

UNIVERSITY OF ILLINOIS BULLETIN

ISSUED WEEKLY

VOL. XXVIII

DECEMBER 23, 1930

No. 17

[Registered as second-class matter December 11, 1912, at the post office at Urbana, Illinois, under the Act of August 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 31, 1918.]

BUREAU OF BUSINESS RESEARCH COLLEGE OF COMMERCE AND BUSINESS ADMINISTRATION

BULLETIN No. 32

Distributed October, 1930

THE FINANCIAL PLAN OF DEPARTMENT STORES



PRICE 50 CENTS

PUBLISHED BY THE UNIVERSITY OF ILLINOIS, URBANA

1930

It is the purpose of the Bureau of Business Research of the University of Illinois—

- (1) to study and as far as possible to explain economic and industrial conditions within the State;
- (2) to direct attention to experience-tested practices of good business management; and,
- (3) to investigate methods for securing the best executive control of business.

BUREAU OF BUSINESS RESEARCH

CHAS. M. THOMPSON, Ph.D., LL.D., *Director*

A. C. LITTLETON, A.M., C.P.A., *Assistant Director*

BULLETIN No. 32

THE FINANCIAL PLAN OF
DEPARTMENT STORES

Studies in Financial Structure



PUBLISHED BY THE UNIVERSITY OF ILLINOIS, URBANA

1930

33968

PREFACE

The present study is one of a series of related studies in the financial structure of various types of business enterprise. In Bulletins Numbers 27 and 29 the financial plans of gas companies and automobile and related automotive manufacturing companies were analyzed and set forth. The present bulletin continues this series of studies. It is devoted to the determination of the typical financial plan of department stores. Later bulletins of the series will have for their purpose the presentation of the balance sheet structure of other industries, and also the analysis of operating statement ratios, ratios of turnover for various aspects of capital structure, and earning power ratios, for all the industries covered by these studies.

The purpose of these analyses of financial structures is twofold: first, to bring out in a more or less uniform manner the underlying differences in the financing employed in the different industries studied, and, second, to establish acceptable standards of financial relationships through the determination of typical or representative ratios.

Business executives have found financial ratios a helpful tool in attempting to simplify or reduce the number of details in their problems. The reduction of the relationships of large and varied figures to an abstract base by means of ratios has enabled business men to grasp the significant factors with less effort than otherwise. The increasing use of financial ratios attests to a growing recognition of their serviceability; the establishment of typical or standard ratios will enable business men to carry their analyses a step further. In addition to making it possible to compare the performance of their enterprise from time to time with its own past performance, standard ratios based upon averages of large samples of ratios for similar companies will facilitate the comparison of their individual enterprise with standards for the industry.

The Bureau acknowledges its indebtedness to Ernst and Ernst, Certified Public Accountants, for the original data of this study, and to A. H. WINAKOR, C.P.A., of the Bureau staff for the preparation of the manuscript.

33968

TABLE OF CONTENTS

	PAGE
STATISTICAL PROCEDURE	7
THE CURRENT RATIO OF DEPARTMENT STORES	11
PROPERTY INVESTMENTS OF DEPARTMENT STORES	14
SOURCES OF CAPITAL OF DEPARTMENT STORES	21
SUMMARY	29
APPENDIX CONTAINING TABLES	31

STATISTICAL PROCEDURE

The present study, which is an analysis of the balance sheet structure of department stores, is based upon data for 88 companies for 1925 and 90 companies for 1927. For purposes of computation the various balance sheet items were classified into comparable groups, and standardized balance sheets prepared. Wherever found, intangible items such as goodwill, etc., were eliminated from the assets and deducted from the net worth. The uniform statements which resulted presented a sixfold classification of items,—namely, current assets, fixed assets, other assets, current liabilities, long term debt, and net worth. The ratios of each of these items to the total tangible assets and of Current Assets to Current Liabilities were then computed from the uniform statements.

In analyzing the various ratios and in presenting them, a classification somewhat different from the customary ones was used. In working with the data it was found impossible to derive any single typical average which could be accepted as standard for all the department stores. This was due to the differences in the financial plans existing in various companies. Primarily this centered about two items in the balance sheet—owned real estate and long term debt. Practically every company, even those leasing their real estate, had some fixed assets. This gave a possible division of companies owning and companies leasing real estate. But some companies which owned their real estate had long term debt outstanding with this property as security, whereas other companies which owned their real estate did not. Consequently, it was decided to group the data according to companies using long term obligations to obtain their capital and those using only stock and short term debt. This gave an absolutely clear-cut division of data as regards the sources of capital of the companies, and an almost equally rigorous and clear-cut grouping for the companies owning and leasing real estate, since in almost every case in which a company owned its real estate, it had a funded debt secured by the asset.

The individual ratios for each aspect of the financial structure were grouped into frequency distributions and classified according to size. For instance, the Fixed Assets to Total Assets ratios of a group of department stores were classified in the following manner. A 10 per cent class interval was decided upon. Twenty-two of the companies

were found to have fixed assets which were between zero and .10 of the total assets. Fifteen companies had fixed assets which exceeded .10 of the total assets but were not over .20 of the total assets. Eleven companies had fixed assets between .20 and .30 of the total assets, and so forth. The result was the frequency distribution which follows:

<i>Size of Ratio</i>	<i>Number of Cases Observed</i>
.00 - .099.....	22
.10 - .199.....	15
.20 - .299.....	11
.30 - .399.....	5
.40 - .499.....	0
.50 - .599.....	1

With the data thus arranged, the next task was the calculation of averages. To obtain an average which would be most useful for analytical work, a typical average was desired. This requirement is most satisfactorily met by the mode. Accordingly, modal averages were determined for each distribution of ratios, and smooth frequency curves were fitted to the data given in the distributions. The reading on the horizontal scale corresponding to the highest ordinate of the curve is the measure of the mode, and the curve gives in addition a good generalized picture of the distribution, or spread, of the data, wherein the unevenness due to the smallness of the sample of data is in part adjusted.

The distributions of the ratios, the calculated frequencies for the curve, the equations for the smooth curve, and other tabulated data are given in the tables of the Appendix. Charts of the curves for the more significant ratios are presented in the text. On these charts the locus of the mode is represented by a dotted line, and the shaded portion on either side of this line is the area wherein half of the individual ratios are located.¹ In other words, it is the area where the greatest concentration of ratios normally occurs, the mode being the center. Consequently, the probability that any random ratio will fall at any specific point on the horizontal scale increases toward the highest ordinate of the curve, which indicates the measure of the mode.

The use of frequency curves and charted representations thereof in connection with the analysis of the financial position of an individual enterprise adds considerable value to the analysis because of the number of inferences which can be drawn therefrom. Whereas a single average ratio fails to show the range as between high and low cases,

¹The range of half of the frequencies concentrated about the mode was determined by taking the range of 25 per cent of the frequencies on each side of the mode. This gives a reliable indication of the most usual sizes of ratios, except in those instances in which the frequency curve is greatly skewed to one side or the other.

the frequency curves show not only the range (distance between high and low), but also the dispersion of the cases over the range. The scale at the base of each curve (see Chart 2 page 13) gives the range of ratios concerned. The sizes of ratios which are least common are indicated by the ends of the curves. These extremes represent a very small portion of the total number of cases. As the curve increases in height the ratios become more and more normal or typical until the largest number of frequencies (the modal or the representative group) is reached at the highest point on the curve. Thus the frequency curve together with the scale at the base shows the range and dispersion of the individual ratios.

In addition, the range of that 50 per cent of the calculated frequencies which center or concentrate about the mode is plotted on each chart; the data are given in the tables. This range, shown by the shaded area of each chart, helps to point out clearly the most typical sizes of the ratios, and is a valuable indicator in all instances except those few in which the curve is greatly skewed.

With these factors as a background, it is possible to extend the analysis of the financial structure of an individual enterprise. The figures of the individual enterprise's ratios can be plotted on these charts along the scale at the base. The single ratio is then thrown into relief against the whole sample of data there pictured. The position of the individual ratio can then be compared with (1) the entire range of ratios, (2) the dispersion of the ratios, and (3) the 50 per cent range of the cases centered about the mode.

