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CASH, MARKETABLE SECURITIES, AND RECEIVABLES

CASH AND MARKETABLE SECURITIES

FOR A CROSS-SECTION ANALYSIS of financial structure, cash and marketable securities may be considered under one general heading. In the administration of corporate finances marketable securities are usually regarded as the practical equivalent of cash; in fact, the phrase "cash and equivalent" is frequently applied to the two items.[1]

During recent years, the motives that induce corporations (and individuals) to hold cash and highly liquid securities have been classified in detail; the terms "liquidity," "transactions," and "speculative" motives have become a part of the conventional vocabulary of economics. Do the three motives operate so that

[1] An indication of the relative size of the cash and security holdings of nonfinancial corporations compared with those of the rest of the community may be useful. On or about December 31, 1937, all nonfinancial corporations held cash in till and deposits in bank (described here as "cash") amounting to $6,040,000 or 26 percent of the $23,370,000 of demand deposits outstanding (after adjustment for transit items). (See *Federal Reserve Bulletin*, May, 1940, pp. 401-3.) The cash holdings of unincorporated nonfinancial enterprises on the same date are estimated at $1,700,000. The total cash holdings of all business enterprises, incorporated and unincorporated and including financial concerns, amounted to 55 percent of total demand deposits. The time deposits held by business were negligible.

On or about December 31, 1937, marketable securities held by nonfinancial corporations amounted to $1,847,000, or about 4 percent of the outstanding tax-exempt obligations of federal, state, and local governments and their instrumentalities. The conventional definition of marketable securities is less precise than that employed by the Bureau of Internal Revenue. The Bureau of Internal Revenue, concerned with the administration of the corporation income tax, distinguishes two classes of corporate investments: government obligations and investments other than government obligations. The SEC data indicate, however, that what are called marketable securities in most balance sheets consist almost entirely of government obligations. The SEC's listed manufacturing corporations have a ratio of "marketable securities" to total assets of 2.8 percent, while the ratio of government securities to total assets for all large manufacturing corporations of equivalent size is 2.2 percent. Marketable securities are defined in *Regulation S-X Under the Securities Act of 1933 and the Securities Exchange Act of 1934* (Washington, 1940) as follows: "Include only securities having a ready market. Securities of affiliates should not be included here."

holdings of cash and marketable securities are related systematically to the industry, size, and profitability of corporations? Since holdings of marketable securities have little reason to be closely related to the volume of current operations of an enterprise, we have directed our attention chiefly to ratios based on total assets.

Industrial Variations

For most of the minor industrial divisions, the ratio of cash and equivalent to total assets fluctuates within a narrow range. The median value of the ratio is 8 percent; and the central half of the distribution lies within limits of 6 and 10 percent. (See Table C-28 in Data Book.) A moderate degree of industrial stability is indicated by the fairly similar rankings of income and deficit divisions, and also by the similarity of industrial rankings between 1937 and 1931. The ratio of cash and equivalent to sales likewise fluctuates within rather narrow limits. The central half of the distribution ranges between 5 and 10 percent, with a median value of 8 percent. (See Table C-28 in Data Book.)[2]

When cash and marketable securities are studied as separate items, the ratio of cash holdings to total assets for most minor industrial divisions also is found to move within a narrow range, with a median value of 6 percent. The ratio of marketable securities, on the other hand, shows less tendency to cluster about a central value. However, the proportion of marketable securities to total assets is so small in almost every case that the variations of this balance-sheet account are of little significance. In most industries, such investments rarely exceeded 3.5 percent of total assets in 1937;[3] and in that year they were commonly less than

[2] The extremes of the ratio of cash and equivalent to sales (2 and 20 percent, excluding mining and quarrying for which the ratio is exceptionally high) are greater than the extremes for the ratio of cash and equivalent to total assets (3 and 17 percent).

