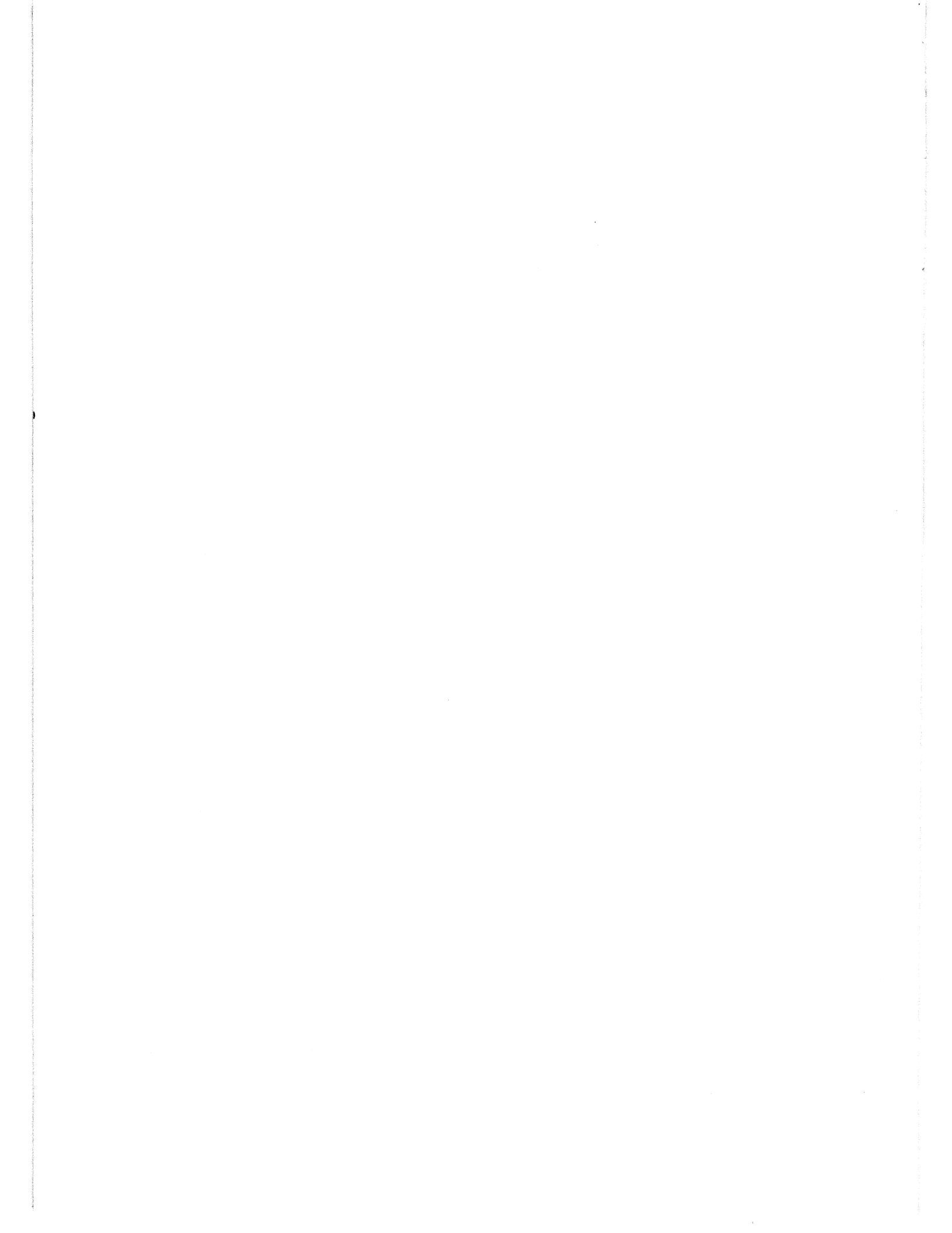# Ratio Analysis Used to Measure Financial Strength of Agricultural Business Corporations

MARSHALL R. BURKES AND GEORGE F. HENNING

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RATIO ANALYSIS USED TO MEASURE FINANCIAL STRENGTH OF AGRICULTURAL BUSINESS CORPORATIONS

Marshall R. Burkes and George F. Henning

INTRODUCTION

The purpose of this research was to study, analyze, and summarize the financial structure of Ohio farmer-owned agricultural business organizations with respect to their strengths and weaknesses in order to make suggestions and recommendations for greater financial strength and stability [1].

The annual audits of forty selected firms that conducted business directly with farmers enabled the writers to make a financial analysis [2]. A combination of ten specific ratios were derived from the data for the fiscal years 1950-51, 1955-56, and 1960-61.

Certain ratios were used in the analysis of the balance sheet and profit and loss statement of each firm for selected fiscal years in order to determine to what extent the firm has moved financially forward or backward.

Ratios were also applied to the statements of two or more firms covering the same periods of time for comparative purposes. Care was taken to insure that the figures were comparable. Equally successful firms in different industries of cooperative business may show different ratios because of the unlike nature of the industries or the differences in the size of the firms within a single industry. Also, the auditor's presentation of the information has not been standardized. In comparing two or more firms, adjustments must often be made. Changes between time periods in the industry or the firm, or changes in government regulations may cause the financial statements to differ. Firms attempt to look more favorably at the closing of books for the annual audit. These problems have been encountered in this study.

The following ratios were selected to examine (1) overall financial position, (2) accounts receivable, (3) net worth relationships, and (4) profitability in terms of savings.

Current ratio is developed by dividing the total current assets by the total current liabilities. This ratio indicates the general liquidity of the firm or firms.

Total receivables as a percentage of total current assets is obtained by dividing total receivables by the total current assets. This ratio shows the proportion of current assets carried on the credit books. In this study, total receivables included accounts receivable, notes receivable and miscellaneous receivables. Grain receivables were excluded in the local elevator and farm supply firms since grain was sold to non-farmers and credit was usually granted for less than 30 days. Total notes receivable and total accounts receivable were included before subtracting discounted notes and the reserve for bad debts.

Net supply sales to total receivables is developed by dividing net supply sales by total receivables. The proportion of farm supply sales carried on the credit book at one point in time is expressed through this ratio. This checks the possibility of payment for goods exchanged on credit. For the local elevators, only supply sales were included since marketing or grain sales were not considered to be vulnerable to receivable problems.

Age of total receivables is computed by dividing the 365 days in a year by the net supply sales to total receivables ratio [3]. Thus, total receivables on the books at the time of audit are represented by the number of days of daily average supply sales. The age or number of days' sales outstanding permits comparison with the stated terms of credit sales [4].

Net worth to total debt is developed by dividing the total net worth by the total debt. This shows the source of funds by which operating capital has been

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[1] The Department of Agricultural Economics and Rural Sociology of the Ohio Experiment Station started a research study during 1956 by selecting certain years to study the financing of agricultural business firms. Ohio Research Bulletin 880, Henning, G. F. and Laubis, R. E., Financial Structure of Agricultural Business Organizations, Ohio Agricultural Experiment Station, Wooster, Ohio, was published in April 1961. This bulletin is another report on a portion of that study and presents a ratio analysis of the important segments of the financial structure of forty agricultural business firms; also Burkes, Marshall R., Changes in Financial Strength and Structure of Agricultural Business Organizations, Unpublished Ph.D. Dissertation, Ohio State University, 1962.

