Financial Ratio Analysis that Challenges the Dairy Farmers to Enhance their Ability in Financial Management

การวิเคราะห์อัตราส่วนทางการเงินที่ท้าทายเกษตรกรกลุ่มผู้เลี้ยงโคนมเพื่อเพิ่มความสามารถในการบริหารการเงิน

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Abstract

For sustainable dairy farm businesses in rural areas, farmers need skills both in farm management and financial management which are essential knowledge that can enrich the existing knowledge of the farmers. The research attempts to find out how the financial ratio analysis can help dairy farmers enhance their ability in financial management of dairy farms more efficiently. The target group comprises 10 outstanding dairy farms in Maha Sarakham Province of Thailand , selected based on such criteria as the ability in developing a body of financial knowledge, having financial data records, favorable attitude in the use of financial data, patience, and following criteria as a co-researcher status. In addition, the farmer subjects were voluntarily participated in synthesizing knowledge, searching for financial skills needed, financial analysis as well as suggesting guidelines to improve their ability in farm management and problem solutions. The obtained qualitative data are analyzed through a focus group discussion and knowledge management of ten volunteers from farms regardless of sizes, and the researcher. The research results reveal that three aspects of financial ratio analysis are needed; namely, the liquidity ratio, the profitability ratio and the solvency ratio, and that these three ratios are related.

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บทคัดย่อ

การประกอบกิจการฟาร์มโคนมในชนบทให้มีความยั่งยืนได้เกษตรกรต้องมีทักษะในการจัดการฟาร์มควบคู่กับทักษะด้านการเงินซึ่งถือเป็นความรู้ที่สำคัญที่จะช่วยเสริมสร้างระบบความรู้ของเกษตรกร บทความนี้ศึกษาว่า การวิเคราะห์อัตราส่วนทางการเงินสามารถท้าทายความคิดเกษตรกรกลุ่มผู้เลี้ยงโคนมให้สามารถปรับปรุงความสามารถในการแก้ไขปัญหาการเงินฟาร์มได้อย่างไร อัตราส่วนทางการเงินนี้ถือเป็นเครื่องมือการพัฒนาทักษะด้านการเงินและเป็นการให้บริการด้านระบบความรู้ที่สำคัญเพื่อขยายความสามารถของเกษตรกรให้สามารถจัดการการเงินฟาร์มให้เกิดประสิทธิภาพสูงขึ้น โดยเลือกฟาร์มโคนมที่โด่ดเด่น ในจังหวัดมหาสารคามประเทศไทย ที่เป็นกลุ่มเกษตรกรที่สามารถพัฒนาองค์ความรู้ด้านการเงิน มีการบันทึกข้อมูลบัญชีการเงิน มีเจตคติที่ดีต่อการใช้ข้อมูลทางการเงิน มีความอดทน และสามารถปฏิบัติการตามข้อกำหนดในฐานะผู้วิจัยร่วมที่สมัครใจเข้าร่วมการสังเคราะห์และค้นหาทักษะด้านการเงินที่ต้องการจำเป็น ร่วมการวิเคราะห์ทางการเงิน และร่วมเสนอแนวทางปรับปรุงและแก้ไขปัญหา ได้จำนวนทั้งหมด 10 ฟาร์ม ใช้การวิเคราะห์ข้อมูลเชิงคุณภาพจากการร่วมสนทนากลุ่มและการจัดการความรู้ระหว่างเกษตรกรทั้ง 10 ฟาร์มและนักวิจัยเพื่อเรียนรู้แนวทางการพัฒนาทักษะทางการเงิน และปรับปรุงแก้ไขปัญหาการเงินฟาร์ม ผลการวิจัยพบว่า การวิเคราะห์อัตราส่วนทางการเงินที่ต้องการจำเป็นจำแนกได้ 3 ประเภท คือ การวิเคราะห์อัตราส่วนสภาพคล่องทางการเงิน การวิเคราะห์อัตราส่วนความสามารถในการทำกำไร และการวิเคราะห์อัตราส่วนโครงสร้างเงินทุนหรือภาระหนี้สิน นอกจากนี้ยังพบว่า การวิเคราะห์ทางการเงินทั้ง 3 ประเภทมีความเกี่ยวข้องเชื่อมโยงกัน