[3] Exceptions are provided by silk and rayon (9.7 percent of total assets), chemicals proper (3.8 percent), allied chemicals (3.6 percent), factory machinery (4.6 percent), and hardware (4.9 percent). The percentages are characteristic of the income and not of the deficit corporations in these industries.

Data from *Statistics of American Listed Corporations* reveal a few extreme cases of a large proportion of marketable securities to total assets for certain more narrowly defined industrial groups. Among these cases are chewing gum and confectionary (18.7 percent), publishing of newspapers and periodicals (12.0 percent), chemicals and fertilizers (6.4 percent), industrial machinery (5.0 percent), and railroad equipment (5.0 percent).

one-fifth of the volume of cash and equivalent combined. The situation in 1937 was strikingly different from that in 1931, when government securities formed a very important secondary reserve and the volume of holdings in many industries approximated that of cash, actually exceeding it in a few cases. The liquidation of such holdings during the depression considerably altered the relative importance of the two items.

When consideration is given to reasons for differences among industries in holdings of cash and marketable securities which may be of more than a random or unplanned character, attention is narrowed to what may be called the transactions motive; that is, the need to meet day-to-day requirements, the size of which may be more or less foreseen and may vary among industries because of differences in the frequency and regularity of receipts and disbursements. The data at our disposal do not make it possible to single out industrial differences in cash holdings which may be attributed to the transactions motive alone.[4] Nevertheless, the generalization seems warranted that all industries require a certain minimum of cash holdings, and that amounts above that minimum either are of a residual and random character or are the product of speculative and liquidity motives, not associated with industrial classifications. Also, cash holdings are subject to considerable seasonal fluctuations, which may partially account for some industrial differences.

The possibility remains that differences in holdings of cash and marketable securities among industries may be related to the average asset size and profitability of the minor industrial divisions. The data for minor divisions reveal that in the case of cash holdings industrial differences have an inverse, although only a very slightly inverse, relationship with differences in asset size. No significant relationship is found for marketable securities. A comparison of minor divisions on the basis of profitability indicates that the more profitable the industry the higher the proportion of cash and marketable securities, as a general rule. This tendency seems to be stronger with respect to securities than with cash.[5]

[4] Perhaps a reflection of this factor is found in the relatively high ratios of cash to total assets for a number of branches of retail trade, which require sizable amounts of cash in till. (See Table C-30 in Data Book.)

[5] See Appendix D for the rank correlation coefficients on which these statements are based.

Table 3—Distribution of Marketable Securities for American Listed Corporations, 1937, by Kind of Industry and by Income and Deficit Divisions, and for Listed Manufacturing Corporations, by Asset Size[a]

Industry	*Percentage of Corporations with Marketable Securities*	*Ratio of Marketable Securities to Total Assets*
All corporations		
Income	38.1	2.62
Deficit	16.2	.48
Combined	33.7	2.48
Manufacturing		
Income	39.9	2.89
Deficit	12.7	.62
Combined	36.2	2.82
Extractive		
Income	33.9	5.64
Deficit	10.3	.35
Combined	21.9	3.66
Merchandising		
Income	32.2	1.88
Deficit	30.4	.65
Combined	32.0	1.79
Utilities		
Income	32.9	.36
Deficit	25.0	.02
Combined	32.4	.33
Listed Manufacturing Corporations		
Asset Size[b] (millions)		
Under $1	19.8	
1– 3	26.3	
3– 5	35.6	
5– 10	27.8	
10– 20	44.2	
20– 50	50.8	
50–100	47.9	
100–200	73.5	
200–500	66.7	
500 and over	100.0	

[a] Data, as of December 31, 1937, are from *Statistics of American Listed Corporations*, Part 1, Table 66, pp. 266-77 and pp. 224-45.

[b] Each size group is inclusive of the lower limit and exclusive of the upper.