It is also possible to read on the vertical scale the number of other enterprises which had a ratio of similar size. The method is as follows. From the point at which the single ratio was located on the scale at the base of the chart, a perpendicular line is erected until it intersects the curve. The number of cases with a ratio of the same size may be ascertained by drawing a horizontal line from this point of intersection to the scale in the left margin.

In this bulletin an analysis is made of those financial ratios which give a picture of the balance sheet structure of department stores. The analysis is divided into three sections. These are concerned with (1) current financial position as indicated by the Current Ratio, (2) the distribution of capital as indicated by the ratios showing the proportions of capital invested in various types of assets, and (3) the sources of capital as represented by ratios showing the proportions of capital borrowed from creditors and belonging to stockholders.

The study of financial structure is based upon a definite and under-

lying principle of business finance. This principle is that under ordinary circumstances the various assets, liabilities, revenues, expenses, and earnings of business units tend to stand in some definite relation to each other. If the operation of business units within an industry requires a definite apportionment of capital among various assets, then it is likely that a single dominant plan for the remainder of the financial structure will also be found.

THE CURRENT RATIO OF DEPARTMENT STORES

In any industry in which a large proportion of the capital is invested in working assets, and a considerable proportion of these current assets is procured through current purchases, the Current Ratio is of prime importance. This ratio indicates the amount of current assets which is available for the payment of current liabilities. Of course, in any individual instance, the value of this ratio as an indicator must depend upon the nature of the assets and liabilities from which it is computed.

The department stores which own their real estate naturally have a smaller proportion of their total capital invested in current assets than those which rent their real estate. Due to the smaller proportion of Current Assets to Total Assets, and to the tendency for companies with owned real estate to borrow on mortgages or bonds, their current liabilities are usually smaller in proportion to total assets than is the case for companies renting real estate. These factors affect the Current Ratios of department stores.

Table I of the Appendix contains the data for the Current Assets to Current Liabilities ratios of department stores for 1925. The actual cases of ratios examined are given separately for companies which used, and for those which did not use, long term financing. Likewise, the graduated frequencies for the smooth frequency curves are given, together with other data. The following figures are based upon the observed frequencies for the Current Ratio. They summarize the data in percentage distributions of broad class intervals.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.50 - 2.99.....	58%	37%*
3.00 - 6.49.....	36%	52%
6.50 and over.....	6%	11%
	100%	100%

*These percentages as well as those which follow are based upon all the cases contained in the tables, and occasionally upon a few cases not contained in the tables. In grouping the cases into frequency distributions, extremely irregular cases were omitted from the distributions in the tables of the Appendix.

As indicated by these figures, department stores using long term financing had smaller Current Ratios in 1925 than did those companies not using long term debt. This is indicated by the preceding distribution which shows that 58 per cent of the individual ratios of the former group of companies were below 3.00 as compared with 37 per cent

in a like position for the latter group of companies. The contrast exists in the other class intervals as well.

The same differences are indicated by the average ratios (modes) and the ranges of 50 per cent of the cases which center about these averages. In 1925 the typical company with long term debt had current assets which equalled 2.91 times its current liabilities. Half of the ratios centered about this average showed a range between 1.91 and 3.78. For the group of companies which secured capital only from stockholders and short term creditors, the typical Current Ratio was somewhat higher—namely, 3.29. Half of the cases centered about this typical ratio ranged from 1.85 to 4.61; this was a considerably wider spread than the other group of companies showed.

The data for the year 1927 show a reversal of the situation as portrayed for 1925. The average ratio for companies with owned real estate (those with funded debt) has increased, whereas the average ratio for companies with leased real estate has declined. The comparative percentage distribution of the ratios according to their size is as follows:

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.50 - 2.99.....	36%	46%
3.00 - 6.49.....	58%	30%
6.50 and over.....	6%	24%
	100%	100%

Comparison of these figures with those for the year 1925 throws some light on the changes in the ratios. The percentage distributions show that 58 per cent of the department stores studied which used long term debt had Current Ratios between 3.00 and 6.49 in 1927, and 36 per cent had ratios of the same size in 1925. As a rule, the ratios increased. This conclusion is borne out by the average ratio of 3.26 in 1927 and a range of 2.29 to 4.19 for half of the frequencies concentrated about the mode.

The 1927 percentage distribution of the ratios for department stores without long term debt fails to indicate any uniform tendency to change since 1925. The cases have spread out more, partly toward the lower-sized ratios and partly toward the higher-sized ratios. Whereas in 1925, 52 per cent of the companies had current assets which ranged from 3.00 to 6.49 times their current liabilities, in 1927 only 30 per cent of the companies had current assets of the same relative size. The percentages of companies with Current Ratios below 3.00 and those with ratios above 6.50 both increased in the later year.

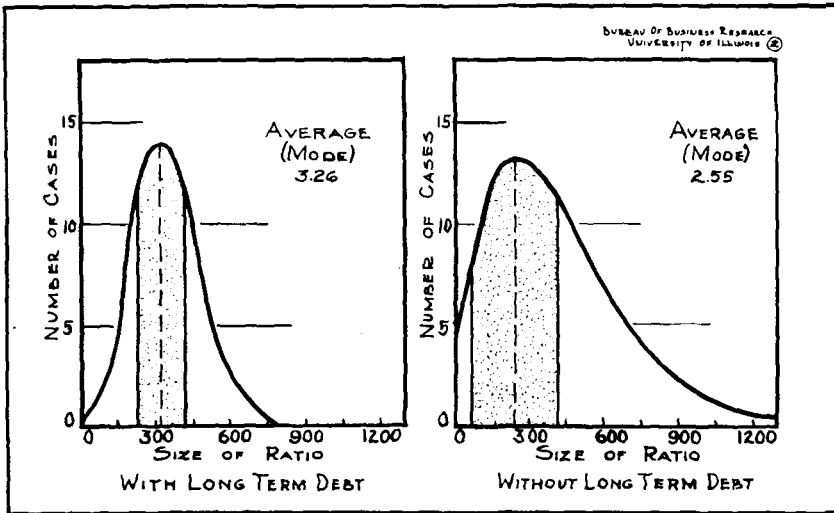


CHART 2—FREQUENCY CURVES OF THE CURRENT ASSETS TO CURRENT LIABILITIES RATIOS OF DEPARTMENT STORES, 1927

The net result of these changes was that the average ratio of this group of companies declined to 2.55 in 1927. The range of half of the individual ratios or cases which concentrated about this typical average was from .77 to 4.20, showing a spread both wider and lower than did the data for 1925. A partial explanation of this change will be found in the study made of current liabilities in a later section.

Chart 2 contains graphic representations of the smooth frequency curves of the Current Ratios for department stores classified according to those which used and which did not use funded debt as of 1927.² Many of the differences discussed above can be observed in this chart. The limits of the entire ranges are indicated by the extreme ends of the curves. The typical ratio or mode is indicated on the horizontal scale at the point at which the broken line (the highest ordinate) intersects the scale line, and the ranges of the 50 per cent of the cases which centered about the modes are indicated by the shaded areas. Although the average Current Ratio is lower for companies not using funded debt than for companies using funded debt, the curves show that a number of large ratios of 9.00 and over existed in the former group for which no corresponding ratios are to be found in the latter group.

²Chart 1 is omitted. The charts are numbered to agree with the tables of data upon which they are based. Thus the first chart presented is based upon Table II and is numbered Chart 2.

PROPERTY INVESTMENTS OF DEPARTMENT STORES

The three ratios which follow show what proportions of the total capital of these department stores have been invested in different kinds of assets. In other words, they show the proportionate property investments. The assets or total capital of these enterprises have been classified into three groups, namely, current assets, fixed assets, and other assets. Ratios have been computed for each of these items using the total assets as a base or 100 per cent.