คำสำคัญ : การวิเคราะห์อัตราส่วนทางการเงิน, ความท้าทาย, ฟาร์มโคนม, เพิ่มความสามารถ, การบริหารการเงิน

(INTRODUCTION) บทนำ

Apparently, a small dairy farm not only enhances the security on foods in household, but also provides an employment opportunity and prosperities in rural areas. And, if farmers of a small farm can produce milk at a low cost, this enables them to compete with large farms in developed countries equipped with high technology. Hemme, Garcia and Katja made a SWOT analysis of a small raw milk producer and revealed that 1) the strengths of the farm included profit margins, low debts, low liquidity risks; 2) the weaknesses included the lack of technical knowledge and entrepreneurial farm management because farmers of small farms in underdeveloped countries found it difficult to access knowledge and skills in farm management; 3) the opportunities showed that dairy farm businesses were an important source of employment compared to other agricultural operations; 4) the threats included loss

of well-educated farmers and capitals for farm development in the future. Specifically, successful dairy farmers well supported their offspring on education. Subsequently, their offspring turned to seek for careers outside the agricultural sector to gain higher income or to get involved in more well-known businesses than turned to be farm developers. (Hemme, T., Garcia, O., and Seifert, K., 2008)

In fact, the financial knowledge enhancement and the financial analysis are regarded as useful strategies for developing farmers to be professional business owners who can run their businesses through the use of knowledge and accumulated financial experiences that lead to successful targets, in accordance with Sharma, (2012). In the study entitled, ‘ Ratio Analysis in Farm Management,’ he found out that farmers played a vital role in India’s economy and at present, Indian agriculture is treated as an industry, not an agriculture sector. So, the cost- benefit analysis is considered an essential tool to calculate the benefits for farmers. He also pointed out that most farmers neither kept good financial accounts nor used appropriate statistics and financial tools to study the profits gained from the operations.

Accordingly, the financial ratio analysis is very useful to farm management to investigate the efficiency of the assets investment and risk warning. This is consistent with the study of Mitrović et al., (2015) whose research entitled ‘ Ratio Analysis Specifics of the Family Dairies’ Financial Statements,’ revealed that the financial ratio indicators were basic factors that indicated the relationships, when comparing the differences, between real performances and performance standards designated by businesses. Correspondingly, Wolf et al., (2016) studied educational components to support the growth of dairy cattle and competitiveness by comparing financial performances of dairy farms; namely, profitability through Return on Assets (ROA), solvency through Debt-to-Asset Ratio (D/A) and liquidity through Current Ratio (C/R). In this study, farms were classified into three sizes: small farms having less than 200 dairy cattle, medium-sized farms having 200-499 dairy cattle, and large farms having 500 or over dairy cattle.

Currently the world is changing very fast whereas Thailand is facing serious restrictions on country development. It is a challenging issue for the Thai government to develop competitive capacity through more investments and supports to drive social and economic development thoroughly in order to create new economic bases and increase revenues out of the new economic zones. The government also aims to create an opportunity for farmers and develop their capacity to be Farmers 4.0 and restructure to drive the country to be Thailand 4.0 through knowledge enhancement and innovation in line with

Sustainable Development Goals: SDGs). (Office of the National Economic and Social Development Board, 2015: website). Besides, agricultural industries, foods and food processing industries are considered to be important development strategies because they are main industries that can expand the basic natural resources(agriculture, livestock and fishery sectors) which are the primary sources of revenues of the country and increase much more competitive potentials. In addition, this group of industries has played a vital role in ASEAN countries. Thus, the government has incorporated an area development plan in the policy targeting at agricultural commodities, foods and food processing. Specifically, in the Northeastern area, the focus is on producing processed foods, livestock, animal foods and local foods. (Office of National Science, Technology and Innovation Policy Board, 2015: website).

In the Northeast of Thailand, it was also found that Maha Sarakham was a very appropriate area for developing livestock-related careers. According to 2014 data, dairy farmers in the province accounted for 31,961 ; dairy cattle, 116,967 ; revenues, 2,924,175,000 baht, having several offices to support and develop the farmers' production and potentials including Livestock Office, Station for Research and Species Identification, Station for Developing Animal Foods, and Center for Research and Technology Transfer. Moreover, Maha Sarakham has upgraded dairy farming operations for more competitiveness in ASEAN markets through knowledge transfer curriculum to increase the efficiency of dairy farms, especially farm management and foods for dairy cattle to decrease production costs. (Maha Sarakham Livestock Office, 2014; News Newspaper Thailand/Maha Sarakham, 2016).

