

1931

# Developments in the analysis of financial statements

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DEVELOPMENTS IN THE ANALYSIS  
of  
FINANCIAL STATEMENTS

A THESIS

Submitted for Credit  
towards the degree  
of

MASTER OF BUSINESS ADMINISTRATION

from

BOSTON UNIVERSITY

COLLEGE OF BUSINESS ADMINISTRATION

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LILLIAN F. SHERIDAN

1931





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P R E F A C E

Contact with analytical work of this type while with Ernst & Ernst for several years originated the desire to compile a report, which, while summarizing the best opinions on technique, should at the same time direct the attention of executives to this field of accounting with its potentialities for better management.



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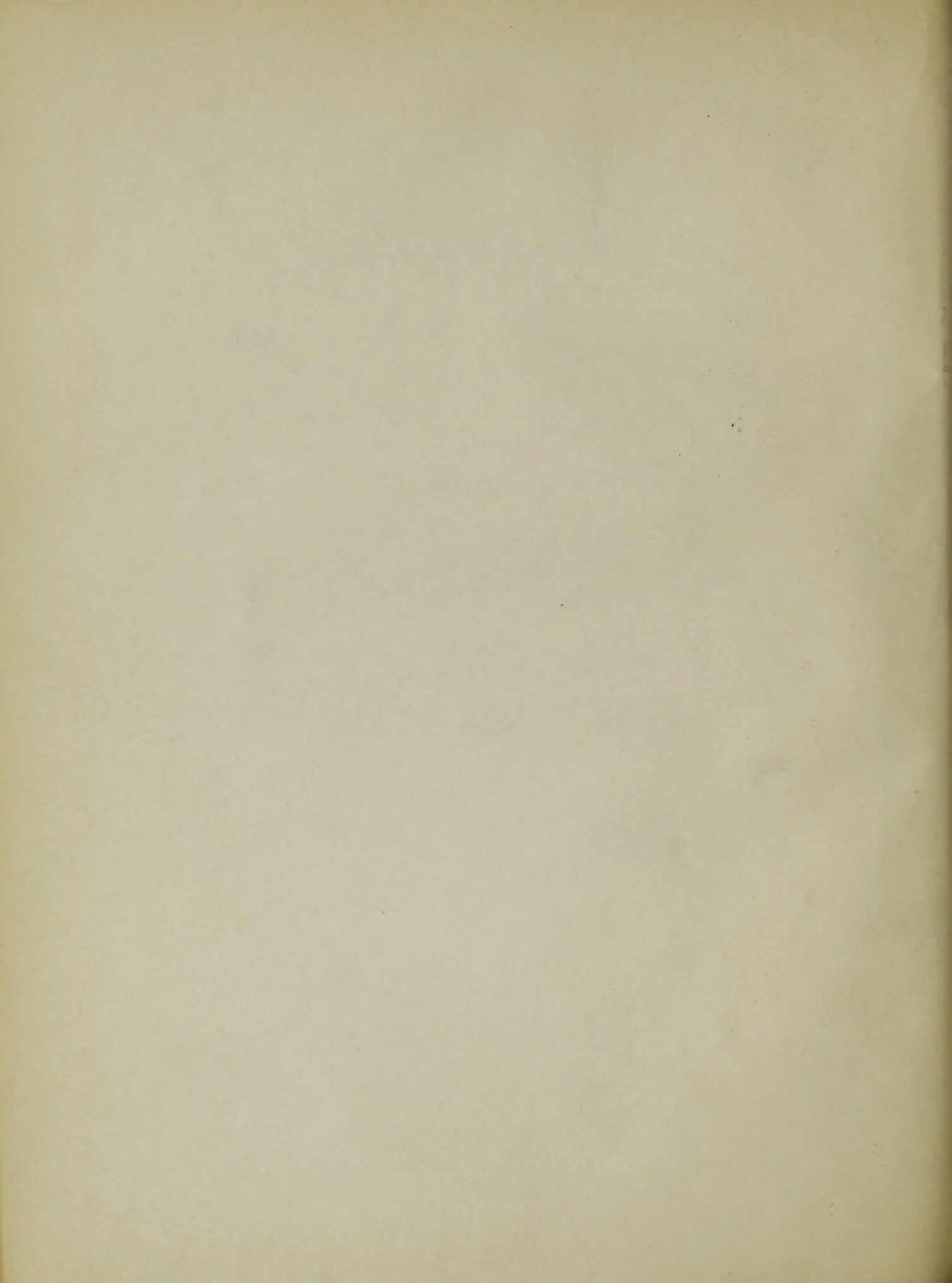
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CHAPTER I

## SCOPE OF THESIS

Keen competition with its trend toward consolidations, requires that the business man be able to interpret correctly the financial statements of not only his own company, but also those of his customers and competitors whenever these are available. From simply reading these statements he will gain but little information. To derive real benefit, it is necessary that the figures be analyzed and this process requires considerable calculation, but from the results, the analyst is often able to deduce vital facts which never appear on the surface of such statements. There are average ratios, turnovers of accounts receivable and inventories, for every industry, and variations therefrom will result in variations in profits.

In this connection many executives are handicapped by the lack of an exact understanding of technical accounting terms. Accordingly, an attempt is made in this thesis to use only the more common ones for general purposes, and to explain carefully the particular terms used in analytical



work. However, it necessarily must be assumed that the executive has at least a cursory knowledge of the principles underlying the construction of financial statements.

Business is never stationary. It is constantly changing - either progressing or retrogressing - and unless a given concern adjusts itself to such changes at least as quickly as the average, it will be eliminated automatically from the industry as an inefficient. Foresight is essential to this adjusting process and past experience is the foundation of foresight. Hence, when sound statistics for prior years are available, the budget for the future may be planned intelligently.

While this discussion will be confined to the viewpoint of the executive within the business, it may be well to mention certain other groups who use similar methods in analyzing financial statements which come to their attention in the course of business, for example, the banker. It is quite apparent that he is chiefly concerned with the ability of the borrower to repay his loan at maturity. In this respect all creditors are bankers, for in the selling of merchandise, if a new account does not have a definite standing in the trade, the seller is justified in requesting a recent balance sheet to assist him in deciding how much

work. However, it necessarily must be assumed that the executive has at least a cursory knowledge of the principles underlying the construction of financial statements.

Business is never stationary. It is constantly changing - either progressing or retrogressing - and unless a given concern adjusts itself to such changes at least as rapidly as the average, it will be eliminated automatically from the industry as an independent. Forethought is essential to this adjusting process and past experience is the foundation of fore- sight. Hence, when sound statistics for prior years are available, the budget for the future may be planned intelligently.

While this discussion will be confined to the viewpoint of the executive within the business, it may be well to mention certain other groups who use similar methods in analyzing financial statements with a view to their application in the course of business, for example, the banker. It is quite apparent that he is chiefly concerned with the ability of the borrower to repay his loan at maturity. In this respect all creditors are bankers, for in the selling of merchandise if a new account does not have a definite standing in the trade, the seller is justified in requesting a recent balance sheet to assist him in deciding how much

credit he wishes to extend to the buyer. For credit purposes, therefore, the method of analysis should make clear not only the financial strength of the prospective debtor at the time the merchandise is sold, or the loan is made, but it should give some approximation of the general trend of the affairs of the company in order to ascertain its prospects of fulfilling the obligation when it becomes due. Thus, a company, which because of severe competition or other conditions has been making little or no money for several years, might still present a balance sheet showing a surplus, but in reality be in questionable financial condition, especially if a comparison with prior years' figures shows a rapid decline in financial strength with respect to working capital or in the relation between stockholders' interests and creditors' interests.

Bankers are also finding very helpful average or standard figures for the various industries. The retail hardware trade for instance requires a larger proportion of working capital than the wholesale butter and egg business, because the former necessarily has a slower turnover of inventory than the latter. Therefore, what would be considered a good turnover rate in the hardware trade would be most unfavorable in the butter and egg business. Hence, the necessity



is apparent for comparative statistics for the separate industries:

Closely akin to the bankers' interests are those of the stockholders, but the latter are concerned not only with the safety of their principal, but also with the earnings which may be obtained on every dollar invested, including both their original capital and the subsequent accruals which they have allowed to remain in the business, instead of declaring dividends. A careful analysis will reveal the reasons for unsatisfactory returns to the investors.

It is obvious that no amount of detailed statistics will secure true information, if the statements which are being analyzed are loosely drawn up. Good accounting practice is the basis of sound statistics. For example, the liability for the year's federal taxes is a current one and must be shown on the balance sheet as such, not as a reserve or a contingency. Again, surplus arising from the appreciation of plant must be so noted and not included with earned surplus which in several states is the only portion legally available for dividends. Deviations of this type will lead the analyst to incorrect conclusions, which if followed by the management, may result in policy changes which are disadvantageous to the business. In the writer's opinion, this phase of statistics needs especial emphasis and executives ought to realize that if their employees are not thoroly informed on the best accounting methods, the



only way to obtain a true picture of the affairs of the company is to engage a firm of public accountants to check the figures presented by the bookkeeper.

This type of an audit will obtain not only correct figures for internal statistics, but will also give prestige to such statements as are presented to banks or vendors for credit purposes. Again, it is certainly within the scope of the work of the public accountant to make clear the exact portent of the figures included in the audit report which he renders to his client, but in actual practice this is seldom done. The reports tend to be stereotyped, lack comparisons, averages, etc., and fail to state in plain terms information which would be of the most assistance to the management. Nevertheless, they do present accurate financial statements, and if these are interpreted in accordance with the plan suggested herein, the executive is then in a position to obtain the fullest benefit from his books and records.

Recently there has been a tendency in many industries toward the adoption of uniform accounting systems. The plan of the Retail Dry Goods Association is one well-known example. This procedure is very valuable for comparative purposes. Each department



store in the group analyzes and submits its figures to the Association which compiles averages according to the various sales volumes, the identity of no individual store being disclosed. Then each member receives a summary of the information concerning stores which are comparable, and any variation in its own profit can readily be checked against the average figures, item by item.

In connection with seasonal business, due consideration should always be given to the natural conditions peculiar to the industry at the date set forth on the balance sheet. A concern can not always present the most advantageous statement at December 31st. Coal companies, for instance, have very large inventories, and abnormal liabilities at the end of the calendar year. Accordingly, they prefer some other fiscal closing, such as March 31st.

The technique of analytical work of this type is quite elementary: certain relationships are expressed in percentages while others are simply indicated by ratios. This system serves to place the figures of both large and small companies on a comparative basis. To illustrate: one concern may have sales of \$1,000,000 and a net profit of \$50,000, while another has sales of only \$600,000 with a net profit of \$30,000. To make



CHAPTER II

an accurate comparison of earnings it will be necessary in each instance to determine the percentage of sales to net profit. The computation would be as follows:

$$\frac{\$50,000}{\$1,000,000} = 5\% \qquad \frac{\$30,000}{\$600,000} = 5\%$$

It is from information in this form that the statistician draws his conclusions as to the relative earning power, financial stability, liquidity, etc., of the various companies whose statements come to him for analysis.

The following condensed balance sheet will secure concreteness in illustrating the static relationships:

<u>ASSETS</u>		<u>LIABILITIES</u>	
<u>CURRENT:</u>		<u>CURRENT:</u>	
Cash	\$ 75,000	Accts. Payable	\$ 115,000
Notes Receivable	57,500	Notes Payable	75,000
Accts.	100,000	Accruals	12,500
Inventories	100,000	Total Current	\$ 300,000
Total Current	\$372,500		
<u>FIXED:</u>		<u>LONG TERM:</u>	
Outside Investment	50,000		300,000
<u>RESERVE:</u>		<u>NET WORTH:</u>	
Land & Buildings	500,000	Prof. Stock	\$200,000
<u>SOFT:</u>		Com. Stock	500,000
Prepaid Items	57,500	Surplus	\$200,000
<u>TOTAL ASSETS</u>	<u>\$1,500,000</u>	<u>TOTAL LIABILITIES AND CAPITAL</u>	<u>\$1,500,000</u>

(1) This is the division made by Alexander Wall in his book Analytical Credits.



C H A P T E R    I I

THE STATIC RELATIONSHIPS

The measurements which are used in analyzing financial statements may be divided into two general classes: (1)

1. Static
2. Dynamic

The static relationships are those which measure the balance sheet figures, while the dynamic measure the earning power of the business, as indicated in the profit and loss statement. The latter measurements are discussed in detail in Chapter III.

The following condensed balance sheet will secure concreteness in illustrating the static relationships:

<u>ASSETS</u>	.	<u>LIABILITIES</u>
<u>CURRENT:</u>	.	<u>CURRENT:</u>
Cash	.	Accts. Payable
Notes Receivable	.	Notes Payable
Accts.   "	.	Accruals
Inventories	.	Total Current
Total Current	.	
	.	<u>BOND ISSUE</u>
<u>OTHER:</u>	.	
Outside Investment	.	
	.	<u>NET WORTH:</u>
<u>PERMANENT:</u>	.	Pref. Stock
Land & Buildings	.	Com. Stock
	.	Surplus
<u>GOODWILL</u>	.	TOTAL LIABILITIES
	.	AND CAPITAL
<u>DEFERRED:</u>	.	
Prepaid Items	.	
<u>TOTAL ASSETS</u>	.	
	.	

(1) This is the division made by Alexander Wall in his book Analytical credits.



## CURRENT RATIO

One of the very best yardsticks for measuring the working capital of a business is the "Current Ratio". This is a comparison of the current assets and the current liabilities with the latter as the base. Referring to the above balance sheet, the computation of the Current Ratio would be as follows:

$$\frac{612,500 = \text{Total current assets}}{200,000 = \text{Total current liabilities}} = 3.06 \text{ times (commonly expressed } 3.06:1)$$

This ratio indicates that the business has \$3.06 in liquid assets to pay each \$1.00 of current debt. This is much more informative than a statement to the effect that the working capital amounts to \$412,500, i. e., \$612,500 minus \$200,000.

While the normal current ratio will vary according to the type of the industry and general business conditions, bankers have formed the habit of looking for at least a 2 to 1 ratio and if it is very much lower, unless there are extenuating factors, the banker may feel justified in refusing to make the loan. Therefore, a borrower with a poor ratio will endeavor to "dress up" his statement. One very simple method of accomplishing this without affecting the net working capital is to reduce both the current assets and the current liabilities by the same amount. For example, with the above balance sheet, the borrower might argue to himself that inasmuch as \$50,000 of the merchandise included in the inventory was "advance season



stock" he was justified in subtracting that amount from both the inventory and the accounts payable. The current assets would then total \$562,500 and the current liabilities, \$150,000. The working capital will still be \$412,500, but the current ratio would rise to 3.75:1. However, no recognized firm of accountants would certify without qualifications to such a statement of affairs.

In determining the liquidity of a risk, bankers and credit men frequently apply what they term the "acid test". This consists of eliminating from current assets, the inventories together with any other items which can not be cashed quickly for full book value, and comparing the net figure with the total current liabilities. For the risk to be considered good, the result should be 1 or better.

Therefore, executives ought to consider the advantages of controlling the current ratio by keeping a careful analysis from period to period of the changes in working capital according to the figures in the balance sheets at the beginning and end of the period. Working capital is increased by net profit earned, provisions for depreciation, additions to reserves pertaining to other than current assets, etc; and decreased by losses sustained, cash dividends paid, deposits in sinking funds, additions to permanent assets, retirement of long term debts, etc. An application of funds statement is the usual

stock, he was justified in assuming that some from both the inventory and the accounts payable. The current assets would then total \$500,000 and the current liabilities, \$100,000. The working capital will still be \$400,000, but the current ratio would rise to 5:1. However, no important type of accountants would verify without qualifications as such a statement of affairs.