The Current Assets to Total Assets Ratio

As in the case of the ratio already discussed and of practically all those to be treated later, a contrast exists between the two groups of department stores. The one group—that group which for the most part rents its real estate—has practically all of its capital invested in current assets, i.e., in cash, receivables, inventories, and sundry current items. The second group—that group which for the most part owns its real estate—has current assets which constitute a materially smaller portion of the total capital.

In Table III the distributions of the ratios of Current Assets to Total Assets are given for the year 1925 both for those companies which used long term financing and those which did not. As previously explained, this classification almost uniformly corresponds to that of the companies with owned and leased real estate. These data can be readily summarized to show the actual distribution of ratios. The following figures give the percentage distribution of the Current Assets to Total Assets ratios according to their size for 1925.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.30 - .549 (.25).....	62%	13%
.55 - .799 (.25).....	32%	37%
.80 - .999 (.20).....	6%	50%
	100%	100%

Sixty-two per cent of the department stores owning their real estate had current assets which did not equal more than .55 of their respective total assets. Only 6 per cent of them had more than .80 of their total assets invested in current assets. Just the opposite was true of the companies renting their real estate. Of these companies, in 1925 only 13 per cent had Current Assets to Total Assets ratios of from .30 to .549, and 50 per cent had ratios which exceeded .80.

The average or typical ratios and the range of the 50 per cent of the frequencies which centered about these ratios are:

<i>1925</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
Average ratio (mode).....	.531	.818
Range of 50 per cent of frequencies centered about the mode.....	.433 to .627	.722 to .916

The above figures are for 1925; they are almost the same as the figures for 1927, given in Table IV, which are as follows:

<i>1927</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
Average ratio (mode).....	.529	.832
Range of 50 per cent of frequencies centered about the mode.....	.420 to .637	.734 to .934

Typical companies with funded debt (mainly those with owned real estate) had .531 of their total assets invested in current assets in 1925, and this was almost the same as for 1927. In 1927 half of the cases examined had ratios of Current Assets to Total Assets ranging from .420 to .637, or a spread of .217. Companies without funded debt (those renting their real estate) had a typical average ratio of .832 in 1927 as compared with .818 in 1925 for Current Assets to Total Assets. The 50 per cent range of cases centered about the mode was from .734 to .934, or a spread of .200.

In Chart 4 the frequency curves for the Current Assets to Total Assets ratios of department stores for 1927 are presented.³ The highest ordinate of each curve, the broken line in the chart, indicates the measure of the modal or typical average at the point where it intersects the horizontal scale. The shaded area shows the range of that half of the cases examined which centered about the modal average.

The same facts as above are brought out in a somewhat different manner by a percentage distribution of the ratios for 1927 into three broad groups as follows:

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.30 - .549 (.25).....	52%	16%
.55 - .799 (.25).....	36%	33%
.80 - .999 (.20).....	12%	51%
	<hr/> 100%	<hr/> 100%

These figures show the same general situation as do those for 1925. They also show that, as compared with 1925, there has been some shifting of the positions of these companies. Whereas in 1925, 62

³Chart for Table III is omitted.

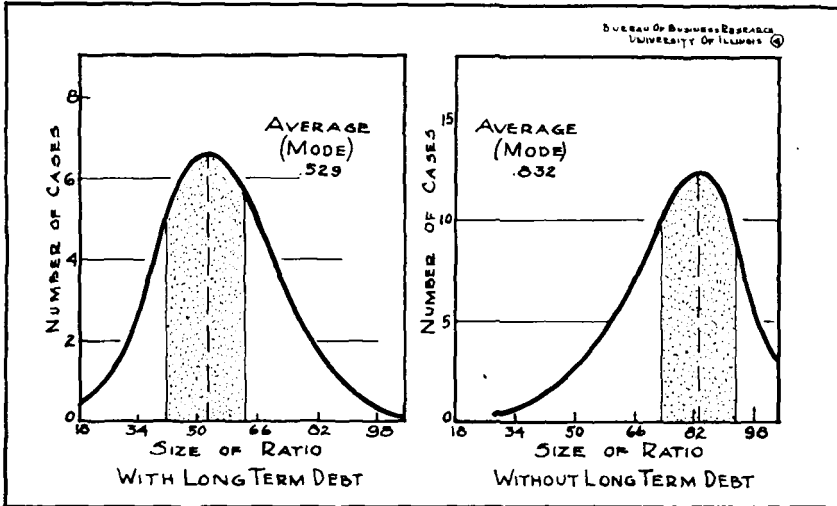


CHART 4—FREQUENCY CURVES OF THE CURRENT ASSETS TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1927

per cent of the department stores with long term debt had Current Assets to Total Assets ratios between .30 and .549, in 1927 only 52 per cent were similarly situated. Instead of 6 per cent of the companies having ratios of .80 or over, 12 per cent of them were thus situated in 1927. Little change has taken place in the stores which do not use fixed borrowed capital.

The Fixed Assets to Total Assets Ratio

As here classified, fixed assets comprise land, buildings,—in other words, real estate—leaseholds, office furniture and equipment, and store fixtures and equipment.

Fixed assets for companies owning their real estate form a considerable portion of their investments; fixed assets for companies renting real estate constitute only a small part for most of these companies, although a few cases run quite high. For the former group, these fixed properties are an asset of very considerable value, which is in most cases not directly dependent upon the success of the department store operations. That is, these properties have independent business values because of possible availability for other uses. This same is not so true of the fixed properties of the second group of companies. Their fixed properties are, first of all, of less amount than the former group of properties; and, second, the value of these fixed

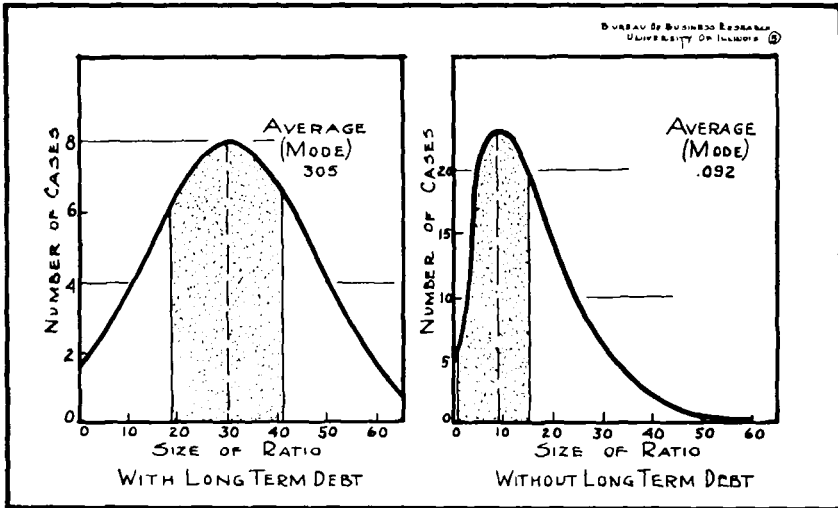


CHART 5—FREQUENCY CURVES OF THE FIXED ASSETS TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1925

assets is very largely dependent upon the success of the department store operations.

For the year 1925 (see Chart 5 and Table V) the most common ratio of Fixed Properties to Total Assets was .305 for companies with long term debt, and only .092 for the group of department stores without funded obligations. Of the companies which owned their real estate, half showed ratios which concentrated about the mode in a range from .190 to .418, whereas for companies renting their real estate the concentration of half of the cases about the mode ranged from .007 to .153. Percentage distributions of these ratios according to their size readily bear out the above differences.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .199.....	29%	69%
.20 - .399.....	44%	29%
.40 and over.....	27%	2%
	100%	100%

Companies with funded debt had a fairly even distribution of their Fixed Assets to Total Assets ratios. Most of these companies had fixed assets of between .20 and .399 of their total assets. Forty-four per cent of the companies are in this position. Companies without long term debt almost invariably have no owned real estate, and as a

result 69 per cent of these companies had fixed assets which were less than .20 of the total assets.