PURPOSE OF THE STUDY

This research aimed to study needs in financial ratio analysis of dairy farmers in Maha Sarakham Province, Thailand and propose guidelines for financial ratio analysis, improvement, and problem solutions.

LITERATURE REVIEW

The financial analysis is an analysis of the conditions reflected in businesses. As for a single enterprise - dairy herd, the analysis concentrates only on the investment or production in relation to other similar businesses. In general, financial analysis is classified into 5 aspects. 1) Profitability: the analysis is performed to assess income, relative to expenses. 2). Size of farm: to analyze the causes of insufficient resources that lead to low benefits. Besides, too speedy business growth or the overgrowth of businesses hard to be handled

efficiently by the business owners can also decrease business profits. 3) Efficiency: to disclose an ability to gain profits through the use of resources. If the ability in making benefits is low, there should be economic and physical measures to investigate the inefficient use of resources. 4) Finance : to analyze business' financial status, payable debts, liquidity and changes on the part of business owners. 5) Performance analysis of each section: low benefits of some sections can be compensated by higher benefits from other sections.(Nábrádi, 2013).

The ratio analysis is an important technique for analyzing financial statements and trends of business growth and can help in predicting the management performance to meet expected targets. According to analytical objectives, the financial ratios are classified into 5 aspects. 1) Profitability ratios provide information on overall efficiency and the amount of income from sales and investment. 2) Liquidity ratios provide information on a company's ability in response to the needs of cash. 3) Efficiency ratios provide information on a company's ability to generate income from assets management. 4) Solvency ratios provide information on the degree of capital procurement by comparing the debt to equity ratio and fixed financial obligations. 5) Market ratios provide information on a company's marketing status. (Goel, 2015: website). The financial ratio is a tool to provide information on the degree of a company's risk components before making a strategic decision, especially on investment. (Demmer, 2015). In addition, DuPont analysis is another important tool to assess business operations such as the return on equity: ROE and the return on assets: ROA. (Sheela & Karthikeyan, 2012).

According to the report in The Dairy Industry Farm Monitor Project (DIFMP), a survey of 6,400 farmers in Australia was made. One-third of the farmers revealed that sustainable profits were expected by 10%; prospective prosperities in the future, 10%; technical profit efficiency to equity ratio should account for 65 %, and current debts should not exceed 20%. Besides, the guidelines for doing a farm business as a whole should include an assessment of three aspects: profit efficiency, cash liquidity, and business growth or prosperities. Farmers should also maximize their profits by 20%; operating performances tend to be better due to the use of cash. (Australian Dairy Industry Council, 2015).

Solvency ratio -Debt Ratio or Debt to Asset Ratio refer to the ability of the cow farm business to meet its total debt obligations. It is determined by comparing the amount of loan capitals to the amount of properties used in farm operations. Debt Ratio or Debt to Asset Ratio can be used for comparisons between farms. Ratios of up to .40 to .50 are generally considered safe in the farming industry. However, ratio acceptability would depend upon the

nature of the farm and its enterprises. However it does not indicate debt repayment ability, but repayment ability is determined by profitability and cash flow. (Government Saskatchewan, 2017).

The study of Wolf et al., (2016) entitled 'A Comparative Analysis of Profitability, Solvency and Liquidity of Dairy Farms in Pennsylvania, Michigan, New York and Wisconsin', showed that the return on assets (ROA) of small farms having less than 200 dairy cattle in Pennsylvania was 4.4; the ROA of medium-sized farms (200-499 dairy cattle) in Pennsylvania, Wisconsin และ Michigan was 5.2, 4.2,6.3 respectively, and the ROA of large farms (500+ dairy cattle) in Pennsylvania and New York was 2.6 and 2.5 respectively. In addition, the solvency ratio (D/A) of small farms having less than 200 dairy cattle in Pennsylvania was .304, the D/A of medium-sized farms (200-499 dairy cattle) in Pennsylvania, Wisconsin and Michigan was .288, .285,.276 respectively, and the (D/A) of large farms (500+ dairy cattle) in Pennsylvania and New York was .317,.306 respectively. Furthermore, the Liquidity Ratio (C/R) of small farms having less than 200 dairy cattle in Pennsylvania was 2.2, the C/R of medium-sized farms (200-499 dairy cattle) in Pennsylvania, Wisconsin และ Michigan was 2.1,4.9,3.1 respectively, and the C/R of large farms (500+ dairy cattle) in Pennsylvania and New York was 2.6, 2.5 respectively.

