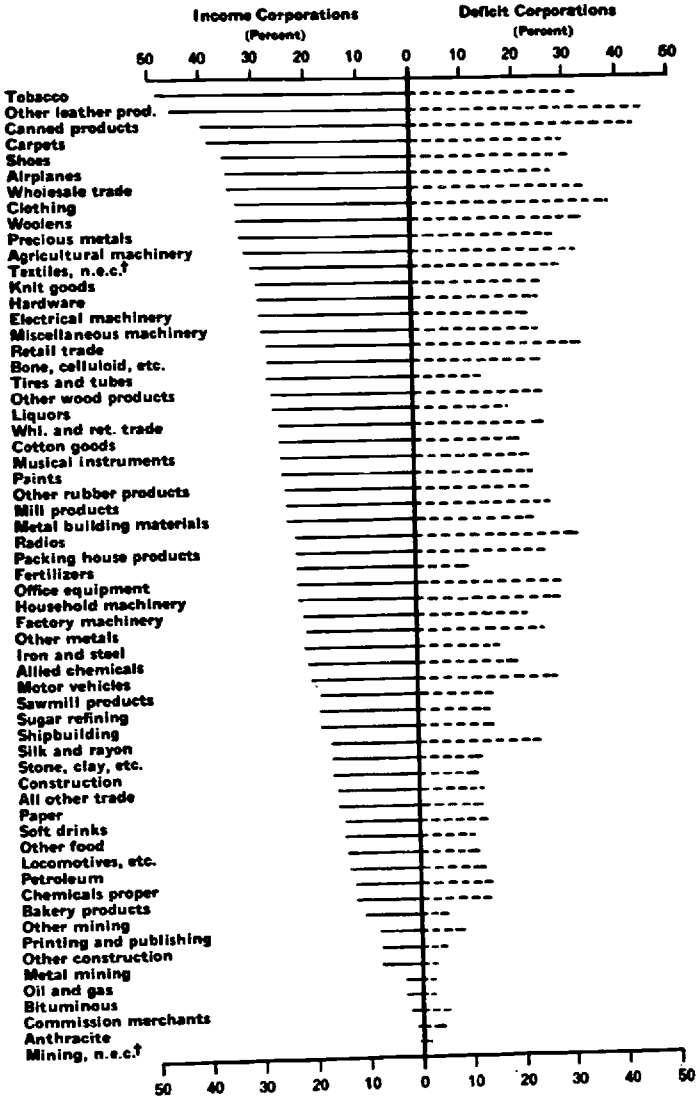
Can it be said that industries having large inventories tend to be those with small fixed capital assets? A comparison of these

[4] See Table C-30 in Data Book. The information found there relates to 1938, the first year for which balance-sheet data on the separate branches of retail trade are available.

[5] See Appendix E for a list of the branches of retail trade. Among these branches, the variation in the inventory/sales ratio appears to depend largely upon the perishability of the product. This is also true of unincorporated business, according to data in the *Census Survey of Business: 1937-38* (U. S. Department of Commerce, Bureau of the Census).

[6] See Appendix E for the classification of minor industrial divisions into producers' and consumers' goods, which is employed throughout this study.

Chart 2—Ratio of Inventory 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.

two balance-sheet components on the basis of sales reveals no significant rank correlation between the two accounts, direct or inverse, with respect to the minor industrial groups. Since inventory and capital assets account for more than half of total assets, an inverse correlation between the two items would be expected when they are compared with total assets, and such is the case. Even here, however, the correlation is far from perfect, although it is well above the level of statistical significance.

Differences among minor industrial divisions might possibly be related to differences in the average size of corporations and/or to differences in the average profitability of the divisions concerned. Analysis by the method of rank correlation, however, indicates that this is not the case with inventory, whether the comparison is made on the basis of total assets or sales.[7] As shall be seen in the following sections, inventory is related to corporate size and, to some extent, to profitability, but these factors are more important *within* than between industrial groups.