[2] Analysis is the separating of any whole into its parts to determine their nature, proportion, function or relationship. This can be accomplished with ratios which express by proportion a fixed relation between two comparable things.

[3] Pearson Hunt, Charles M. Williams and Gordon Donaldson, Basic Business Finance, Richard D. Irwin, Inc., Homewood, Illinois, 1958, p. 102. The 365 days as a computation figure allows the total receivable position to appear stronger than the 310, 320, or 350 days figure which is preferred by some analysts.

[4] Another way to obtain only one ratio may be: $\dfrac{\text{Total Sales}}{365 \text{ Days}} =$ Daily Sales, then $\dfrac{\text{Total Receivable}}{\text{Daily Sales}} =$ Age of Total Receivables.

or may be acquired. This is a basic ratio used in measuring capital structure.

Net worth in this bulletin includes common stock, preferred stock, earned surplus and allocated patronage or reserves which are recognized as equity capital by the annual audit. Total debt is defined as total current and long term liabilities, including debenture bonds[5] and any allocated patronage which has been declared in the annual audit to be distributed to the patrons.

Net worth to fixed assets is developed by dividing the net worth by the total of the fixed assets. This ratio measures the owned capital supporting the plant and equipment. It can also be used to appraise the liquidity of net worth for working capital. Fixed assets were defined as net fixed assets after the reserve for depreciation has been deducted.

Expense rate is determined by dividing total expenses by net sales, thus giving a general measure of expense control. Gross margin must exceed total expenses or the firm will suffer a net loss on operations. Total expenses include both net operating and and non-operating expenses. Expenses charged to "cost of goods sold" were excluded in this study as well as in the annual audit. Net sales included both marketing and supply sales less purchase discounts and refunds.

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[5]However, from the standpoint of actual cooperative use, debenture bonds (non-permanent capital) are utilized as owner equity and treated much like preferred stock which pays a fixed dividend.

Net savings rate on net sales is developed by dividing net savings by net sales. This ratio measures the degree of effectiveness of volume. Volume which allows a sub-normal savings or actual loss is volume that has not accomplished its intended purpose. Net savings is the net margin before federal income tax, stock dividends and patronage refunds have been deducted.

Sales volume rate is determined by dividing net sales by total assets and indicates productivity of total assets. The movements of this ratio measure dynamically the results of working capital, plant efficiency and management capacity.

Return on investment is developed by dividing net savings by total assets and is the final "measuring stick" for profitability. It is a fluid ratio which shows the firm's capacity to earn savings for its investing shareholders and members after interest on borrowed funds or debt is paid. Losses in this ratio indicate the relative danger of losing ownership in the business.

The reader is cautioned that the use of these 10 ratios alone will not guarantee the success of a business firm. They do not substitute for good management, adequate financing, good volume, and efficient operation. However, ratios should indicate to management and the board of directors the weakening or strengthening trends of their operations and should be used to help make sound policy and business decisions.

RATIO ANALYSIS OF 27 LOCAL ELEVATORS AND FARM SUPPLY FIRMS

The major group of businesses studied contained 27 local elevators and farm supply firms. This sample of firms was assumed to represent the cooperative industry. The selected ratios were used with financial statement data for 1950, 1955, and 1960 to express the financial trends for the local elevator and farm supply industry. None of the ratios used in Table 1 indicated that these 27 business firms as a group have increased in strength during the last 10 years.

Only two of the ten ratios which measure the financial strength of firms have remained at a stable level since 1950. Current liabilities have increased faster than current assets particularly since 1955. This condition has lowered the current ratio. Net worth has increased slowly since 1955 while fixed assets have expanded at a steady pace, up 86 percent from 1950 to 1960.

Eight of the ten ratios indicate that the firms have weakened since 1950; and some firms reached a financially critical area after 1955. Total receivables represented about one-third of current assets in 1950 but included more than one-half of current assets by 1960. This 155 percent increase in total receivables occurred while net sales were expanded by only 33 percent. This means that the age of total receivables increased from 39 days in 1950 to 60 days in 1955. Control of total receivables was partially lost from 1955 to 1960 when 75 days of net sales were carried on the books. Both net worth and total debt expanded at a steady rate until after 1955 when total debt jumpted 51 percent. Total expenses maintained a sound relationship with net sales until after 1955 when the expense rate was allowed to increase by more than two percent. Net savings held steady until after 1955 when sales increased and net savings dropped. Even with the continuous expansion of net sales, total assets have increased faster since 1955. With lower net savings and additional total assets, the return on investment has declined by more than one-half.

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TABLE 1

RATIC ANALYSIS OF 27 LOCAL ELEVATORS AND FARM SUPPLY AGRICULTURAL BUSINESS ORGANIZATIONS,
CHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{4,727,281}{2,217,077} =$	2.1 to 1	$\frac{6,123,952}{2,583,085} =$	2.4 to 1	$\frac{7,522,799}{4,088,770} =$	1.8 to 1	=
Total receivables as % of current assets	$\frac{1,535,350}{4,727,281} =$	32.5%	$\frac{2,857,293}{6,123,952} =$	46.7%	$\frac{3,920,582}{7,522,799} =$	52.1%	−
Net supply sales to total receivables	$\frac{14,552,510}{1,535,350} =$	9.5 to 1[b]	$\frac{17,557,477}{2,857,293} =$	6.1 to 1	$\frac{19,320,023}{3,920,582} =$	4.8 to 1	−
Age of total receivables	$\frac{365}{9.5} =$	38.5 days[b]	$\frac{365}{6.1} =$	60.0 days	$\frac{365}{4.9} =$	75.0 days	−
Net worth to total debt	$\frac{5,937,305}{3,019,701} =$	2.0 to 1	$\frac{8,175,995}{4,355,506} =$	1.9 to 1	$\frac{8,977,421}{6,581,242} =$	1.4 to 1	−
Net worth to fixed assets	$\frac{5,937,305}{3,080,733} =$	1.9 to 1	$\frac{8,175,995}{4,666,692} =$	1.8 to 1	$\frac{8,977,421}{5,735,136} =$	1.6 to 1	=
Total expenses on net sales	$\frac{3,103,296}{32,806,292} =$	9.5%[b]	$\frac{4,333,562}{40,322,851} =$	9.8%	$\frac{5,868,969}{48,622,721} =$	12.1%	−
Net savings on net sales	$\frac{913,519}{32,806,292} =$	2.8%[b]	$\frac{1,182,780}{44,322,851} =$	· 2.7%	$\frac{703,732}{48,622,721} =$	1.5%	−
Net sales to total assets	$\frac{32,806,292}{8,875,195} =$	3.7 times[b]	$\frac{44,322,851}{12,491,316} =$	3.6 times	$\frac{48,622,721}{15,559,700} =$	3.1 times	−
Net savings on total assets	$\frac{913,519}{8,875,195} =$	10.3%	$\frac{1,182,780}{11,491,316} =$	10.3%	$\frac{703,732}{15,559,700} =$	4.5%	−

[a]General trend for the ten year period: $\neq$ indicates strength, = indicates stability and − indicates weakness.