In determining the liquidity of a firm, banks and credit men frequently apply what they call the "acid test". This consists of eliminating from current assets the inventories together with any other items which can not be cashed quickly for full book value, and comparing the net figure with the total current liabilities. For the risk to be considered good, the result should be 1 or better.

Further, executives must be enabled to see averages of controlling the current ratio by means of careful analysis from period to period of the changes in working capital according to the figures in the balance sheet at the beginning and end of the period. Working capital is increased by net profit (gross), provision for depreciation, additions to reserves, etc. (other than current assets, etc.; and decreased by losses sustained, cash dividends paid, deposits in sinking funds, additions to permanent assets, retirement of long term debt, etc. An application of funds statement is the usual

method for placing this information before the executive, but such a schedule should include an explanation of the items contained therein. The following illustration aims for clarity:

COMPARATIVE BALANCE SHEETS

	<u>December</u> <u>31, 1926</u>	<u>December</u> <u>31, 1927</u>
Current Assets	200,000	225,000
Other Assets	5,000	5,000
Permanent Assets	150,000	155,000
Deferred Assets	<u>8,000</u>	<u>9,000</u>
	<u>363,000</u>	<u>394,000</u>
Current Liabilities	125,000	135,000
Contingency Reserve	25,000	30,000
Capital Stock	150,000	150,000
Surplus	<u>63,000</u>	<u>79,000</u>
	<u>363,000</u>	<u>394,000</u>

APPLICATION OF FUNDS STATEMENT

Working Capital beginning of period	75,000
<u>ADDITIONS:</u>	
Net Profit for period	46,000
Provision for Depreciation	5,000
Addition to Contingency Res.	<u>5,000</u>
	131,000
<u>DEDUCTIONS:</u>	
Cash Dividend Paid	30,000
Additions to Permanent Assets	10,000
Increase in Deferred Chgs.	<u>1,000</u>
	41,000
Working Capital at end of period	<u>90,000</u>

The working capital at the beginning of the period, \$75,000, is the difference between the

method for placing this information before the executive, but such a schedule should include an explanation of the items contained therein. The following illustration also for clarity:

COMPARATIVE BALANCE SHEET

December 31, 1937	December 31, 1936	
225,000	400,000	Current Assets
5,000	5,000	Other Assets
100,000	150,000	Permanent Assets
<u>330,000</u>	<u>555,000</u>	Deferred Assets
300,000	300,000	
100,000	150,000	Current Liabilities
50,000	50,000	Contingency Reserve
100,000	100,000	Capital Stock
<u>250,000</u>	<u>300,000</u>	Surplus
300,000	300,000	

ANALYSIS OF FUND STATEMENT

Working Capital beginning of period	Working Capital beginning of period
75,000	75,000
<u>ADDITIONS:</u>	
45,000	Net Profit for period
5,000	Provision for depreciation
<u>50,000</u>	Interest on Contingency Res.
121,000	
<u>DEDUCTIONS:</u>	
50,000	Cash Dividend Paid
10,000	Addition to Permanent Assets
<u>60,000</u>	Increase in Deferred Assets
61,000	
60,000	Working Capital at end of period

The working capital at the beginning of the period, \$75,000, is the difference between the

current assets, \$200,000, and the current liabilities, \$125,000 at December 31, 1926. The additions consist of the net profit for the period, \$46,000; the provision for depreciation deducted before arriving at the net profit, which is merely a book entry segregating \$5,000 from the Surplus fund available for dividends and so having no effect upon the current funds of the Company until replacements become necessary; and, the addition to the contingency reserve in the amount of \$5,000 which entry has the same effect upon earnings and surplus as the depreciation provision.

The deductions consist of the cash dividends paid during the year in the amount of \$30,000; the withdrawal of \$10,000 from current assets for additions to permanent assets; and, an increase in the deferred charges of \$1,000. After making the above adjustments it will be found that the working capital at the end of the period amounts to \$90,000, representing the difference between the current assets, \$225,000, and the current liabilities, \$135,000.

current assets, \$200,000, and the current liabilities, \$125,000 at December 31, 1980.

The additions consist of the net profit for the period, \$20,000; the provision for depreciation deducted before arriving at the net profit, which is merely a book entry representing \$5,000 from the surplus fund available for dividends and so having no effect upon the current funds of the company until replacements become necessary; and the addition to the contingency reserve in the amount of \$5,000 which entry has the effect upon earnings and surplus as the de-  
 precession provision.

The deductions consist of the cash dividends paid during the year in the amount of \$30,000; the withdrawal of \$10,000 from current assets for additions to permanent assets; and an increase in the deferred charges of \$1,000. After making the above adjustments it will be found that the working capital at the end of the period amounts to \$20,000, representing the difference between the current assets, \$225,000, and the current liabilities, \$205,000.

RELATION OF NET WORTH TO TOTAL DEBT

This measurement should be one of the first that a creditor examines, inasmuch as it determines the relationship between the owned capital (the stockholders' share) and the borrowed capital (that which has been invested by banks, trade creditors, etc.). Prospective creditors of a concern are more favorably inclined, if the owners have substantially more invested than borrowed. The figure is arrived at by dividing the net worth by the total liabilities. In the illustration, therefore, this computation would be:

$$\frac{\$1,000,000 = \text{Net Worth}}{500,000 = \text{Total Liabilities}} = 2$$

In other words, the stockholders have \$2.00 invested in the business for every \$1.00 of outside creditors.

SOURCES OF CAPITAL

The liability side of the foregoing balance sheet indicates the sources from which capital for industrials is usually drawn:

	<u>BALANCE SHEET</u> <u>PERCENTAGE</u>	<u>AVERAGE OF</u> <u>INDUSTRIALS</u>
Short Term Borrowings	13.33%	10.00%
Long Term Borrowings	20.00	15.00
Surplus	13.33	} 70.00
Capital Stock	53.34	
Miscellaneous Sources	<u>          </u>	<u>5.00</u>
Total Liabilities and Capital	<u>100.00%</u> <u>=====</u>	<u>100.00%</u> <u>=====</u>



The proportion which these sources of capital bear to each other is determined by the financial policy of the individual company, but the first item, short term borrowings, i. e., current liabilities, is of course limited by the liquidity of the asset side of the balance sheet. In other words, a company which has a greater proportion of current assets can secure more capital by short term borrowings, than a company which carries a relatively high figure for permanent assets with a correspondingly low amount for current assets.

One sound rule of finance is that the business must secure enough capital thru bonds, surplus, or capital stock, to cover all of its permanent assets and provide sufficient working capital, which is the difference between current assets and current liabilities. Whether or not these non-liquid assets shall be financed thru capital stock and earnings left in the business (net worth) or by long term borrowings (bonds, mortgages, etc.) will depend upon what percentage of earnings the individual company is able to obtain on the total capital employed, as compared with the cost of borrowing funds.

Thus, if a business earns 10%, or \$20,000 on its assets which total \$200,000, but one-half of its capital, \$100,000, could be borrowed at 7%, leaving the



stockholders' investment at \$100,000, the net profit to stockholders would be \$20,000 minus \$7,000 or \$13,000, which equals 13% on the stockholders' investment. If all the capital had been drawn from the stockholders, however, the percentage of earnings on their total investments would be only 10%, a difference of 3%. One aim of good financing, therefore, is to secure capital as cheaply as possible in order to net the largest returns to stockholders. However, stockholders in a growing concern frequently find that their net profits are needed for the normal development of the business from year to year, and when this is done, such investments should be expected to earn a fair return.

As to the advisability of leaving the earnings in the business, whenever the payment of a cash dividend is under consideration, conservative business men will carefully consider:

1. The amount of surplus earnings from which dividends may properly be declared
2. The net working capital after giving effect to the proposed dividend payment.



## ANALYSIS OF TOTAL ASSETS

The relationships between the various assets on the balance sheet determine the soundness of the whole financial structure in no less a manner than do the sources of capital discussed in the previous paragraphs, except that the proportions in the latter vary widely, even within the same industry, while in the case of the assets, it will be found that each industry has normal proportions for its component assets. In this connection, the analyst will probably first test the company's investment in fixed property and variations from the standard for the industry, especially under the recent competitive conditions, will result invariations in profit, favorable or otherwise, as the case may be. Over-expansion is frequently the cause of serious financial embarrassment and this is particularly true in the case of permanent assets which cannot so easily be contracted when the sales fall off, as can the current assets. A company which is handicapped by disproportionate investments in assets will not be able to secure as favorable turnovers<sup>(3)</sup> as a better financed competitor and it follows that the net profits will not compare favorably.

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(3) Discussed in detail under dynamic ratios.

ANALYSIS OF TOTAL ASSETS

The relationships between the various assets on the balance sheet determine the soundness of the whole financial structure in no less a manner than do the sources of capital discussed in the previous paragraphs, except that the proportions in the latter vary widely, even within the same industry, while in the case of the assets, it will be found that each industry has normal proportions for its component assets. In this connection, the analyst will probably find that the company's investment in fixed property and various items from the standards for the industry, especially after the recent competitive conditions, will result in variations in profit, favorable or otherwise, as the case may be. Over-expansion is frequently the cause of serious financial embarrassment and this is particularly true in the case of permanent assets which cannot so easily be contracted when the sales fall off, as can the current assets. A company which is handicapped by disproportionate investments in assets will not be able to secure as favorable terms as a better financed competitor and it follows that the net profits will not compare favorably.

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(8) Discussed in detail under "Fixed Assets" section.

The analysis itself is not at all complicated, providing the balance sheet has been properly constructed, and the percentages may be entered right on the face of the statement, or condensed in the following form:

		<u>Percentage of Total Assets</u>
Current Assets	\$612,500	40.83%
Permanent Assets	600,000	40.00
All Other Assets	<u>287,500</u>	<u>19.17</u>
Total Assets	<u><u>\$1,500,000</u></u>	<u><u>100.00%</u></u>

#### COMPOSITION OF THE INVENTORY

Published reports frequently do not segregate the raw materials and the in-process goods from the finished product, but the component parts of the inventory of every manufacturing industry have certain normal proportions and if the executive in the individual company finds that his inventory in the aggregate does not compare favorably with the inventories of other producers of the same commodity, he should have the details of the discrepancy checked.

Then, for example, if he discovers upon analysis that the normal figure for finished goods is 40% of the total inventory, and his company is showing 65%, he will concentrate his efforts upon re-

The analysis itself is not at all difficult, providing the balance sheet has been properly constructed, and the percentages may be derived right on the face of the statement, or condensed in the following form:

Percentage of Total Assets		
48.88%	\$612,500	Current Assets
40.00	400,000	Permanent Assets
<u>12.12</u>	<u>150,500</u>	All Other Assets
<u>100.00%</u>	<u>\$1,500,000</u>	Total Assets

COMPOSITION OF THE INVENTORY

Published reports frequently do not separate the raw materials and the in-process goods from the finished product, but the component parts of the inventory of every manufacturing industry have certain normal proportions and if the executive in the individual company finds that his inventory in the aggregate does not compare favorably with the inventories of other retailers of the same commodity, he should have the details of the discrepancy checked. Then, for example, if he discovers upon analysis that the normal figure for finished goods is 40% of the total inventory, and his company is showing 68%, he will concentrate his efforts upon re-

ducing his stock of the finished product.

THE DYNAMIC RELATIONSHIPS

The computation of the dynamic or operating measurements may best be illustrated by the use of a condensed income and expense statement:

	AMOUNT	PERCENTAGE to NET SALES	PER UNIT
Value of Business (units)	500,000		
<b>SALES:</b>			
	\$5,000,000	100.00%	\$1.00
Cost of Goods Sold	<u>1,500,000</u>	<u>30.00</u>	<u>3.00</u>
<b>GROSS PROFIT</b>	\$ 3,500,000	<b>70.00%</b>	<b>\$1.00</b>
<b>EXPENSES:</b>			
Selling	\$950,000	19.00%	\$1.90
Gen. Adminis.	<u>125,000</u>	<u>2.50</u>	<u>.25</u>
	<u>1,075,000</u>	<u>21.50%</u>	<u>2.15</u>
<b>OPERATING PROFIT</b>	\$ 2,425,000	<b>48.50%</b>	<b>\$4.85</b>
Interest Paid	\$25,000	0.50%	\$ .50
Other Debit.	<u>6,000</u>	<u>.12</u>	<u>.02</u>
	<u>31,000</u>	<u>.62%</u>	<u>\$ .62</u>
<b>Profit Before Taxes</b>	\$ 2,394,000	<b>47.88%</b>	<b>\$4.78</b>
Federal Taxes	<u>15,000</u>	<u>.30%</u>	<u>.03</u>
<b>NET PROFIT</b>	\$ 2,379,000	<b>47.58%</b>	<b>\$4.72</b>

(Note: All percentages used in this schedule are based on NET SALES)

having his stock of the finished product.

C H A P T E R    I I I

THE DYNAMIC RELATIONSHIPS

The computation of the dynamic or operating measurements may best be illustrated by the use of a condensed income and expense statement:

	<u>AMOUNT</u>	PERCENTAGE to <u>NET SALES</u>	<u>PER UNIT</u>
Volume of Business (units)	500,000		
<u>SALES:</u>	\$2,000,000	100.00%	\$4.00
Cost of Goods Sold	<u>1,500,000</u>	75.00	<u>3.00</u>
GROSS PROFIT	\$ 500,000	<u>25.00%</u>	\$1.00
<u>EXPENSES:</u>			
Selling	\$250,000	12.50%	\$ .50
Gen. Adminis.	<u>125,000</u>	<u>6.25</u>	<u>.25</u>
	<u>375,000</u>	<u>18.75%</u>	<u>\$.75</u>
OPERATING PROFIT	\$ 125,000	<u>6.25%</u>	<u>\$.25</u>
Interest Paid	\$25,000	1.25%	\$ .05
Other Deduct.	<u>6,000</u>	<u>.30</u>	<u>.01</u>
	<u>31,000</u>	<u>1.55%</u>	<u>\$.06</u>
Profit Before Taxes	\$ 94,000	4.70%	\$ .19
Federal Taxes	<u>12,690</u>	<u>.63%</u>	<u>.03</u>
NET PROFIT	\$ 81,310	4.07%	.16

(Note: All percentages used in this schedule are based on NET SALES)



The analyst will also need a statement of the dividends paid during the period under review:

Preferred Dividends, 7% of \$200,000 or	\$14,000
Common Dividends, 10% of \$600,000 or	<u>60,000</u>
Total Distribution of Profits	<u>\$74,000</u> =====

GROSS PROFIT TO SALES

This relationship is the barometer which indicates the spread between the selling price and the cost. The measure may be expressed as so many cents per dollar of sales, but the usual procedure is to include the percentages right on the income and expense statement. The computation is as follows:

$$\frac{\$500,000 = \text{Gross Profit}}{\$2,000,000 = \text{Net Sales}} = 25\%$$

The practical executive will also want to have the gross profit stated in units of production:

\$1.00 gross profit per dozen

The cost of sales percentage is of course the complement of the figure shown for the gross profit percentage.