For each industry whose inventory ratios are given in Charts 1 and 2, only a composite figure is available. We do not know how typical each of the composite ratios may be, that is, how great is the dispersion of the ratios of individual corporations within each industry. Although such information for large corporations is given in *Statistics of American Listed Corporations*, published by the Securities and Exchange Commission, the data cover a cruder industrial classification, which divides manufacturing into sixteen groups; these groups approximate the major groups of the Internal Revenue data. A statistical test based on the SEC data reveals that the industrial differences between the average ratios of sales to inventory are significant despite considerable intra-industrial variation.[8] If this result is obtained for groups as broadly

[7] See Appendix D for the rank correlation coefficients upon which this conclusion is based. A detailed discussion of interaction between size, industrial, and profitability classifications will be found in Appendix B, pp. 124-26.

[8] The SEC data are published in the conventional form of turnover ratios, with inventory in the denominator. Averages of the sales/inventory ratio (in times) are:

Food	12.1	Printing and publishing	16.1	Leather	6.3
Tobacco	2.6	Chemicals	5.6	Iron and steel	6.5
Beverages	14.1	Petroleum refining	7.7	Nonferrous metals	5.0
Textiles	5.4	Rubber	5.0	Machinery and tools	5.0
Lumber	4.0	Building materials	4.9	Transportation equipment	7.4
Paper	6.6				

(concluded on next page)

defined as those in the SEC study, it may confidently be assumed that industrial differences among the minor industrial divisions are also statistically significant, with the exception that this need not be true of particular industries whose mean ratios are very close to each other.

Examination of industrial rankings over short periods of time reveals a high degree of similarity between 1931 and 1937 in the rankings of the ratio of inventory to sales and the ratio of inventory to total assets. The stability of industrial rankings in inventory turnover arises from the fact that movements of sales and of inventory are so intimately connected that in a period of general expansion or contraction of business the various industrial divisions maintain the same relative position.

VARIATIONS WITH CORPORATE SIZE

The proportion of inventory to sales rises consistently and substantially as corporate size increases for most of the major manufacturing groups and for both income and deficit corporations (Chart 3). Stated in more conventional terms, inventory turnover tends to decrease as corporations grow in size. A few exceptions to the general pattern of behavior may be noted, however. The ratios for motor vehicles and for printing and publishing (particularly in the deficit division) do not follow the general tendency closely, although even in these cases the ratio rises fairly steadily for the first four or five size classes. Wholesale trade shows rather close conformity to the general pattern for manufacturing, but in retail trade the rate of inventory turnover varies remarkably little with size of corporation. Because the degree of variation with size differs among the several major industrial groups, the rankings of

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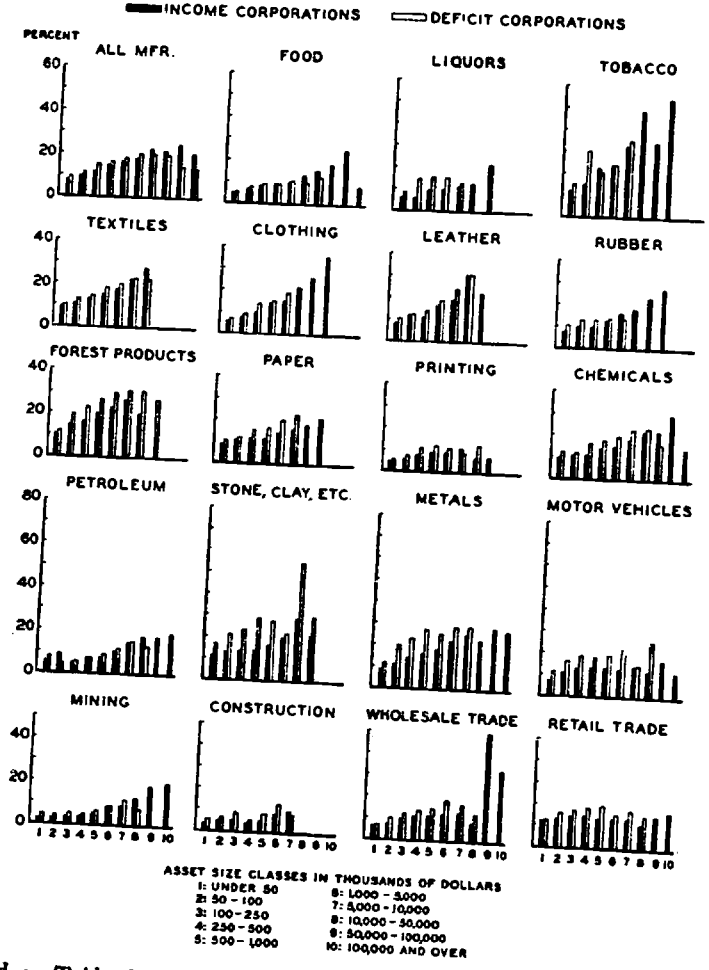
The frequency distribution of the sales/inventory ratio in manufacturing as a whole is as follows:

Ratio	*Frequency*	*Ratio*	*Frequency*	*Ratio*	*Frequency*
Under 1	5	5–5.9	107	10–14.9	84
1–1.9	51	6–6.9	83	15–19.9	35
2–2.9	131	7–7.9	63	20–29.9	37
3–3.9	182	8–8.9	38	30–39.9	12
4–4.9	141	9–9.9	38	40–49.9	2
				50 and over	6

Chart 3—Ratio of Average Inventory to Sales for Income and Deficit Groups of Major Industrial Divisions, 1937, by Asset Size*



*Based on Table C-19 in Data Book (National Bureau of Economic Research). Wholesale and retail trade figures are for the year 1938.

industries in the largest size group are not at all similar to those in the smallest.[9]

A test based on the SEC data, which show the dispersion of the inventory/sales ratio *within* size classes, indicates that differences between the mean ratios of size classes are highly significant. The ratio of inventory to sales for listed corporations increases with size in the same manner as that for corporations as a whole.[10]

The persistent rise of the inventory/sales ratio, as corporate size increases, calls for an explanation, since on general grounds there is little reason to expect much variation in inventory turnover among corporations of different sizes. The turnover of raw materials and goods-in-process would appear to depend much more on industrial characteristics than on the size of concern. As for finished inventories, some writers have suggested that large corporations might be expected to hold a smaller volume of such inventories, in relation to sales, than small corporations, since the size of large concerns enables them to practice economies.[11] Our

[9] Examination of the component minor industrial divisions within the major groups gives little indication that, on the whole, size variations can be attributed to the presence of concealed minor industries of different average asset sizes, although in liquor and beverages, rubber, and chemicals, some of the size variation may be due to the presence of such minor industries. Examination of the inventory/total assets ratio leads to the same conclusions. For a discussion of possible interaction between size and profitability classifications, see Appendix B, pp. 124-26.

[10] The variation of the inventory/sales ratio for the 1,034 listed manufacturing corporations is as follows:

Asset Class (millions)	*Aggregate Ratio of Inventory to Sales* (percent)	*Asset Class* (millions)	*Aggregate Ratio of Inventory to Sales* (percent)
Under $1	15.5	20— 50	23.5
1– 3	16.9	50—100	23.5
3– 5	19.8	100—200	26.2
5–10	20.9	200—500	23.1
10–20	23.2	500 and over	23.3

See Securities and Exchange Commission (Survey of American Listed Corporations), *Statistics of American Listed Corporations*, Part 1, pp. 226-45. The test of significance was made from the special tabulations by the Securities and Exchange Commission, described in Appendix A.

[11] See J. M. Clark, *The Economics of Overhead Costs* (Chicago, 1923). In discussing "How and Why Large Plants Bring Economy," Professor Clark notes that large-scale production consolidates risks. In a large concern "two or three customers with large orders will not make such a great impression on the total volume of business. Stocks of goods can be smaller compared with the volume of trade" (pp. 126-27). Similarly, in a discussion of merchandising, the suggestion is made that the economies of size apply to inventory holdings. "The large store spends a smaller percentage of its gross income for the goods it sells, but a larger percentage on operating expenses . . . while large stores turn their stock more rapidly . . . " (p. 343).

data, however, indicate just the opposite. Also the behavior of the inventory/sales ratio, which we have observed, does not conform to the expectation that high profitability and rapid inventory turnover are associated, since on the whole profitability exhibits little variation with size among income corporations, while among deficit corporations profitability varies directly with size.[12]

The most plausible theory to account for the observed variation is that vertical integration has an effect on inventory turnover, which increases as concerns grow in size. Actually, as far as the ratio of finished inventory to sales is concerned, vertical integration should have no particular effect one way or the other. But the raw materials and goods-in-process of a vertically integrated concern will form a higher percentage of its sales than comparable inventories of a less integrated corporation, that is, a corporation performing fewer operations and having a shorter period of processing. Since the ratio of inventory to sales rises even among the small corporations, it may be thought that vertical integration could not account for differences in the ratio between, say, a $50,000 and $250,000 corporation. However, even in this size range, integration may be an effective factor. The smallest concerns in manufacturing hold very small stocks of raw materials and are often engaged in performing only a single operation on a subcontracting basis. As the size of enterprise increases, even from total assets of $50,000 to $250,000, the complexity of the operations in most cases increases, which means relatively more goods-in-process, while the ability to finance holdings of raw materials likewise increases.[13]