The year 1927 bears out the general facts presented above. There is again a contrast between the companies with rented and owned real estate. And, in addition, there are the changes which have taken place in the two years. A tabulated summary of these ratios of Fixed Assets to Total Assets for 1927 follows.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .199.....	18%	77%
.20 - .399.....	43%	11%
.40 and over.....	39%	12%
	100%	100%

In 1927, 39 per cent of the companies with long term obligations had fixed assets constituting .40 or more of their total assets, while in 1925 only 27 per cent of the companies were in this class. This is an indication of an increase of the proportion of capital invested in fixed properties for these companies as a whole. This tabulation shows that 77 per cent of the companies without funded debt have fixed assets constituting less than .20 of their total assets, whereas 69 per cent of these companies were similarly situated in 1925. This fact is indicative of a general reduction in the proportionate fixed property investments of these companies. However, a small percentage of these companies which do not have funded debt have actually increased their fixed properties as is indicated by two per cent of these companies having Fixed Assets to Total Assets ratios exceeding .40 in 1925 and 12 per cent of the companies being in a similar position in 1927.

Because of the tendency of the Fixed Assets to Total Assets ratios for companies not using long term debt to be asymmetrical (excessively skewed), no typical average ratio was computed for this group of companies. The typical ratio of Fixed Assets to Total Assets for companies with funded debt was .386 in 1927, and the range of half of the companies which centered about the mode or typical average ratio was .289 to .486.

The Other Assets to Total Assets Ratio

Numerous miscellaneous assets which could be classed neither as fixed assets nor as current assets, and which were not eliminated completely, as were intangibles, were classified as other assets. Under this classification are to be found prepaid expenses, deferred items, non-

current receivables, supplies, and similar items. For the most part, investments of capital in other assets reflect non-earning investments. Consequently a small ratio of Other Assets to Total Assets is on the whole a desirable goal.

The distributions of the Other Assets to Total Assets ratios of department stores, summarized and stated as percentages according to the size of ratio, are:

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .079.....	52%	61%
.08 - .159.....	15%	20%
.16 and over.....	33%	19%
	<hr/> 100%	<hr/> 100%

In both types of companies (with and without long term debt) there was a heavy concentration of the ratios in the first group, that is, most of the companies had other assets of less than .079 of the total assets. Fifty-two per cent of the companies with long term obligations had other assets which did not exceed .079 of the total assets, and an even greater concentration in the lower ratios is apparent for companies without long term debt, which had 61 per cent of their cases with other assets of less than .079 of the total assets. A very considerable portion of the companies with owned real estate had large other assets. Thirty-three per cent of these companies had ratios of Other Assets to Total Assets of .16 and over.

The average ratio as indicated by the mode was .068 for companies which for the most part owned their real estate; 50 per cent of the cases concentrated about this typical ratio showed other assets equalling from .026 to .109 of the total assets. In the case of the companies which usually rented their real estate, the typical company had a ratio of .030; one-half of the cases concentrated about this average ratio had ratios of from .00 to .075.

Some changes in this ratio have taken place according to the data for 1927. Other assets of companies with owned real estate have tended to decline. Whereas 52 per cent of these companies had Other Assets to Total Assets ratios of .079 or less in 1925, 70 per cent of the department stores owning their real estate had other assets constituting less than .079 of the total assets in 1927. No major change appears in the distribution for department stores renting their real estate. The summarized data for 1927 presented in a broad percentage distribution according to the size of the ratio are as follows:

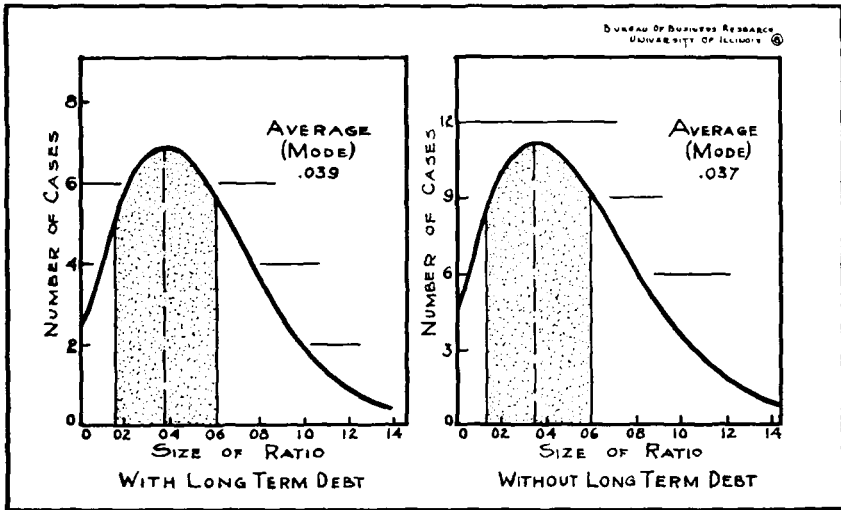


CHART 8—FREQUENCY CURVES OF THE OTHER ASSETS TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1927

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .079.....	70%	63%
.08 - .159.....	15%	23%
.16 and over.....	15%	14%
	100%	100%

In Chart 8 a graphic representation of the Other Assets to Total Assets ratios is given for the year 1927.⁴ The chart shows the frequency curves which have been fitted to the ratios for department stores financed with and without funded debt. These two curves are similar in their characteristics, and the modes or typical ratios are likewise quite similar. The typical Other Assets to Total Assets ratio is .039 for stores with funded obligations; it is .037 for stores using only stock and short term borrowed capital. The concentration of cases about these typical ratios is also quite similar. The one-half of the calculated frequencies which approximated the mode for both groups of department stores was confined within a range of .013 to .061.

⁴Charts based upon Tables VI and VII are omitted.

SOURCES OF CAPITAL OF DEPARTMENT STORES

The preceding section of this bulletin presented the typical distributions of the assets of department stores. The proportionate investments of the capital were indicated (by averages) for a typical or representative department store, depending, of course, upon the nature of its assets and liabilities. These assets were analyzed in accordance with the broad classifications adopted, namely, current assets, fixed assets, and other assets.

The next few pages are given over to a similar analysis of the liabilities and net worth. These are the ratios which indicate from what sources the capital of the enterprise has been derived. They are indicative of the type of financing in so far as they show what classes of investors have contributed to the financing of the enterprise. These liabilities and stockholders' equities of the department stores have been grouped into a threefold classification of current liabilities, long term debt, and net worth. As previously explained, the data were classified according to those department stores which had borrowed capital on long term obligations and those which did not have such capital liabilities. Consequently, there can be no ratio of Long Term Debt to Total Assets for one group of the data.

The Current Liabilities to Total Assets Ratio

Due to the nature of the enterprise, department stores have a somewhat larger proportion of their capital supplied by short term creditors than is true of most types of business enterprise. In a large measure, this can be explained in light of the nature and distribution of the assets. The larger portion of the capital of department stores is invested in current assets. Of this, the major item is inventories. Because of these heavy investments in current assets, department stores are in a position to make considerable use of short term credit capital. Their inventories are maintained by current purchases, and to this extent, current liabilities are a reciprocal indicator of current assets.

Several interesting differences exist in these Current Liabilities to Total Assets ratios as between companies with and without funded obligations. These two groups of companies show different characteristics as to their dispersion over the respective ranges. This is shown by the tabulation which follows, wherein the ratios for 1925 are ex-

pressed in percentages of the total cases according to a rather broad grouping of ratios on the basis of their size.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .149.....	29%	33%
.15 - .299.....	53%	41%
.30 and over.....	18%	26%
	100%	100%

Twenty-nine per cent of the cases with long term debt have current liabilities of less than .15 of their total capital, and the corresponding comparable figure for companies without long term debt is 33 per cent. It is in the middle group, that is, for ratios between .15 and .299 (current liabilities between .15 and .299 of the total assets), that companies with funded debt show a heavy concentration of ratios.