The analyst will also need a state-

ment of the dividends paid during the period

under review:

Preferred dividends, 7% of \$200,000 of \$14,000	
Common dividends, 10% of \$200,000 or \$20,000	
Total Distribution of Profits	\$34,000

GROSS PROFIT TO SALES

This relationship is the parameter which

indicates the spread between the selling price and

the cost. The measure may be expressed as so many

cents per dollar of sales, but the usual procedure

is to include the percentages right on the income

and expense statement. The computation is as fol-

lows:

$$\frac{\$200,000 = \text{Gross Profit}}{\$2,000,000 = \text{Net Sales}} = 10\%$$

The practical executive will also want

to have the gross profit stated in units of production:

\$1.00 gross profit per dozen

The cost of sales percentage is discussed

the computation of the figure shown for the gross profit

percentage.

## EXPENSES TO SALES

A considerable portion of every dollar of sales is disposed of in meeting general administrative and selling expenses. The computation of this percentage is also based on the net sales:

$$\begin{array}{r} \$ 375,000 = \text{total expenses, analyzed} \\ \text{in as much detail as desirable} = 18.75\% \\ \hline \$2,000,000 = \text{net sales} \end{array}$$

Competitive conditions stress the importance of controlling and reducing expenses. In fact, this is one of the salient arguments for consolidations. But, a concern which is handicapped by a small gross margin may still secure satisfactory results by watching the trend closely and keeping the total expenses in satisfactory proportions to sales. For example, in the above schedule, a decrease of \$10,000 in the gross profit would have no effect upon operating results, if the expenses were also reduced by the same amount. Likewise, if the volume of sales declined, it would be necessary to shade the proportions of the expenses and cost of sales, in order to obtain the same percentage of profit as is indicated in the model income and expense statement.



## OPERATING PROFIT TO SALES

The operating profit is computed before adjustments are made for interest charges, federal taxes, and extraneous income or expense items.

For the purpose of comparing the merchandising and operating results of various companies, the percentage of operating profits to sales is a much more appropriate relationship than that of net profit to sales, because the weakness or strength of the individual financial structure affects the latter computation.

## OTHER DEDUCTIONS TO SALES

Under this caption are included all items which cannot properly be considered in the cost of goods sold or expenses: interest which has been paid for borrowed capital as well as that received from investments or other sources, federal taxes, unusual gains and losses, such as those encountered in speculating.

The net figure obtained from this group of items often decides the elimination or survival of a competitor. A company which has a weak financial structure will be burdened with high interest charges and may also have other deductions which the concern in better circumstances does not have to consider in figuring the

## OPERATING PROFITS TO SALES

The operating profit is computed before adjust-  
ments are made for interest charges, federal taxes,  
and extraneous income or expense items.

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and operating results of various companies, the percentage  
of operating profits to sales is a much more appropriate  
relationship than that of net profit to sales, because  
the weakness or strength of the individual financial  
structure affects the latter computation.

## OTHER ADJUSTMENTS TO SALES

Under this caption are included all items which  
cannot properly be considered in the cost of goods sold  
or expenses: interest which has been paid for non-  
borrowed capital as well as that received from investments  
or other sources, federal taxes, unusual gains or losses,  
such as those encountered in speculation.

The net figure obtained from this group of  
items often decides the elimination or survival of a  
competitor. A company which has a weak financial structure  
will be burdened with high interest charges and may also  
have other deductions which the concern in better cir-  
cumstances does not have to consider in figuring the

selling price of its commodity, expenses, etc. The first company may show a net 2% deduction for these items while the second shows a net 2% addition to the operating profit. The difference is 4%. Under such competitive conditions, the first company is greatly handicapped.

#### NET PROFIT TO SALES

The ultimate figure on the income and expense statement is the net profit, but the dollar value gives little clue as to the earning power of the business as a whole. It is necessary to consider the relation between net sales and net profit:

$$\frac{\$ 81,310 = \text{net profit}}{\$2,000,000 = \text{net sales}} = 4.07\%$$

This percentage summarizes the effectiveness of management in all of its functions: buying, manufacturing, selling, controlling expenses, and financing, but from the stockholder's point of view it is not the most significant measure of the earning power of the business<sup>(4)</sup> Again, the statement that Company "A" makes a net profit which is higher than

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(4) Discussed under "Net Profit to Net Worth"

selling price of the commodity, expenses, etc. The  
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 items while the second shows a net loss. In addition to  
 the operating profit. The difference is the  
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 greatly handicapped.

### NET PROFIT TO SALES

The relative figure on the income and ex-  
 penses statement is the net profit, but the dollar  
 value gives little clue as to the earning power  
 of the business as a whole. It is necessary to con-  
 sider the relation between net sales and net profit:

$$\frac{\$ 21,810 = \text{net profit}}{\$ 2,000,000 = \text{net sales}} = 1.09\%$$

This percentage summarizes the effective-  
 ness of management in all of its functions: buying,  
 manufacturing, selling, controlling expenses, and  
 financing, but from the stockholder's point of view  
 it is not the most significant measure of the earning  
 power of the business. (4) Again, the statement that  
 Company "A" makes a net profit much is higher than

(4) Discussed under "Net Profit to Net Worth".

that of Company "B" will not aid the latter in cutting down the variation. A comparative study would have to be made of the individual costs, expenses, turnovers, etc., in order to locate the causes for the discrepancy.

#### NET PROFIT TO NET WORTH

Perhaps the first question a prospective investor asks is "How much of a return does the business earn?" And he usually refers to the return per dollar of investment. He would not be interested so much in the fact that a company was making 15% net profit on sales, as he would be in information to the effect that the same company was so managed in all of its operations as to earn a net profit on net worth of 10%. The net worth must include all owned capital, i. e., surplus, reserves for sinking funds or contingencies, etc., as well as all outstanding capital stock. The measure is most accurately expressed when the balances in these accounts are averaged as of the beginning and end of the year, but in the absence of full information in this respect, the figure on the current balance sheet may be used. Using the balance sheet on page nine and the income and expense statement on page twenty, the computation would be:



$$\frac{\$81,310 = \text{net profit}}{\$1,000,000 = \text{net worth}} = 8.13\%$$

Newer industries, because of lack of competition, show a larger return on stockholders' investment, thus attracting the necessary capital for expansion, while the older and better established industries secure their capital from that class of investor which is not interested in spectacular profits at the risk of the safety of the principal.

That there is a definite relation between (1) the percentage of net profit to net sales, and, (2) net profit to net worth, is well illustrated in the following figures: (5)

COMPANY "A"

Sales	\$100,000	
Net Worth	100,000	
Net Profit to Sales		10%
Net Profit to Net Worth		10%

COMPANY "B"

Sales	\$100,000	
Net Worth	50,000	
Net Profit to Sales		5%
Net Profit to Net Worth		10%

Company "B" has one-half the net worth of "A", but inasmuch as the sales volumes are equal, even tho the second company's percentage of net profit to sales is but half that of Company "A", each will earn the same return on the stockholders' investment.

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(5) Bliss, J. H., Financial and operating ratios, page 67



## EARNINGS ON COMMON STOCK

When a company has both common and preferred stock, after determining the earnings on the total net worth, in order to arrive at the return on the common stockholders' interests, it will be necessary to first segregate the investments of the common stockholders (surplus and stock) from those of the preferred stockholders; and second, to divide the net profits applicable to the common stockholders' interests, from the earnings of the preferred stockholders. While there may be provisions otherwise, in most cases the preferred stockholders are interested in the earnings only to the extent of their stated dividend percentage, and in the assets only to the par value of their stock. With such conditions, the method of computing the earnings on the common stockholders' interests would be:

$$\frac{\$ 67,310 = \text{net profit minus dividends on preferred stock}}{\$800,000 = \text{net worth minus par value of preferred stock}} = 8.41\%$$

In contrast to this method of computation is the measure of earnings on the par value only of the common stock:

$$\frac{\$ 67,310 = \text{net profit minus dividends on preferred stock}}{\$600,000 = \text{common stock at par value}} = 11.22\%$$

The fallacy in this relationship is that it gives no consideration to the earnings which the common stock-

EARNINGS ON COMMON STOCK

When a company has both common and preferred stock, after determining the earnings on the total net worth, in order to arrive at the return on the common stockholders' interests, it will be necessary to first separate the investments of the common stockholders (and the stock) from those of the preferred stockholders; and secondly, to divide the net profit available to the common stockholders' interests, from the earnings of the preferred stockholders. While there may be provisions otherwise, in some cases the preferred stockholders are interested in the earnings only to the extent of their stated dividend percentage, and in the assets only to the value of their stock. With such conditions, the method of computing the earnings on the common stockholders' interests would be:

$$\frac{\$ 67,510 = \text{net profit minus dividends on preferred stock}}{\$ 800,000 = \text{net worth minus net value of preferred stock}} = 8.44\%$$

In contrast to this method of computation is the measure of earnings on the net value of the common stock:

$$\frac{\$ 67,510 = \text{net profit minus dividends on preferred stock}}{\$ 800,000 = \text{common stock at par value}} = 8.44\%$$

The fallacy in this relationship is that it gives no consideration to the earnings which the common stock-

holders have seen fit to leave in the business and which should be expected to produce the same return as the original capital invested.

#### OPERATING PROFIT TO ECONOMIC CAPITAL

The economic capital of a business is arrived at by deducting from the total assets those which are not used in operations, such as investments in outside securities and real estate. The distinction to be made between the term "economic capital" and "capital" in the ordinary sense, is that the former refers to the total wealth which is used in operations, regardless of its source, while the latter connotes the interests of the stockholders only. Similarly, the operating profit reflects the earnings of the total assets used in the business, while the net profit is arrived at only after due consideration has been given to the advantages or disadvantages arising from the company's methods in securing capital. Therefore, the relationship between operating profit and economic capital eliminates the handicap under which a poorly financed company may be struggling and places it on a comparative basis with competitors who have been more fortunate in securing resources.

Thus, this measure is the one common yardstick which is of general application, even in dissimilar indus-



tries, because it indicates the earning power per dollar of wealth invested in operations. The following method is used in this computation:

$$\frac{\$ 125,000 = \text{operating profit}}{\$1,450,000 = \text{economic capital}} = 8.62\%$$

$$\frac{\$1,450,000 = \text{economic capital}}{\text{(averaged if possible)}}$$

item under consideration. For example, labor turnover:

A shop which averages 100 employees, may find itself hiring and discharging 50 men a year. The labor turnover in this instance would be expressed as .50 times per year, or a complete "turn" once in four years.

This same principle is also applied to financial statements, but the basis is always the volume of sales. In this connection the following turnovers will furnish significant information:

Receivables Capital

Merchandise Inventory

Accounts Payable

Permanent Assets

#### TURNOVER OF ECONOMIC CAPITAL

This measure is arrived at by dividing the net income by the economic capital:



## CHAPTER IV

### TURNOVERS

The commercial use of the word "turnover" always connotes rapidity of motion with respect to the particular item under consideration. For example, labor turnover:

A shop which averages 200 employees, may find itself hiring and discharging 50 men a year. The labor turnover in this instance would be expressed as .25 times per year, or a complete "turn" once in four years.

This same principle is also applied to financial statements, but the basis is always the volume of sales. In this connection the following turnovers will furnish significant information:

Economic Capital

Merchandise Inventories

Accounts Receivable

Permanent Assets

#### TURNOVER OF ECONOMIC CAPITAL

This measure is arrived at by dividing the net sales by the economic capital:



$$\frac{\$2,000,000 = \text{net sales}}{\$1,450,000 = \text{economic capital}} = 1.38X$$

The computation of the economic capital has already been explained under "Operating Profit to Economic Capital". It is desirable at this point to demonstrate the connection existing in the following relationships:

- A. Per cent of operating profits to sales
- B. Per cent of operating profits to economic capital
- C. Turnover of economic capital

With A remaining constant (as it usually does under competitive conditions), B varies in direct proportion to C. Thus, if a company sells its product at a 7% operating profit (A) and turns its economic capital but once a year (C), it follows that the operating profits to economic capital will also be 7% (B). But, if that company has larger sales on the same assets, so that the economic capital is turned twice instead of once, the operating profits to the total capital employed will be 14% and this will necessarily be reflected in a higher return on the stockholders' investments. The interrelation of the above items, A, B, and C, may be expressed by a simple formula:

$$A = \frac{B}{C}$$

Then, with A the known quantity, and B the desired



result, also given, the equation is easily solved for C which will indicate the volume of business necessary to arrive at the other two quantities. The turnover of economic capital summarizes all the other turnovers, viz: merchandise, accounts receivable, and permanent assets. Thus, a weakness in any or all of these is reflected directly in the aggregate and will be revealed by analysis of the components.

While this measurement is of very practical value within an industry, it does not have the general application that the relationship of operating profit to economic capital has, for the reason that manufacturing processes, plant requirements, selling terms, etc., vary among the industries, and accordingly, the capital requirements vary widely also. For example, the meat packing companies turn their economic capital approximately 2.25 times a year while the coal miners make the turn only once in three or four years. But this ratio does very effectively measure the efficiency of companies within an industry.

#### TURNOVER OF MERCHANDISE INVENTORIES

This turnover is the one which is most commonly used by business men, and, as it is usually the most important item contained in the turnover of economic capital,



it is especially important wherever competition fixes the gross profits at a given point, thus necessitating other methods than price raising to make a better return on the stockholders' investment. The following is the correct computation:

$$\frac{\$1,500,000=\text{cost of sales}}{300,000=\text{inventory (average, if possible)}} = 5X$$

This expresses the number of times during the period that the inventory has been turned. However, this relationship is quite frequently computed incorrectly:

$$\frac{\$2,000,000=\text{net sales}}{300,000=\text{inventory}} = 6.67X$$

The error in this procedure is that in the net sales figure is contained the element of profit which is not at all applicable to the inventoried price of the merchandise. However, department stores, keeping their inventory at retail, may obtain a reasonably correct result by dividing the sales by the retail inventory. Ofcourse, it is not always possible to obtain from published statements the cost of sales, and in cases where a comparison from year to year is desired, it is permissible to use the net sales as a basis for computing inventory turnover, but it is well to express such a result as so many dollars of sales per dollar of inventory, instead of times per



year, in order to eliminate consequent confusion of terms.

As in the case of economic capital turnover, there are wide variations in inventory turnovers among the various industries, but within a given industry, any variation may be traced directly to the relative effectiveness of the management. In addition to the favorable effect which a more rapid turnover of inventory has upon the turnover of total capital, there are several other advantages<sup>(6)</sup> to be obtained in this connection:

1. Smaller liabilities
2. Less possibility of spoilage and obsolescence
3. Less possibility of loss on price decline
4. Savings in cost of carrying goods:
  - a. space
  - b. insurance
  - c. taxes

A concern must turn its inventory at least as rapidly as the average, or else expect to make less profit than the average, because of the increased costs resulting from the inefficient use of capital.

#### TURNOVER OF ACCOUNTS RECEIVABLE

Not considering cash, the sums due from customers (notes and accounts) are the most liquid assets on the balance sheet. Consequently, it is important that

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(6) Bliss, J. H., Financial and operating ratios, page 132



they be turned rapidly enough to enable the business to meet its current liabilities as they become due and thus maintain a sound credit rating. Any reduction in the length of time necessary to collect the receivables has a direct bearing on profits, inasmuch as the cash which has been received can be released immediately either to make a corresponding reduction in the borrowed capital, thus saving interest charges and at the same time improving the current ratio, or, it can be used to purchase fresh stock for additional sales, thus increasing the turnovers and adding to the profits.