Ibrahim (2017) did research on 'The Impacts of Liquidity on Profitability in Banking Sectors of Iraq: A Case of Iraqi Commercial Banks' by assessing the impact of liquidity of five commercial banks in Iraq. The variables used to study liquidity were loan deposit ratio and deposit asset, and the variable to study profitability was the return on assets (ROA). The results indicated that the increased liquidity ratio could lead to the increased return on assets.

Maqsood et al., (2016) studied on 'Impact of Liquidity Management on Profitability in the Banking Sector of Pakistan,' by using the formulas of return on assets, return on equity, return on investment and net profit margin to calculate profitability, and current ratio, quick ratio, cash ratio to calculate liquidity. The results revealed that liquidity and profitability were correlated in the same direction. In other words, their relationship was positive with value 1 and their relationship was negative with negative value. This means that the overall relationship was strong with the value of R^2. In the study, the cash ratio shows a positive relationship with the cash ratio with the value of 1, with a current ratio with the value of 1 and with the profitability with the value of 1. On the contrary, the current ratio has a negative relationship with the cash ratio with the value of -0.852130622. The value of R square (R^2) is

3.35%. To conclude, the dependence of the dependent variable on profitability has a strong relationship with the independent variable on liquidity.

Khidmat and Rehman (2014) studied on the‘ Impact of Liquidity & Solvency on Profitability Chemical Sector of Pakistan,’ using the debt ratio, the debt to equity ratio and the interest coverage ratio to estimate solvency; the current ratio and the quick ratio to calculate liquidity, and the ROA and ROE to calculate profitability. The result showed that the liquidity ratio and solvency ratio are very helpful to profitability. In addition, the solvency ratio has a negative and a highly significant impact on the ROA and ROE. This implies that when the debt to equity ratio increases, the operating performance decreases. The liquidity had a high positive effect over the Return on Assets of sector. This can be concluded that liquidity, solvency and profitability are closely related because when one aspect increases, the other one decreases.

Yusoff and Ahmad (2016) studied on ‘*The relationship between liquidity and solvency among firms in consumer sector’ in which the* current ratio and the Quick ratio were used to replace *liquidity; the d*ebt ratio and the debt to equity ratio to replace *solvency. The findings showed that* liquidity and solvency were correlated at a significance level; that is, the current ratio had a positive relationship with the debt ratio and debt to equity ratio whereas the quick ratio had a negative relationship with the debt ratio and debt to equity ratio. In other words, when the level of liquidity increased the company was less dependent on debt.

(METHODOLOGY) วิธีการศึกษา(หรือ)วิธีวิจัย

This study aimed to study financial needs and financial analysis to be used as guidelines for dairy farm management of the farmers in Maha Sarakham Province through a qualitative research. Data were collected by in-depth structured interviews of 20 outstanding farms in Maha Sarakham on the financial needs and financial analysis for dairy farm management. Then a focus group discussion of 10 farms was conducted. Accordingly to, Juyjingam, J., & Siriwong, P. (2015) said that knowledge management (KM) is an important machine for improving product quality and saving costs which can help create knowledge power in the organization. In addition, Intasiri, N. (2015) also found that KM is a process of finding knowledge from wisdom and knowledge in accordance with academic principles and adjusting according to the suitability of the context itself. Therefore, this research uses the farm representatives voluntarily participated in the knowledge management session

concentrating on proposing the guidelines for developing financial skills and improving and solving the financial problems of farms regardless of sizes.

