

Navigating financial landscapes: An in-depth analysis of farmer cooperative performance in Bulacan, Philippines

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Abstract

This study focused on farmer cooperatives in Bulacan, Philippines, and examined their financial performance. The goal of the study was to identify the farmer cooperatives' organizational profile, and financial performance, and to make recommendations that farmer cooperatives can utilize to sustain their operation. A descriptive research design was employed in the study using purposive sampling and a researcher-made questionnaire. Respondents to the study were selected based on the amount of their assets. Descriptive analysis tools used were means, percentage distribution, and frequency counts while in the financial performance analysis, the Philippine Cooperative Development Authority (CDA) Standards were used including profitability, operational strength, and operating efficiency. Financial data came from 2014 to 2018 submitted financial statements of the farmer cooperatives to the Philippine CDA. Most farmer cooperative members were female regular members with active membership in the mostly multipurpose type of farmer cooperative offering agricultural loans and credit. The financial performance analysis of farmer cooperatives in Bulacan reveals key insights into their profitability, operational strength, and operating efficiency. The findings indicate both strengths and areas for improvement, providing a foundation for strategic decision-making and interventions, necessitating a thorough examination of their financial strategies and operations. Strategic interventions, capacity building, and collaborative efforts can contribute to the sustainable growth and success of these cooperatives, ensuring they effectively serve the needs of their members and the broader agricultural community.

Keywords: cooperatives, farmer cooperatives, financial performance, performance standards

JEL Classification Codes: G320, P320, Q130

1. Introduction

In the Philippines, the state recognizes cooperatives as associations organized for the economic and social betterment of the members, operating business enterprises based on mutual aid, and founded upon internationally accepted cooperative principles and practices (www.cda.gov.ph). A critical area in cooperative development is their financial performance. It is the best indicator to define the stability, profitability, and competitiveness of the business. The financial performance provides a signal to members whether to withdraw or increase their share capital. It also provides the basis on the part of the management on what specific part of the business needs improvement. The government and the general public are also interested in the financial health of the cooperative (Kristanovic & Barbaca, 2016).

Amidst uncertainty and suffering, cooperatives can provide some hope and clarity of direction for citizens around the world (International Cooperative Alliance, 2012). Cooperative societies are autonomous associations of persons unified voluntarily to meet their economic, social, and cultural needs through jointly owned and democratically controlled enterprises (International Cooperative Alliance (ICA, 2010).

Cooperative has been a policy instrument by the government in stimulating the efficiency of agriculture in the Philippines. The choice of the policy instrument stems from the potential of cooperatives to promote efficiency in production, marketing, and risk management. (Castillo & Castillo, 2017)

Agricultural cooperatives are organizations formed by the farmers through pooling resources to enable them to achieve benefits that could not have been attained alone (Francesconi & Heerink, 2011). Araullo (2006) said that from an agribusiness standpoint, the business activities and scope of the agricultural cooperatives in the Philippines cover the functions including input supply, production, post-harvest, processing, and marketing. Credit and financing are also engaged in by the agricultural cooperatives since most of the production cooperatives undertake re-lending to their members. This is the reason why most cooperatives are registered as multi-purpose. Most of the agricultural cooperatives however are engaged in production. Input supply is likewise being undertaken by the multipurpose cooperatives by providing the input requirements of its members. Very few cooperatives however engage in bulk purchase of input supply. Needless to say, most of the agricultural cooperatives in the Philippines are either too small or have not yet fully matured to take on agro-industrial activities such as processing. Many studies have been conducted abroad and locally to find out if cooperatives have been able to extend financial assistance to their community especially the poor. However, studies done as to how long these cooperatives can continue their programs and projects to serve their community are lacking. Although cooperatives are not profit-oriented, they should be properly

managed and administered to be viable for their continued operation and service to the members and the communities.

The use of performance indicators developed adequately to the needs of the institutions provides the managers with speed, efficiency, and safety. It is through measurement that one obtains the information needed for evaluating the performance of a process or a system. Measurement gives managers the chance to check whether the objectives or goals are being achieved. Besides, measurement gives room for the definition of new actions, if necessary (Holanda et al., 2009).