The following is the computation of the receivables turnover:

$$\begin{array}{r} \$2,000,000 = \text{net sales} \\ 237,500 = \text{notes and accounts} \\ \text{receivable (customers' only)} \end{array} = 8.42X$$

The result indicates the number of times per year that the average balances for the receivables are collected. The measure may also be expressed in days, viz: a turnover of 8.42X per year indicates that collections are made in 43 days. This latter method is useful for comparison with the company's credit terms. On a 2/10, n/30 basis average collections in 43 days would be considered below normal probably, even after allowing for the usual percentage of slow payers. A sub-normal turnover for the



whole industry, however, would be explained by other business condition, such as competition and general deflation. Abnormal turnovers would, ofcourse, arise from the opposite causes.

#### TURNOVER OF PERMANENT ASSETS

The permanent assets are often referred to as the fixed capital or frozen investments, the implication being that they cannot be easily liquidated. This turnover may be computed as follows:

$$\frac{\$2,000,000 = \text{net sales}}{\$ 600,000 = \text{depreciated permanent assets}} = 3.33X$$

This relation may also be expressed as the amount of sales per dollar of permanent assets. For example, the above turnover could also be stated as \$3.33 of sales for every \$1.00 invested in the plant. Still another method is to state the number of units of production per dollar of fixed investment.

Concerns frequently build a plant to accommodate a capacity which they later find impossible to maintain. This overexpansion with its accompanying interest charges, depreciation, insurance, taxes, etc., becomes a heavy burden when the sales fall off. Finding it impossible to gain back the volume of business, unless the financial position allows an adjustment of



property values to a lower level, the only remedy is reorganization. This emphasizes the importance of watching the turnover figure of permanent assets and the necessity for extreme caution when additions to plant are being considered.

The management also... the figures which... a tendency... perhaps actual lower... determine from their... for the lowered profits... to place the blame on... these conditions... analytical work... ing the future operations... were a profitable... of the assets of his... with his net profit... expenses, the average... his books. The situation is...

He speaks... his... called... of the... call... management...



## C H A P T E R V

### THE PRACTICAL APPLICATION

When a business is exceedingly profitable the management does not think it necessary to analyze the figures which are behind that success. Even when a tendency develops toward diminishing profits or perhaps actual losses, the executives may not seek to determine from their books of account the reasons for the lowered profit. They are usually satisfied to place the blame on "competition" or "general business conditions" whereas, in many cases a little analytical work would assist them greatly in guiding the future operations of the business into more profitable channels. Beyond a cursory knowledge of the amounts on his latest balance sheet, together with his net profit figure and a general idea of the expenses, the average business man never investigates his books. The situation is paradoxical:

He spends thousands of dollars yearly on his accounting system, but fails to realize therefrom the forecasting value of the records or the significance of well-analyzed financial statements for management purposes.



This is especially true if the company is in easy financial condition, because in such cases, if borrowing happens to be necessary at all during the year, the banks are not likely to point out any slight weakness in the structure as they would if the debtor were in not so comfortable a condition.

There are many companies which may be classified under the general caption "Profits below Average - Financial Condition better than Average." In the next few pages such a case is illustrated and a remedy is suggested based upon information secured from the analytical work which is discussed in detail first and afterwards set up on synopsis sheets in order to facilitate reference thereto.

The first step is to make a general survey of the situation by comparing the current balance sheet with the one which was prepared at the close of the previous period. This may be done by tabulating the figures in such a way as to include a column containing increases and **decreases**. A similar form to that used in Exhibit "A" will serve to direct attention to trends, desirable or otherwise. In the case of The Jones Company, for example, the contraction in both assets and liabilities is apparent at first glance. Without any further mathematical computations, it is also apparent that while the net current assets have remained practically unchanged, the



## EXHIBIT "A"

THE JONES COMPANYCONDENSED COMPARATIVE BALANCE SHEETASSETS

	<u>DECEMBER</u> <u>31, 1927</u>	<u>DECEMBER</u> <u>31, 1926</u>	INCREASE DECREASE
<u>CURRENT:</u>			
Cash	\$ 98,800.00	\$ 181,000.00	\$82,200.00
Notes Receivable	3,450.00	5,550.00	2,100.00
Accounts Receivable	441,900.00	382,800.00	59,100.00
Merchandise Inventory:			
Raw Material	183,600.00	187,100.00	3,500.00
In Process	486,200.00	536,200.00	50,000.00
Finished Goods	895,900.00	817,900.00	78,000.00
Marketable Securities	15,500.00	15,100.00	400.00
	2,125,350.00	2,125,650.00	<u>300.00</u>
<u>OTHER ASSETS:</u>	47,300.00	43,500.00	3,800.00
<u>PERMANENT</u>	1,612,200.00	1,637,700.00	25,500.00
<u>PATENTS</u>	1,400.00	1,450.00	50.00
<u>DEFERRED CHARGES</u>	108,150.00	126,450.00	18,300.00
	1,769,050.00	1,809,100.00	<u>40,050.00</u>
	<u>\$3,894,400.00</u>	<u>\$3,934,750.00</u>	<u>\$40,350.00</u>

LIABILITIES

<u>CURRENT:</u>			
Notes Payable	\$ 249,000.00	\$ 150,000.00	\$99,000.00
Accounts Payable	96,200.00	125,500.00	29,300.00
Accrued Accounts	41,400.00	44,300.00	2,900.00
Federal Taxes	15,500.00	23,150.00	7,650.00
	402,100.00	342,950.00	<u>59,150.00</u>
<u>DEFERRED</u>	14,200.00	1,800.00	12,400.00
<u>RESERVES:</u>			
Contingencies	-0-	100,000.00	100,000.00
Amortization	28,100.00	28,100.00	-0-
Compensation Insurance	7,000.00	23,500.00	16,500.00
<u>NET WORTH:</u>			
Capital Stock	2,000,000.00	2,000,000.00	-0-
Surplus	1,443,000.00	1,438,400.00	4,600.00
	3,492,300.00	3,591,800.00	<u>99,500.00</u>
	<u>\$3,894,400.00</u>	<u>\$3,934,750.00</u>	<u>\$40,350.00</u>

THE JOHNS COMPANY

CONDENSED COMPARATIVE BALANCE SHEET

ASSETS

	DECEMBER 31, 1937	DECEMBER 31, 1936	INCREASE DECREASE
<b>CURRENT:</b>			
Cash	\$ 28,800.00	\$ 181,000.00	\$82,200.00
Notes Receivable	3,450.00	5,350.00	2,100.00
Accounts Receivable	441,900.00	382,800.00	59,100.00
Merchandise Inventory:			
Raw Material	183,500.00	187,100.00	3,600.00
In Process	486,200.00	536,300.00	50,100.00
Finished Goods	892,900.00	817,900.00	75,000.00
Marketable Securities	18,500.00	18,100.00	400.00
	2,132,350.00	2,132,610.00	260.00
<b>OTHER ASSETS:</b>			
	47,300.00	43,500.00	3,800.00
<b>PERMANENT</b>			
	1,612,300.00	1,637,700.00	25,400.00
<b>PATENTS</b>			
	1,400.00	1,450.00	50.00
<b>DEFERRED CHARGES</b>			
	108,150.00	132,450.00	24,300.00
	1,789,010.00	1,808,100.00	19,090.00
	<u>\$2,894,400.00</u>	<u>\$2,834,760.00</u>	<u>\$59,640.00</u>

LIABILITIES

	DECEMBER 31, 1937	DECEMBER 31, 1936	INCREASE DECREASE
<b>CURRENT:</b>			
Notes Payable	\$ 247,000.00	\$ 150,000.00	\$97,000.00
Accounts Payable	96,800.00	125,500.00	28,700.00
Accrued Accounts	41,400.00	44,300.00	2,900.00
Federal Taxes	15,500.00	23,150.00	7,650.00
	400,700.00	342,950.00	57,750.00
<b>DEFERRED</b>			
	14,300.00	1,800.00	12,500.00
<b>RESERVE:</b>			
Contingencies	-0-	100,000.00	100,000.00
Amortization	28,100.00	28,100.00	-0-
Compensation Insurance	7,500.00	23,500.00	16,000.00
	35,600.00	150,600.00	115,000.00
<b>NET WORTH:</b>			
Capital Stock	2,000,000.00	2,000,000.00	-0-
Surplus	1,415,000.00	1,438,400.00	23,400.00
	3,415,000.00	3,438,400.00	23,400.00
	<u>\$2,894,400.00</u>	<u>\$2,834,760.00</u>	<u>\$59,640.00</u>

current liabilities show a substantial increase. This indicates an unfavorable trend in working capital. An examination of the items composing current assets reveals that cash, the most liquid asset, has decreased to about half the amount shown on the previous balance sheet, and that this reduction is only offset by increases in less liquid current assets: inventories and accounts receivable. In other words, the current assets have become less current during the year.

Furthermore, upon reference to the current liabilities, it will be found that the most current, notes payable, show a large increase which is only partially recapitulated by decreases in the other current liabilities.

Another important factor brought out by this comparison is the complete disappearance of the contingency reserve of \$100,000. The probable cause of each of these unfavorable tendencies will be discussed in detail later on and possible methods for improvement suggested.

The next logical step would be a general investigation of comparative income and expense statements (Exhibit "B"). More attention should be given to the percentage computations on this schedule than to the actual dollar values of the items, because the

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## THE JONES COMPANY

CONDENSED INCOME AND EXPENSE STATEMENTFor the Year Ended December 31, 1927For the Year Ended December 31, 1926PERCENTAGE  
INCREASE  
DECREASE

<u>NET SALES</u>			\$3,209,300.00	100.00%			\$3,293,600.00 100.00%		
<u>COST OF SALES:</u>									
Materials and Inventories	\$	662,079.00	20.63%		\$	695,278.00	21.11%	.48%	
Factory Supplies and Expenses		157,256.00	4.90			154,470.00	4.69	.21	
Heat, Fuel, Power, and Water		113,609.00	3.54			100,455.00	3.05	.49	
		932,944.00	29.07			950,203.00	28.85	.22%	
Labor, Direct and Indirect		1,300,408.00	40.52			1,334,237.00	40.51		
		1,300,408.00	40.52			1,334,237.00	40.51	.01%	
Rent	}	121,312.00	3.78			141,954.00	4.31	.53	
Depreciation									
Repairs and Maintenance		103,339.00	3.22			112,970.00	3.43	.21	
Taxes		56,484.00	1.76			55,332.00	1.68	.08	
Insurance		31,451.00	.98			36,888.00	1.12	.14	
		312,586.00	9.74			347,144.00	10.54	.80%	
				2,545,938.00	79.33			2,631,584.00	79.90
<u>GROSS PROFIT</u>	\$	663,362.00	20.67%		\$	662,016.00	20.10%		
<u>EXPENSES:</u>									
Executive Salaries	\$	53,595.00	1.67%			52,039.00	1.58%	.09%	
Office Salaries		59,372.00	1.85			55,332.00	1.68	.17	
Selling Salaries and Expenses		298,465.00	9.30			300,376.00	9.12	.18	
		411,432.00	12.32			407,747.00	12.38	.44%	
Advertising and Catalogs		51,991.00	1.62			63,566.00	1.93		
		51,991.00	1.62			63,566.00	1.93	.31%	
Office Supplies and Printing		15,405.00	.48			11,528.00	.35	.13	
Postage		5,456.00	.17			5,270.00	.16	.01	
Telephone and Telegraph		1,925.00	.06			2,305.00	.07	.01	
Professional and Collections		1,605.00	.05			1,317.00	.04	.01	
Dues and Subscriptions		1,925.00	.06			-0-	-0-	.06	
Traveling - General		1,284.00	.04			1,647.00	.05	.01	
Donations and Miscellaneous		11,874.00	.37			5,270.00	.16	.21	
		39,474.00	1.23			27,337.00	.83	.40%	
				502,897.00	15.67			498,650.00	15.14
<u>OPERATING PROFIT</u>	\$	160,465.00	5.00%		\$	163,366.00	4.96%		
<u>LESS:</u>									
Interest Paid	\$	17,651.00	.55%		\$	7,575.00	.23%	.32	
Other Deductions (Net)		3,209.00	.10			16,468.00	.40	.60	
Federal Taxes		15,405.00	.48			23,055.00	.70	.22	
		36,265.00	1.13			14,162.00	.43	.70%	
				36,265.00	1.13			14,162.00	.43
<u>NET PROFIT</u>	\$	124,200.00	3.87%		\$	149,204.00	4.53%	.66%	



decrease in sales interferes with the latter amounts. The following illustration will make this point clear:

The first sub-total for 1927 is \$932,944.00 while the corresponding figure for 1926 is \$950,203.00. The casual reader would say that there was a net decrease of \$17,259.00 and would fail to observe that in proportion to the actual sales for each year there was an increase in the costs at this point of .22%.

Thus, if it were possible always to keep the costs and expenses in the same proportion to the sales, there would be no variation in the net profit percentage from year to year. The last column on Exhibit "B" should be studied carefully, therefore, in order to determine which items have gotten "out of step" with sales, so that adjustments may be made for the future. Perhaps the most salient feature in this comparison is that notwithstanding a substantial decrease in sales, the gross profit figure exceeds that of the prior year and that in relation to the respective sales volumes, the increase is .57%. After checking this percentage against the net profit decrease of .66%, we may state that the deductions following the gross profit comparison have increased for 1927 by 1.23%, in proportion to sales. Lower rent, depreciation, and material costs account for the favorable trend in gross profit, while larger salaries, expenses,

decrease in sales interferes with the latter amount.  
The following illustration will make this point clear:

The first subtotal for 1937 is \$982,944.00 while  
the corresponding figure for 1936 is \$950,503.00.  
The casual reader would say that there was a net  
decrease of \$32,441.00 and would tend to observe  
that in proportion to the actual sales for each  
year there was an increase in the costs at this  
point of 3.3%.

Thus, if it were possible always to keep the  
costs and expenses in the same proportion to the sales,  
there would be no variation in the net profit percentage  
from year to year. The last column on Exhibit "B" should  
be studied carefully, therefore, in order to determine  
which items have gotten "out of step" with sales, so that  
adjustments may be made for the future. Perhaps the most  
salient feature in this comparison is that notwithstanding  
a substantial decrease in sales, the gross profit  
figure exceeds that of the prior year and that in re-  
lation to the respective sales volume, the increase is  
3.7%. After checking this percentage against the net  
profit decrease of .6%, we may state that the deductions  
following the gross profit comparison have increased for  
1937 by 1.3%, in proportion to sales. Lower rent, de-  
preciation, and material costs account for the favorable  
trend in gross profit, while larger salaries, expenses,

and other deductions, each one a controllable expense, explain the decrease in net profit.

While the foregoing comparative financial statements indicate to the executive the trend of the business, they do not show him why his net profit is only 3.87% of sales while his competitors average 7.30%. In order to demonstrate this phase effectively, it will be necessary to refer frequently to Exhibit "C" which tabulates for the year 1927 the static and dynamic relationships of both The Jones Company and the Average Company<sup>(7)</sup>, together with the respective turnovers. Exhibit "D" supports the results from operations which are summarized in Exhibit "C".

The following comments include the statistics of the prior year as well as the composite average figures, in order to indicate the trend in conjunction with competitors' figures.