The typical ratios of Current Liabilities to Total Assets were .149 and .168 for companies with and without funded debt, respectively. The concentration of cases about these averages, as indicated by the range of half of the frequencies centered about these modes, was greater for companies with funded debt. Half of these cases had ratios ranging from .097 to .194 for department stores owning their real estate, and from .094 to .241 for companies renting their real estate.

In the light of the conclusions reached above, the year 1927 does not seem to show any clearly defined change in current liabilities. On the whole, it appears that current liabilities have tended to increase in certain respects but there appears to be a dual movement. The following tabulation shows for 1927 the percentage distribution of the Current Liabilities to Total Assets ratios according to their size:

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
.00 - .149.....	49%	35%
.15 - .299.....	33%	30%
.30 and over.....	18%	35%
	100%	100%

Again, the data for stores with funded debt show a greater concentration of cases than do the data for the other group. Practically half (49 per cent) of the companies with long term obligations have less than .15 of their capital supplied by short term creditors. This group of companies shows a heavy concentration of ratios in the lower-sized ratio intervals. The companies without funded obligations have a much more widespread distribution, 35 per cent of the cases having Current Liabilities to Total Assets ratios of less than .15 and an equal percentage having ratios above .30.

The stores owning their real estate (i.e., those with long term

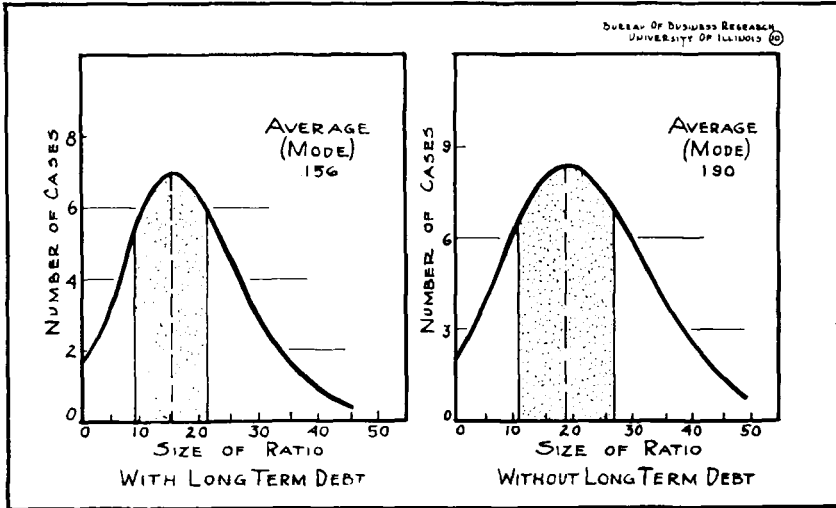


CHART 10—FREQUENCY CURVES OF THE CURRENT LIABILITIES TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1927

debt) show a decided increase since 1925 in the percentage of cases with low ratios. In that year the bulk of the ratios (53 per cent) ranged in size from .15 to .30; whereas in 1927 there were only 33 per cent of the cases between .15 and .30, and 49 per cent were between .00 and .15. Those companies which rented their real estate had 41 per cent of their cases between .15 and .30 in 1925 and 30 per cent in a like position in 1927. The decrease in the ratios between .15 and .30 in 1927 was offset largely by a shifting of the ratios to the higher-sized class intervals, and to a very considerably smaller extent by a shifting of the ratios to lower sizes.

The frequency curves for Current Liabilities to Total Assets ratios based on the 1927 data (see Table X) are presented graphically in Chart 10.⁵ The curve for companies with long term debt is not so ample in its spread as the curve for companies without funded debt. This is indicative of a greater concentration or compactness of the ratios of the former group. The same characteristics are brought out by the mode or typical ratio and the range of half of the cases centered about the mode.

	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
Average ratio (mode).....	.156	.190
Range of 50 per cent of frequencies centered about the mode.....	.092 to .218	.108 to .270

⁵Chart for Table IX is omitted.

It is evident from these figures that when a department store borrows part of its capital on long term credit, it is quite unlikely that its current liabilities will be as great as they would be had there been no long term borrowing. In other words, to a limited extent, and based on averages, long term borrowing tends to reduce and partially replace current obligations.

As far as the companies which have long term borrowings are concerned, the typical ratio shows little change from 1925 to 1927. There is a slight increase from .149 to .156. A fairly significant change appears to have taken place in the current liabilities of companies using only short term borrowed capital. For these companies the typical ratio increased from .168 in 1925 to .190 in 1927. Thus almost one-fifth of the total capital came from short term creditors in these companies, and, conversely, about four-fifths from stockholders.

The Long Term Debt to Total Assets Ratio

The ratio previously discussed depicted one form of creditor capital. This capital constituted the short term obligations owing to creditors, and could in no sense be considered a permanent part of the enterprise. Long term capital is distinctly different from that covered either by the foregoing ratio or by the ratios discussed hereafter. It represents an investment wherein the investor ordinarily foregoes any direct control of operations as well as any chance for large return in exchange for a fixed, relatively safe return in the form of interest. Furthermore, this investment is made for very considerable periods of time.

Because of the fact that the use or non-use of long term debt was made a basis of classifying all the ratios of these department stores, there are no ratios of long term debt for one group of the data. In Chart 11 (and Table XI) the ratios of Long Term Debt to Total Assets for companies owning their real estate are given for 1925 and 1927. As is shown there, the average or typical ratios and the range of the 50 per cent of the frequencies which centered about these ratios are:

	<i>1925</i>	<i>1927</i>
Average ratio (mode).....	.093	.140
Range of 50 per cent of frequencies centered about the mode.....	.035 to .150	.057 to .222

There has been considerable change in these ratios in the two years. The average ratio has increased as has also the spread of the entire group of ratios. The typical department store having long term debt

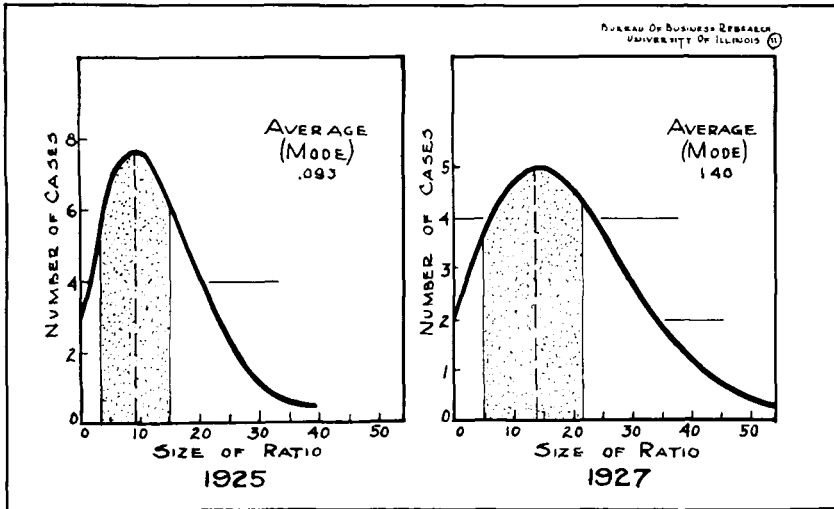


CHART 11—FREQUENCY CURVES OF THE LONG TERM DEBT TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1925 AND 1927

had a ratio of Long Term Debt to Total Assets of .093 in 1925 and .140 in 1927. The spread of half of the calculated frequencies centered about the mode was .115 (from .035 to .150) in 1925 and .165 (from .057 to .222) in 1927.

The following percentages are a summarization of the distributions of Funded Debt to Total Assets ratios of department stores for the years 1925 and 1927.

