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ANALYSIS OF STATEMENTS

It is desired in this article to show that an analysis of the financial condition of a company for credit purposes cannot be adequate if it is based upon a single balance-sheet of the company under consideration; that if the analysis is supplemented by a scrutiny on the profit-and-loss statement of the concern for a single year there is still a danger that many significant facts may not be brought to light; and that, in order to make an adequate investigation of the financial condition and income-producing power of the prospective borrower, the analyst should have at hand at least two balance-sheets and at least two statements of income and profit and loss.

By way of illustration of this contention the following statement and comments are submitted. The analysis of the balance-sheet as of December 31, 1924, and of the income statement of the year ended at that date will indicate a satisfactory condition; but the analysis which is made possible by the comparison of this balance-sheet with one of an earlier date and by the comparison of the income for the year 1924 with that for the preceding year will disclose a general tendency of an unfavorable nature.

It is recognized that the following statements are somewhat condensed and that they do not show many items which would appear in the actual statements of a manufacturing concern, but they have been purposely abbreviated in order to eliminate all unessential data and to permit concentration upon the essential facts required for the analysis. Following is the balance-sheet of the concern under investigation as of December 31, 1924, and this balance-sheet is assumed to be the latest one available.

THE BLANK COMPANY

Balance-sheet—December 31, 1924

ASSETS

Current assets:			
Cash		$15,000.00	
Accounts receivable	$106,000.00		
Less—reserve for doubtful accounts	3,000.00	103,000.00	
Inventories:			
Raw materials	$30,000.00		
Goods in process	18,000.00		
Finished goods	135,000.00	183,000.00	$301,000.00

Fixed assets:			
Land		$20,000.00	
Buildings	$195,000.00		
Less—reserve for depreciation	30,000.00	165,000.00	
Machinery and equipment	$86,000.00		
Less—reserve for depreciation	12,000.00	74,000.00	259,000.00
Deferred charges:			
Insurance premiums—unexpired portion			300.00
Total			$560,300.00

LIABILITIES

Current liabilities:			
Accounts payable		$75,000.00	
Notes payable		50,000.00	$125,000.00
Fixed liabilities:			
First mortgage, 6%, bonds payable			50,000.00
Capital:			
Capital stock		$250,000.00	
Surplus—			
January 1, 1924	$119,200.00		
Net Profit for the year	31,100.00		
Total	$150,300.00		
Less—dividends paid	15,000.00		
Balance—December 31, 1924		135,300.00	385,300.00
Total			$560,300.00

An examination of this balance-sheet shows that the current assets are over $300,000, while the current liabilities are $125,000, making a current asset ratio of approximately 2½ to 1. The cash and accounts receivable are nearly equal to the accounts payable and notes payable. The fixed liabilities of $50,000 are very small in comparison with the fixed assets. The net profit of $31,100 is approximately 12% of the capital stock, and is nearly 9% of the capital stock and surplus of January 1, 1924. The company has thus been able to pay a 6% dividend on its stock and add about $16,000 to its surplus during the year.

The balance-sheet does not indicate, however, whether the cash balance of $15,000 is adequate to meet the current cash requirements. It does not contain any information by which the currency of the accounts receivable can be determined; it does not give any indication as to whether the inventories are inadequate or excessive; and it does not furnish any information by which to judge whether the current liabilities are being promptly paid.

Some further information could be obtained by an examination of the income statement for the year 1924, but we shall proceed immediately to submit the balance-sheets at two successive dates and the income statements for two successive years. The analysis which will be based upon these statements will indicate what methods of analysis are available when the information shown by the balance-sheet and an income statement can be correlated.

Exhibit "A"

THE BLANK COMPANY

Balance-sheets—December 31, 1924 and 1923, and comparison

ASSETS	Year ended December 31, 1924	1923	Increase or Decrease*
Current assets:			
Cash	$15,000.00	$40,000.00	$25,000.00*
Accounts receivable	106,000.00	74,000.00	32,000.00
Less—reserve for doubtful accounts	3,000.00	3,000.00	....
Remainder—book value	$103,000.00	$71,000.00	$32,000.00
Inventories:			
Raw materials	$30,000.00	$25,000.00	$5,000.00
Goods in process	18,000.00	13,000.00	5,000.00
Finished goods	135,000.00	110,000.00	25,000.00
Total inventories	$183,000.00	$148,000.00	$35,000.00
Total current assets	$301,000.00	$259,000.00	$42,000.00
Fixed assets:			
Land	$20,000.00	$20,000.00	$........
Buildings	$195,000.00	$130,000.00	$65,000.00
Less—reserve for depreciation	30,000.00	20,000.00	10,000.00
Remainder—depreciated value	$165,000.00	$110,000.00	$55,000.00
Machinery and equipment	$86,000.00	$65,000.00	$21,000.00
Less—reserve for depreciation	12,000.00	10,000.00	2,000.00
Remainder—depreciated value	$74,000.00	$55,000.00	$19,000.00
Total fixed assets	$259,000.00	$185,000.00	$74,000.00