Since marketable securities are an optional rather than an essential component of working capital, the frequency with which they appear in corporate balance sheets is of interest. Such information is not available in the compilations of the Bureau of Internal Revenue but it may be obtained for large listed corporations from the SEC data. Table 3 shows that one-third of all listed corporations and 36 percent of listed manufacturing corporations held marketable securities at the end of 1937. The frequency of such holdings among corporations earning a net income is, as would be expected, much higher than that of corresponding deficit corporations; and, also, it varies somewhat with corporate size, the large corporations having a higher frequency than the small. Although industrial differences in the ratio of marketable securities to total assets are noticeable among the four broad categories represented, the frequency does not vary greatly among these groups.

Variations with Corporate Size

The ratio of cash and marketable securities to total assets varies irregularly and narrowly as size of corporation increases. (See Table C-4 in Data Book.) The narrow range of variation among size classes recalls a similar slight variation among the minor industrial divisions. Since the behavior of cash differs from that of marketable securities, each item should be considered separately. The ratio of cash to total assets declines as size of corporation increases; the ratio for concerns in the smallest size class of manufacturing corporations is on the average about twice as great as the ratio for those in the largest. (See Table C-2 in Data Book.) For marketable securities the ratio is negligible among corporations with assets of less than $1,000,000; above that class it is roughly one-third to one-half the size of the cash to total assets ratio. (See Table C-3 in Data Book.) Clearly, the increase in the volume of marketable securities, as size of corporation becomes larger, compensates for the decline in the holdings of cash, so that the ratio of the two balance-sheet accounts combined shows only slight variations with size.

The downward movement of the ratio of cash to total assets as size of corporation increases appears to be in part a "passive"

phenomenon, reflecting the greater importance of fixed capital and particularly investments in affiliates among large, compared with small, concerns. An additional possibility is that large corporations can effect economies in their administration of cash by investing a higher proportion of their most liquid funds in marketable securities. Also, to the extent that they are more vertically integrated than small concerns, large corporations have relatively fewer cash payments to make to the outside economic world, which would permit some economy in cash holdings.

The higher proportions of marketable securities among the larger concerns reflect the fact that it is more economical to hold large amounts of marketable securities. The cost of acquisition and sale is not directly proportionate to the size of the holdings, being relatively greater for the smaller businesses. In the case of the deficit concerns, a further explanation for the higher ratio among large corporations is that the small units are in a much worse financial condition than the large.[6] These explanations are not comprehensive, however, for, as indicated above, the ratio of marketable securities to total assets does not rise consistently with corporate size; in fact, it tends to decline in the largest size class of most industrial groups.

The liquidation of marketable securities which occurred first in the depression period and later in the revival of 1933-37, when working capital requirements increased, caused substantial differences in the movement of the ratio of cash and equivalent to total assets in 1937, compared with 1931. In 1931 the security holdings of large corporations were so great that they dominated the movement of the ratio of cash and securities to total assets.[7] For income corporations this ratio tended to rise as size of corporation increased; and for deficit corporations the ratio fluctuated narrowly. The ratio of cash to total assets declined as corporate size increased, although this inverse movement was not so strong as in 1937. Between 1931 and 1937 the relative size of cash and

[6] For the variation with corporate size of the ratio of net income to average net worth see Table C-25 in Data Book. See also W. L. Crum, *Corporate Size and Earning Power* (Cambridge, Mass., 1939) Chapter 2.

[7] Some of the changes in the size variation of cash/total assets between 1931 and 1937 may have been the result of discontinuation of consolidated returns which had the effect (among the large corporations) of reducing, slightly, current assets as a percentage of total assets.

security holdings in small corporations did not change much, primarily because the small corporations did not have the securities to liquidate. Among the larger corporations security holdings and cash were of almost equal importance in 1931, but by 1937 investments were relatively small.