#### CURRENT RATIO

$$\text{December 31, 1927} = \frac{\$2,125,350}{\$402,100} = 5.29:1$$

$$\text{December 31, 1926} = \frac{\$2,125,650}{\$342,950} = 6.20:1$$

$$1927 \text{ Composite Average} = 3.64:1$$

It is apparent from the above comparison that

The Jones Company enjoys a more comfortable position with

(7) The figures of the average company are composites compiled by Ernst & Ernst from audited reports of clients in the same industry as The Jones Company

and other deductions, even one controllable expense, explain the decrease in net profit.

While the foregoing comparative financial statements indicate to the executive the trend of the business, they do not show him why his net profit is only 5.3% of sales while his competitors average 7.5%. In order to demonstrate this phase effectively, it will be necessary to refer frequently to Exhibit "C" which tabulates for the year 1937 the static and dynamic relationships of both The Jones Company and the Average Company (7) together with the respective turnovers. Exhibit "B" summarizes the results from operations which are summarized in Exhibit "C".

The following comments include the statistics of the prior year as well as the composite average figures, in order to indicate the trend in comparison with competitors' figures.

#### CURRENT RATIO

December 31, 1937 =	$\frac{\$2,125,350}{\$400,000}$	= 5.31:1
December 31, 1936 =	$\frac{\$2,125,350}{\$348,350}$	= 6.10:1
1937 Composite Average =		5.64:1

It is apparent from the above comparison that

(7) The figures of the average company are composite compiled by Ernst & Ernst from audited reports of clients in the same industry as The Jones Company.

EXHIBIT "C"

	1 <u>THE JONES COMPANY</u>	2 <u>COMPOSITE AVERAGE</u>
NET SALES	100.00%	100.00%
Cost of Sales	<u>79.33</u>	<u>71.55</u>
GROSS PROFIT	20.67%	28.45%
Expenses	<u>15.67</u>	<u>19.72</u>
OPERATING PROFIT	5.00%	8.73%
Interest Paid	.55	.54
Other Deductions - Net	.10	.19
Federal Taxes	.48	1.08
	<u>1.13</u>	<u>1.43</u>
NET PROFIT	3.87%	7.30%
	=====	=====
Operating Profit Earned on Economic Capital	1.17%	10.10%
Profit Earned on Net Worth	3.61%	12.08%
Current Ratio	5.29:1	3.64:1
Current Assets in Inventory	73.67%	60.57%
Current Assets	54.57%	54.05%
Permanent Assets	41.43	39.58
Deferred and Other Assets	<u>4.00</u>	<u>6.37</u>
TOTAL ASSETS	<u><u>100.00%</u></u>	<u><u>100.00%</u></u>
Net Worth to Current Debt	8.65:1	5.44:1
Net Worth to Total Debt	8.36:1	5.43:1
Net Worth to Plant Investment	2.16:1	2.31:1
Turnover - Economic Capital	.82x or 445 days	1.37x or 266 days
Turnover - Receivables	7.78x or 47 days	10.03x or 36 days

EXHIBIT "C"

3 <u>COMPOSITE AVERAGE</u>	1 <u>THE LOWES COMPANY</u>	
100.00% <u>71.50</u>	100.00% <u>79.73</u>	NET SALES Cost of Sales
38.45% <u>19.73</u>	30.87% <u>19.87</u>	GROSS PROFIT Expenses
8.73%	8.60%	OPERATING PROFIT
.84 .13 1.08 <u>1.44</u>	.85 .10 .48 <u>1.13</u>	Interest Paid Other Deductions - Net Federal Taxes
7.30%	8.87%	NET PROFIT
10.10%	1.17%	Operating Profit Earned on Economic Capital
19.08%	3.61%	Profit Earned on Net Worth
5.64% 80.37%	5.29% 73.67%	Current Ratio Current Assets in Inventory
34.00% 39.58 <u>8.97</u>	34.87% 41.43 <u>4.00</u>	Current Assets Permanent Assets Deferred and Other Assets
100.00%	100.00%	TOTAL ASSETS
6.44% 5.43% 3.21%	8.83% 8.88% 3.18%	Net Worth to Current Debt Net Worth to Total Debt Net Worth to Total Investment
1.87x or 326 days	.83x or 463 days	Turnover - Economic Capital
10.03x or 36 days	7.79x or 47 days	Turnover - Receivables

## EXHIBIT "C" (continued)

## COMPARATIVE ANALYSIS OF THE COST OF SALES AND FINISHES

	1 THE JONES COMPANY	2 COMPOSITE AVERAGE	
Turnover - Inventory	1.64x or 223 days	2.58x or 141 days	
Turnover - Permanent Assets	1.98x or 184 days	3.92x or 93 days	
Raw Materials and Supplies In Process and Finished Goods	11.72% <u>88.28</u>	14.93% <u>85.07</u>	
TOTAL INVENTORY	100.00% <u>=====</u>	100.00% <u>=====</u>	
Depreciation			
Repairs and Maintenance	3.32	1.34	1.30
Taxes	1.76	1.37	.59
Insurance	.83	.44	.51
	<u>9.71</u>	<u>3.14</u>	<u>2.90</u>
	79.33%	71.60%	7.70%
EXPENSES			
Executive Salaries	1.67%	2.90%	4.23%
Office Salaries	1.20%	2.70%	1.13
Selling Salaries and Expenses	2.36	6.23	3.25
	<u>5.23</u>	<u>11.83</u>	<u>8.61</u>
Advertising and Catalogs	1.83	2.34	.72%
	<u>1.83</u>	<u>2.34</u>	<u>.72%</u>
Office Supplies and Print- ing	.45	.27	.21%
Postage	.17	.34	.18
Telephone and Telegraph	.08	.14	.08
Professional and Collec- tions	.05	.20	.20
Dues and Subscriptions	.04	.11	.05
Traveling - General	.04	.05	.04
Miscellaneous	.37	.43	.28
	<u>1.23</u>	<u>1.35</u>	<u>.82%</u>
	15.07%	17.73%	4.00%



EXHIBIT "D"COMPARATIVE ANALYSIS OF THE COST OF SALES AND EXPENSES

	1 <u>THE JONES COMPANY</u>	2 <u>COMPOSITE AVERAGE</u>	3 <u>HIGH LOW</u>
<u>COST OF SALES</u>			
Materials and Inventories	20.63%	39.22%	18.59%
Factory Supplies	4.90	2.93	1.97
Heat, Fuel and Power	3.54	1.55	1.99
	<u>29.07</u>	<u>43.70</u>	<u>14.63%</u>
Labor	40.52	22.71	17.81%
	40.52	22.71	<u>17.81</u>
Rent )	3.78	2.29	1.49%
Depreciation )			
Repairs and Maintenance	3.22	1.24	1.98
Taxes	1.76	1.17	.59
Insurance	.98	.44	.54
	<u>9.74</u>	<u>5.14</u>	<u>4.60%</u>
	79.33%	71.55%	7.78%
	=====	=====	=====
<u>EXPENSES</u>			
Executive Salaries	1.67%	5.90%	4.23%
Office Salaries	1.85%	2.98%	1.13
Selling Salaries and Expenses	9.30	6.95	2.35
	<u>15.82</u>	<u>15.83</u>	<u>3.01%</u>
Advertising and Catalogs	1.62	2.34	.72%
	1.62	2.34	<u>.72%</u>
Office Supplies and Printing	.48	.27	.21%
Postage	.17	.35	.18
Telephone and Telegraph	.06	.14	.08
Professional and Collections	.05	.25	.20
Dues and Subscriptions	.06	.11	.05
Traveling - General	.04	-0-	.04
Miscellaneous	.37	.43	.06
	<u>1.23</u>	<u>1.55</u>	<u>.32%</u>
	15.67%	19.72%	4.05%
	=====	=====	=====

EXHIBIT "E"

COMPARATIVE ANALYSIS OF THE COST OF SALES AND EXPENSES

2 HIGH LOW	3 COMPOSITE AVERAGE	1 THE JONES COMPANY	
18.59%	29.22%	20.62%	<u>COST OF SALES</u>
1.27	2.92	4.90	Materials and Inven-
4.73	1.88	2.54	ories
<u>14.53%</u>	<u>43.70</u>	<u>29.67</u>	Factory Supplies
17.81%	22.71	40.92	Heat, Fuel and Power
<u>17.81%</u>	<u>22.71</u>	<u>40.92</u>	Labor
1.44%	2.29	2.78	Rent
1.92	1.24	2.22	Depreciation
.52	1.17	1.76	Repairs and Maintenance
.31	.44	.98	Taxes
<u>2.27%</u>	<u>3.14</u>	<u>6.74</u>	Insurance
7.78%	71.82%	79.22%	
-----	-----	-----	
4.22%	8.92%	1.82%	<u>EXPENSES</u>
1.12	2.92%	1.82%	Executive Salaries
3.10%	6.98	3.20	Office Salaries
<u>2.01%</u>	<u>15.83</u>	<u>15.82</u>	Selling Salaries and Expenses
.72%	2.24	1.82	Advertising and Catalogs
<u>.72%</u>	<u>2.24</u>	<u>1.82</u>	Office Supplies and Print-
.81%	.27	.48	ing
.18	.28	.17	Postage
.08	.14	.06	Telephone and Telegraph
.20	.25	.05	Professional and Collec-
.05	.11	.06	tions
.04	-.0-	.04	News and Subscriptions
.08	.42	.27	Traveling - General
<u>.32%</u>	<u>1.02</u>	<u>1.22</u>	Miscellaneous
4.06%	19.72%	16.67%	
-----	-----	-----	

respect to working capital than the average, but at the same time the attention of the executive should be directed by further analysis to the reasons for the unfavorable trend in working capital. A graphic representation such as Schedule I will often be more effective than tabulations and percentages, especially if the comparison extends over a period of years. To explain the decrease in the current ratio since December 31, 1926, an application of funds statement should be included (Exhibit "E"). The unusual feature in the foregoing figures is the payment, together with expenses in connection therewith, of Federal taxes for prior years in the total amount of \$99,600. This payment affected the Company's current position, but did not reduce the net worth, as a reserve more than sufficient to offset it had been provided in prior years.

The Jones Company withstands the bankers' "acid test", altho as in the case of the current ratio, the trend is unfavorable:

	<u>December 31, 1927</u>		<u>December 31, 1926</u>
CURRENT ASSETS	\$2,125,350		\$2,125,650
Less:			
Total Inventory	<u>1,565,700</u>		<u>1,541,200</u>
	\$ 559,650	= 1.39	\$ 584,450 = 1.70
CURRENT LIABILITIES	<u>402,100</u>		<u>342,950</u>

(Figures for the composite average are not available for this relationship)

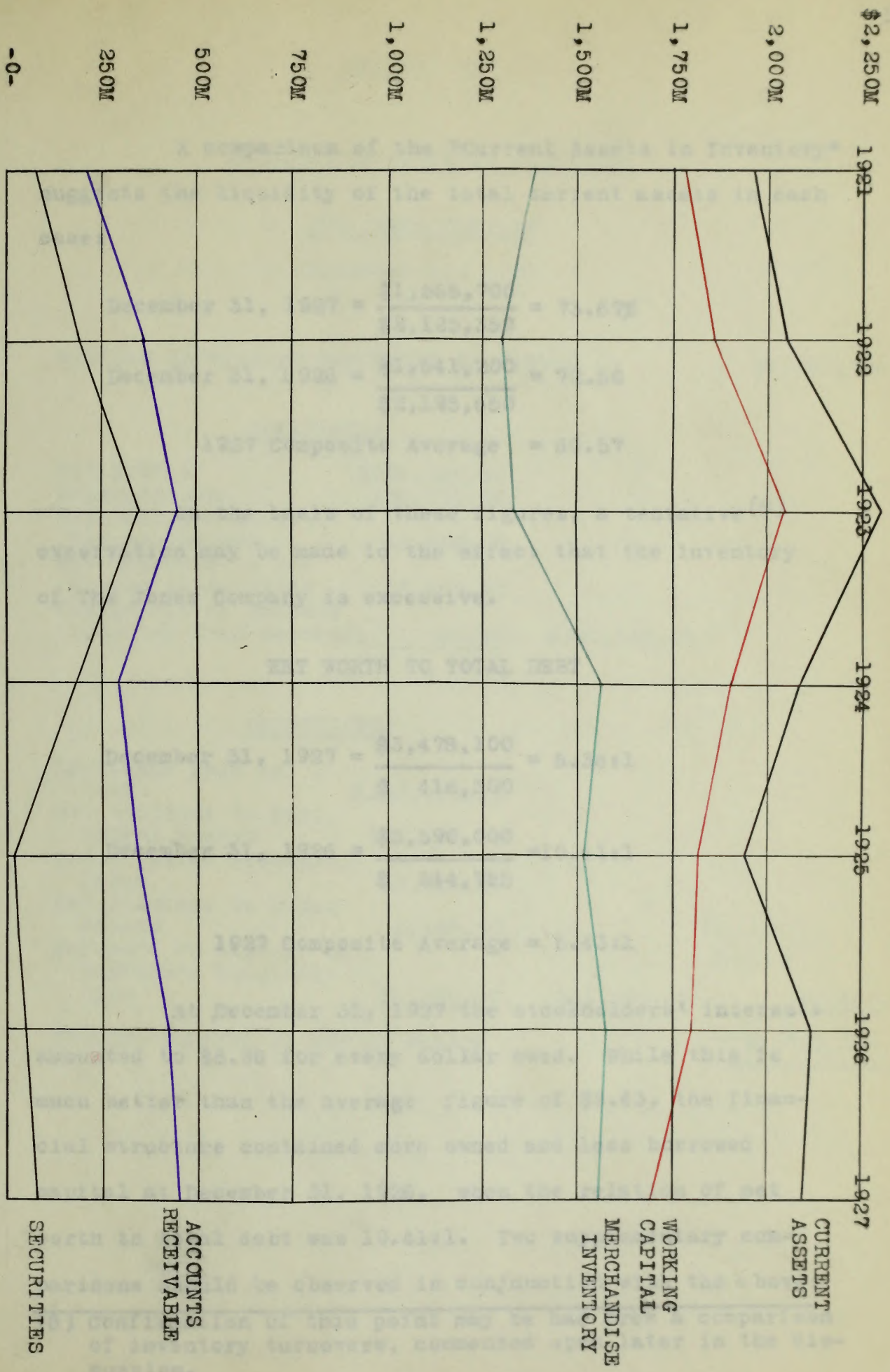
respect to working capital than the average, but at the same time the attention of the executive should be directed by further analysis to the reasons for the unfavorable trend in working capital. A graphic representation such as Schedule I will often be more effective than tabulations and percentages, especially if the comparison extends over a period of years. To explain the decrease in the current ratio since December 31, 1936, an application of funds statement should be included (Exhibit "2"). The unusual feature in the foregoing figures is the payment, together with expenses in connection therewith, of Federal taxes for prior years in the total amount of \$99,000. This payment affected the Company's current position, but did not reduce the net worth, as a reserve more than sufficient to offset it had been provided in prior years.