Deferred charges:			
Insurance premiums—			
Unexpired portion	$300.00	$200.00	$100.00
Total	$560,000.00	$444,200.00	$116,100.00
LIABILITIES			
Current liabilities:			
Accounts payable	$75,000.00	$50,000.00	$25,000.00
Notes payable	50,000.00	45,000.00	5,000.00
Total current liabilities	$125,000.00	$95,000.00	$30,000.00
Fixed liabilities:			
First mortgage, 6%, bonds payable	$50,000.00	$30,000.00	$20,000.00
Capital:			
Capital stock	$250,000.00	$200,000.00	$50,000.00
Surplus, per exhibit "B"	135,300.00	119,200.00	16,100.00
Total capital	$385,300.00	$319,200.00	$66,100.00
Total	$560,300.00	$444,200.00	$116,100.00

Exhibit "B"

THE BLANK COMPANY

Summary of profit and loss and surplus for the years ended December 31, 1924 and 1923, and comparison

PARTICULARS	Year ended December 31, 1924	1923	Increase or Decrease*
Gross sales	$862,000.00	$828,000.00	$34,000.00
Returned sales and allowances	12,000.00	8,000.00	4,000.00
Net sales	$850,000.00	$820,000.00	$30,000.00
Cost of goods sold (schedule No. 1)	595,000.00	557,600.00	37,400.00
Gross profit on sales	$255,000.00	$262,400.00	$7,400.00*
Selling expenses (schedule No. 2)	148,000.00	132,000.00	16,000.00
Net profit on sales	$107,000.00	$130,400.00	$23,400.00*
General expenses (schedule No. 3)	76,000.00	94,250.00	18,250.00*
Net profit on operations	$31,000.00	$36,150.00	$5,150.00*
Net financial expenses (schedule No. 4)	400.00	250.00	150.00

Net profit for the year	$30,600.00	$35,900.00	$5,300.00*
Surplus at beginning of the year	119,200.00	95,400.00	23,800.00
Surplus credits (schedule No. 5)	1,200.00	850.00	350.00
Gross surplus	$151,000.00	$132,150.00	$18,850.00
Surplus charges:			
Miscellaneous losses, etc. (schedule No. 6)	700.00	950.00	250.00*
Dividends	15,000.00	12,000.00	3,000.00
Total surplus charges	$15,700.00	$12,950.00	$2,750.00
Surplus at end of the year	$135,300.00	$119,200.00	$16,100.00

Exhibit "C"

THE BLANK COMPANY

Statement of cost of goods manufactured and goods sold for the years ended December 31, 1924 and 1923, and comparison

PARTICULARS	Year ended December 31, 1924	1923	Increase or Decrease*
Materials:			
Inventory, beginning of the year	$25,000.00	$20,000.00	$5,000.00
Purchases	185,000.00	177,000.00	8,000.00
Total	$210,000.00	$197,000.00	$13,000.00
Inventory, end of the year	30,000.00	25,000.00	5,000.00
Materials used	$180,000.00	$172,000.00	$8,000.00
Direct labor	225,000.00	213,000.00	12,000.00
Manufacturing expenses (statement No. 1)	220,000.00	194,600.00	25,400.00
Total	$625,000.00	$579,600.00	$45,400.00
Goods in process, beginning of the year	13,000.00	11,000.00	2,000.00
Total	$638,000.00	$590,600.00	$47,400.00
Goods in process, end of the year	18,000.00	13,000.00	5,000.00
Remainder—cost of goods manufactured	$620,000.00	$577,600.00	$42,400.00
Finished goods—beginning of the year	110,000.00	90,000.00	20,000.00
Total	$730,000.00	$667,600.00	$62,400.00
Finished goods—end of the year	135,000.00	110,000.00	25,000.00
Remainder—cost of goods sold	$595,000.00	$557,600.00	$37,400.00

Some of the supporting schedules and statements referred to in the foregoing statements are not included in this article as they would require considerable space without adding greatly to the analysis.