[b]Data has been omitted on one firm.

Source: Original data.

Research Procedure

In order to separate the groups of strong and weak firms from the total sample of 27 local elevators and farm supply associations, the following procedure was followed:

Financial data obtained from each firm was used in computing the ten ratios. For each of the ten ratios, the firms were arranged in rank order with respect to their comparative strength and given a numerical value from 1 to 27. After ranking the firms on the basis of the individual ratios, the numerical ratings of each firm were added together. The nine firms with the highest aggregate ratings were considered to be the top one-third firms. The nine firms with the lowest aggregate rankings were considered to be the low one-third firms. For example, the lowest or weakest firm was in the low nine group for nine of the ten ratios.

The ratios for 1950 were checked to determine if the comparative financial strength of some firms had changed. Six of the top firms in 1950 had maintained their strength while three small firms dropped to the middle group. Three aggressive and expanding firms gained financial strength during the ten years. There-fore, ratio analysis can be used to determine the top and low one-third firms but some firms within each group may change between time periods.

Ratio Analysis of the Top One-Third Local Elevators and Farm Supply Associations

This section attempts to answer two pertinent questions concerning the grain elevator and farm supply industry. What are the realistic standards or indicators of a safe level of financial strength for the individual firm? Also, where are the specific areas of financial weakness within the industry? The standards for each ratio were developed from past financial experience in applicable industries and from the ratio analysis of the top one-third of elevators and farm supply firms as presented in Table 2.

The net worth to total debt ratio described the only area where the firms had become stronger in the last ten years. Total debt has been controlled while net worth was expanded. These firms have strengthened their net worth to total debt ratio and stayed within the standard range of 2.0 to 1 to 3.0 to 1[6].

[6]Each of the top one-third firms met the sound financial standards for the ten respective ratios.

Both current assets and current liabilities have remained fairly stable with a slight increase in current assets. A workable standard of 2.5 to 1 up to 3.5 to 1 for the current ratio was accepted[7].

Total receivables have increased only slightly during the ten year period. In fact, total receivables as a percentage of current assets remained well within the standard of 33 to 50 percent for the industry.

Both net worth and fixed assets almost doubled from 1950 to 1960 but held a stable ratio of about 1.8 to 1. This ratio was within the low range of the standard of 1.5 to 1 up to 2.5 to 1.

The expense rate for the nine top firms has remained at a controlled level. However, the differences between the firms handling a major volume of grain or farm supplies are discussed in the following section. Even with a general price rise, an expense rate of 6 percent to 11 percent should be maintained without anticipating a higher gross margin. The firms that primarily handled grain kept expenses at a standard 4 to 7 percent of net sales. The farm supply firms with limited grain marketing have faced a more difficult job of keeping expenses within the range of 10 to 13 percent.

Net supply sales have not expanded as rapidly as total receivables. This declining trend has forced the firms to approach the minimum side of the net supply sales to total receivables ratio standard which ranged from 6 to 1 to 10 to 1. This ratio also determined the age of total receivables. A 6 to 1 net supply sales to total receivables relationship was the lowest ratio that would allow the age of total receivables to be less than 60 days. Therefore, financially strong firms should not permit the age of total receivables to exceed 60 days.

For the top firms net savings have declined slightly during recent years while sales have advanced. The net savings on net sales ratio was maintained safely within the accepted standard of 2 to 3 percent. With the expansion of net sales the top firms held a stable sales volume rate until after 1955 when total assets were increased. The top firms were still safely within the standard range of 3 to 5 times for the net sales to total assets ratio. With these ratios in order, the return on investment fell into place. In order to justify borrowed funds and pay dividends and patronage refunds, the net savings to total assets ratio should be 6 to 10 percent. The top one-third of the local elevators and farm supply firms have weakened according to profitability measures.

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[7]Pearson Hunt, et. al., op. cit., pp. 100-110.

TABLE 2

RATIO ANALYSIS OF TOP ONE-THIRD (9) LOCAL ELEVATORS AND FARM SUPPLY AGRICULTURAL BUSINESS ORGANIZATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{2,117,147}{817,893}$ =	2.6 to 1	$\frac{2,381,603}{878,591}$ =	2.7 to 1	$\frac{2,714,365}{950,513}$ =	2.9 to 1	=
Total receivables as % of current assets	$\frac{646,394}{2,117,147}$ =	30.5%	$\frac{839,000}{2,381,603}$ =	35.2%	$\frac{998,936}{2,714,365}$ =	36.8%	=
Net supply sales to total receivables	$\frac{5,709,675}{646,394}$ =	8.8 to 1	$\frac{6,105,187}{839,000}$ =	7.3 to 1	$\frac{6,164,094}{998,936}$ =	6.2 to 1	-
Age of total receivables	$\frac{365}{8.8}$	= 41.3 days	$\frac{365}{7.3}$	= 50.1 days	$\frac{365}{6.2}$	= 59.2 days	-
Net worth to total debt	$\frac{2,281,141}{1,255,736}$ =	1.8 to 1	$\frac{3,347,881}{1,432,969}$ =	2.3 to 1	$\frac{4,098,201}{1,570,080}$ =	2.6 to 1	/
Net worth to fixed assets	$\frac{2,281,141}{1,293,084}$ =	1.8 to 1	$\frac{3,347,881}{1,797,290}$ =	1.9 to 1	$\frac{4,098,201}{2,244,945}$ =	1.8 to 1	=
Total expenses on net sales	$\frac{1,113,064}{16,470,183}$ =	6.8%	$\frac{1,476,442}{21,808,903}$ =	6.8%	$\frac{1,839,399}{22,472,110}$ =	8.2%	=
Net savings on net sales	$\frac{610,529}{16,470,183}$ =	3.7%	$\frac{646,350}{21,808,903}$ =	3.0%	$\frac{490,389}{22,472,110}$ =	2.2%	-
Net sales to total assets	$\frac{16,470,183}{3,536,877}$ =	4.7 times	$\frac{21,808,903}{4,740,948}$ =	4.6 times	$\frac{22,472,110}{5,668,315}$ =	4.0 times	-
Net savings on total assets	$\frac{610,529}{3,536,877}$ =	17.3%	$\frac{646,350}{4,740,948}$ =	13.6%	$\frac{490,389}{5,668,315}$ =	8.7%	-

[a]General trend for the ten year period: / indicates strength, = indicates stability and - indicates weakness.

Source: Original data.

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Ratio Analysis According to Volume of Business

The ten year trend as shown in Table 3 indicated some apparent differences in the financial strength between firms that did over one-half of their business in grain and those whose farm supply sales amounted to over one-half of total volume. The general trend has been described previously. The expense rate was the significant variant. Expenses were twice as high for the farm supply firms as those for the grain elevators for the years 1955 through 1960. This higher expense cost was not completely covered by a higher gross margin or increased sales. This is indicated by the lower net savings and return on investment.

Ratio Analysis of the Low One-Third Local Elevators and Farm Supply Associations

The lower one-third of the firms as illustrated in Table 4 are used to point out certain financial dangers in the local elevator and farm supply industry. Each of the ten ratios for this group has declined in strength since 1950. As indicated by several of the ratios, the firms did meet standards of strength in 1950. Only those ratios which seemed to indicate weak areas for the firms are discussed in detail. A single ratio cannot determine financial weakness but multiple ratio analysis can isolate vulnerable areas with the use of several ratios as indicators.