The Jones Company withdrew the lenders' "acid test", also as in the case of the current ratio, the trend is unfavorable:

<u>December 31, 1936</u>	<u>December 31, 1937</u>
\$2,125,000	CURRENT ASSETS \$2,125,000
<u>1,641,000</u>	Less: Total Inventory 1,588,700
\$ 484,000 = 1.70	\$ 536,300 = 1.22
<u>284,750</u>	CURRENT LIABILITIES 434,100

(Figures for the composite average are not available for this relationship)

SCHEDULE I



-0-



A comparison of the "Current Assets in Inventory" suggests the liquidity of the total current assets in each case:

$$\text{December 31, 1927} = \frac{\$1,565,700}{\$2,125,350} = 73.67\%$$

$$\text{December 31, 1926} = \frac{\$1,541,200}{\$2,125,650} = 72.50$$

$$1927 \text{ Composite Average} = 60.57$$

On the basis of these figures, a tentative<sup>(8)</sup> observation may be made to the effect that the inventory of The Jones Company is excessive.

#### NET WORTH TO TOTAL DEBT

$$\text{December 31, 1927} = \frac{\$3,478,100}{\$416,300} = 8.36:1$$

$$\text{December 31, 1926} = \frac{\$3,590,000}{\$344,755} = 10.41:1$$

$$1927 \text{ Composite Average} = 5.43:1$$

At December 31, 1927 the stockholders' interests amounted to \$8.36 for every dollar owed. While this is much better than the average figure of \$5.43, the financial structure contained more owned and less borrowed capital at December 31, 1926, when the relation of net worth to total debt was 10.41:1. Two supplementary comparisons should be observed in conjunction with the above:

(8) Confirmation of this point may be had from a comparison of inventory turnovers, commented upon later in the discussion.

A comparison of the "Current Assets in Inventory" suggests the liquidity of the total current assets in each

cases

December 31, 1937 =	$\frac{\$1,588,700}{\$2,122,320}$	= 74.87%
December 31, 1938 =	$\frac{\$1,541,200}{\$2,122,320}$	= 72.60
1937 Composite Average =		60.87

On the basis of these figures, a tentative (8) observation may be made to the effect that the inventory of The Jones Company is excessive.

NET WORTH TO TOTAL DEBT

December 31, 1937 =	$\frac{\$5,478,100}{\$ 418,300}$	= 13.08:1
December 31, 1938 =	$\frac{\$3,920,000}{\$ 344,700}$	= 11.37:1
1937 Composite Average =		12.22:1

At December 31, 1937 the stockholders' interests amounted to \$8.38 for every dollar owed. While this is much better than the average figure of \$6.45, the financial structure contained more owned and less borrowed capital at December 31, 1938, when the relation of net worth to total debt was 10.41:1. Two supplementary comparisons should be observed in conjunction with the above:

(9) Confirmation of this point may be had from a comparison of inventory turnover, commented upon later in the discussion.

## EXHIBIT "E"

APPLICATION-OF-FUNDS STATEMENTTHE JONES COMPANY

December 31, 1927

WORKING CAPITAL AT BEGINNING OF PERIOD	\$1,782,700.00
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ADDITIONS:

Net Profit	\$124,200.00	
Depreciation	126,900.00	
Net Decrease in De- ferred Charges	18,300.00	
Net Increase in De- ferred Liabilities	12,400.00	
Charge-off of Patents Deducted from Earnings	50.00	\$281,850.00

DEDUCTIONS:

Dividends Paid in Cash	\$120,000.00	
Net Additions to Per- manent Assets	101,400.00	
Prior Years' Federal Taxes	99,600.00	
Net Increase in Other Assets	3,800.00	
Payments on Account of Workmen's Compensa- tion	16,500.00	341,300.00
		<u>59,450.00</u>

WORKING CAPITAL AT END OF PERIOD	<u>\$1,723,250.00</u>
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APPLICATION OF FUNDS STATEMENT

THE JOYNS COMPANY

December 31, 1937

WORKING CAPITAL AT BEGINNING OF PERIOD

\$1,723,700.00

ADDITIONS:

Net Profit	\$124,300.00
Depreciation	128,900.00
Net Increase in De-	
ferred Charges	18,300.00
Net Increase in De-	
ferred Liabilities	12,400.00
Charge-off of Patents	
Deducted from Earnings	<u>50.00</u>
	\$281,850.00

DEDUCTIONS:

Dividends Paid in	
Cash	\$120,000.00
Net Additions to Per-	
manent Assets	101,400.00
Prior Years' Federal	
Taxes	99,800.00
Net Increase in Other	
Assets	2,800.00
Payments on Account of	
Workmen's Compensa-	
tion	<u>10,000.00</u>
	\$41,300.00
	<u>\$9,400.00</u>

WORKING CAPITAL AT END OF PERIOD

\$1,723,250.00

	<u>THE JONES COMPANY</u>	<u>COMPOSITE AVERAGE</u>
Net Worth to Current Assets	8.65:1	5.44:1
Net Worth to Plant	2.16:1	2.31:1

#### ANALYSIS OF TOTAL ASSETS

	<u>THE JONES COMPANY</u>		<u>COMPOSITE AVERAGE</u>
	<u>1927</u>	<u>1926</u>	
Current Assets	54.57%	54.02%	54.05%
Permanent Assets	41.43	41.62	39.58
All Other Assets	4.00	4.36	6.37
Total Assets	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>

This statement is self-explanatory showing as it does that the distribution of the Company's resources is in line with the average.

#### COMPOSITION OF THE INVENTORY

	<u>THE JONES COMPANY</u>		<u>COMPOSITE AVERAGE</u>
	<u>1927</u>	<u>1926</u>	
Raw Materials and Supplies	11.72%	12.14%	14.93%
In Process and Finished Goods	88.28	87.86	85.07
Total	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>

This comparison needs no special comment other than to observe that the figures of The Jones Company conform approximately with those of the average company.

COMPOSITE  
AVERAGE

THE JONES  
COMPANY

1.44:1	8.85:1	Net Worth to Current Assets
8.31:1	8.16:1	Net Worth to Plant

ANALYSIS OF TOTAL ASSETS

COMPOSITE  
AVERAGE

THE JONES COMPANY

	<u>1937</u>	<u>1938</u>	
54.57%	54.03%	54.08%	Current Assets
41.43	41.83	39.83	Permanent Assets
4.00	4.36	6.37	All Other Assets
<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	Total Assets

This statement is self-explanatory showing as it does that the distribution of the Company's resources is in line with the average.

COMPOSITION OF THE INVENTORY

COMPOSITE  
AVERAGE

THE JONES COMPANY

	<u>1937</u>	<u>1938</u>	
12.78%	12.14%	14.93%	Raw Materials and Supplies
83.38	87.88	83.07	In Process and Finished Goods
<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	Total

This comparison needs no special comment other than to observe that the figures of The Jones Company conform approximately with those of the average company.

## GROSS PROFIT TO SALES

1927 =	\$ 663,362	=	20.67%
	<u>\$3,209,300</u>		
1926 =	\$ 662,016	=	20.10%
	<u>\$3,293,600</u>		
Composite Average		=	23.45%

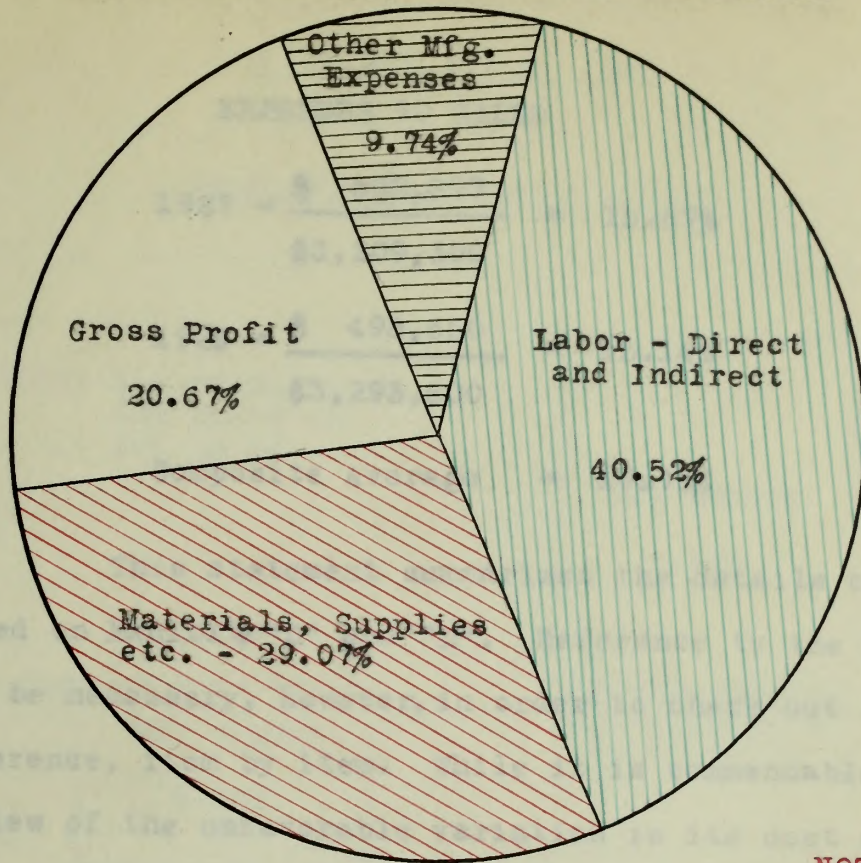
The salient point in this analysis is the difference of 7.78% between the Company's 1927 gross profit percentage and that of the average. Reference to the third column on Exhibit "D" will enable the executive to check the variation in detail and this examination reveals that while The Jones Company has a large advantage over competitors in its material costs, the excessive labor percentage together with other minor unfavorable differences net a handicap to the Company in its gross profit to the extent of 7.78%. In cases of this type the analyst would be justified in suggesting that a survey be made of the labor situation by an industrial engineer, for the purpose of effecting every possible economy. It may be found entirely possible to install some wage incentive plan, perhaps the group bonus, which would stimulate the personnel and reduce costs. A chart similar to Schedule II is often valuable in illustrating the relation of the various items affecting the gross profit percentage.

GROSS PROFIT TO SALES

1937 =	\$ 683,368	=	30.67%
	<u>\$3,209,300</u>		
1938 =	\$ 682,018	=	30.10%
	<u>\$2,268,800</u>		
Composite Average =	30.43%		

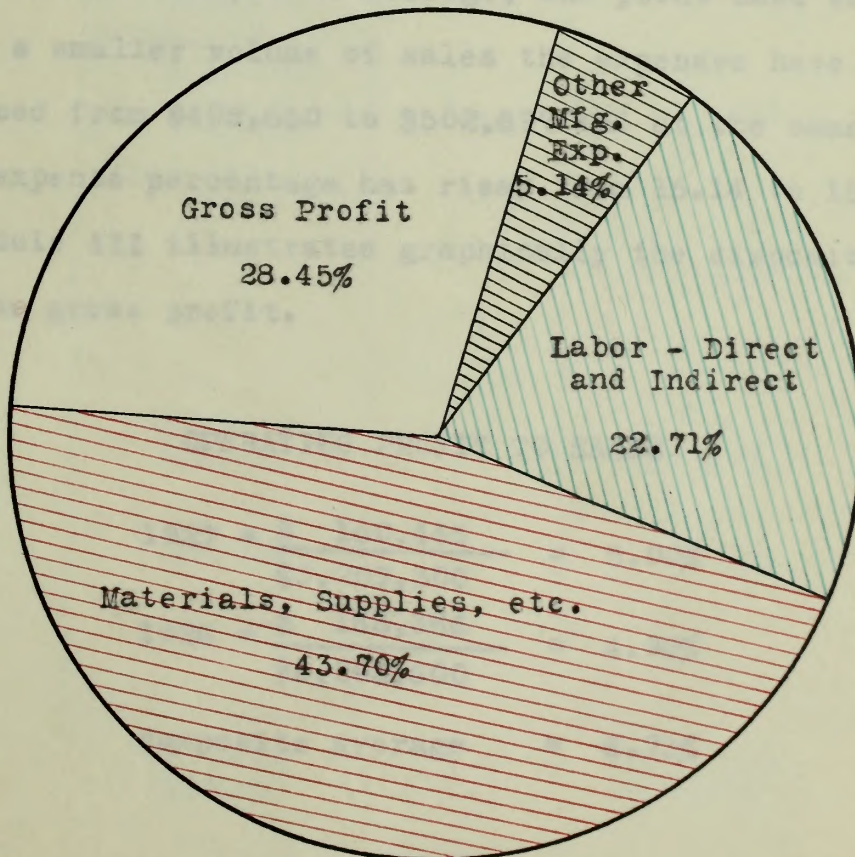
The salient point in this analysis is the difference of 7.78% between the Company's 1937 gross profit percentage and that of the average. Reference to the third column on Exhibit "P" will enable the executive to check the variation in detail and this examination reveals that while The Jones Company has a large advantage over competitors in its material costs, the excessive labor percentages together with other minor unfavorable differences net a handicap to the Company in its gross profit to the extent of 7.78%. In cases of this type, the analyst would be justified in suggesting that a survey be made of the labor situation by an industrial engineer, for the purpose of effecting every possible economy. It may be found entirely possible to install some wage incentive plan, perhaps the group bonus, which would stimulate the personnel and reduce costs. A chart similar to Schedule II is often valuable in illustrating the relation of the various items affecting the gross profit percentages.

COMPARATIVE ANALYSIS MANUFACTURING COSTS



THE JONES COMPANY

**NOTE:** All percentages are based on Net Sales



COMPOSITE AVERAGE



## EXPENSES TO SALES

$$1927 = \frac{\$ 502,897}{\$3,209,300} = 15.67\%$$

$$1926 = \frac{\$ 498,650}{\$3,293,600} = 15.14\%$$

$$\text{Composite Average} = 19.72\%$$

This statement summarizes the details contained on Exhibits "B" and "D". Reference to the latter will be necessary, however, in order to check out the difference, item by item. While it is commendable especially in view of the unfavorable variation in its cost of sales, that the expenses of The Jones Company are 20% lower than those of the composite average, one point need emphasis: with a smaller volume of sales the expenses have increased from \$498,650 to \$502,897 and at the same time the expense percentage has risen from 15.14 to 15.67. Schedule III illustrates graphically the disposition of the gross profit.