Delen et al. (2013), observed that financial ratios are tools that is used by creditors of the business, investors, and other stakeholders. Ratio analysis can assist in measuring the financial health of a business as well as help across company comparisons. They emphasized that financial accounting ratios that are calculated using variables in the financial statements of a business can measure the performance of managers for fixing rewards, measuring the performance of departments within an organization, projecting the future of the business as well and providing information to stakeholders such as creditors and suppliers. Babalola and Abiola (2013) found financial analysis as a special accounting technique that aimed at formulating a diagnosis and prognosis relative to the situation and financial performance of an organization.

The extent to which the cooperative sector can contribute to improving the lives of members depends on their financial performance. For this reason, it is important to conduct and learn from periodic assessments of their financial performance.

1.1 Objectives of the Study

The study aimed to determine the financial position and performance of farmer cooperatives in the Province of Bulacan, Philippines. Specifically, the study sought to answer the following:

1. What is the organizational profile of the farmer cooperatives in terms of:
 - 1.1 members (sex, type, classification);
 - 1.2 number of years in operation;
 - 1.3 number of employees and staff;
 - 1.4 products and services offered; and
2. What is the financial performance of the farmer cooperatives using the following selected financial performance measures:
 - 2.1 Profitability
 - 2.2 Operational Strength
 - 2.4 Operating Efficiency

2. Literature Review

2.1 Cooperatives

Cooperatives represent a legal and organizational structure that was conceptualized, to a great extent, by Friedrich Wilhelm Raiffeisen (1818-1888) in Germany, over 170 years ago. The International Labour Office (ILO), in line with the principles established by Raiffeisen, has given an internationally accepted definition of cooperatives as “an independent association of individuals who have united voluntarily, to fulfill or achieve their shared economic, social and cultural needs and objectives, respectively, within a collectively owned and democratically managed enterprise.

Nthaga (2018) posit that the first credit union was established to cater for a population who were considered unbankable due to very small, erratic flows of income. The cooperative model began to spread across Europe in the mid-19th century against the backdrop of socio-political difficulties that were the result of war and economic instability. This model continued to exist in one form or another throughout history based on the premise that human beings, in their individual capacity, lack the power to consistently and successfully overcome life’s adversities and can thus achieve more as an organized co-operative. The movement proliferated throughout Europe, Asia and Latin America and was introduced to Africa in 1930 (Hezron & Muturi, 2015).

Cooperatives have been seen to have an important role to play, particularly in terms of providing small farmers with the enabling conditions for their empowerment. Generally, organizing small farmers into agricultural cooperatives allows for the achievement of economies of scale and bargaining power in production and marketing. They can also have enhanced access to natural resources, input and output markets, information and knowledge and can be represented well in government agencies (McInerney, 2014). This significant role of cooperatives in unlocking the potential of smallholder family farmers for enhancing productivity and livelihoods and in a broader way, for reducing rural poverty have been reemphasized during the International Year of Family Farming in 2014.

2.2 Cooperatives in the Philippines

Cooperatives are well-integrated into the legal environment of the Philippines. The constitution provides a concrete definition for cooperatives, and Republic Acts No. 9520 also known as the Philippine Cooperative Code of 2008 and 6939 elaborate on that definition and how cooperatives are regulated. Cooperatives in the Philippines are differentiated by category (primary, secondary, and tertiary, according to the legal nature of the membership) and classified according to the sector of economic activity and membership type. In total, there are twenty distinct legally recognized classifications. The CDA has a wide range of regulatory,

promotional and developmental responsibilities related to cooperatives. It is the key organization responsible for compiling statistics on cooperatives, where information on cooperatives in the country is centralized. The CDA uses an internationally accepted definition of cooperatives based on ownership, governance, and the distribution of profits. Additionally, the CDA keeps track of federations and unions of cooperatives. In the Philippines, cooperative federations are established to strengthen cooperative members' activities through educational and operational means.