According to, Mongkolkachit's research found that if a business wishes to create a wide range of social benefits with Corporate Social Responsibility (CSR). Businesses should primarily be financial strong. (Mongkolkachit, P., 2016). Therefore, in order to build financial stability, farmers should have financial skills which are referred to an analysis of financial ratios including liquidity ratio, profitability ratio and solvency ratio. 1) Liquidity measures the farm's ability to meet its current liabilities obligations. Therefore, liquidity is a measure of the ratio of current assets over current liabilities. The current asset section included liquid assets that could easily be converted into cash. 2) Profitability ratios, which are calculated by Net Income/Sales and Net Income/Average Total Assets, refer to the abilities in making profits from sales and assets respectively. 3) Lastly, the Solvency Ratio -Debt Ratio or Debt to Asset Ratio refer to the ability of the cow farm business to meet its total debt obligations. It is determined by comparing the amount of borrowed capitals to the amount of properties invested in farm businesses.

(RESULTS) ผลการศึกษา (หรือ) ผลการวิจัย

1. The needs of financial analysis of dairy farmers of Maha Sarakham Province, Thailand were classified into 3 aspects: 1) the liquidity ratio analysis considers the ratio of current assets to current liabilities. In other words, a farm business should have cash or an ability to convert a debtor status or goods into cash to be able to pay off short-term debt at a due date; 2) the profitability ratio analysis considers the ratio of net income to sales and net income to total assets. This means that a farm business should be able to make profits from sales of raw milk and an investment of overall assets. ; 3) the solvency or debt ratio analysis considers the ratio of total debt to total assets. This means that a farm business's financial status is healthy, independent from all sources of debt capitals, as shown in Table 1

2. The suggestions for financial analysis and financial problem solutions for dairy farmers were that to make business owners must have current capitals for raising and taking care of dairy cattle; for instance, foods and medicines which were the main expenses of the farms. Besides they needed to make a speedy production to increase sales and profits in cash and make a full use of assets to generate income and increase profits such as increasing more grassland, using a truck for farm activities and transportation services. In the meantime they had to speed up debts payment to lessen interests and have more cash in hand. Dairy farmers

should make a balance of liquidity and increase a healthy financial status by reducing loan capitals of all sources. This way would enable farmers to take good care of their dairy cattle and increase the quantity and quality of milk and generate more income and profits from sales of farm products. The farmer subjects of this research pointed out that the strengths or weaknesses of a farm can be evaluated by three ratios. If the liquidity ratio of a farm is over 1.5 times, it has a strong status; If the liquidity ratio of a farm is less than 1 time, it has a weak status. As for the profitability ratio from sales, if the profits are over 30%, the status is strong; if less than 20%, it is weak. In terms of profitability from all assets, if the value is over 10%, the status is strong; if less than 10%, it is weak. As for solvency, if the value is over 0.4 time, it is strong; if less than .25 time, it is considered weak, as shown in the financial ratio analysis in Table2

3. Based on the participatory knowledge management of dairy farmers and scholarly synthesis of the researcher, the relationship of the three ratios are concluded. 1) A dairy farm should increase liquidity because it will strengthen financial health. In other words, liquidity has a negative relationship with solvency. On the contrary, if the liquidity decreases because a farm needs to get loans to run the business. 2) If the financial status of a farm is healthy and secure, the profits will increase because farmers do not have a burden on paying off principals and interests. This means that solvency and profitability have a negative relationship. This means that when total liabilities/total assets increase, profitability decreases. 3) On the contrary, if a business can earn more profits in cash, liquidity will increase. This indicates that profitability in cash and liquidity have a positive relationship, as shown in Figure1

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Table 1 : The presentation of the three aspects of three-month financial analysis of dairyfarmers from 10 selected farms.

Dairy Farms/Time Period	Liquidity (C/R)...Times			Profitability (%)						Solvency (L/A)...Times		
				NI/S			NI/A					
	1	2	3	1	2	3	1	2	3	1	2	3
1 (Strong)	2.1	2.4	3.2	20	23	22	9	11	14	.22	.18	.16
2 (Strong)	1.6	2.2	2.8	18	20	19	7	10	9	.25	.29	.31
3 (Strong)	2.6	2.3	3.7	25	23	28	11	14	16	.20	.16	.14
4 (Weak)	.98	1.1	1.3	14	17	17	5	5.5	6.6	.41	.40	.37
5 (Weak)	1	.96	1.1	16	14	15	6.4	6	6.8	.44	.47	.46
6 (Strong)	2.7	3	3.4	25	26	28	12	17	19	.21	.18	.16
7 (Strong)	3	3.7	4	30	34	37	15	18	20	.19	.17	.15
8 (Weak)	.88	.98	1	12	15	13	5.3	5.5	6	.48	.46	.45
9 (Weak)	1	1.4	1.2	15	18	16	6.8	7.3	7.1	.45	.43	.44
10 (Strong)	2.8	3.4	4.4	27	32	30	17	16	20	.20	.19	.16