If vertical integration is accepted as the basic explanation of the variation of the inventory/sales ratio with corporate size, the ratio cannot be employed (except in a very indirect way) as an index of the "efficiency" with which corporations of different sizes are utilizing their inventory holdings. Only if the ratio were to

[12] For the variation in the ratio of net income to net worth with corporate size, see Table C-25 in Data Book. The relationship between the inventory/sales ratio and profitability is discussed in detail in the next section.

[13] Nevertheless, one reason may be advanced to explain why integration should economize inventory holdings. Internal coordination of the production schedule should enable a concern to hold smaller quantities of raw materials and semifinished products than non-integrated concerns manufacturing a similar product. For a further discussion of integration in relation to financial structure, see Appendix B, p. 124.

remain constant or decline with changes in size would it be possible to say that the effect of vertical integration had been clearly offset by economies in inventory utilization.

Although the variation of the ratio of inventory to total assets is of less interest, it may be described here briefly. (See Table C-6 in Data Book for a tabulation of the ratio.) Medium-sized corporations, i.e., those with assets of $250,000 to $1,000,000, on the whole have the highest inventory/total assets ratios; and corporations with assets above $1,000,000 generally have ratios slightly lower than those of concerns under $250,000. The variation with size differs from industry to industry, however, and in some cases it is erratic. In retail trade, the variation is inverse with size, reflecting the fact that chain stores and large department stores, which are in the large asset-size classes, have a relatively greater investment in premises than have the small merchants. Several manufacturing groups also display a mildly inverse pattern. In some cases, the ratios of income and deficit corporations vary in different directions. Differences between size classes apparently are not dependent upon size itself but rather upon industry, profitability, or other characteristics correlated with size. A formal test of the variation of the ratio of inventory to total assets with size, based upon the SEC data, indicates no statistically significant differences between size classes of manufacturing corporations as a whole. This absence of substantial and systematic differences between large and small corporations in the ratio of inventory to total assets is of particular significance because, as we shall see in Chapter 4, it is not paralleled by similar behavior among the current liabilities.

Examination of the 1931 ratios for inventory/sales and inventory/total assets reveals results very similar to those described above. Evidently the relationship between inventory holdings and corporate size is an invariable feature of financial structure, at least over the period that we have covered.

VARIATIONS WITH PROFITABILITY

A relatively high turnover of inventory, particularly of inventory in the finished form, has frequently been taken by credit analysts

and writers on business management as an index of successful operation. Therefore, income corporations would be expected to have a lower ratio of inventory to sales (a higher turnover) than deficit corporations in the same size and industrial classes. Efficient administration of inventory holdings in fact may be a *cause* of relatively high profitability, since the amount of short-term funds tied up in inventory is thereby reduced, and, therefore, costs are decreased to some extent. However, differences in inventory turnover would probably be confined mainly to inventory of finished goods. Deficit concerns, in the short run, may accumulate a large inventory of raw materials and goods-in-process relative to current shipments; but since movements in such inventories are presumably closely correlated with movements in shipments (though not so closely as finished goods and perhaps with a lag), there is little reason to expect much difference between income and deficit corporations in this type of inventory turnover.

The inventory data for 1937 do not conform systematically to the pattern suggested above. Income corporations for the majority of *minor* industrial divisions have a lower inventory turnover than deficit concerns in the same size classes. Examination of the ratios for *major* industrial divisions, shown on Chart 3, reveals the reason for this departure from expectations. For corporations with assets under $10,000,000 the turnover of inventory, on the whole, is higher in the income than in the corresponding deficit corporations, conforming to expectations. Among corporations with assets of over $10,000,000, however, the reverse is often true (e.g., mining, chemicals, and food). The fact that in 1937 the large corporations were almost entirely in the income group, together with the fact that the ratio of inventory to sales rises sharply as corporate size increases, is clearly the reason for the lower turnover in the income, compared with the deficit, corporations for most of the minor industrial divisions.