Total receivables have increased more than four times since 1950. Total receivables as a percentage of current assets jumped from 35 percent in 1950 to 74 percent in 1960. The 1960 situation indicated that more than 25 percent of current assets were allocated as total receivables. This expansion of total receivables was uncontrolled as net supply sales failed to keep pace. The situation became obvious in 1960 when total receivables represented 25 percent of net supply sales; hence, about three months of net supply sales were carried on the books.

By looking specifically at accounts receivable for all the local elevators and farm supply firms in 1960, it was concluded that about 55 percent of accounts receivable were less than 60 days old. About 38 percent of the accounts were over 60 days old but were under one year old. Only about 7 percent of the accounts receivable were listed as over one year of age. The amount of accounts receivable was about the same for both the top and the low one-third firms. However, the low one-third firms carried about the same amount of notes receivable on the books as accounts receivable in contrast to a negligible amount of notes receivable carried by the top one-third firms. Thus, their total receivables were twice as high as the top one-third firms and most of the notes receivable were probably former past-due accounts receivable.

Total debt doubled from 1955 to 1960 as net worth declined slightly. The resulting 8/10 to 1 net worth to total debt ratio was below the standard 1 to 1 ratio, denoting a weakened financial position.

Total expenses have been controlled for the low firms during the ten year period. Total expenses have doubled and the expense rate has increased by 4 percent of net sales (14.6 to 18.6 percent). Interest on borrowed funds when compared to total expenses for the low one-third firms increased from 2.7 percent of total expenses in 1955 to 4.7 percent in 1960. The 2 percent increase in total expenses on net sales occurred among the low one-third firms while interest expenses for the top one-third firms declined by one-fifth of a percent.

Net sales have been expanded but total assets have been allowed to grow at a faster pace since 1955. This faster growth of total assets with declining net savings permitted a return on investment of a mere 9/10 percent in 1960.

RATIO ANALYSIS OF 13 OTHER AGRICULTURAL BUSINESS ORGANIZATIONS

The other group of 13 local associations contained types of business such as poultry (3), milk (2), livestock (1), wool marketing (1), breeding (2), production credit (2), and federal land bank associations (2). The aggregate strength of the firms has not increased during the last ten years as illustrated in Table 5.

Six of the ten ratios have remained stable for the ten year period. For the current ratio, current assets and liabilities have tripled in amount. Age of total receivables has remained under excellent control at about three weeks. Net worth to total debt between 1950 and 1955 was weak but stable. However, the doubling of total debt from 1955 to 1960 left these firms in a vulnerable financial position with a real need for additional net worth in future years. Fixed assets increased at a sound rate with net worth until the last five years when some building programs were completed. The declining trend of 2 percent for the expense rate was excellent. The sales volume rate increased until 1955 when total assets doubled.

Only four of the ten ratios declined during the time period. Total receivables represented 68 percent of current assets in 1950. Such a percentage is usually considered high. In 1960, 86 percent of current assets were tied up in total receivables. The increase in total receivables, particularly from 1955 to 1960, has weakened the net supply sales to total receivables relationship. Total receivables have increased by

TABLE 3
RATIO ANALYSIS OF TOP ONE-THIRD (9) LOCAL ELEVATORS AND FARM SUPPLY ASSOCIATIONS SEPARATED
ACCORDING TO TYPE OF BUSINESS BASED ON VOLUME, OHIO, 1950, 1955 AND 1960

Specific Ratios	Elevators 1950[a]	Supply 1950	Elevators 1955	Supply 1955	Elevators 1960[a]	Supply 1960[a]
Current assets to current liabilities	2.1 to 1	3.1 to 1	2.0 to 1	3.7 to 1	1.85 to 1$^=$	4.1 to 1$^/$
Total receivables as % of current assets	27.1%	32.9%	26.5%	41.1%	33.9%$^=$	38.4%$^=$
Net supply sales to total receivables	6.3 to 1	10.4 to 1	6.0 to 1	7.5 to 1	5.5 to 1$^-$	6.7 to 1$^-$
Age of total receivables	57.6 days	35.2 days	61.0 days	48.5 days	66.9 days$^-$	54.5 days$^-$
Net worth to total debt	2.4 to 1	1.5 to 1	3.1 to 1	1.8 to 1	3.3 to 1$^/$	2.1 to 1$^/$
Net worth to fixed assets	1.6 to 1	1.9 to 1	1.9 to 1	1.8 to 1	1.7 to 1$^=$	2.0 to 1$^=$
Total expenses on net sales	5.2%	8.5%	4.5%	10.0%	5.6%$^=$	11.7%$^=$
Net savings on net sales	2.8%	4.7%	3.2%	2.7%	2.4%$^=$	2.0%$^-$
Net sales to total assets	5.3 times	4.1 times	5.3 times	3.8 times	4.4 times$^-$	3.5 times$^-$
Net savings on total assets	15.2%	19.1%	16.9%	10.3%	10.4%$^-$	6.8%$^-$

[a]One-half or more of total sales are from grain.

[b]General trend for the ten year period: $/$ indicates strength, $=$ indicates stability, and
- indicates weakness.

Source: Original data.

TABLE 4
RATIO ANALYSIS OF LOW ONE-THIRD (9) LOCAL ELEVATORS AND FARM SUPPLY
AGRICULTURAL BUSINESS ORGANIZATIONS, OHIO, 1950, 1955 AND 1965

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{1,437,244}{805,514} =$	1.8 to 1	$\frac{1,902,721}{1,150,115} =$	1.7 to 1	$\frac{2,882,298}{2,197,936} =$	1.3 to 1	-
Total receivables as % of current assets	$\frac{499,942}{1,437,244} =$	34.8%	$\frac{1,255,093}{1,902,721} =$	66.0%	$\frac{2,136,322}{2,882,298} =$	74.1%	-
Net supply sales to total receivables	$\frac{5,941,919}{499,942} =$	11.9 to 1	$\frac{7,051,252}{1,255,093} =$	5.6 to 1	$\frac{8,700,454}{2,136,322} =$	4.1 to 1	-
Age of total receivables	$\frac{365}{11.9} =$	30.8 days	$\frac{365}{5.6} =$	65.0 days	$\frac{365}{4.1} =$	89.6 days	-
Net worth to total debt	$\frac{2,315,560}{1,044,553} =$	2.2 to 1	$\frac{2,835,107}{1,768,001} =$	1.6 yo 1	$\frac{2,691,681}{3,575,832} =$	.8 to 1	-
Net worth to fixed assets	$\frac{2,315,560}{1,450,170} =$	1.6 to 1	$\frac{2,835,107}{1,944,875} =$	1.5 to 1	$\frac{2,691,681}{2,260,496} =$	1.2 to 1	=
Total expenses on net sales	$\frac{1,421,697}{9,717,152} =$	14.6%	$\frac{1,829,010}{12,011,210} =$	15.2%	$\frac{2,858,216}{15,346,554} =$	18.6%	-
Net savings on net sales	$\frac{88,110}{9,717,152} =$	.9%	$\frac{186,545}{12,011,210} =$	1.6%	$\frac{58,864}{15,346,554} =$	.4%	-
Net sales to total assets	$\frac{9,717,152}{3,360,117} =$	2.9 times	$\frac{12,011,210}{4,602,852} =$	2.6 times	$\frac{15,346,554}{6,267,504} =$	2.5 times	=
Net savings on total assets	$\frac{88,110}{3,360,117} =$	2.6%	$\frac{186,545}{4,602,852} =$	4.1%	$\frac{58,861}{6,267,504} =$	.9%	