Remarks: C/R: current assets/ current liabilities , N/S: ratio of net income to sales, N/A: net income to total assets, L/A: total liabilities to total assets

The table above shows that the three financial ratios (Liquidity, Profitability, Solvency) are related. When the liquidity ratio decreases or increases, the profitability ratio is changed in the same direction. But the relation is found in contrast with the solvency ratio.

Table2. Financial Ratio Analysis

Ratios	Calculation	Your Farm	Weak	Strong
Liquidity	Current Assets/Current Liabilities =.....times		<1.0	>2.0
Profitability	(Net Income/Sales)x100 =.....%		<20%	>25%
	(Net Income/Average Total Assets)x100 =....%		<10%	>10%
Solvency	Total Liabilities/Total Assets =.....times		>0.4	<0.25

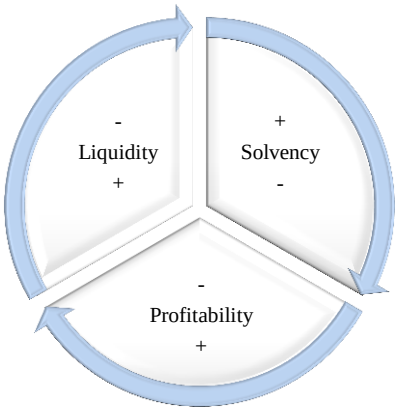


Figure1 The Relationship of Liquidity, Solvency and Profitability Ratios

(DISCUSSION) อภิปรายผล (หรือ)สรุปผล

1. The needs of financial analysis of dairy farmers in Maha Sarakham, Thailand comprised 3 aspects: 1) the liquidity ratio analysis, 2) the profitability ratio analysis, and 3) the solvency ratio analysis. These three aspects were actually related, which is in line with Madra-Swicka (2017) who studied on 'The Role of Financing the Activities of Agricultural Holdings with Borrowed Capital in the Opinion of Individual Farmers' and found that dairy farmers had indentified that the main problem of financial management was financial leverage and security and that factors influencing a decision-making at a liability level was the capital value and the return needed In line with Ganc, (2018) who studied on ' Level of the current liquidity ratio versus financial efficiency of dairy cooperatives' and found out that an advantageous dairy farm co-operative was the one with high liquidity; the liquidity that was high enough was more important than maximizing financial efficiency. Furthermore, the findings correspond to the study of Zorn et al., (2018) whose research entitled, 'Financial Ratios as Indicators of Economic Sustainability: A Quantitative Analysis for Swiss Dairy Farms' showed that the often-used financial ratio for economic sustainability assessments in America is the profitability ratio, financial efficiency ratio, financial security and debts payment ratio. These ratios could be applied to assess the sustainability of Swiss Dairy Farms, in line with Tonui (2017) who conducted research on 'Financial Factors Influencing Growth of Horticultural Sector In Nakuru County, Kenya'. The research results revealed that a financial factor I influenced the growth of horticultural sector at a statistical significance difference. The most influential factor was the working capital followed by the access to credits and cash flow respectively. High investments in working capital that affects liquidity enabled farmers to access a short-term credit and enough liquidity could lead to enough capital for operations. The results also correspond to

Doorasamy (2016) whose research on 'Using DuPont analysis to assess the financial performance of the top 3 JSE listed companies in the food industry' revealed that the company using the ratio as a tool to identify the degree of risk components before making a strategic decision, especially prior to a decision on investments can make higher returns to the owner. However, according to the research entitled, 'What Factors Affect Households' Decision to Allocate Credits for Livestock Production? Evidence from Ethiopia,' by Shiferaw et al., (2015), the decision to allocate credits to households did not automatically indicate that the livestock production is more effective; but it is a regular practice when credit services are extended.

