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THE USE OF RATIO METHOD IN FINANCIAL ANALYSIS

UTILIZAREA METODEI RATELOR IN ANALIZA FINANCIARA

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This study aimed to present a study case of financial analysis based on Ratio Method, using the data collected from a Dairy Farm Bookkeeping, for the years 2004 -2005 were collected and processed according to Ratio Method .
The following specific ratios were computed: a)Liquidity ratios : Current Ratio, Quick Ratio, Net working capital to Total Assets ,Debt Structure; b) Leverage Ratio: Debt Ratio, Debt Equity Ratio, Equity Multiplier, Time interest Earned ratio; c)Assets utilization Ratios: Inventory turnover ,Days sales in inventory, Receivable turnover Days Sales in Receivable , Net working capital turnover, Fixed assets turnover, Total assets turnover ; d)Profitability Ratios:
Profit Margin, Return on Assets, Return on Equity.

Key words: *Ratio Method, Financial Analysis, Dairy Farming*

INTRODUCTION

Farm managers have always been interested to know why some farms have higher net income than others of the same type and size. The observation and study of these differences and their causes began in the early 1900s and marked the beginning of farm management and farm business analysis.

Ratios are among the best-known and most widely used tools by agricultural lenders. Ratios enable a lender to make comparisons of a farm over time or to other farms with similar characteristics. When properly interpreted, ratios can expose relationships and conditions of a borrower that could not have been revealed by the assessment of the individual components of the ratio.

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In 1919, the DuPont Company began to use an approach to analyze a firm by evaluating the inter-relationships among many of the performance measures. Variations of their approach, termed DuPont analysis, are commonly used in evaluating the financial and operating performance of businesses.

Ratio means dividing one value by another, summarize the relationship between their numerator and denominator. This summarization intentionally loses some information concerning the absolute magnitudes of the numerator and denominator in order to provide a value that measures the difference in relative magnitudes of each.

One assumption made in theoretical field , that relationship measured by a ratio is comparable across firms does not hold perfectly in the real world, but empirical evidence seems to indicate that it does hold at least approximately most of the time.

In the context , this paper presents a study case concerning the application of Ratio Method for evaluating the financial statement in dairy farming (1,2,3,).

MATERIAL AND METHOD

In order to set up this study , the data collected from a Dairy Farm Bookkeeping , for the years 2004-2005 were collected and processed according to Ratio Method . The following specific ratios were computed : a)Liquidity ratios : Current Ratio , Quick Ratio , Net working capital to Total Assets , Debt Structure ; b) Leverage Ratios : Debt Ratio, Debt Equity Ratio, Equity Multiplier, Time interest earned ratio; c)Assets utilization Ratios : Inventory turnover, Days sales in inventory, Receivable turnover Days Sales in Receivable , Net working capital turnover, Fixed assets turnover, Total assets turnover; d)Profitability Ratios : Profit Margin, Return on Assets, Return on Equity.

RESULTS AND DISCUSSIONS

Liquidity refers to the ability of a firm to convert assets to cash while getting as much of the value of the assets as possible. Current assets tend to be more liquid then fixed assets, so it is no surprise that all of the ratios that will be presented in this part use, either all or a part of the current asset value or net working capital. Most liquidity ratios will focus on contrasting

this measure of current assets with some estimate of money owned in the short term, usually current liabilities or expenses. Liquidity ratios are represented by : Current Ratio, Quick Ratio, Net Working Capital to Total Assets, Debts Structure.

Table 1

Liquidity and Leverage Ratios

DKK	2004	2005	2005/2004
Basic Data for Computing			
Current Assets	2,379,000	2,565,245	107.82
Inventory	1,562,000	1,941,492	124.29
Total Assets	22,160,000	2,667,73	129.37
Current Liabilities	3,341,000	3,568,699	106.81
Total Liabilities	18,734,000	22,356,052	119.33
Long-term debt	15,393,000	18,787,353	122.05
Total equity	3.426,000	6,311,621	184.22
EBIT	815,000	1,361,404	167.04
Interest	1,096,000	1,236,132	112.78
Liquidity Ratios			
Current Ratio	0.71	0.72	101.40
Quick Ratio	0.24	0.17	70.83
Working Capital to Total Assets	- 0.04	- 0.04	0
Debt Structure in %	15.08	15.96	105.83
Leverage Ratios			
Total debt ratio, in %	84.53	77.98	92.25
Debt-equity ratio	5.46	3.54	64.83
Equity multiplier	6.46	4.54	70.27
Time interest earned ratio	0.74	1.10	148.64