<i>Size of Ratio</i>	<i>1925</i>	<i>1927</i>
.00 - .149	62%	49%
.15 - .299	29%	27%
.30 and over	9%	24%
	100%	100%

From 1925 to 1927 a strong tendency to increase the amount of funded debt is displayed in those cases wherein it exceeded .30 of the total assets. Almost two-thirds of the total cases which used long term borrowed capital in 1925 had less than 15 per cent of their capital supplied by bonded debt. The companies with borrowings of the same size had decreased to 49 per cent of the total cases in 1927. The number of companies which obtained .30 or more of their capital from funded debt increased from 9 per cent of the total cases in 1925 to 24 per cent of the cases in 1927. Those whose ratios occurred in the middle group (.15-.299) remained about the same for both

years, decreasing only 2 per cent in 1927. These changes may be accounted for by several things. These department stores may be obtaining less of their capital by selling stock than formerly, or making smaller reinvestments of profits earned, or gradually increasing their long term debt. The Current Liabilities to Total Assets ratio for these years has not changed to any extent for the companies with long term debt, so that the changes in the Long Term Debt to Total Assets ratio must be attributed to some cause other than possible changes in current liabilities.

The Net Worth to Total Assets Ratio

In a study of the financial structure of business enterprises, an important financial indicator is the owner's equity in the total capital invested. In the final analysis, the owner's equity is the margin of security for the balance of the capital which must be borrowed. The creditor examines carefully the nature of the assets, but he also wants to know the amount of capital contributed by the stockholders. The proportion of the capital contributed by owners in different business enterprises varies with the kind of business unit, its management, its product, the regularity of demand, distribution and nature of assets, etc. In common with most industrials, and especially most retail enterprises, department stores obtain a substantial proportion of their capital from stockholders' equities.

Net worth in this analysis consists of preferred stock, common stock, and surplus and reserves. In other words, net worth is here used as synonymous with the stockholders' equities, both preferred and common.

In Chart 12 (based upon Table XII) the frequency curves of the ratios of Net Worth to Total Assets are given for the year 1925 for the two groups of companies, those that use long term debt financing and those that do not. In general, the curves are quite similar, although the curve for the companies without funded debt is more skewed, thus indicating a higher concentration of cases at the higher-sized ratios than for the companies with long term debt. To make the data of more practical value, a percentage distribution of ratios is presented herewith. The cases are grouped into three sizes of ratios and stated as percentages of the total cases.

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
Below .400.....	3%	2%
.40 - .699.....	53%	24%
.70 - .999.....	44%	74%
	100%	100%

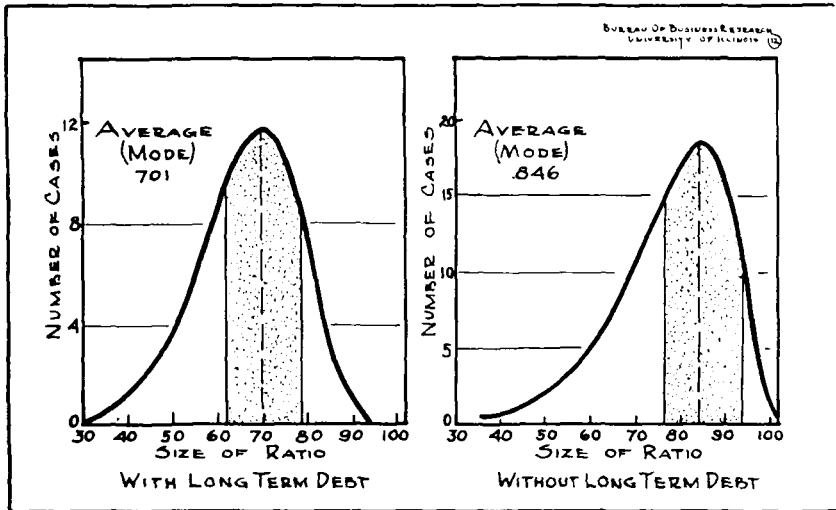


CHART 12—FREQUENCY CURVES OF THE NET WORTH TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1925

This tabulation readily shows the difference between the two kinds of financing, and the influence of funded debt on the distributions. Fifty-three per cent of the total cases with long term debt had stockholders' equities supplying between .40 and .699 of the total assets, while of those companies without long term debt only 24 per cent had ratios between .40 and .699. In the next group (.70-.999) only 44 per cent of the cases with long term debt are present, as compared with 74 per cent for companies without long term debt.

The modal ratios give a good summarization of the above percentages. The typical company with funded debt obtained .701 of its total capital from stockholders and reinvested profits. Half of the cases had ratios between .620 and .787. In the companies without long term debt the typical company had a ratio of .846 and the range of 50 per cent of the cases was from .765 to .939. For representative companies, stockholders supplied 15 per cent more of the capital in the latter than in the former type of company.

The year 1927 shows a definite tendency for the ratios to decrease as compared with 1925 and for the range to spread out more widely. A summary statement in percentage form shows the following:

<i>Size of Ratio</i>	<i>With Long Term Debt</i>	<i>Without Long Term Debt</i>
Below .400.....	9%	5%
.40 - .699.....	61%	30%
.70 - .999.....	30%	65%
	100%	100%

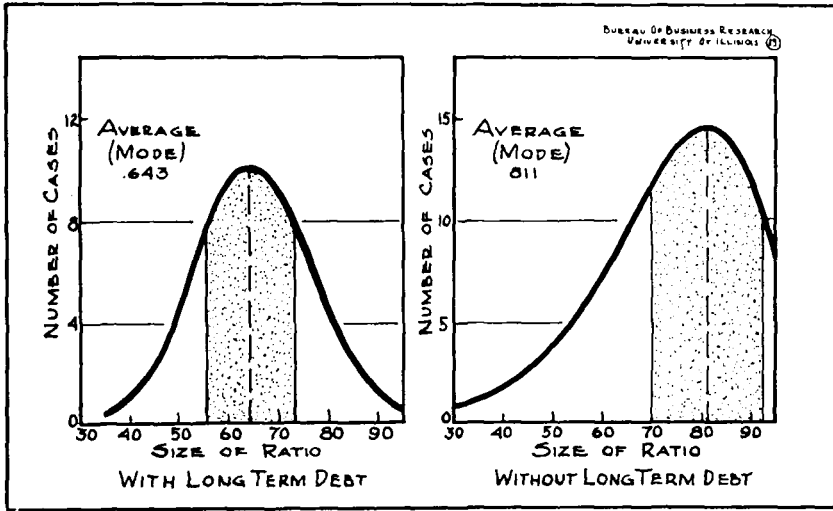


CHART 13—FREQUENCY CURVES OF THE NET WORTH TO TOTAL ASSETS RATIOS OF DEPARTMENT STORES, 1927

As was the case in 1925, the 1927 ratios for concerns with funded debt tend to concentrate in the class interval .40 to .699, while the ratios of companies without funded debt concentrate most heavily between .70 and 1.00. In 1927 the modal average of Net Worth to Total Assets ratios was .643 for companies with long term obligations and .811 for companies without. As compared with the typical or modal ratios for 1925, these figures indicate a significant reduction in the proportion of capital supplied by stockholders' equities. The modal average of companies with long term debt is more representative of the individual ratios than the average of companies not using long term debt. The range of half of the frequencies centered about the mode is from .556 to .730 for the former companies, and from .702 to .925 for the latter.

Chart 13 shows the frequency curves for Net Worth to Total Assets ratios for 1927. Comparison of these curves with the charted curves for 1925 shows the changes which have taken place.

SUMMARY

Because of the brevity of the foregoing discussions, no elaborate summary is needed. The purpose here is primarily to recapitulate the ratios in one table. In connection therewith a few of the significant relationships are mentioned, without, however, bringing in the details discussed in preceding pages.

TYPICAL (MODAL) BALANCE SHEET RATIOS FOR DEPARTMENT STORES,
1925 AND 1927*

Ratio	Companies Using Long Term Debt Financing		Companies Not Using Long Term Debt Financing	
	1925	1927	1925	1927
Current Assets to Current Liabilities	2.91	3.26	3.29	2.55
Current Assets } Fixed Assets } to Total Assets . . . . .	.531	.529	.818	.832
Other Assets } . . . . .	.305	.386	.092	. . . .
	.068	.039	.030	.037
Current Liabilities } Long Term Debt } to Total Assets . . . . .	.149	.156	.168	.190
Net Worth } . . . . .	.093	.140	. . . .	. . . .
	.701	.643	.846	.811

*The ratios constituting the assets and liabilities fail to equal the theoretical 1.00, or the total assets. This is partly attributable to the small sample of data, especially for companies using long term debt financing. Allowance must also be made for statistical shortcomings. Grouping of ratios into more or less arbitrary class intervals introduces a certain degree of error.