We are now in a position to make a comparison of the financial condition at December 31, 1923, with that at December 31, 1924, using for this purpose the data shown in the comparative balance-sheet. While the various items of assets and liabilities can be compared by direct examination of the comparative balance-sheet, it is thought that the re-assembling of these figures in a statement of application of funds will assist in disclosing significant facts and relationships.

The Blank Company

Statement of application of funds for the year ended December 31, 1924

Funds provided:		
By profits:		
Net profit—per exhibit "B"	$30,600.00	
Add—surplus credits and charges (net)	500.00	
Depreciation (which decreased profits without reducing funds provided thereby):		
Machinery and equipment	2,000.00	
Buildings	10,000.00	
Total		$43,100.00
By additional issue of bonds		20,000.00
By additional issue of stock		50,000.00
Total funds provided		$113,100.00
Funds applied:		
Payment of dividend		$15,000.00
Addition to fixed assets:		
Buildings	$65,000.00	
Machinery and equipment	21,000.00	
Total		$86,000.00
Increase in working capital and deferred charges, Per schedule No. 1		$12,100.00
Total funds applied		$113,100.00

THE BLANK COMPANY

Schedule of working capital and deferred charges for the year ended December 31, 1924

	December 31, 1924	December 31, 1923	Increase or Decrease*
Current assets:			
Cash	$15,000.00	$40,000.00	$25,000.00*
Accounts receivable—net	103,000.00	71,000.00	32,000.00
Inventories	183,000.00	148,000.00	35,000.00
Total current assets	$301,000.00	$259,000.00	$42,000.00
Current liabilities:			
Accounts payable	$75,000.00	$50,000.00	$25,000.00
Notes payable	50,000.00	45,000.00	5,000.00
Total current liabilities	$125,000.00	$95,000.00	$30,000.00
Working capital	$176,000.00	$164,000.00	
Ratio	2.4 to 1	2.7 to 1	
Increase in working capital			$12,000.00
Increase on deferred charges			100.00
Increase in working capital and deferred charges			$12,100.00

The statement of application of funds shows that the profit of the concern before provision for depreciation brought into the business funds amounting to $43,100; but in order to provide for the expenditures made by the company during the year, it appears to have been necessary to increase both the bond and stock issues. The funds thus made available were used for the payment of dividends, for additions to fixed assets, and for a slight increase in the working capital.

The question as to the profitableness of the additional investment in the fixed assets will be considered later, but attention will first be given to a comparison of the relative net current asset condition at the two dates as shown by the schedule of working capital. It will be noticed that the cash has decreased very considerably, that the accounts receivable and inventories have considerably increased and that the current liabilities in the form of accounts and notes have also increased. While the working capital has increased $12,000, it is significant that the ratio has decreased, the ratio at the end of 1923 being 2.7 to 1, and the ratio at the end of 1924 being 2.4 to 1. As the actual working capital stated in dollars is rather less significant than the working capital ratio, it appears that the current position is not as favorable as it was.

This analysis of the working-capital position can be carried further by an examination of the relative currency or liquidity of the current assets. It has been seen that at the end of 1924 there were fewer dollars of current assets per dollars of current liabilities than at December 31, 1923. It is significant to note further that the current assets at the latter date are relatively less current than they were at the earlier date as shown by the following summary.

Relative Liquidity of Current Assets

	December 31, 1924		December 31, 1923	
	Amount	Ratio to Total	Amount	Ratio to Total
Cash	$15,000.00	5.0%	$40,000.00	15.4%
Accounts receivable—net	103,000.00	34.2	71,000.00	27.4
Finished goods	135,000.00	44.8	110,000.00	42.5
Goods in process	18,000.00	6.0	13,000.00	5.0
Raw materials	30,000.00	10.0	25,000.00	9.7
Total	$301,000.00	100.0%	$259,000.00	100.0%

By reference to the foregoing summary it will be noticed that at the end of 1923 the cash represented over 15% of the total current assets, while at the end of 1924 it represented only 5%. This decrease in the highly current asset of cash has been offset by increases in the last current assets of accounts receivable and inventories. Thus it appears that while the current liabilities have increased during the year the ratio of current assets and current liabilities has decreased, and the current assets are relatively less current than they were at the close of the preceding year.