[a]General trend for the ten year period: $/$ indicates strength, $=$ indicates stability and
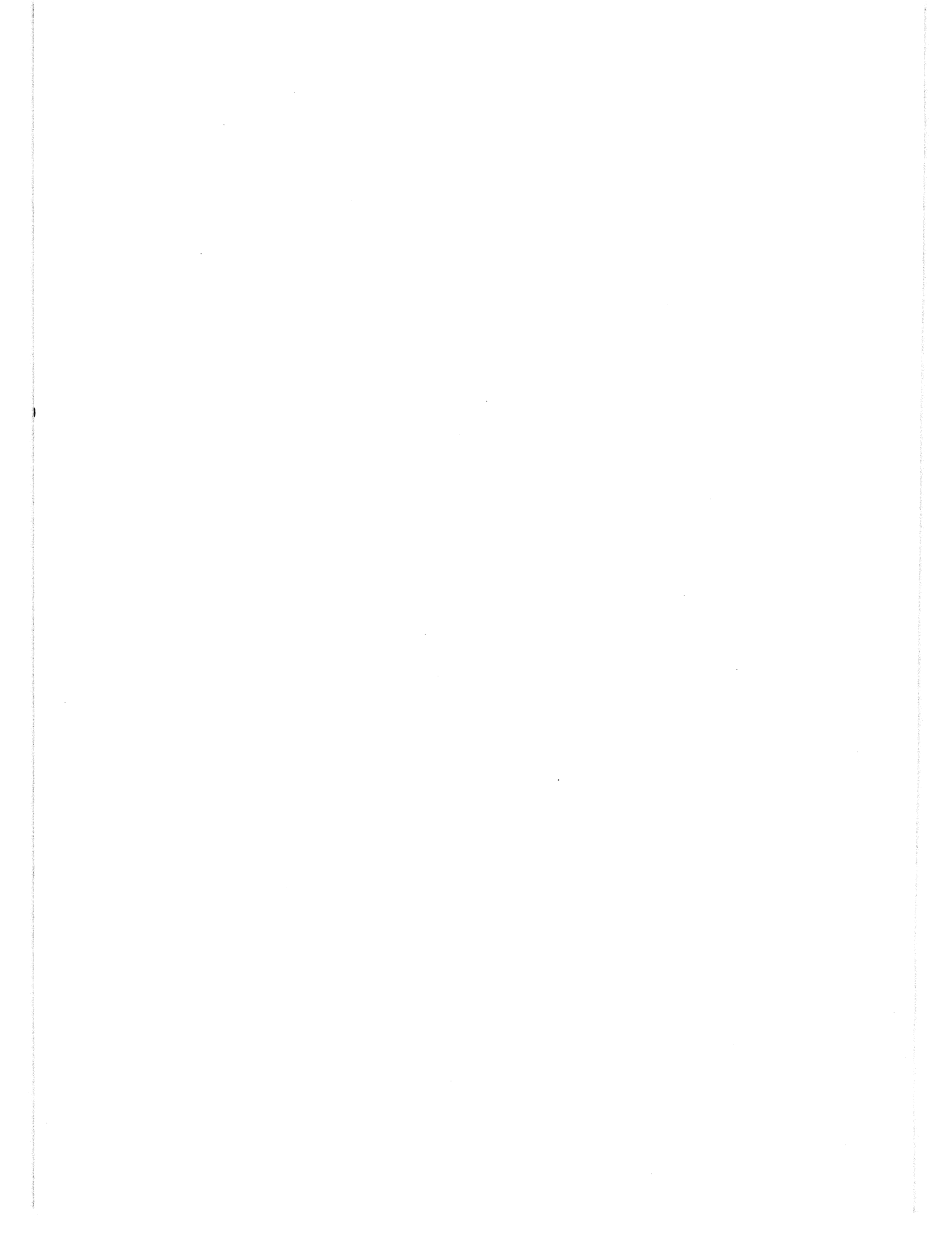- indicates weakness.

Source: Original data.

TABLE 6
RATIO ANALYSIS OF 3 COMMON AND PREFERRED STOCK DAIRY AND POULTRY AGRICULTURAL BUSINESS ORGANIZATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{1,553,744}{957,851} =$	1.6 to 1	$\frac{2,443,618}{1,415,194} =$	1.7 to 1	$\frac{2,741,775}{1,942,711} =$	1.4 to 1	=
Total receivables as % of current assets	$\frac{747,756}{1,553,744} =$	48.1%	$\frac{1,147,315}{2,443,618} =$	47.0%	$\frac{1,504,317}{2,741,775} =$	54.9%	=
Net supply sales to total receivables	$\frac{8,549,432}{747,756} =$	11.4 to 1	$\frac{14,161,580}{1,147,315} =$	12.3 to 1	$\frac{18,633,712}{1,504,317} =$	12.4 to 1	/
Age of total receivables	$\frac{365}{11.4} =$	31.9 days	$\frac{365}{12.3} =$	29.4 days	$\frac{365}{12.4} =$	29.5 days	=
Net worth to total debt	$\frac{2,011,900}{1,162,979} =$	1.7 to 1	$\frac{3,140,712}{1,519,358} =$	2.1 to 1	$\frac{3,201,853}{2,358,293} =$	1.4 to 1	=
Net worth to fixed assets	$\frac{2,011,900}{1,504,541} =$	1.3 to 1	$\frac{3,140,712}{2,025,020} =$	1.6 to 1	$\frac{3,201,853}{2,561,429} =$	1.3 to 1	=
Total expenses on net sales	$\frac{1,386,699}{8,549,432} =$	16.2%	$\frac{2,105,233}{14,161,580} =$	14.9%	$\frac{2,863,753}{18,633,712} =$	15.8%	=
Net savings on net sales	$\frac{219,446}{8,549,432} =$	2.6%	$\frac{267,298}{14,161,580} =$	1.9%	$\frac{120,150}{18,633,712} =$	.6%	-
Net sales to total assets	$\frac{8,549,432}{3,174,842} =$	2.7 times	$\frac{14,161,580}{4,660,070} =$	3.0 times	$\frac{18,633,712}{5,560,147} =$	3.4 times	/
Net savings on total assets	$\frac{219,446}{3,174,842} =$	6.9%	$\frac{267,298}{4,660,070} =$	5.7%	$\frac{120,150}{5,560,147} =$	2.2%	-

[a]General trend for the ten year period: / indicates strength, = indicates stability, and - indicates weakness.

Source: Original data.