This condensed table gives the typical average ratios for department stores according to the two dominant types of financial plans found in the industry. Altogether, statements of 88 and 90 companies were examined for 1925 and 1927, respectively. Thirty-four of these companies in 1925 and 33 in 1927 used funded debt, usually secured by the pledge of owned fixed assets in the form of land and buildings. These constituted a group of companies using one type of financing. The remainder of the companies, namely, 54 in 1925 and 57 in 1927, made no use of long term borrowed capital, and, as a rule, rented their real estate. These companies constituted a group using another type of financing.

Examination of the Current Assets to Current Liabilities ratios in the accompanying table shows no pronounced differences in the position of the two groups of companies. While the average Current Ratio of department stores using long term debt increased from

2.91 in 1925 to 3.26 in 1927, the ratio of stores using only short term borrowed capital and stock for their capital decreased from 3.29 to 2.55. Both changes were substantial in amount. The change in the ratio of stores not using long term debt was distinctly an unfavorable one, since current assets of the typical company equalled only 2.55 times its current liabilities in 1927 compared with 3.29 times the current liabilities in 1925.

Changes in the ratios of Current Assets to Total Assets do not appear to be of importance although here also there is a decided contrast between the two types of financing. Fixed assets of companies using long term debt increased from .305 of the total assets in 1925 to .386 of the total assets in 1927. The proportion of total capital invested in fixed assets by department stores not using long term debt was .092 in 1925; no average was calculated for 1927. Only one change of importance occurred in other assets, the decline in the Other Assets to Total Assets ratio of companies using funded debt from .068 in 1925 to .039 in 1927.

The proportion of capital provided by short term credit increased for both groups of enterprises from 1925 to 1927. Likewise the capital obtained from long term debt increased from .092 to .140 for companies using such financing. This was in agreement with the increased Fixed Assets to Total Assets ratio. Thus both short term and long term creditor capital increased; as a consequence there was a reduction in the portion of capital provided by stockholders. The Net Worth to Total Assets ratios of companies financing with bonds, stocks, and short term borrowings declined from .701 in 1925 to .643 in 1927. In 1925 net worth accounted for .846 of the total assets of department stores financing with only stocks and short term borrowings; in 1927 net worth constituted only .811 of the total assets.

APPENDIX

TABLE I.— $\frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Current Assets to Current Liabilities ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
50-199.....	3	4.3	50-199.....	8	10.6
200-349.....	15	14.0	200-349.....	12	16.6
350-499.....	8	8.6	350-499.....	15	12.9
500-649.....	3	3.0	500-649.....	13	7.1
650-799.....	2	.8	650-799.....	2	3.2
			800-949.....	2	1.3
			950-1099.....	0	.5
			1100-1249.....	1	.2

Average Ratio: Mode = 2.91

Range of 50 per cent of frequencies centered about the mode, 1.91 to 3.78

Equation for computing the smooth curve:

$$y = 14.0e^{-2.2592x} \left(1 + \frac{x}{1.6779} \right)^{3.7907}$$

Average Ratio: Mode = 3.29

Range of 50 per cent of frequencies centered about the mode, 1.85 to 4.61

$$\text{Equation: } y = 16.6e^{-1.5699x} \left(1 + \frac{x}{2.4314} \right)^{3.8171}$$

TABLE II.— $\frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$ RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Current Assets to Current Liabilities ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
00-149.....	2	.5	00-149.....	7	9.9
150-299.....	10	6.9	150-299.....	19	13.2
300-449.....	13	14.0	300-449.....	9	11.3
450-599.....	5	8.2	450-599.....	7	7.8
600-749.....	2	2.1	600-749.....	4	4.8
			750-899.....	4	2.7
			900-1049.....	2	1.4
			1050-1199.....	1	.7
			1200-1349.....	1	.4

Average Ratio: Mode = 3.26

Range of 50 per cent of frequencies centered about the mode, 2.29 to 4.19

$$\text{Equation: } y = 14.0e^{-3.8992x} \left(1 + \frac{x}{4.9079} \right)^{28.9527}$$

Average Ratio: Mode = 2.55

Range of 50 per cent of frequencies centered about the mode, .77 to 4.20

$$\text{Equation: } y = 13.2e^{-.9602x} \left(1 + \frac{x}{2.3617} \right)^{2.1671}$$

TABLE III.— $\frac{\text{CURRENT ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Current Assets to Total Assets ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
26-339	1	1.0	34-419	2	1.2
34-419	3	3.5	42-499	2	2.4
42-499	11	6.4	50-579	4	4.4
50-579	7	7.6	58-659	6	7.3
58-659	1	6.6	66-739	8	10.4
66-739	5	4.4	74-819	6	12.0
74-819	4	2.5	82-899	16	9.9
82-899	2	1.2	90-979	10	4.7
Average Ratio: Mode = .531			Average Ratio: Mode = .818		
Range of 50 per cent of frequencies centered about the mode, .433 to .627			Range of 50 per cent of frequencies centered about the mode, .722 to .916		
Equation: $y = 7.6e^{-2.2966z} \left(1 + \frac{x}{7.3067}\right)^{16.7506}$			Equation: $y = 12.0e^{1.3750z} \left(1 - \frac{x}{4.3118}\right)^{5.9237}$		

TABLE IV.— $\frac{\text{CURRENT ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Current Assets to Total Assets ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
26-339	2	1.5	26-339	1	.4
34-419	5	3.7	34-419	1	.8
42-499	7	5.8	42-499	3	1.6
50-579	6	6.6	50-579	5	2.9
58-659	3	5.9	58-659	3	5.0
66-739	5	4.2	66-739	10	7.8
74-819	1	2.6	74-819	6	10.8
82-899	4	1.3	82-899	16	12.3
			90-979	12	10.2
Average Ratio: Mode = .529			Average Ratio: Mode = .832		
Range of 50 per cent of frequencies centered about the mode, .420 to .637			Range of 50 per cent of frequencies centered about the mode, .734 to .934		
Equation: $y = 6.6e^{-2.4476z} \left(1 + \frac{x}{9.6638}\right)^{23.6531}$			Equation: $y = 12.3e^{1.1175z} \left(1 - \frac{x}{3.6497}\right)^{4.0735}$		

TABLE V.— $\frac{\text{FIXED ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Fixed Assets to Total Assets ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
00-099	8	1.7	00-099	22	23.2
10-199	2	3.9	10-199	15	15.3
20-299	4	6.6	20-299	11	6.5
30-399	11	8.0	30-399	5	2.3
40-499	5	6.8	40-499	0	.7
50-599	3	4.1	50-599	1	.2
60-699	1	1.6			

Average Ratio: Mode = .305

Range of 50 per cent of frequencies centered about the mode, .190 to .418

$$\text{Equation: } y = 8.0e^{12.7146x} \left(1 - \frac{x}{36.4326} \right)^{463.2259}$$

Average Ratio: Mode = .092

Range of 50 per cent of frequencies centered about the mode, .007 to .153

$$\text{Equation: } y = 23.2e^{-1.3781x} \left(1 + \frac{x}{1.2461} \right)^{1.9665}$$

TABLE VI.— $\frac{\text{FIXED ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Fixed Assets to Total Assets ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve*
00-099	2	1.6	00-099	29	
10-199	4	4.0	10-199	15	
20-299	4	7.4	20-299	4	
30-399	10	9.3	30-399	2	
40-499	6	7.0	40-499	4	
50-599	7	2.7	50-599	2	
			60-699	1	

Average Ratio: Mode = .386

Range of 50 per cent of frequencies centered about the mode, .289 to .486

$$\text{Equation: } y = 9.3e^{3.5851x} \left(1 - \frac{x}{6.7592} \right)^{22.1677}$$

*Because of the excessive skewness of the data, a satisfactory curve could not be calculated; consequently no mode is given.