The 1931 data for inventory turnover provide a sharp contrast to the 1937 results. In the earlier year, the majority of both large and small concerns were in the deficit group, and the turnover of the deficit corporations was considerably lower than that of income concerns for all size classes.

The effect of fluctuations in the general level of business on the relative inventory turnover of income and deficit corporations may be seen in the following table:

RATIO OF INVENTORY TO SALES

Year	*Manufacturing*		*Trade*	
	Income	Deficit	Income	Deficit
1931	16.4%	26.6%	10.5%	17.9%
1932	17.7	30.0	11.6	18.3
1933	21.6	30.9	15.8	18.5
1934	19.2	25.6	13.5	15.7
1935	18.2	21.6	12.5	14.1
1936	18.6	19.6	13.0	12.7
1937	19.7	17.3	12.6	12.7
1938	20.1	22.6	12.7	14.1

Shifts of large corporations between the income and deficit groups were of great importance in producing the relative variations shown above. The data for 1937 also reflect the inventory boom of that year, followed by the rapid recession in sales in the last quarter. Apparently, the large corporations in the income group were over-optimistic in their anticipations and accumulated inventories that could not be rapidly liquidated. Deficit corporations in the large size classes, less optimistic in their outlook, appear to have followed a more hand-to-mouth policy with respect to inventories.

The level of the ratio of inventory to total assets is not significantly different for income and deficit corporations in 1937. For manufacturing as a whole the ratios are 20.6 and 20.2 percent for income and deficit corporations, respectively, while for trade the respective ratios are 28.1 and 29.0 percent. In the classification by size, inventory of the income corporations forms a slightly larger percentage of total assets than inventory of deficit corporations for all classes but the smallest and largest. (See Table C-6 in Data Book.) Like the inventory/sales data, these 1937 results differ from those for 1931. In 1931 the deficit corporations had a higher proportion of inventory to total assets, although the difference

between the two years is not so great as in the case of the ratio of inventory to sales.[14]

A comparison of the inventory/sales ratio with the ratio of net income to net worth by the various size classes of the major industrial groups indicates that any direct relationship between inventory turnover and profitability—if it exists at all—is obscured by the effect of "size," which we have interpreted as reflecting the impact of vertical integration on the inventory/sales ratio. For income corporations, the high turnover among the small concerns is not associated with proportionately high profit rates. In the deficit group, the small concerns, which have substantially greater turnover ratios than the large, are much less profitable (make greater losses) than the large corporations.

Also, we have found no indication that the variation with size for the ratio of inventory to total assets is associated with differences in profitability among the size classes of the major industrial groups. The variation of the inventory/total assets ratio is much less systematic than the variation in profitability, and the tendency of the ratio to rise among the medium-sized concerns and then fall off among the large corporations is not related to the behavior of profitability.

Industrial differences in profitability are not reflected in inventory holdings. An analysis of the relationship between the ratio of inventory to sales and the rate of profitability of the minor industrial divisions reveals no significant relationship between the two ratios. A similar analysis of the ratio of inventory to total assets

[14] The ratios of inventory to total assets for the years 1931-38 for the income and deficit groups of manufacturing and trade are as follows:

RATIO OF INVENTORY TO TOTAL ASSETS

Year	*Manufacturing*		*Trade*	
	Income	Deficit	Income	Deficit
1931	13.3%	14.6%	20.9%	23.3%
1932	12.6	12.3	22.3	21.0
1933	15.2	12.8	27.8	20.6
1934	17.5	13.8	26.7	22.3
1935	17.9	14.0	27.1	23.9
1936	18.9	16.7	28.3	25.4
1937	20.6	20.2	28.1	29.0
1938	18.6	18.6	25.2	28.7

also shows little relationship with industrial differences in profitability.[15]

Frequency distributions of the ratio of inventory to sales by profitability intervals are available for manufacturing as a whole in the SEC data. The dispersion of ratios within profitability classes is so great that no significant difference was evident among the average ratios of the six profitability groups tabulated. This finding indicates that industrial and other differences within profitability intervals are so great that differences in profitability are not sufficiently important to dominate other factors; but more refined data with narrower industrial classifications might show a different behavior.

[15] See Appendix D for the rank correlation coefficients upon which these conclusions are based.