TABLE 7
RATIO ANALYSIS OF 2 COMMON STOCK FEDERAL LAND BANK ASSOCIATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{31,825}{28,222} =$	1.1 to 1	$\frac{57,491}{28,485} =$	2.0 to 1	$\frac{13,415}{11,387} =$	1.2 to 1	=
Total receivables as % of current assets	$\frac{240}{31,825} =$	.8%	$\frac{335}{57,491} =$	.6%	$\frac{124}{13,415} =$	.9%	=
Net supply sales to total receivables	b		b		b		
Age of total receivables	b		b		b		
Net worth to total debt	$\frac{191,175}{28,222} =$	6.8 to 1	$\frac{399,860}{28,485} =$	14.0 to 1	$\frac{674,193}{11,387} =$	59.2 to 1	/
Net worth to fixed assets	$\frac{191,175}{19,070} =$	10.0 to 1	$\frac{399,860}{22,941} =$	17.4 to 1	$\frac{674,193}{23,760} =$	28.4 to 1	/
Total expenses on net sales	b		b		b		
Net savings on net sales	b		b		b		
Net sales to total assets	b		b		b		
Net savings on total assets	$\frac{19,509}{190,995} =$	10.2%	$\frac{61,878}{399,867} =$	15.5%	$\frac{19,408}{685,580} =$	2.8%	-

[a]General trend for the ten year period: / indicates strength, = indicates stability and - indicates weakness.

[b]Data has been omitted or was not applicable on these firms.

Source: Original data.

TABLE 5

RATIO ANALYSIS OF 13 OTHER AGRICULTURAL BUSINESS ORGANIZATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{8,691,494}{6,724,768}$ =	1.3 to 1	$\frac{12,529,231}{9,272,256}$ =	1.4 to 1	$\frac{25,375,787}{22,225,100}$ =	1.2 to 1	=
Total receivables as % of current assets	$\frac{4,985,845}{7,314,624}$ =	68.2%[b]	$\frac{8,744,248}{11,688,644}$ =	74.8%[b]	$\frac{18,899,239}{21,874,925}$ =	86.4%[b]	-
Net supply sales to total receivables	$\frac{18,733,482}{4,985,605}$ =	3.8 to 1[d]	$\frac{32,626,411}{8,743,913}$ =	3.7 to 1[d]	$\frac{51,210,108}{19,014,822}$ =	2.7 to 1[d]	-
Age of total receivables	$\frac{365}{17.2}$ =	21.2 days[g]	$\frac{365}{17.3}$ =	21.0 days[f]	$\frac{365}{15.8}$ =	23.1 days[f]	=
Net worth to total debt	$\frac{4,574,625}{7,747,987}$ =	.6 to 1	$\frac{7,969,462}{9,681,730}$ =	.8 to 1	$\frac{9,800,424}{24,301,053}$ =	.4 to 1	=
Net worth to fixed assets	$\frac{4,419,233}{2,799,674}$ =	1.6 to 1[d]	$\frac{7,969,462}{3,918,552}$ =	2.0 to 1	$\frac{9,800,424}{5,426,069}$ =	1.8 to 1	=
Total expenses on net sales	$\frac{3,973,240}{19,850,456}$ =	20.0%[c]	$\frac{6,866,210}{34,590,100}$ =	19.9%[c]	$\frac{9,510,104}{53,179,580}$ =	17.9%[c]	=
Net savings on net sales	$\frac{430,984}{19,850,456}$ =	2.2%[c]	$\frac{603,144}{34,590,100}$ =	1.7%[c]	$\frac{492,562}{53,179,580}$ =	.9%[c]	-
Net sales to total assets	$\frac{19,850,456}{12,041,409}$ =	1.7 times[c]	$\frac{34,590,100}{17,095,492}$ =	2.0 times[c]	$\frac{53,179,580}{33,398,651}$ =	1.6 times[c]	=
Net savings on total assets	$\frac{450,493}{12,232,404}$ =	3.7%	$\frac{665,022}{17,495,359}$ =	3.8%	$\frac{496,673}{34,084,231}$ =	1.5%	-

[a]General trend for the ten year period: $\neq$ indicates strength, = indicates stability, and - indicates weakness.

[b]Data has been omitted on one firm, [c]two, [d]three, [f]five, and [g]six firms.

Source: Original data.

3.8 times since 1950. Net savings have remained stable while net sales have increased 168 percent since 1950. This saving situation is more obvious in return on investment since total assets have been expanded 178 percent. The major expansion of total assets occurred after 1955, which was for the primary purpose of financing total receivables. The additional financing of the total debt for use as total receivables has occurred with only a 1.5 percent return on investment.

Ratio Analysis of Three Common and Preferred Stock Dairy and Poultry Agricultural Business Organizations

The 13 other agricultural business organizations which include a wide range of business types are analyzed by groups of similar businesses. The first of these, the three dairy and poultry firms have shown the most strength since 1950 (see Tables 6 through 9). The three ratios which exhibited a stronger position were influenced by a sales volume increase of 118 percent. However, when total receivables doubled in 1960, they represented about one-half million dollars

for each firm. Since net sales have increased slightly faster than total receivables, the age of total receivables has improved.

Five of the ten ratios have remained stable for the three firms. Both current assets and liabilities have increased since 1950 with current liabilities increasing slightly faster since 1955. Total receivables have increased even faster than current assets since 1955. Age of total receivables was controlled at less than 30 days of net sales. The net worth to total debt relationship expanded on a sound basis until 1955 when total debt made a real increase. Both net worth and fixed assets have expanded but they maintained a stable relationship. The expense rate for these firms was in reverse of the rising industry trend.

Two important ratios indicated weaknesses in these firms. Net savings have declined about 50 percent since 1955 while net sales have increased. This drop in net savings showed up again in their relationship with total assets since the return on investment declined from 5.7 percent in 1955 to 2.2 percent in 1960. Total assets were increased by only 75 percent from 1950 to 1960.

TABLE 8
RATIO ANALYSIS OF 5 NON-STOCK AGRICULTURAL BUSINESS ORGANIZATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{1,930,279}{1,453,346} =$	1.3 to 1	$\frac{1,574,601}{789,958} =$	2.0 to 1	$\frac{4,747,950}{3,481,748} =$	1.4 to 1	=
Total receivables as % of current assets	$\frac{97,271}{553,409} =$	17.4%[b]	$\frac{301,039}{734,014} =$	41.0%[b]	$\frac{520,671}{1,247,250} =$	41.9%[b]	-
Net supply sales to total receivables	$\frac{5,477,439}{97,271} =$	56.3 to 1[b]	$\frac{10,135,771}{301,039} =$	33.7 to 1[b]	$\frac{14,384,532}{636,378} =$	22.6 to 1[b]	-
Age of total receivables	$\frac{365}{56.3} =$	6.5 days[b]	$\frac{365}{33.7} =$	10.8 days[b]	$\frac{365}{22.6} =$	16.2 days[b]	=
Net worth to total debt	$\frac{1,269,472}{2,254,137} =$	.6 to 1	$\frac{2,719,304}{1,038,407} =$	2.6 to 1	$\frac{3,047,169}{5,072,998} =$	.6 to 1	=
Net worth to fixed assets	$\frac{1,114,080}{1,062,525} =$	1.1 to 1	$\frac{2,719,304}{1,548,875} =$	1.8 to 1	$\frac{3,047,169}{2,262,719} =$	1.4 to 1	=
Total expenses on net sales	$\frac{1,844,765}{6,594,413} =$	28.0%	$\frac{3,360,554}{12,099,460} =$	27.8%	$\frac{4,100,066}{16,354,004} =$	25.1%	=
Net savings on net sales	$\frac{157,259}{6,594,413} =$	2.4%	$\frac{200,585}{12,099,460} =$	1.7%	$\frac{256,473}{16,354,004} =$	1.6%	=
Net sales to total assets	$\frac{6,594,413}{3,523,607} =$	1.9 times	$\frac{12,099,460}{3,757,710} =$	3.2 times	$\frac{16,354,004}{8,138,914} =$	2.0 times	=
Net savings on total assets	$\frac{157,259}{3,523,607} =$	4.5%	$\frac{200,585}{3,757,710} =$	5.3%	$\frac{256,473}{8,138,914} =$	3.2%	-

[a]General trend for the ten year period: ≠ indicates strength, = indicates stability and - indicates weakness.