## OPERATING PROFIT TO SALES

$$1927 = \frac{\$ 160,465}{\$3,209,300} = 5.00\%$$

$$1926 = \frac{\$ 163,366}{\$3,293,600} = 4.96\%$$

$$\text{Composite Average} = 8.73\%$$

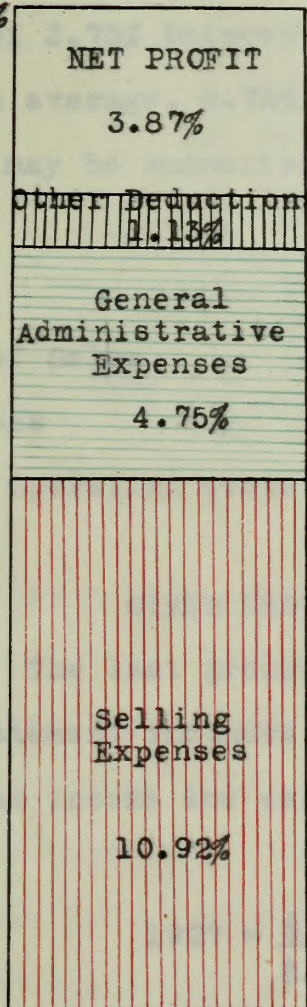


SCHEDULE III

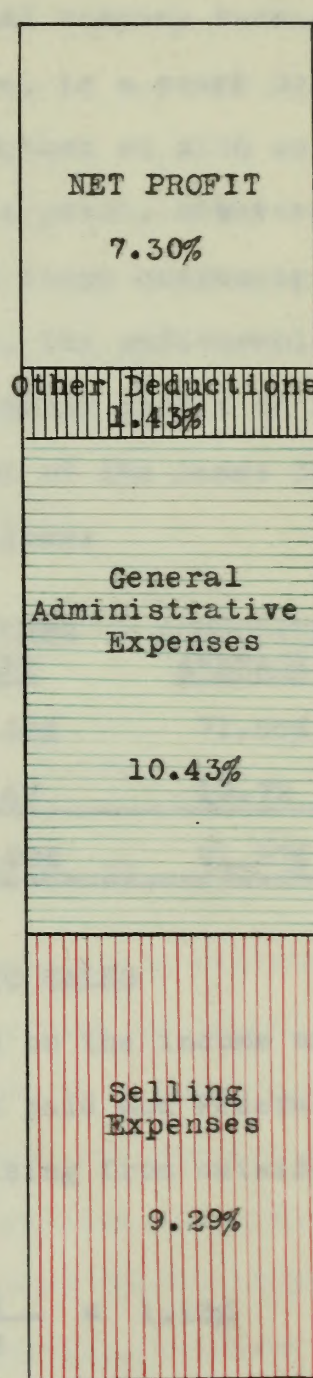
DISPOSITION OF GROSS PROFIT

**NOTE:** All percentages are based on Net Sales

GROSS PROFIT=20.67%



THE JONES COMPANY



28.45%=GROSS PROFIT

COMPOSITE AVERAGE



The profit from operations, reflecting as it does the merchandising ability of the management, without taking into consideration the advantages or disadvantages accruing to the individual company because of its particular financial structure, is a sound criterion for comparing one company with another or with an average. The reason for a variation at this point, however, must be determined by reference to the items composing costs and expenses (Exhibit "D"). Thus, the unfavorable difference of 3.73% between the operating profit of the composite average, 8.73%, and that of The Jones Company for 1927 may be summarized as follows:

	<u>THE JONES COMPANY</u>	<u>COMPOSITE AVERAGE</u>	<u>HIGH LOW</u>
Cost of Sales	79.33%	71.55%	7.78%
Expenses	15.67	19.72	4.05
Total Operating Costs	<u>95.00%</u>	<u>91.27%</u>	<u>3.73%</u>

#### OTHER DEDUCTIONS TO SALES

The last group of items on the income and expense statement includes interest paid and Federal taxes, as well as income and expense arising from outside investments:

1927 =	\$ 36,265	=	1.13%
	\$3,209,300		
1926	\$ 14,162	=	.43%
	\$3,293,600		
Composite Average		=	1.43%



It appears that the trend of these costs rather than the comparison with the average, calls for more comment. Exhibit "B" indicates that the item "Other Deductions (net)" is responsible for the largest part of the unfavorable trend. Reference to the detailed income and expense schedules shows that in 1926 earnings from interest and outside investments were responsible for the net figure of \$16,468.00, while in 1927 such earnings were small and failed in the net amount of \$3,209.00 to cover miscellaneous deductions from income.

#### NET PROFIT TO SALES

$$1927 = \frac{\$ 124,200}{\$3,209,300} = 3.87\%$$

$$1926 = \frac{\$ 149,204}{\$3,293,600} = 4.53\%$$

$$\text{Composite Average} = 7.30\%$$

The final figure on the operating statement reflects the result of all the functions of management: merchandising, operating, and financing. Therefore, it is usually the one which is most used for comparisons with other companies, altho as suggested in previous discussions, it is not always the best basis. A resume of the 1927 comparison of income and expenses may be helpful in emphasizing the unfavorable items which sug-



gest further investigation by the individuals responsible in each case:

<u>THE JONES CO.</u>			
	<u>1 9 2 7</u>	<u>1 9 2 6</u>	<u>UNFAVORABLE</u> <u>FAVORABLE</u>
Net Sales	100.00%	100.00%	
Cost of Sales	79.33%	71.55%	7.78%
Expenses	15.67	19.72	4.05
Other Deductions	1.13	1.43	.30
Total Deductions	96.13	92.70	3.43%
	3.87%	7.30%	3.43%

#### NET PROFIT TO NET WORTH

$$1927 = \frac{\$ 124,200}{\$3,440,700} = 3.61\%$$

$$1926 = \frac{\$ 149,000}{\$3,410,450} = 4.37\%$$

$$\text{Composite Average} = 12.08\%$$

This is the measure by which prospective investors gauge the earning power of a business. Within a given industry any variations from the average in the percentage of profit on the owned capital may be traced directly to the either the merchandising or financing policies of the individual company. It is easily seen that The Jones Company with earnings for 1927 of only \$.0361 per \$1.00



of owned capital is not using its stockholders' money as efficiently as the average company which earns \$.1208 per \$1.00 of net worth. This comparison coupled with the following one suggests the theory that The Jones Company, due to its exceedingly fine financial position, rather overlooks the advantages to be gained from efficient management with respect to invested capital.

#### OPERATING PROFIT EARNED ON ECONOMIC CAPITAL

1927 =	\$ 160,465	=	3.17%
	<u>\$3,853,875</u>		
1926 =	\$ 163,366	=	4.14%
	<u>\$3,946,230</u>		
Composite Average		=	10.10%

Per dollar of resources The Jones Company earns about three cents while the average company earns ten cents. A casual observer might say that the Company's comparatively high costs cause this variation, but it should be remembered that even with the same percentage of costs, better turnover would result in more satisfactory earnings. For example, if The Jones Company's sales had been \$4,000,000 for 1927, the operating profit at 5.00% would be \$200,000 and its relation to economic capital would be  $\frac{\$200,000}{\$3,853,875}$  or 5.19%. Or, a reduction in the economic capital, with the same sales volume of \$3,209,300 would also obtain more favorable results.

of owned capital is not using the stockholders' money as efficiently as the average company which earns \$1.50 per \$1.00 of net worth. This comparison coupled with the following one suggests the theory that The Jones Company, due to its exceedingly fine financial position, rather overlooks the advantages to be gained from efficient management with respect to invested capital.

OPERATING PROFIT BARRIED ON ECONOMIC CAPITAL

1937 =	\$ 183,483	=	3.1%
	\$3,833,875		
1938 =	\$ 183,388	=	4.1%
	\$3,946,230		
Composite Average =	10.1%		

For dollar of resources The Jones Company earns about three cents while the average company earns ten cents. A casual observer might say that the Company's comparatively high costs cause this variation, but it should be remembered that even with the same percentage of costs, better turnover would result in more satisfactory earnings. For example, if The Jones Company's sales had been \$4,000,000 for 1937, the operating profit at 3.1% would be \$200,000 and its relation to economic capital would be  $\frac{200,000}{3,833,875}$  or 5.1%. Or, a reduction in the economic capital, with the same sales volume of \$3,833,875 would also obtain more favorable results.

### TURNOVER OF ECONOMIC CAPITAL

$$1927 = \frac{\$3,209,300}{\$3,853,875} = .82 X$$

$$1926 = \frac{\$3,293,600}{\$3,946,230} = .83 X$$

$$\text{Composite Average} = 1.37X$$

The criticism offered in the preceding paragraphs is confirmed by the above analysis. An application of the formula  $A = \frac{B}{C}$  referred to in Chapter IV, if solved for C will determine the volume of sales necessary in order to secure the same percentage of operating profit to economic capital as the average figure:

A = 5% = The present per cent of operating profits to sales

B = 10.00% = The desired percentage of operating profits to economic capital

C = ? = The necessary turnover of economic capital

Then the substitution in the formula would be:

$$5 = \frac{10}{C}$$

$$5C = 10$$

$$c = 2$$

Accordingly, with an operating profit of only 5% on sales, in order to obtain a 10% profit on its present economic capital, The Jones Company must have a sales volume of \$7,707,750, i. e., twice its average economic capital of



\$3,853,875.

But, if the operating profit to sales could be increased to 8.73% which may be considered the average for the industry, the following substitutions in the formula could be made:

$$8.73 = \frac{10}{C}$$

$$8.73C = 10$$

$$C = 1.15$$

Applying this result to the economic capital of The Jones Company, the sales volume would be \$4,431,956 (1.15 x \$3,853,875).

It should be remembered that the turnover of economic capital is a summary of all the others: inventory, accounts receivable and permanent assets and therefore, it will be necessary to compute the latter relationships separately. The turnover may also be expressed in the following manner:

In 1927 The Jones Company was turning its economic capital at the rate of once in 445 days; in 1926, once in 440 days. The composite average company accomplished this turnover during 1927 once in 266 days.



TURNOVER OF MERCHANDISE INVENTORIES

$$1927 = \frac{\$2,545,938}{\$1,553,450} = 1.64 \text{ X}$$

$$1926 = \frac{\$2,631,584}{\$1,329,934} = 1.98 \text{ X}$$

$$\text{Composite Average} = 2.59 \text{ X}$$

The relationship may be expressed in days:

In 1927 The Jones Company turned its inventory at the rate of once in 223 days; in 1926 once in 184 days. The average turnover is once in 141 days.

This is one of the most significant components of the summary turnover figure (economic capital) and should therefore receive minute consideration when it is desired to increase the general rate of turnover of the business. It is almost an axiom that profits increase with the rate of inventory turnover and it is quite clear that this is one of the weakest points in the operations of The Jones Company. This phase of management needs more attention and if the talent is lacking within the personnel of the Company, a general survey by an accounting firm usually is beneficial under such circumstances.

TURNOVER OF MERCHANDISE INVENTORIES

$$1937 = \frac{\$2,545,938}{\$1,553,450} = 1.64 \times$$

$$1936 = \frac{\$2,531,581}{\$1,528,944} = 1.66 \times$$

$$\text{Composite Average} = 1.65 \times$$

The relationship may be expressed in days:  
 In 1937 The Jones Company turned its inventory at the rate of once in 62.3 days; in 1936 once in 57.4 days. The average turnover is once in 60 days.

This is one of the most significant components of the summary turnover figure (economic capital) and should therefore receive minute consideration when it is desired to increase the general rate of turnover of the business. It is almost an axiom that profits increase with the rate of inventory turnover and it is quite clear that this is one of the weaker points in the operations of The Jones Company. This phase of management needs more attention and it is felt is lacking within the personnel of the Company, a general survey by an accounting firm usually is beneficial under such circumstances.

TURNOVER OF RECEIVABLES

$$1927 = \frac{\$3,209,300}{416,850} = 7.78X$$

$$1926 = \frac{\$3,293,600}{405,850} = 8.11X$$

$$\text{Composite Average} = 10.03X$$

In 1927 The Jones Company collected its receivables in 47 days; during 1926, in 45 days. The composite average makes the collection in 36 days. Assuming that the Company's terms of sale correspond with those of the average in the same industry, the unfavorable comparison indicated above must be due to lax collection methods. Furthermore, it is to be noted that the trend of this turnover is unfavorable. If the Company did not have plenty of working capital, more attention would have to be given to collecting the accounts in order to meet the current liabilities. This process would result in a better turnover of the total assets. Not being compelled by stress of circumstances to follow this procedure, laxness in collection methods is tolerated.

TURNOVER OF PERMANENT ASSETS

$$1927 = \frac{\$3,209,300}{\$1,624,950} = 1.98X$$

$$1926 = \frac{\$3,293,600}{\$1,603,000} = 2.05X$$

$$\text{Composite Average} = 3.92X$$



This comparison is clearer when expressed in dollars of sales per dollar invested in Plant:

In 1927 The Jones Company sold \$1.98 per \$1.00 invested in Plant; in 1926, \$2.05. The average company sells \$3.92 per \$1.00 of plant investment.

This final turnover figure explains much: The Jones Company has a plant capacity for twice its present volume of sales. Two courses only can be suggested:

- (1) Reduction in Plant
- (2) Increase in the Sales

The first method is very difficult of accomplishment without a complete reorganization. There remains the second course and in this connection many companies are finding a thoro market analysis to be of great assistance to them.

#### GENERAL CONCLUSION

The Jones Company has a sound financial condition, but is securing unfavorable operating results due to :

- (1) Excessive Labor Costs
- (2) Unfavorable Turnovers

The analyst suggests a more detailed investiga-



tion of both of these phases of management.

Within the last few years, the Robert Morris Association, a group of national importers, have developed a system for rating prospective borrowers in one figure, for example 100, 100, or 50. The percentage is based on numbers furnished from analyses of the thousands of financial statements which the member banks obtain periodically from their customers. This monograph will make an attempt to define the scientific averaging system used to determine the standards regularly supplied through the association's clearing house to authorized representatives.

The application of these standards or similar compiled average figures to a given statement, with the net result expressed as a single figure, would have a tremendous appeal to any executive. To be told that a prospective borrower's statement rated only 50 points out of a possible 100, instantly gives the credit manager a concrete idea of how great the risk will be on a loan to that property. Even the old time lending officer who uses his instinct and "hunch" were that the masses of figures supplied by his clerical staff would be sure to check his



CHAPTER VI  
EXPRESSING A COMPANY'S FINANCIAL STANDING  
IN ONE FIGURE

Within the last few years, the Robert Morris Associates, a group of national importance, have developed a system for rating prospective borrowers in one figure, for example 95%, 103%, or 86%. The percentage is based on standards formulated from analyses of the thousands of financial statements which the member banks obtain periodically from their customers. This monograph will make no attempt to define the scientific averaging methods used to determine the standards regularly supplied through the association's clearing house to authorized representatives.

The application of these standards or similarly compiled average figures to a given statement, with the net result expressed as a single figure, would have a tremendous appeal to many executives. To be told that a prospective debtor's statement rated only 83 points out of a possible 100, instantly gives the credit manager a concrete idea of how great the risk will be on a loan to that company. Even the old time loaning officer who uses his instinct and "hunch" more than the masses of figures supplied by his clerical staff would be curious to check his



judgement against the simplicity of a single figure, known as a credit index, before submitting his final decision. Should the two not be in agreement, the details would be eagerly examined to determine the discrepancy. At the present time, this method is being widely used in the credit department of banks, but its possibilities have not been exploited to any extent by public accountants and corporations.

While the method of analysis is in many respects similar to that which has been described previously, the results are weighted and certain ratios are excluded. These facts warrant a specific description of the items to be included. The first step is to determine the following eight relationships from the statements of the company for which a credit index is desired.

## I CURRENT RATIO

### Method

The total current assets are divided by the total current liabilities.

### Result

The result shows the dollars of current assets which the company has for every dollar it owes of current debt.

### Principle Involved

The two for one ratio allows for a 100% Margin of Safety which is supposedly



ample, but the development of this one ratio has also given use to a false sense of security in relying too confidently upon it. A comparison of the hardware and millinery businesses will serve to illustrate this point. The former is a stable industry and the latter is entirely dependent on fads and fashions.

## II RECEIVABLES TO MERCHANDISE

### Method

The total of the accounts and bills receivables, representing real sales, are divided by the merchandise inventory.

### Result

The result shows the dollars of receivables for every dollar of inventory.

### Principle Involved

Merchandise is now generally carried at cost or market, whichever is lower. Accounts and bills receivable, however, represent selling price, which is cost plus gross profit. The addition to the assets of a profit item not offset by any operating cost or borrowing necessity tends to increase the ratio of assets to liabilities. A comparison of this ratio (Receivables to Merchandise) from



year to year will disclose whether there is a greater or lesser amount in proportion, of profits figured as part of the current assets. If this be greater, technically, we should have a rising current ratio.