2. Using the three ratios to analyze the strengths and weaknesses of a farm operation, it was found that 1) as for liquidity, the current ratio is considered strong when its value is over 2 times. The value of less than 1 time indicates the business' risks in paying off a short-term debt when it is due. 2). The profitability ratio of a business will be considered strong and sustainable when the value is over 25%. The value of less than 20% indicates weaknesses and needs to generate more revenue. Besides, a business should have a total Return of Assets at over 10%. If the value is less than 10%, the business must review and maximize assets investment for more efficiency. .As for solvency ratio, the financial status is healthy when the value of Total Liabilities/Total Assets is less than 25%. If the value is over 40%, the business has risks in paying off a long-term debt and the opportunity in applying for loans decrease, which is consistent with the report of Australian Dairy Industry Council, (2015) that the value of 10% of solvency will make a dairy industry sustainable and gain expected profits; the value of 10% is high enough for prospective prosperities. Current liabilities should not exceed 20%; farmers can earn maximum profits by 25%. Using a cash flow indicates that a business is likely to show a better performance, in line with the analysis of a financial statement of Government Saskatchewan (2017) that Debt Ratio or Debt to Asset Ratio can be used for comparisons between farms. The ratios of up to .40 to .50 are generally considered secure in the farming industry.

3. The growth of dairy farm operations will be sustainable when the farmers keep the balance of the three ratios mentioned because they are related. 1) The liquidity ratio is related to the solvency ratio. 2) The solvency ratio is related to the profitability ratio. 3) The profitability ratio is related to the liquidity ratio. Correspondingly, the study of Maqsood et al., (2016) on 'Impact of Liquidity Management on Profitability in the Banking Sector of Pakistan' revealed that liquidity and profitability were correlated in the same direction, that is, they had a positive relationship with the value of 1 and a negative relationship with a negative value.

Moreover, both had a strong relationship with the value of R^2. In accordance with the study of Ibrahim (2017) on 'The Impacts of Liquidity on Profitability in Banking Sectors of Iraq: A Case of Iraqi Commercial Banks', the findings showed that when the liquidity ratio was higher, the Return of Assets were also higher. The same findings were also found in other studies. Khidmat and Rehman (2014) who studied on the Impact of Liquidity & Solvency on Profitability Chemical Sector of Pakistan,' revealed that liquidity, solvency and profitability are closely related because when one aspect increases, the other decreases. Besides, Yusoff and Ahmad (2016) studied *' The relationship between liquidity and solvency among firms in consumer sector' and found out that* liquidity and solvency had a relationship at a significance level, that is, when the level of liquidity increased, the company was less dependent on debts.

CONCLUSION

A dairy farm operation in a rural area will be sustainable if the farmers have farm management skills as well as financial skills which are considered key instruments to help formulate the knowledge system of farmers. The financial ratio analysis is an important tool to direct business performances. Business owners who are competent and knowledgeable in financial ratio analysis can set their operation frame efficiently, having clear targets and operation plans to meet the targets. Moreover, business owners with accumulated financial knowledge, experience and knowledge of the three aspects of financial ratio analysis mentioned earlier should focus on the liquidity ratio analysis to be well aware of current expenses of regular business operations. This performance helps support business performances to increase business profits and strengthen business capitals. Additionally, the three aspects of financial ratio analysis are interrelated like a cycle diagram comprising the liquidity ratio, the profitability ratio and the capital structure or solvency ratio. In other words, a strong liquidity status indicates a healthy financial status; the healthy financial status will enable farmers to make more profits. And, the increased profitability in cash will lead to higher liquidity status of a farm. Besides, self-confidence and facilitation measures for farmers are needed in financial ratio analysis to make the financial ratio analysis a simpler tool. Most importantly, dairy farmers must well keep the three ratios in balance. Nevertheless, the success in financial management needs skills, capabilities and courage in making changes. Thus, business owners should be courageous and decisive in making operational decisions in order to meet the financial efficiency standards which are widely accepted.

RESEARCH SUGGESTION

However, the above research result in this article is based on the qualitative analysis of knowledge management of the volunteers from farms regardless of sizes. Thus, if there is a further study, it is recommended that the findings should be verified through the quantitative research. Using the three financial ratios and putting the sizes of farms into consideration, the new findings will be clearer and more accurate

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