[b]Data has been omitted on one firm.

Source: Original data.

TABLE 9
RATIO ANALYSIS OF 2 COMMON STOCK PRODUCTION CREDIT ASSOCIATIONS, OHIO, 1950, 1955 AND 1960

Specific Ratios	Sum of Data	Average 1950	Sum of Data	Average 1955	Sum of Data	Average 1960	General Trend[a]
Current assets to current liabilities	$\frac{5,128,020}{4,222,915} =$	1.2 to 1	$\frac{8,353,944}{6,955,441} =$	1.2 to 1	$\frac{17,751,001}{16,643,948} =$	1.1 to 1	-
Total receivables as % of current assets	$\frac{4,138,974}{5,128,020} =$	80.7%	$\frac{7,282,409}{8,353,944} =$	87.2%	$\frac{16,835,880}{17,751,001} =$	94.8%	-
Net supply sales to total receivables	$\frac{4,138,472}{4,138,974} =$	1.0 to 1	$\frac{7,282,381}{7,282,409} =$	1.0 to 1	$\frac{16,831,470}{16,835,880} =$	1.0 to 1	=
Age of total receivables		b		b		b	
Net worth to total debt	$\frac{916,485}{4,222,915} =$	.2 to 1	$\frac{1,448,979}{6,955,441} =$	.2 to 1	$\frac{2,574,826}{16,643,948} =$	.2 to 1	=
Net worth to fixed assets	$\frac{916,485}{9,978} =$	91.9 to 1	$\frac{1,448,979}{48,425} =$	29.9 to 1	$\frac{2,574,826}{216,800} =$	11.9 to 1	-
Total expenses on net sales	$\frac{175,242}{4,138,472} =$	4.2%	$\frac{364,687}{7,282,381} =$	5.0%	$\frac{1,168,878}{16,831,470} =$	6.9%	-
Net savings on net sales	$\frac{52,674}{4,138,472} =$	1.3%	$\frac{124,317}{7,282,381} =$	1.7%	$\frac{98,929}{16,831,470} =$	.6%	-
Net sales to total assets	$\frac{4,138,472}{5,139,400} =$	.8 times	$\frac{7,282,381}{8,404,421} =$	.9 times	$\frac{16,831,470}{19,182,779} =$	.9 times	=
Net savings on total assets	$\frac{52,674}{5,139,400} =$	1.0%	$\frac{124,317}{8,404,421} =$	1.5%	$\frac{98,929}{19,182,779} =$	.5%	=

[a]General trend for the ten year period: ≠ indicates strength, = indicates stability and - indicates weakness.

[b]Data has been omitted on these firms.

Source: Original data.

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Ratio Analysis of Two Common Stock Federal Land Bank Associations

Only two of the 23 federal land bank associations in Ohio were analyzed in Table 7 and much of the data was not comparable. The current assets and liabilities were maintained at a minimum due to the nature of the business. There was little reason to place total receivables on the books since the firms dealt only with long term loans. Debts were not incurred except for fixed assets which were often rented. However, total assets have increased. Consequently, the return on investment has declined since 1955.

Ratio Analysis of Five Non-Stock Agricultural Business Organizations

The five non-stock firms shown in Table 8 have remained quite stable during the last ten years. In fact, the firms were stronger in 1955 than in 1950 or 1960.

The current ratio increased from 1950 to 1955 but current liabilities quadrupled between 1955 and 1960. The age of total receivables increased from less than one week to two weeks. This change was acceptable since the standard credit terms for this particular type of sales was two weeks.

The net worth to total debt relationship improved from 1950 to 1955 when debt was reduced and net worth more than doubled. Net worth continued to increase from 1955 but total debt was increased almost five times which left the net worth to total debt ratio at a weak level. The net worth to fixed assets ratio became stronger from 1950 to 1955 but a faster expansion of fixed assets from 1955 to 1960 caused the ratio to decline to 1.4 to 1. The expense rate declined from 28 to 25 percent. This was the only group of firms in this study to clearly reverse the recent higher cost of doing business trend. However, these marketing firms still maintained expenses at a high level. Net savings have increased steadily but net sales have almost doubled from 1950 to 1955, resulting in a net savings on net sales ratio of 1.6 percent in 1960. The sales volume rate has fluctuated but the firms enjoyed their major sales increases while total assets were low. Thus, the recent expenditure of capital for total assets in order to increase net sales has not been justified.

The remaining three ratios indicated a weakening situation. Total receivables as a percentage of current assets were only 17 percent in 1950 but they increased to over 40 percent by 1955 and have remained steady. The return on investment has declined since 1955 primarily because of additional total assets which were employed as current assets and not as fixed assets.

Ratio Analysis of Two Common Stock Production Credit Associations

Two of the eleven production credit associations in Ohio are presented in Table 9. None of the ratios indicated a stronger financial trend.

One-half of the ratios expressed continued stability from 1950 to 1960. Both the current assets and current liabilities have more than tripled in volume. The net worth to total debt relationship has remained constant at 2/10 to 1. In other types of firms this ratio would indicate weakness. However, net worth for production credit associations is based primarily on capital stock as a proportion of loans outstanding. This low net worth to total debt ratio has been satisfactory since the losses on loans have been extremely low. Net sales are less than total assets since sales were included as current assets in the form of notes receivable. Return on investment has held at a low level since savings have fluctuated slightly as total assets have increased rapidly.

Four of the ratios indicated that the firms have weakened since 1955. In the case of production credit associations, it cannot be concluded that higher total receivables as a percentage of current assets is desirable. Since sales or loans outstanding were entered as notes receivable, it was financially sound to extend loans and keep cash, government securities, and inventory low. The net worth to fixed assets ratio has declined primarily due to the purchase of office buildings in the past five years. This ratio relationship was not challenged since the new facilities should reduce rent expenses. However, total expenses have increased slightly more than the industry average. This trend of expenses should be controlled since this type of business has a precedent for low margins. The net savings on net sales ratio has declined since 1955 as net sales or loans outstanding increased more than 300 percent.

CONCLUSIONS

General conclusions were drawn from the two major divisions of the total of 40 firms that transact business directly with farmers.