As it is necessary to sell merchandise before it can be made available for current liability payments, it is significant to omit the inventories from the current assets and to note the ratio of the cash and the accounts receivable to the current liabilities.

Cash and Receivables to Payables

	December 31, 1924	December 31, 1923
Cash	$15,000.00	$40,000.00
Accounts receivable—net	103,000.00	71,000.00
Total	$118,000.00	$111,000.00
Accounts payable	$75,000.00	$50,000.00
Notes payable	50,000.00	45,000.00
Total	$125,000.00	$95,000.00
Ratio	.94 to 1	1.17 to 1

The foregoing comparative summary shows an increase of only $7,000 in the cash and accounts receivable with an increase of $30,000 in the accounts and notes payable. This results in a very considerable decrease in the ratio.

Since the accounts receivable have increased from $71,000 to $103,000, it will be pertinent to inquire whether this increase has resulted from an increase in the volume of business or whether it has resulted from a slowing up of collections.

Light is thrown upon these questions by the following statement.

Accounts Receivable Collection Turnover

	Year ended December 31, 1924	1923
Net sales	$850,000.00	$820,000.00
Accounts receivable—gross	$106,000.00	$74,000.00
Ratio to net sales	12.47%	9.02%
Multiply by (days)	365	365
Accounts receivable collection turnover	46 (days)	33 (days)

The foregoing summary shows that the gross value of the accounts receivable has increased $32,000 although the net sales increased only $30,000. The accounts receivable at the end of 1923 represented about 9% of the year's sales, while the accounts receivable at the end of 1924 represented about 121½% of the year's sales. Assuming that there was a uniform business throughout the year, the accounts receivable at the end of 1924 represent the business of about a month and a half, while the account receivable at the end of 1923 represented the business of about a month.

The schedule of working capital submitted in connection with the statement of application of funds showed an increase in the inventory as well as in the accounts receivable. We have noted that the increase in the accounts receivable did not appear to be a healthy one; let us now make a similar investigation of the increase in the finished goods inventory by comparing the finished-goods turnover for the two years.

Finished-goods Turnover

	Year ended December 31, 1924	1923
Cost of goods sold	$595,000.00	$557,600.00
Finished-goods inventory:		
January 1	$110,000.00	$90,000.00
December 31	135,000.00	110,000.00
Total	$245,000.00	$200,000.00
Average	$122,500.00	$100,000.00

Turnover:		
Times per annum....................	4.85	5.58
Average days each turnover—(365 divided by times per year)............	75 (days)	65 (days)

This analysis shows that in 1923 the finished goods were turned about 5½ times while in 1924 they were turned only about 4¾ times. Or stated in another way, in 1923 the finished goods were turned every 65 days whereas in 1924 75 days were required.

It will now be interesting to combine the finished-goods turnover figures with the accounts-receivable turnover figures.

Time Required for Conversion of Finished-goods Inventory into Cash

	Year ended December 31, 1924	1923
Days required to sell inventory..................	75	65
Days required to collect accounts................	46	33
Total................................	121	98

The foregoing figures indicate that during 1923 it took an average of 65 days to convert the inventory to accounts receivable and 33 days to convert the account receivable into cash, or a total of 98 days to convert the finished-goods inventory into cash. In 1924 this process required 121 days.

The scrutiny of the receivables and the inventories indicates that with the increase in current liabilities there has come a decrease in the liquidity of the current assets with which the liabilities will have to be paid. This decrease in the liquidity of current assets may be expected to result in a slowing up of the process of paying the current liabilities. This slowing-up process is to some extent indicated by the increase in the current liabilities. It is further indicated in the following statement showing the ratio of the current liabilities to purchases.

Ratio of Current Liabilities to Purchases

	Year ended December 31, 1924		1923	
Purchases......................	$185,000.00		$177,000.00	
Accounts payable...............	$75,000.00		$50,000.00	
Ratio to purchases...........		40.1%		28.2%
Days' purchases unpaid—(365 x per cents)..........		146		103
Notes payable..................	50,000.00		45,000.00	
Total..................	$125,000.00		$95,000.00	
Ratio to purchases......		67.6%		53.7%

This analysis shows that the accounts payable at the end of 1923 represented 28% of the year's purchases or on the average they represented unpaid purchases for 103 days; the accounts payable at the end of 1924 were 40% of the year's purchases or on the average the purchases for 146 days were unpaid. If we include the notes payable it appears that at the end of 1923, 53% of the year's purchases were unpaid, and that at the end of 1924, 67% were unpaid.