TABLE VII.— $\frac{\text{OTHER ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Other Assets to Total Assets ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
00-019	2	2.0	00-019	11	6.7
02-039	5	2.9	02-039	13	7.3
04-059	7	3.5	04-059	6	6.9
06-079	3	3.6	06-079	3	5.9
08-099	3	3.5	08-099	6	4.9
10-119	1	3.1	10-119	2	3.8
12-139	0	2.6	12-139	0	2.9
14-159	1	2.1	14-159	3	2.2
16-179	3	1.6	16-179	1	1.6
18-199	1	1.2	18-199	3	1.1
20-219	2	.8	20-219	0	.8
22-239	1	.6	22-239	0	.6
24-259	1	.4	24-259	3	.4

Average Ratio: Mode = .068

Range of 50 per cent of frequencies centered about the mode, .026 to .109

$$\text{Equation: } y = 3.6e^{-.7351x} \left(1 + \frac{x}{7.7389} \right)^{5.6889}$$

Average Ratio: Mode = .030

Range of 50 per cent of frequencies centered about the mode, .00 to .075

$$\text{Equation: } y = 7.3e^{-.4676x} \left(1 + \frac{x}{3.2690} \right)^{1.5286}$$

TABLE VIII.— $\frac{\text{OTHER ASSETS}}{\text{TOTAL ASSETS}}$ RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Other Assets to Total Assets ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
00-019	6	5.5	00-019	11	9.1
02-039	7	6.9	02-039	15	11.1
04-059	5	5.8	04-059	7	9.6
06-079	5	3.8	06-079	3	6.7
08-099	1	2.0	08-099	6	4.0
10-119	3	.9	10-119	3	2.1
12-139	1	.4	12-139	4	1.0

Average Ratio: Mode = .039

Range of 50 per cent of frequencies centered about the mode, .016 to .061

$$\text{Equation: } y = 6.9e^{-1.7132x} \left(1 + \frac{x}{4.3498} \right)^{7.4523}$$

Average Ratio: Mode = .037

Range of 50 per cent of frequencies centered about the mode, .013 to .060

$$\text{Equation: } y = 11.1e^{-1.3884x} \left(1 + \frac{x}{4.0934} \right)^{5.6014}$$

TABLE IX.— $\frac{\text{CURRENT LIABILITIES}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Current Liabilities to Total Assets ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
05-099	1	.2	00-049	1	1.8
10-149	9	5.6	05-099	7	5.3
15-199	11	10.0	10-149	10	8.5
20-249	6	7.9	15-199	12	9.6
25-299	1	4.6	20-249	7	8.7
30-349	1	2.4	25-299	3	6.8
35-399	3	1.1	30-349	4	4.8
			35-399	4	3.1
			40-449	2	1.9
			45-499	2	1.1
			50-549	1	.6

Average Ratio: Mode = .149

Range of 50 per cent of frequencies centered about the mode, .097 to .194

$$\text{Equation: } y = 10.0e^{-1.1740x} \left(1 + \frac{x}{1.6748} \right)^{1.8853}$$

Average Ratio: Mode = .168

Range of 50 per cent of frequencies centered about the mode, .094 to .241

$$\text{Equation: } y = 9.6e^{-1.0271x} \left(1 + \frac{x}{4.9919} \right)^{5.2769}$$

TABLE X.— $\frac{\text{CURRENT LIABILITIES}}{\text{TOTAL ASSETS}}$ RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Current Liabilities to Total Assets ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
05-099	4	2.9	00-049	4	3.5
10-149	12	5.9	05-099	8	5.8
15-199	5	7.0	10-149	8	7.7
20-249	2	6.2	15-199	7	8.4
25-299	4	4.5	20-249	6	7.8
30-349	1	2.8	25-299	4	6.2
35-399	4	1.6	30-349	7	4.4
40-449	1	.9	35-399	2	2.8
			40-449	5	1.6
			45-499	1	.8

Average Ratio: Mode = .156

Range of 50 per cent of frequencies centered about the mode, .092 to .218

$$\text{Equation: } y = 7.0e^{-1.2380x} \left(1 + \frac{x}{4.2405} \right)^{5.2243}$$

Average Ratio: Mode = .190

Range of 50 per cent of frequencies centered about the mode, .108 to .270

$$\text{Equation: } y = 8.4e^{-2.2938x} \left(1 + \frac{x}{13.7626} \right)^{21.5687}$$

TABLE XI.— $\frac{\text{LONG TERM DEBT}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925 AND 1927

Distributions of the observed and graduated frequencies of the Long Term Debt to Total Assets ratio for department stores for 1925 and 1927

1925			1927		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
00-049	9	6.3	00-049	5	3.4
05-099	8	7.7	05-099	7	4.6
10-149	4	6.6	10-149	4	5.0
15-199	4	4.5	15-199	2	4.7
20-249	5	2.5	20-249	5	3.9
25-299	1	1.2	25-299	2	2.9
30-349	2	.6	30-349	3	2.0
			35-399	1	1.3
			40-449	1	.8
			45-499	2	.5

Average Ratio: Mode = .093

Range of 50 per cent of frequencies centered about the mode, .035 to .150

$$\text{Equation: } y = 7.7e^{-1.8485x} \left(1 + \frac{x}{4.6998} \right)^{7.7476}$$

Average Ratio: Mode = .140

Range of 50 per cent of frequencies centered about the mode, .057 to .222

$$\text{Equation: } y = 5.0e^{-1.1337x} \left(1 + \frac{x}{7.1320} \right)^{8.0553}$$

TABLE XII.— $\frac{\text{NET WORTH}}{\text{TOTAL ASSETS}}$ RATIO FOR 1925

Distributions of the observed and graduated frequencies of the Net Worth to Total Assets ratio for department stores for 1925 classified according to the type of financial plan

WITH LONG TERM DEBT

Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
30-399	1	.3
40-499	3	1.3
50-599	5	3.8
60-699	10	8.5
70-799	11	11.7
80-899	4	7.3

Average Ratio: Mode = .701

Range of 50 per cent of frequencies centered about the mode, .620 to .787

$$\text{Equation: } y = 11.7e^{2.7375x} \left(1 - \frac{x}{3.6139} \right)^{9.8931}$$

WITHOUT LONG TERM DEBT

Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
30-399	1	.4
40-499	1	1.2
50-599	4	3.1
60-699	8	7.2
70-799	10	13.8
80-899	22	18.5
90-999	8	9.9

Average Ratio: Mode = .846

Range of 50 per cent of frequencies centered about the mode, .765 to .939

$$\text{Equation: } y = 18.5e^{1.4687x} \left(1 - \frac{x}{1.8845} \right)^{2.7678}$$

TABLE XIII.— NET WORTH
TOTAL ASSETS RATIO FOR 1927

Distributions of the observed and graduated frequencies of the Net Worth to Total Assets ratio for department stores for 1927 classified according to the type of financial plan

WITH LONG TERM DEBT			WITHOUT LONG TERM DEBT		
Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve	Size of Ratio	Number of Observed Frequencies	Graduated Frequencies for Smooth Curve
40-499	3	2.1	30-399	3	.8
50-599	8	7.0	40-499	2	1.9
60-699	9	10.1	50-599	6	4.1
70-799	5	7.2	60-699	9	7.7
80-899	5	2.7	70-799	10	12.1
			80-899	15	14.5
			90-999	12	11.3

Average Ratio: Mode = .643	Average Ratio: Mode = .811
Range of 50 per cent of frequencies centered about the mode, .556 to .730	Range of 50 per cent of frequencies centered about the mode, .702 to .925
Equation: $y = 10.1e^{-10.0004x} \left(1 + \frac{x}{14.1594}\right)^{142.5908}$	Equation: $y = 14.5e^{2.6372x} \left(1 - \frac{x}{3.9061}\right)^{6.3951}$