This relationship is very important in connection with the subject of goods sold "on approval" or to affiliated companies which may have been forced to accept goods to make a liquidation of the inventory apparent.

### III WORTH TO FIXED OR NON-CURRENT ASSETS

#### Method

The Net Worth is divided by the total of the non-current assets.

#### Result

The result shows the dollars of worth (or stockholders' investment) tied up in non-current assets.

#### Principle Involved

The stockholders' equity should be at least equal to the plant. Even a higher ratio is usually expected. The comparison of the results from year to year measures the plant expansion and



shows whether liquid capital is being poured into fixed assets or not. In this connection it should be remembered that the size of any ratio at any one time is not nearly so significant as the change which the ratio shows from period to period. Such changes should stimulate investigation for the causes thereof.

#### IV DEBT TO WORTH

##### Method

The total debt, current and funded, is divided by the net worth.

##### Result

The result shows the proportion between the money loaned the company and that invested by the stockholders.

##### Principle Involved

Since the result shows the dependency of the company on outside funds for working capital, the higher this ratio is the greater the reliance of the company on the goodwill of creditors.

#### V SALES TO RECEIVABLES

##### Method



73

The net sales are divided by the total receivables, both accounts and bills.

Result

The result shows the dollars of sales per year for every dollar of receivables on the books.

Principle Involved

The higher the amount of sales for every dollar still uncollected, the greater the liquidity there be in receivables. As this ratio rises, the length of the collection period decreases. The higher the ratio, the more desirable the receivables. High collectivity will offset to some extent a low current ratio and vice versa. The results secured in computing this ratio should be carefully compared with the merchant's selling terms, 60 days, 30 days, etc., to determine whether or not the company is maintaining the proper collection activity.

VI SALES TO MERCHANDISE

Method

The net sales are divided by the merchandise inventory.

Result



The result shows the dollars of sales for every dollar of inventory.

Principle

This ratio is a test of the freshness of the inventory. A comparison of the results from year to year will show the trend of the liquidity of the inventory. If the ratio is an increasing one that fact might modify a decision based on a weakening current ratio.

VII SALES TO WORTH

Method

The net sales are divided by the net worth.

Result

The result shows the dollars of sales for every dollar of invested stockholders' capital.

Principle Involved

Since the result shows the activity of invested funds, extremes in either direction indicate dangers of sluggishness or overexpansion.

VIII SALES TO FIXED OR NON CURRENT ASSETS

Method

The sales are divided by the fixed assets.



### Result

The result indicates the dollars of net sales for every dollar invested in plant and other non-liquid assets.

### Principle Involved

The earning capacity of a plant depends on the volume of goods which it can produce. If the worth to non-current assets be a falling ratio, or below normal, and the sales to fixed assets be also a falling ratio, or below normal, then we are faced with a condition in which plant is enlarging more rapidly than worth, in proportion, and at the same time its sales productivity is not keeping pace with its increase in size. The company under such circumstances should be advised to increase its production efficiency, and not expand further.

This ratio should be checked against the Worth to Fixed ratio, because extension is only justified economically if efficiency and resulting productivity demand it.

The combined deductive use of these ratios will often uncover adverse trends underlying a perhaps



fairly normal current ratio. It is for this reason that the Robert Morris Associates worked out a statistical adjustment of these eight ratios in order to produce one figure which would display the reactions of the management policy and economic conditions of the times on the credit position, better than does the current ratio alone.

METHOD FOR COMBINING THE  
EIGHT RATIOS

Although each of the foregoing ratios serves a very definite purpose in detailed analytical work, even a casual survey will indicate that they are not equally important. For example, from the creditor's point of view, the current ratio would probably be twice as important as the Sales to Fixed Assets. Consequently, in calculating an average figure, due consideration or weight will have to be given to each ratio. It is a common practice among statisticians to use a scale of 100 and so weight the various items that the total will always be 100, giving the proper relation to each.

The following arbitrary weights<sup>(9)</sup> were used experimentally by the Robert Morris Associates:

- |                               |     |
|-------------------------------|-----|
| 1. Current Ratio              | 25% |
| 2. Receivables to Merchandise | 5   |

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(9) Robert Morris Associates, Suggested methods for a credit index, page 43



3. Worth to Fixed	20%
4. Sales to Receivables	12
5. Sales to Merchandise	12
6. Sales to Net Worth	5
7. Worth to Debt	11
8. Sales to Fixed	<u>10</u>
	100%

These weights are by no means final or unchangeable, as will be shown later. It will be interesting now perhaps to apply the method concretely. The first step in the analysis, of course, is to secure base or standard ratios for each of the eight items. Probably the best standards would be those secured in the manner which the Robert Morris Associates use. The standards vary widely among the different types of industries as will be quite evident in comparing the merchandise turnover of a millinery shop with that of a retail hardware establishment. Slow turnover of a stable product like hardware, with a correspondingly large investment in inventory, is not an unfavorable factor as compared with an item which is subject to quickly changing fashions like millinery.

If the executive is unable through his banking connections to secure access to the Robert Morris stand-



ards, for a nominal fee, the files of a national accounting firm like Ernst & Ernst could be consulted, or, if available for the particular industry, government averages, or the surveys published by the Harvard Graduate School of Business Administration would be helpful. If none of these standards is available, a set of base figures could be worked up by averaging the company's eight ratios over a period of several years previous to the survey. This latter method is being used in the electrical industry with very satisfactory results.

Having secured the necessary base figures, the next step is to compute the corresponding ratios from the financial statements of the particular company for which a credit index is desired. These ratios should be prepared in accordance with the methods outlined in pages 69-75 of this monograph.

The following is an exemplary schedule showing the final result:



CREDIT INDEX FOR THE "A" COMPANY AT DECEMBER 31, 1930

Item	Relation of "A" Company's Figures To Standard* Value				
	1	2	3	4	5
Column #	Weight	Standard Ratios	"A" Company Ratios*	"A" Company's Figures To Standard*	Value
1. Current Ratio	25	200	220	110%	27.50
2. Receivables to Merchandise	5	87	90	103	5.15
3. Worth to Fixed	20	250	220	88	17.60
4. Sales to Receivables	12	600	500	83	9.96
5. Sales to Merchandise	12	800	600	75	9.00
6. Sales to Net Worth	5	300	240	80	4.00
7. Worth to Debt	11	150	160	106	11.66
8. Sales to Fixed	<u>10</u>	400	400	100	<u>10.00</u>
	100				94.87

\* To facilitate computation, decimal points are customarily omitted.



Based on the preceding analysis, the credit index of the "A" Company would be stated at 95.

Having secured the figures for columns 1, 2, and 3, in the above schedule, the remainder of the calculations are mechanical. Column 4, indicating the relation which the "A" Company's figures bear to the standard, was computed for each of the eight items. In every case the "A" Company's ratio was divided by the corresponding standard ratio. The result was then carried into Column 5, indicating the value, by multiplying the percent in column 4 by the weight in Column 1. To illustrate this procedure, the value of 27.50 for the current ratio was found in this manner:

$$\frac{\text{"A" Company's Current Ratio 220}}{\text{Standard Current Ratio 200}} = 110\% \times 25 = 27.50$$

Finding that the index reads only 95 out of a possible 100 or more points would immediately start an investigation of the items involved in the difference. This may be done rapidly by comparing Columns 1 and 5. It will be found in this instance that while the Current Ratio is  $2\frac{1}{2}$  points above standard, the turnover items, Sales to Merchandise, Sales to Net Worth, and Sales to Receivables, are a total of 6.04 points under standard, but in view of the strong Current Ratio and Net Worth to Debt figures, the unfavorable turnovers would probably



not seriously affect the decision in the case.

In connection with deciding what weights to use the type of industry is the governing factor. The following is an authoritative quotation<sup>(10)</sup> covering this phase:

"It is known fact that all ratios within a statement have not the same relative value, and that the ratios will have different values as to types of industry. Therefore, it is necessary to adopt different weightings for different types of industries....In the dry goods line, Worth to Fixed should have little weight with the rest of the statement, due to the fact that the amount invested in fixed assets is very small in comparison to the other items, while in manufacturing lines the fixed investment is greater and should have more prominence."

An article by Alexander Wall<sup>(11)</sup> comments on more recent developments in the weighting scale:

"I have come to believe that the Current Ratio and the Worth to Debt Ratio, as a general thing are equally important in analysis and that these two

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(10) Robert Morris Associates, Monthly bulletin, March 1922

(11) Robert Morris Associates, Monthly bulletin, December 1928 Page 267



taken together are as important as all of the other ratios. Inasmuch as it is customary to consider par as 100, then these two ratios together, if equal to half of all the value of the ratios, would be 50% and if they are equal they would be 25% each of the value of all the ratios."

Mr. Wall further suggests that the other weights should vary with the conditions of the industry and with the condition of the particular statement under examination. In the case of a company having no fixed assets, it would be ridiculous to give weight to ratios involving fixed assets. Under such circumstances, those items could be eliminated entirely from the computation and the remaining weights increased proportionately to make the scale still total 100. Assuming that the "A" Company whose credit index is worked out on page 79 had no fixed assets, by applying Mr. Wall's suggestion, the schedule would read:



CREDIT INDEX FOR THE "A" COMPANY AT DECEMBER 31, 1930

<u>Item</u>	<u>Weight</u>	<u>Standard Ratios</u>	<u>"A" Company Ratios</u>	<u>Relation of "A" Company's Figures To Standard</u>	<u>Value</u>
<u>Column #</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
1. Current Ratio	35.72	200	220	110%	39.29
2. Receivables to Merchandise	7.14	87	90	103	7.35
3. Sales to Receivables	17.14	600	500	83	14.23
4. Sales to Merchandise	17.14	800	600	75	12.85
5. Sales to Net Worth	7.14	300	240	80	5.71
6. Worth to Debt	<u>15.72</u>	150	160	106	<u>16.66</u>
	100.00				96.09



### Details of Method

The weights assigned in the previous schedule on page 79 showed the Worth to Fixed as 20 points and the Sales to Fixed as 10 points, making a total of 30 points to be proportionately distributed to each of the 6 remaining items. This was done in the following way:

Weight of Current Ratio	25
Receivables to Merchandise	5
Sales to Receivables	12
Sales to Merchandise	12
Sales to Net Worth	5
Worth to Debt	<u>11</u>
Total -----	70

The new weights were then computed as fol-

lows:

<u>Item</u>	<u>Old Weight</u>	<u>Addition</u>	<u>New Weight</u>
Current Ratio	25	25/70 of 30--10.72	35.72
Receivables to Mdse.	5	5/70 of 30-- 2.14	7.14
Sales to Receivables	12	12/70 of 30-- 5.14	17.14
Sales to Mdse.	12	12/70 of 30-- 5.14	17.14
Sales to Net Worth	5	5/70 of 30-- 2.14	7.14
Worth to Debt	11	11/70 of 30-- 4.72	<u>15.72</u>
			100.00



This establishes a new weighting scale, totaling the customary 100 points, but the proportions are the same as in the original schedule. Column 4 would be unchanged as it is based on Columns 2 and 3 which required no adjustment. The higher rating, 96, compared with the previous one of 95, is accounted for by the elimination of the Worth to Fixed Ratio which previously showed an unfavorable difference.

In the course on "Bank Credit" given by Professor O'Neil at Boston University, College of Business Administration, the following weights were usually employed:

1. Current Ratio	25%
2. Receivables to Merchandise	-0-
3. Worth to Fixed	15
4. Sales to Receivables	10
5. Sales to Merchandise	10
6. Sales to Net Worth	5
7. Worth to Debt	25
8. Sales to Fixed	10

This scale seems to be more in step with recent trends, especially as outlined above by Mr. Wall, as the Net Worth to Debt figures are given the same weight as the Current Ratio. Thus it will be



seen that the weights are subject to revision, both as between industries and within a given industry, to give effect to certain peculiarities of a company's statement.

The accountant's viewpoint<sup>(12)</sup> is well expressed by Mr. Scovill of the Scovill, Wellington Company:

"Consider for example the benefit to any one of our clients from studying his own balance sheet, if only according to the plan adopted in respect to the electrical companies, that is, studying the position of a single company from year to year in comparison with its history over a decade. Consider further how significant comments may be with sufficient background, as we have in many industries to comment on the trend in the case of a particular client in comparison with a trend in the industry. The possibilities are certainly very large, and we shall be

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(12) Robert Morris Associates, The financial audit as viewed by bankers, page 45



greatly disappointed if they are not developed by several men in our organization in a very effective way for the benefit of our clients."

The value of the credit index to banks, especially in connection with loans, has already been emphasized. With a well organized statistical department, the securing of an index for every statement presented would become a routine matter. Certainly the trend of that index over a period of years would be well worth watching especially if the particular company was increasing its line of credit.

Banks could work in a little advertising and build up considerable goodwill, by offering to furnish credit indices to depositors wishing the figures and, in addition, showing the companies how to build up their statements to measure up to the 100 mark.

The value of this method to the executive both in its application to his own and to customers' statements is based on the simplicity of the one figure. Even if the index figure is only used to check the executives decision, the computation is worth while, because in case there



is a variance between the indications of the credit index and the decision, the executive will be most certainly interested in the details.

The credit index is especially significant in relation to the financial statement of the executive's own company, because with the banker's viewpoint constantly before him, an effort will be made to keep the index at such a point as to warrant a substantial line of credit which is so essential to most companies, particularly in points of the business cycle comparable to the years 1930 and 1931.



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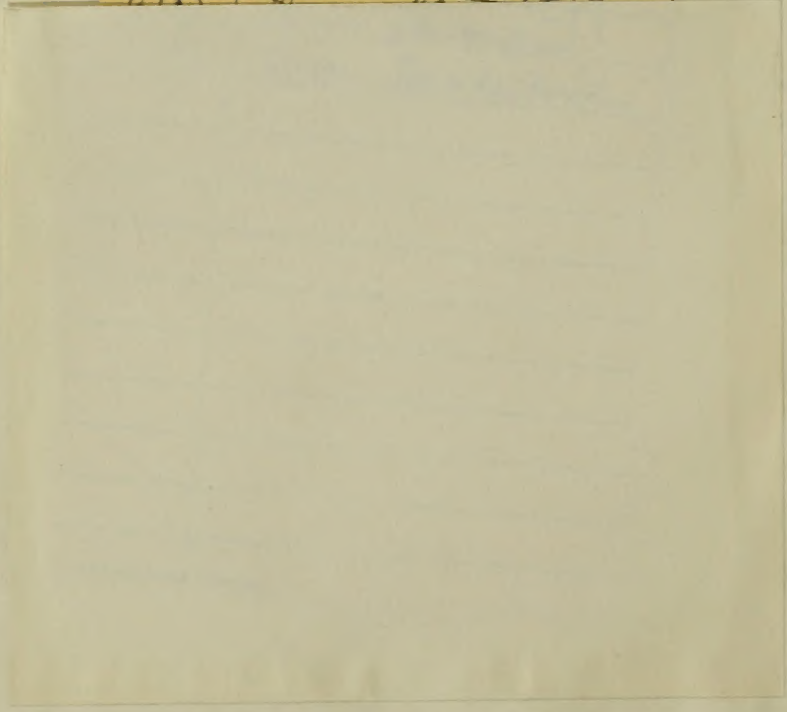



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Developments in the analysis of financial statements	
DATE	ISSUED TO
8:30	J. G. Lamont
515	James Arnold
8:30	



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