1. **The average firm of the 27 local elevator and farm supply associations** increased net worth from $220,000 in 1950 to $332,000 in 1960. The major advance came just prior to 1950. Only a 12 percent growth occurred from 1955 to 1960. However, straight

Cooperative management has an obligation to earn a return on investment of total assets which pays the owner/investor a reasonable competitive return on his capital. In other words, the cooperative must maintain earnings in proportion to the investment in the farm operations or other investment opportunities with similar risk. One of the essential requirements of a successful cooperative is adequate permanent financing.

Each firm should develop the ten ratios or similar ones that are explained in this bulletin. Management and the board of directors should examine them each year over a five to ten year period for strength and weakness. It must be remembered that these ratios are influenced by expansion programs or changes in the capital structure, and management and the board of directors must assume the responsibility for improving the ratios after unfavorable changes. Each firm should have its auditor prepare these ratios which should then be observed, studied and evaluated by the manager and the board of directors, with comparison of the ratios for the current year with those of one or .more previous years. With this procedure, management can evaluate needed changes for the immediate years ahead and inaugurate appropriate management policy.

There are other important well known factors influencing the success of agricultural business firms and the business ratios mentioned in this publication do not change their importance. The writers suggest these ratios as indicators that management can use as guides to aggressive and sound business development. However, ratio analysis does not replace excellent management, sound planning, or wise and correct policy action on the part of the board of directors.

At the time of this study debenture bonds were used by some firms to finance assets which were tied up primarily in the expansion of accounts receivable. The cooperatives should not allow their customers to continue the abuse of the credit privilege. The operation of a more appropriate credit policy must be enforced. Certain firms in recent years charge a 1 percent per month service fee on overdue accounts receivable and to encourage patrons to use financial lending institutions as a source of borrowed funds. Accounts receivable over 60 days in age are considered overdue. The patron should use the local commercial banks or production credit associations just like the cooperative firms have been forced to look toward both the commercial banks and the bank for cooperatives as a source of short and long term borrowed funds. The patron should not expect his supply or marketing firm to serve as a local bank for short term capital needs.

Management and boards of directors must be alert to the changing needs of financing the operations of their firms. Financing is an individual firm problem[9]. However, decision makers can borrow from the experiences of more successful firms or avoid the poor decisions of other firms. Agricultural business organizations in Ohio have undergone some unsatisfactory experiences within the last decade and many adjustments have not been made. Rebuilding their permanent capital structure (primarily with common stock, certificates of ownership for non-stock associations and tax paid surplus) in relationship to growth and development remains the major financial problem that must be solved.

In order to attain volume of business sufficient to develop earning potential, many small cooperatives must sell out, merge or consolidate with other like cooperatives. This should be done before the individual association becomes financially unstable. The conditions of such mergers must be reasonable and equitable to all interests involved.

Growth seems to be the key word in our sales orientated economy, but any expansion within a firm must be based on sound financial planning.

[9]G. F. Henning and R. E. Laubis, Financial Structure of Agricultural Business Organizations, Ohio Agricultural Experiment Station, Wooster, Ohio, Research Bulletin 880, April 1961. More recent information is scheduled for publication at a later date.

line trend analysis projects a net worth of $650,000 in 1975, which may not be reached if the growth rate from 1955 to 1960 is maintained[8].

2. Total assets per firm have advanced from $325,000 in 1950 to $575,000 in 1960. Total assets of nearly one million dollars are projected for 1975. This expansion is both feasible and reasonable. However, total debt increased about 50 percent from 1955 to 1960 which means that most of the growth in total assets came from borrowed funds (debt) and debenture bonds. The proportion of total assets invested as fixed assets remained at 40 percent.

3. The 75-day average age of total receivables was two weeks over the standard 60-day credit policy limit which was realistic in 1955. Net sales climbed steadily, but total expenses expanded as net savings remained stable. However, net sales have not increased as fast as total assets since 1955. This means that the return on investment declined from 10 percent in 1955 to only 4.5 percent in 1960. A higher return is needed to meet an estimated 5 percent interest on borrowed funds or even the stock dividends.

4. Management cannot expect farmers over a period of time to remain loyal toward their cooperative while receiving less financial reward and services. For a competitive goal, the cooperative should give as good or better service than their competitors, market competitively and return a net savings which represents low expenses and interest cost plus a reasonable patronage refund.

5. **The average firm of the other group of 13 local marketing, breeding and financing associations** enjoyed a very stable expansion of net worth per firm from $390,000 in 1950 to $770,000 in 1960. At this steady rate, net worth is projected to reach $1,250,000 by 1975.

6. Total assets were expanded from $940,000 to $1,700,000 in 1960. If projected total assets of $2,600,000 by 1975 should occur, the sound 2 to 1 net worth to total debt ratio before 1950 would continue at less than a 1 to 1 ratio. It is doubtful that net worth can be expanded from the projected $1,250,000 so total assets should **not** be allowed to exceed two million dollars by 1975.

7. Total debt has jumped 250 percent from 1955 to 1960 primarily to finance total receivables. Should this trend continue, additional net worth of a permanent form will be needed. Fixed assets as a percent of total assets have controlled at 25 percent or less which was excellent considering the real progress made in expanding net sales. However, much of the

[8]Marshall R. Burkes, Changes in Financial Strength and Structure of Agricultural Business Organizations, Unpublished Ph.D. Dissertation, The Ohio State University, 1962.

sales volume came from one cooperative association in the research sample.

8. Total receivables increased by a factor of 3.8 since 1950 (from $4,985,000 to $19,014,000). In fact about 37 percent of net supply sales were tied up in total receivables in 1960. But age of total receivables remained sound since the finance associations, which have enjoyed recent expansion, carry their loans on the balance sheet as notes receivable instead of sales.

9. Net sales have risen 168 percent since 1950, while net savings have remained stable. This constant net savings situation was more obvious when expressed with return on investment since total assets have expanded by 178 percent. The financing of total debt for use as total receivables cannot be maintained with a mere 1.5 percent return on investment of total assets.

10. Management of some agricultural firms has made financial decisions that may cause cooperative members to suffer for the next generation. More of their potential earnings will be required to meet fixed obligations such as interest on long term debt and debenture bonds. This means that net savings for patronage refunds will diminish after dividends or interest are paid on stock and debenture bonds.

11. It is the recommendation of the writers that directors of an agricultural business firm should insist that the auditor prepare these 10 ratios at the end of each fiscal year and make them a part of the report to the Board of Directors. These ratios will help the directors and manager to interpret the condition of of their organization.

RECOMMENDATIONS

One of the cooperative theories holds that earnings or net savings belong to the patrons. An absolute interpretation of this doctrine has prevented a financial plan that would build a strong net worth. Net worth can be acquired only from investments primarily acquired from farmers as members or undistributed savings retained by the firm. Since most cooperative patrons have been slow to invest funds not earned in the association, patrons should forego the use of the patronage refunds in order to increase net worth. Their ownership responsibility as members in the cooperative must be accepted or they can no longer enjoy the fruits of earnings from a financially successful association. If members and patrons do not invest, the cooperatives must borrow funds for expansion, equipment, etc. Then, interest on borrowed funds (mortgages and debenture bonds) will require a larger portion of net savings.