2.3 Financial Performance of Cooperatives

The basic consideration for the cooperative's continuous operation is its financial condition. Madulid (2015) said that cooperative financing is also critical and in today's complex cooperative organizations it can be quite complicated. Adequate capital is one of the fundamental principles of sound business operation and at the same time one of the biggest challenges facing cooperatives today. Hence, to cover all current financial needs and safety allowances of cooperatives the adequacy of the working capital must be ensured.

Economic development of any country is largely dependent on the level of contribution made by corporate entities and other organizations that constitute the hub of the economy. Economic development is also affected by efficient performance of enterprises in terms of management, production and financial aspects. The Philippine government has enacted different cooperative-related laws, policies and regulations that enjoined government agencies (GOs), non-government Organizations (NGOs), the private sector and other institutions to support the formation and organization of cooperatives and to create an atmosphere conducive to their growth and development. It also created a legal body in 1990, the CDA, specifically to monitor the activity of the movement.

However, many of them have insufficient financial performance thus have not served their members effectively. Farmer cooperatives are undergoing difficult moment trying to adjust to economic liberalization and little has changed recently. For instance, stiff competition has largely affected them due to unmatched strength of other cooperatives such as commercial cooperative societies. They have of late experienced inadequate financial resources and low volumes of produce thus limiting their service delivery to the members. As such, the potential of cooperative societies has hence been hindered by inadequate financial performance (Kimetto & Kiman, 2017).

Da Silva et al. (2017), have pointed out that the measuring tools of the financial performance of the cooperatives must be approached from five financial indexes highlighting corporate objectives. These assessment guidelines include profitability, leverage, solvency, liquidity and efficiency. However, according to Macedo et al. (2006), the analysis of an organization's

performance is subject to many discussions and questions about which indicators to use and how to consolidate them.

According to Chungyas and Calara (2018) it is very important to measure the earnings of the cooperative because this will direct the next step the management would take. Assessment of the financial performance is primary helpful to the management and the stakeholders. The present study would like to find out whether agricultural cooperatives are, indeed, maximizing their earnings to the betterment of the agricultural cooperatives and for the benefit of their members. As Mellor (2009) stated that for a cooperative to be profitable it must be financially stable and efficient over the long term, have staying power, particularly to get through hard times.

3. Materials and Methods

A descriptive research design was employed in this study. Financial statements covering the years 2014-2018 were utilized in the analysis of the financial performance of the farmer cooperatives. Ten (10) farmer cooperatives in the towns of San Miguel, San Ildefonso, Baliuag, Pandi, Calumpit, Sta. Maria, and Malolos were included as sample respondents of the study. The farmer cooperatives were all interviewed in their office premises represented by their Board of Directors.

Data collected from the respondents and other key informants were sorted, edited, and analyzed by descriptive statistics. Descriptive analysis tools used were means, percentage distribution, and frequency counts for the general information of the respondents and the organizational profile of the farmer cooperatives under study.

Financial ratios were utilized to analyze the financial performance of the farmer cooperatives including profitability, operational strength, and operating efficiency. The financial ratios used were based on the CDA standards in the financial performance evaluation of cooperatives.

Financial Ratios

1. Profitability

1.1 Profitability Ratio:

$$\text{Formula: } \frac{\text{Net Operating Surplus}}{\text{Gross Revenue} / \text{Gross Margin}}$$

1.2 Return of Equity Ratio:

$$\text{Formula: } \frac{\text{Net Surplus}}{\text{Members' Equity} - \text{Treasury Share}}$$

2. Operational Strength

2.1 Solvency

Formula: $(\text{Assets} + \text{Allowance for probable losses}) - [(\text{Total Liabilities Deposit Liabilities}) + (\text{Past due receivables} + \text{restructured receivables} + \text{receivables under litigation})]$

Deposit Liabilities + Share Capital

2.2 Liquidity

Formula: $\frac{\text{Liquid Assets} - \text{Short Term Payables}}{\text{Total members' deposit}}$

3. Operating Efficiency

3.1 Cost per Volume of Business

Formula: $\text{Operating cost} - (\text{members' benefit expense} + \text{social service expense})$

Total Volume of Business

3.2 Account Receivable Turn-Over Ratio

Formula: $\frac{\text{Net Credit Sales}}{\text{Average Accounts Receivables}}$

4. Results

4.1 Organizational Profile of the Farmer Cooperatives

The farmer cooperatives have a combined membership of 30,937 individuals, comprising 17,185 (55%) females and 13,752 (45%) males. Within this overall membership count, 18,038 individuals hold regular membership status, while 12,899 individuals are classified as associate members. In the context of membership categorization, 24,704 members are actively engaged, and 6,233 members are classified as non-active across all the sampled farmer cooperatives.