Summarized, we find that while there has been a slight increase in actual working capital, the working-capital ratio has decreased, the current assets are relatively less current than they were at the close of the preceding year because of the considerable swing from cash to receivables and inventories; that the receivables are collected with less promptness than heretofore, that the inventories do not turn as rapidly as they did, and that the accounts and notes payable consequently are not being paid with the same promptness that prevailed in 1923.

So much for the current assets and current liabilities. Let us now note the increases which have been made in the fixed assets and see whether the increased investment has been made productive.

Increases in Plant, Production, Etc.

	December 31,		Increase	
	1924	1923	Amount	Per Cent
Buildings	$195,000.00	$130,000.00	$65,000.00	50%
Machinery and equipment	86,000.00	65,000.00	21,000.00	32%
Material used	$180,000.00	$172,000.00	$8,000.00	5%
Labor	225,000.00	213,000.00	12,000.00	6%
Manufacturing expense	220,000.00	194,600.00	25,400.00	13%
Finished goods manufactured	620,000.00	577,600.00	42,400.00	7%
Cost of goods sold	595,000.00	557,600.00	37,400.00	6%

It will be noted that the investment in buildings has increased 50% and the investment in machinery and equipment has increased 32%. Has the increase in production kept pace with the increase in plant facilities? It appears from the foregoing analysis that with a 50% increase in buildings and a 32% increase in machinery and equipment the concern has used only 5% more material and 6% more labor. The manufacturing expenses, however, because of the increase in the fixed-asset investment, have increased 13%. Only 7% more finished goods have been manufactured and only 6% more goods have been sold. This analysis should be qualified, however, by a statement to the effect that there is no information as to the date when the additional plant was put into operation.

Let us now turn from a comparison of the financial conditions to a comparison of the profits for the two years [see next page].

This statement shows that while the net sales have increased only $3\frac{2}{3}$% the cost of goods sold has increased $6\frac{2}{3}$% with the result that the rate of gross profit has decreased almost 3%. It is also significant to note that in order to sell 3.66% more goods it has been necessary to incur 12.12% more selling expenses. The result of the increase in the rate of gross profit and the increase in the rate of selling expense has been a decrease of nearly 18% in the rate of

STATEMENT OF PROFIT AND LOSS—WITH PERCENTAGE ANALYSIS

	Year ended December 31, 1924		December 31, 1923		Increase or Decrease*	
	Amount	Ratio to net sales	Amount	Ratio to net sales	Amount	Ratio to 1923
Gross sales	$862,000.00	101.41%	$828,000.00	100.98%	$34,000.00	4.11%
Returned sales and allowances	12,000.00	1.41	8,000.00	.98	4,000.00	50.00
Net sales	$850,000.00	100.00%	$820,000.00	100.00%	$30,000.00	3.66%
Cost of goods sold	595,000.00	70.00	557,600.00	68.00	37,400.00	6.71
Gross profit	$255,000.00	30.00%	$262,400.00	32.00%	$7,400.00*	2.82%*
Selling expenses	148,000.00	17.41	132,000.00	16.10	16,000.00	12.12
Net profit on sales	$107,000.00	12.59%	$130,400.00	15.90%	$23,400.00*	17.94%*
General expenses	76,000.00	8.94	94,250.00	11.49	18,250.00*	19.36%*
Net profit on operations	$31,000.00	3.65%	$36,150.00	4.41%	5,150.00*	14.25%*

net profit on sales. This decrease of net profit on sales has been compensated to some extent by a decrease in the rate of general expenses, but it is to be noted that although the nets sales have increased $30,000 the net profit on operations has decreased over $5,000 or a decrease of 14¼%. The increase in the capital stock and the decrease in the net profit on operations should be considered together.

Ratio of Net Profit to Capital

Capital at beginning of year (assuming $50,000 additional stock issued at beginning of 1924):		
Capital stock	$250,000.00	$200,000.00
Surplus (per exhibit "B")	119,200.00	95,400.00
Total capital	$369,200.00	$295,000.00
Net profit on operations	$31,000.00	$36,150.00
Ratio to capital	8.4%	12.2%

There is no information as to the date when the $50,000 par value of additional stock was issued, but if it is assumed that this stock was issued at the beginning of 1924, it appears that during 1923 the company made 12% profit on its capital stock and surplus (that is to say on its total investment) while in 1924 it made only 8.4%.