The ratio of cash and equivalent to sales characteristically rises among the larger corporations, resembling inventory in this respect. (See Table C-17 in Data Book.) Both components contribute to the upward tendency.[8]

Variations with Profitability

The ratio of cash and equivalent to total assets is uniformly higher among income than among deficit corporations. The same is true, with few exceptions, of the two components of the numerator of the ratio taken separately. Since this relationship holds for large as well as for small corporations, it is also observable in the classification by minor industrial divisions. In a number of cases, the deficit corporations of particular size classes have no marketable securities. The data for 1931 reveal similar features. A high degree of liquidity in the form of cash and security reserves is clearly associated with a high level of profitability. In the analysis of industrial differences above, we called attention to the tendency for relatively high ratios of cash and marketable securities to be associated with relatively profitable industrial divisions. However, differences in profitability among size groups within the major divisions are not associated with differences in cash or security holdings. For income corporations the ratios of net income to net worth and of cash and equivalent to total assets run somewhat parallel; among deficit concerns they move in opposite directions.

The cash and security holdings of income corporations are so much larger than those of deficit concerns that they have a lower turnover, while for most of the other asset items, the turnover either is higher in the income than in the deficit concerns or is not

[8] For *all manufacturing* the ratio of cash to sales varies as follows:

Asset Size (in thousands)	*Income*	*Deficit*	*Asset Size* (in thousands)	*Income*	*Deficit*
Under $50	3.7	2.6	$ 1,000– 5,000	5.4	3.7
50– 100	3.8	2.7	5,000– 10,000	6.7	3.6
100– 250	4.1	2.8	10,000– 50,000	7.2	4.5
250– 500	4.1	2.9	50,000–100,000	7.7	3.4
500–1,000	4.7	3.6	100,000 and over	6.6	2.3

substantially different. No doubt the relationship between cash and equivalent and sales reflects, to some extent, the seasonal fluctuations of working capital items. At the balance-sheet date, which probably represents a low point in the year's activity, cash would be greater relative to other current items than at other times of the year. The fact that the last quarter of 1937 was a period of rapid liquidation may also partially account for the high ratio of cash to sales among the income corporations.

RECEIVABLES

The ratio of receivables to sales (or its reciprocal) is widely used as an index of the extension of trade credit.[9] The volume of receivables outstanding at any time depends on both the volume of trade credit extended per dollar of sales and the length of time for which it is extended. The commonly used ratio for the "average collection period," $\frac{\text{Receivables}}{\text{Sales}} \times 365$, is only an approximation of the true collection period, since the receivables outstanding on the date of the balance sheet are not necessarily the average volume outstanding over the whole year to which the sales data refer. Apart from seasonal variations, the volume of receivables outstanding at any time also depends on the practice of selling accounts to obtain funds. Absence of quarterly data, however, requires that we use the cruder average.