In terms of their duration of operation, the most established farmer cooperative has a history of 32 years of operation. As a result, it possesses the largest amount of assets among all cooperatives. On the other hand, the most recently established cooperative, which has been in operation for just five (5) years, holds the smallest amount of assets.

When it comes to the workforce size, the most senior and the most extensive farmer cooperative boasts the highest count of personnel, with a total of 154 individuals, all of whom are paid employees receiving wages based on the minimum wage prevailing in the study area. In

contrast, the youngest among the surveyed farmer cooperatives has the smallest workforce, comprising exclusively volunteers who receive only a modest honorarium.

Agricultural loans and/or credit take the top position as the primary product offered by the surveyed farmer cooperatives. Emergency loans secure the second position in the ranking. Agricultural inputs, facilities & equipment rentals, and education loans occupy the fourth spot. It is worth noting that only six farmer cooperatives provide marketing services for their farmer-members products.

4.2 Financial Performance Analysis of Farmer Cooperatives

4.2.1 Profitability Analysis

The profitability performance was measured using the profitability ratio and return on equity ratio.

Table 1. Profitability ratio and return on equity ratio of Farmer Cooperatives in Bulacan for the Year 2014-2018

Farmer Cooperative	Profitability Ratio	Return on Equity Ratio
Farmer Cooperative 1	31.25%	₱0.13
Farmer Cooperative 2	5.47%	₱0.12
Farmer Cooperative 3	29.70%	₱0.14
Farmer Cooperative 4	26.11%	₱0.09
Farmer Cooperative 5	21.72%	₱0.08
Farmer Cooperative 6	24.29%	₱0.06
Farmer Cooperative 7	32.73%	₱0.08
Farmer Cooperative 8	-99.79	-₱0.09
Farmer Cooperative 9	14.25%	₱0.03
Farmer Cooperative 10	-7.75%	₱0.14
Grand Mean	7.80%	₱0.08

Table 1 presents the profitability ratio, which assesses the farmer cooperatives' ability to generate surplus for the allocation to statutory funds in Bulacan for the years 2014 to 2018. The performance standard set by CDA is 30%, as outlined in Memorandum Circular (MC) No. 15, s. 2013. A closer examination of the table reveals that only Farmer Cooperative 7 and Farmer Cooperative 1 have exceeded this standard, with mean profitability ratios of 32.73% and 31.25%, respectively.

In contrast, Farmer Cooperative 8 and Farmer Cooperative 10 have experienced negative profitability, with mean ratios of -99.79% and -7.75%, respectively. This situation necessitates a closer examination of their financial strategies and operations to address the challenges and improve their financial performance.

Referring to Table 1, we can also observe the Return on Equity (ROE) ratio. As depicted in the table, none of the Farmer Cooperatives managed to achieve the ₱1.50 standard set by the Philippine CDA, which signifies that the members' equity did not yield substantial returns. The calculated mean ROE stands at merely ₱0.08, indicating that the equity has not been generating sufficient returns to provide significant rewards for the capital contributions made by the members.

Notably, Farmer Cooperative 3 and Farmer Cooperative 10 exhibit the highest ROE with an average of ₱0.14 for both. In contrast, Farmer Cooperative 8 displays a negative ROE at ₱-0.09.