Current Ratio measures the amount of current assets relative to current liabilities. The larger ratio value the more liquid the business and vice versa.The larger ratio value the more liquid the business and vice versa. *Quick Ratio* is a little harder to pin down concerning a reasonable range to expect : if the farm has a pretty good certainty that their current inventories will be sold, then their quick ratio may be significantly less than 1 and they can still have a reasonable expectation of meeting the current liability obligations. We have to mention that the quick ratio for a given period will always be less than the current ratio for the same period if the firm has any

inventory. *The net working capital to total assets ratio* takes a different approach to adressing the question of whether the firm has an apropriate amount of current assets. By using net working capital as the numerator, this ratio is focusing on the amonut of current assets above and beyond current liabilities; that is the amount of current assets that the firm must to fund. The ecuation computes the money that would remain after selling all current assets and paying all current liabilities.Is therefore a indication of the margin of liquidity, in other words is adressing the question of whether the farm has an apropriate amount of current assets. *Debt Structure* computes current liabilities as a percentage of total liabilities. A high value indicates a large proportion of the total liabilities are owed within the next year. The debt structure percent must be evaluated only after checking the amount of current liabilities and current assets, because it is possible that the debt structure percent to be very high and still be safe if most of the assets are also current or total liabilities are very small.

Current Ratio registered almost the similar value in the two analyzed years . Its value shows that current assets represent about 71-72 % of current liabilities. Quick Ratio recorded a slight decrease from 0.24 in the year 2004 to 0.17 in 2005 . Working capital will normally be grater than zero for most of firms, but there are several situations where it might even be negative, like in our case. In our case, probably the firm was in a strong enough market position to force its suppliers to give it very good credit terms (for example, a very long time to pay) while at the same time being able to ask its customers to pay ´´cash-on-the-barrel´´, current liabilities became greater then current assets. If a farm's current assets do not exceed its current liabilities, then it may run into trouble paying back creditors in the short term. The worst-case scenario is bankruptcy. A declining working capital ratio over a longer time period is also a red flag that warrants further analysis.

Leverage Ratios express relationship very similar to those that the liquidity ratio measured, it is just that, while the liquidity ratios dealt with cash coming in versus cash going out in the short term, the leverage ratio focus on all the cash flows coming in and obligated to go out in both the short and long term . *Total debt ratio* it is used to measure a company's financial risk by determining how much of the company's assets have been financed by debt. Total debt ratio can be calculated by adding short-term and long-term debt and then dividing by the company's total assets.

Observing this decrease from 84.53 in the year 2004 to 77.98 in the year 2005 , we notice that is not a bad thing for the farm, because the ratio is expresing the percent of how much the assets have been financed by debt. In conclusion, in 2005 for financing the total assets the farmer used less borrowing capital than in 2004. *Debt - Equity Ratio* show the amount of protection available to creditors. The ratio equals total liabilities divided by total stockholders' equity; is also called *debt to net worth ratio*. A high ratio usually indicates that the business has a lot of risk because it must meet principal and interest on its obligations. Potential creditors are reluctant to give financing to a company with a high debt position. However, the magnitude of debt depends on the type of business. For example, a bank has a high debt ratio but its assets are generally liquid. In the year 2004 , Debt equity ratio was 5.46 but in 2005 it decreased to 3.54 . As we know a high debt ratio means that the farm has a high risk because it has to meet the interest and obligation, but we can also say that the farmer took the decision in 2004 to make an aggressive financing with debt, and the situation change a little in 2005. From other point of view the cost of this debt financing may outweigh the return that the farm generates on the debt through investment and business activities and become too much for the farm to handle.

Equity Multiplier is a way of examining how a company uses debt to finance its assets. Also known as the financial leverage ratio or leverage ratio. In other words, this ratio shows a company's total assets per dollar of stockholders' equity. A higher equity multiplier indicates higher financial leverage, which means the company is relying more on debt to finance its assets. In 2004 , Equity Multiplier was 6.46 but then it registerd a decline to 4.54 in the year 2005 . A higher value of Equity multiplier can only indicate us that the farm is relying more debt to finance its assets.

Times interest earned ratio is often called TIE ratio. The TIE ratio is simply measuring how big the before interest earning of the farm, EBIT(earnings before interest and tax) , is compared to the amount of interest paid by the firm. If the firm will have both negative net income figure if the TIE ratio is less than 1.