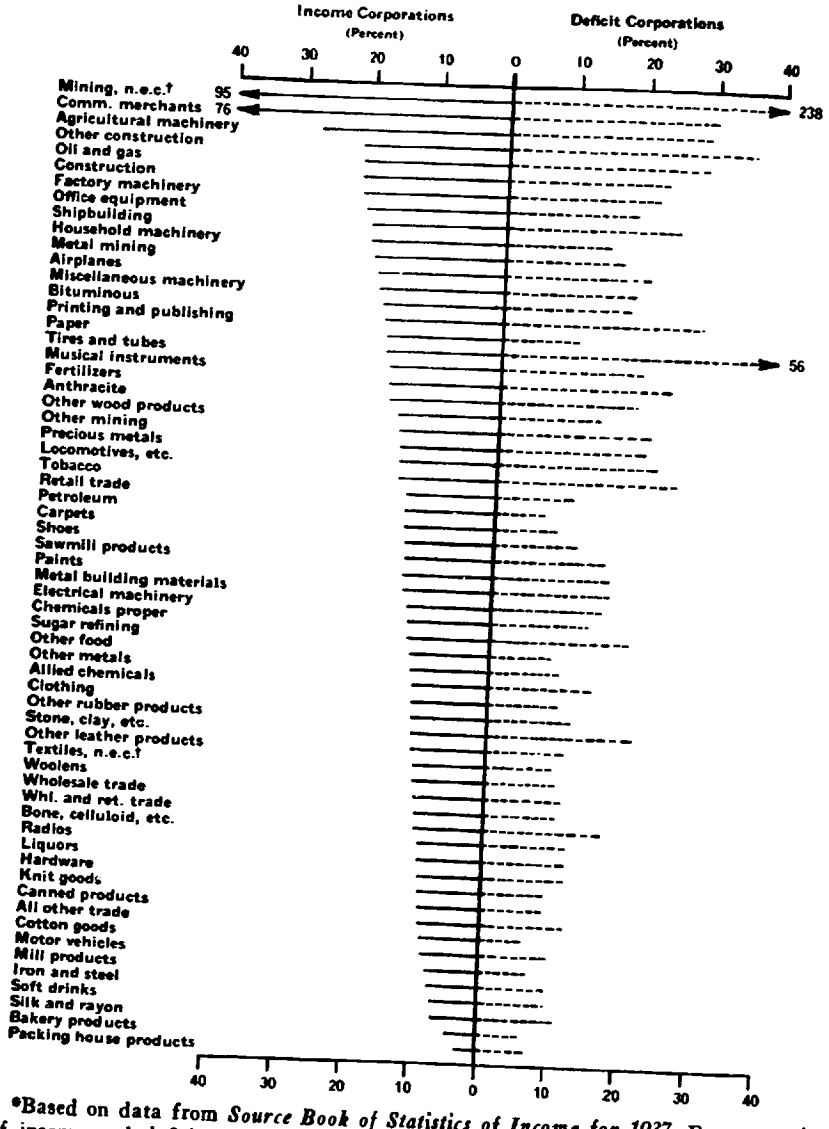
Industrial Variations

Among industries, the ratio of receivables to sales (shown on Chart 4) varies widely. (See also Table C-28 in Data Book.) The median value for income and deficit corporations combined is 13 percent; the lower and upper extremes are 5 and 28 percent;[10] and the central half of the distribution ranges from 10 to 18 percent. Within the branches of retail trade, the range of receivables to sales is even wider, varying from a low of 1 percent for food stores to a high of 58 percent for furniture and house-furnishings

[9] A very small fraction of receivables consists not of trade credit but of stock subscriptions and loans to officers and employees. These may be ignored in the present discussion.

[10] Commision merchants and unclassified mining and quarrying corporations are excluded from this comparison; both have exceptionally high ratios.

Chart 4—RATIO OF ACCOUNTS RECEIVABLE TO SALES 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.

establishments for income corporations.[11] There is evidence of a strong degree of industrial stability in the rankings of the receivables/sales ratio. Practically the same rankings are found in 1931 as in 1937. Both income and deficit corporations in 1937 show a high degree of similarity in the industrial rankings, indicating that differences in the level of profitability do not upset industrial differences to a significant degree. The industrial rankings of the receivables/sales ratio are greatly different from the rankings of the ratio of receivables to total assets. In fact, the rank correlation between the two ratios is barely significant. Accordingly, explanations of industrial variations in the turnover of receivables will generally not apply to the ratio of receivables to total assets.

The heterogeneous industrial groups with small and large ratios of receivables to sales indicate that no one general factor may be singled out as a determinant of industrial variations in the turnover of receivables. Among the low ratios (high turnover) are bakery products, mill products, packing house products, soft drinks, silk and rayon, cotton goods, and iron and steel; among the high ratios (low turnover) are construction, oil and gas production, factory and agricultural machinery, shipbuilding, office equipment, and printing and publishing. Almost all the industries in which the factoring of receivables is extensively practiced are found in the lower range, including, e.g., knitted goods, cotton goods, and silk and rayon. That the average collection period will be short when the product concerned is relatively perishable is to be expected, and the ratios for such industries as baking, packing house products, and soft drinks seem to bear this out. Conversely, producers of relatively durable goods might be expected to extend a substantial volume of trade credit, except in those cases where arrangements have been made for the receivables to be financed by an outside credit agency such as a finance company.

When the ratio of receivables to sales is classified according to producers' and consumers' goods industries, a significant difference is found to exist between the average levels of the two groups. The producers' goods industries have an average ratio of 16 percent, compared with 12 percent for consumers' goods, showing that the former extend a larger proportionate volume of trade credit. The distinction between producers' and consumers' goods

[11] See Table C-30 in Data Book.

is not observable in the case of the ratio of receivables to total assets, however.

Another factor that may affect the receivables ratios of certain industries is the relationship between parent and subsidiary corporations. Since the present balance sheets are unconsolidated, the volume of receivables is comparatively high where the inter-affiliate debt is considerable.

Industrial differences in the ratio of receivables to sales were not found to be related to differences either in average asset size or in average profitability among the minor divisions.[12]

Variations with Corporate Size

Does the relative amount of trade credit extended become greater as size of corporation increases? We might expect that large concerns would be in a better position than small to finance their own credit sales. The data show a slight tendency for the ratio of receivables to sales to increase as corporate size rises,[13] a tendency which is more evident among income than among deficit corporations, the variation among the latter often being of an erratic nature. The behavior of this ratio is in decided contrast to the sharp and consistent rise of the inventory/sales ratio for both income and deficit divisions of the major industrial groups. The basic explanation of the difference between the turnover of inventory and receivables appears to be the fact that receivables are closely linked with sales and are therefore not affected by vertical integration, which, as we have seen above, is probably the main reason for the rise in the ratio of inventory to sales as corporate size increases.

Considered on the basis of total assets, the proportion of receivables actually declines with corporate size. (Table C-5 in Data Book.) As with receivables/sales, the movement is stronger and more systematic among income than among deficit corporations. For all manufacturing concerns, corporations with assets under $250,000 have about twice as much of their funds invested in receivables as concerns with assets over $5,000,000. Exceptions to this generalization are found, however, in liquor, construction, and wholesale and retail trade. The general and pronounced de-

[12] See Appendix D.
[13] See Table C-18 in Data Book.

cline of receivables as a percentage of total assets may be explained as follows. Receivables parallel sales, and sales as a percentage of total assets decline as corporate size increases, because of both vertical integration and the increased importance of intercorporate investments among the larger corporations. Therefore, the ratio of receivables to total assets declines.

Variations with Profitability

The difference in the amount of trade credit (as a percentage of sales) extended by income and deficit corporations is negligible in most cases. (Chart 4. See also Table C-18 in Data Book.) An actual count reveals that for the majority of the minor industrial divisions, deficit corporations are extending a slightly greater volume of trade credit in relation to their sales than the corresponding income corporations. That this represents an active policy is highly doubtful. More probably, the deficit corporations have greater difficulty collecting receivables and thus have, on balance, slightly higher ratios of receivables to sales. The data for 1931 reveal the same behavior, indicating that the relationship is not a product of the particular characteristics of the year end of 1937.

The ratio of receivables to total assets, when classified by asset size, shows that in general the proportion of funds invested in receivables is somewhat larger for income than for deficit corporations. (See Table C-5 in Data Book.) Numerous exceptions to this behavior occur, however, particularly among the large corporations. When the classification by industry rather than by asset size is considered, the ratio for income corporations differs little from that for deficit concerns. This follows from the fact that large corporations, among which the difference between the ratio of income corporations and that of deficit corporations is not very great, carry more weight than small concerns, among which the difference is quite pronounced. In contrast, classification of the 1931 data by either minor industrial divisions or asset size reveals a higher receivables/total assets ratio for income than for deficit corporations; in that year, the percentage of assets in the form of receivables was greater among income than among deficit corporations in large as well as in small asset-size classes.