Assets Utilization Ratios reflect how efficiently the firm is using its invested capital. These ratios have one special attribute that none of the ratios we have covered so far share : while all the previous ratios we have discussed have involved either dividing income statment items by another

income statment items or dividing balance sheet items by other balance sheet items, these ratios each involve dividing an income statment item by a balance sheet item. These calculation is important because income statement, known as Profit and Loss account, contain items that measure the flow of cash throughout a time period, whereas balance sheet contain items that capture a snapshot of the amount in an account at a particular point in time.

Table 2

Assets Efficiency Utilization Ratios

DKK	2004	2005	2005/2004
Basic Data fo computing			
Net fixed assets	15,017,000	18,934,387	126.08
Total Assets	22,160,000	28,667,673	129.37
Inventory	2,311,000	2,137,570	92.50
Account receivable	262,000	491,557	187.62
Cost of good sold	1,653,000	1,481,683	89.63
Sales (Gross output or revenue)	4,161,000	4,273,137	102.69
Net Working Capital	-962,000	-1,003,454	104.30
Current Assets	2,379,000	2,565,245	107.82
Current Liabilities	3,341,000	3,568,699	106.81
Assets Efficiency Utilization Ratios			
Inventory turnover	0.72	0,69	85.83
Days sales in inventory	506.94	529	104.35
Receivable turnover	15.88	8.69	54.72
Days sales in receivables	22.98	42	182.76
Net working capital turnover	-4.33	-4.26	98.38
Fixed assets turnover	0.27	0.23	85.18
Total assets turnover	0.19	0,15	78.94

As a interpretation regarding the receivable turnover as saying that the firm collected on its accounts receivable 8,69 times during the year, then the corresponding day's sales in inventory of 42, is saying that the firm is collected its accounts receivable about once at every 42 days.

Profitability ratios are trying to express how much money the farm made, either as a percentage of earning on sale, total assets or total equity.

Table 3

Profitability Ratios

DKK	2004	2005	2005/2004
Basic Data for computing			
Total Assets	22.160.000	28.667.673	129.37
Total equity	3.426.000	6.311.621	184.22
Net income	-56.000	355.145	634.18
Sales	4.161.000	4.273.137	102.70
Profitability Ratios			
Profit margin in %	-0.013	9.46	72,769.23
Return on Assets in % (ROA)	- 0.25	1.2	480.00
Return on Equity in % (ROE)	- 1.63	5.6	343.55

Profit Margin measures how much out of every 1 DKK of sales of the farm actually keeps in earnings. In other words means that the farm has a net income of 9.46 DKK for each DKK of sales. Profit margin recorded a surprisingly evolution from a negative value in 2004 to a positive one in 2005.

Return on Assets .Having a closer look at ROA we could say that the farm is not in a good position, because a higher ROA means that the farm is dealing good in transforming the investments into profit.

Return on equity could be more indicative of financial progress than ROA as it measures the percent return to owner's equity. In 2004 , all the profitability ratios are negative due to the registration of a negative net income. ROE has to be analyzed over a number of years to see if the farmer kept to efficiently allocate money into the equity.

The positive values registered in 2005 reflect a huge progress concerning profitability from a year to another .

CONCLUSIONS

1.The analysis put in evidence that the company is facing serious financial problems. The farmer invested some money and this created an unbalanced situation.

2.Despite the aspect mentioned above , the situation recorded in the year 2005 was better compared to the one of 2004.

3. According to The Farm Financial Standards Task Force (FFSTF), several things should be noted whenever ROA is computed and analyzed. First the FFSTF recommends using net farm income from operations rather then net farm income. Any gains or losses on sale of capital assets included in the latter value are sporadic in nature, can be very large, and are not income generated by the use of assets in the normal production activities of the business. Therefore, they should not be included in any calculation of how well assets are used in generating profit. Second, any comparisons of ROAs should be done only after making sure they were computed in the same way and that the same method was used to value assets. Market valuation is recommended for comparison purposes, cost valuation for checking trends on the same farm.

4.A farm's rate of return on equity (ROE) is related to ROA through the interest-expense to-average-asset ratio and a leverage ratio – the asset-to-equity ratio, often termed the equity multiplier. Thus, you can determine the impact of ROE of changes in leverage as well as changes in farm operations and efficiency.

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