4.2.2 Operational strength

To measure the operational strength of farmer cooperatives solvency and liquidity ratios were considered. The solvency ratio of the Farmer Cooperatives in Bulacan for the period 2014-2018 is shown in Table 2. It can be seen from the table that the majority (9 out of 10) of the farmer cooperatives with a grand mean of 292.93% passed the performance standard set by CDA at 110% and above,

Table 2. Solvency and Liquidity Ratio of Farmer Cooperatives in Bulacan, Philippines for the year 2014-2018

Farmer Cooperative	Solvency	Liquidity
Farmer Cooperative 1	155.02%	34.43%
Farmer Cooperative 2	129.15%	-72.43%
Farmer Cooperative 3	135.92%	30.02%
Farmer Cooperative 4	124.29%	35.36%
Farmer Cooperative 5	329.76%	1873.16%
Farmer Cooperative 6	136.84%	37.39%
Farmer Cooperative 7	481.30%	77.33%
Farmer Cooperative 8	1173.84%	348.40%*
Farmer Cooperative 9	98.90%	8979.38%*
Farmer Cooperative 10	164.28%	56.47%*
Grand Mean	292.93%	1139.95%

Note: *No members' deposit. Liquidity is based on Current Liabilities only.

Oddly, Farmer Cooperative 8, one of the micro cooperatives, has the highest solvency at 1173%. Following Farmer Cooperative 8 are Farmer Cooperative 7, Farmer Cooperative 5, and Farmer Cooperative 10, with a computed mean of 481.30%, 329.76%, and 164.27% respectively. However, Farmer Cooperative 9 got the lowest ratio of 98.90%, which indicate that not all of the obligations (external and internal) of the cooperative would be satisfied in case of total dissolution and liquidation of all its assets and liabilities.

In terms of liquidity, Table 2 shows that the aggregate ratio of 1139.95% liquidity for all the sampled farmer cooperatives in Bulacan is beyond the CDA performance standard of 15% and above. It can be noted that Farmer Cooperative 2, a large cooperative, posted a negative computed liquidity of -72.43%. Meanwhile, for Farmer Cooperative 8 (348.98%), Farmer Cooperative 9 (8979.38%), and Farmer Cooperative 10 (56.47%), liquidity is based on current liabilities only since there is no members' deposit recorded.

4.2.3 Operating Efficiency

Operating efficiency parameters used to measure the financial performance of farmer cooperatives in Bulacan include cost per volume of business and administrative efficiency.

Table 3. Efficiency ratios of the Farmer Cooperatives in Bulacan, Philippines for the year 2014-2018

Farmer Cooperative	Cost per Volume of Business	Administrative Efficiency
Farmer Cooperative 1	₱0.24	10.95%
Farmer Cooperative 2	₱0.10	5.64%
Farmer Cooperative 3	₱0.30	5.17%
Farmer Cooperative 4	₱0.14	3.99%
Farmer Cooperative 5	₱0.17	3.85%
Farmer Cooperative 6	₱0.11	9.08%
Farmer Cooperative 7	₱0.24	12.40%
Farmer Cooperative 8	₱0.48	8.20%
Farmer Cooperative 9	₱0.12	5.28%
Farmer Cooperative 10	₱0.47	38.10%
Grand Mean	₱0.24	10.27%

Table 3 presents the cost per volume of business for Farmer Cooperatives in Bulacan for the years 2014-2018, taking into account the CDA performance standard of 25 centavos (₱0.25).

The data reveals that, collectively, the sampled Farmer Cooperatives in Bulacan have demonstrated remarkable cost-efficiency in their operations. The grand mean cost per volume of business is ₱0.24, which is well within the CDA's performance standard of 25 centavos or ₱0.25. However, there are variations in cost efficiency among individual farmer cooperatives. Farmer Cooperative 8 reports the highest cost at ₱0.48, followed by Farmer Cooperative 10 and Farmer Cooperative 3, with computed means of ₱0.47 and ₱0.30, respectively. These cooperatives have incurred relatively higher expenses in the operationalization of their business activities, particularly in trade and credit services. Despite their higher costs, they remain compliant with the CDA's performance standard.

On the other end of the spectrum, Farmer Cooperative 2 ($\bar{X}=\text{P}0.10$), Farmer Cooperative 6 ($\bar{X}=\text{P}0.11$), and Farmer Cooperative 9 ($\bar{X}=\text{P}0.12$) have achieved the lowest cost per volume of business.

Likewise, Table 3 presents the administrative efficiency ratios of Farmer Cooperatives in Bulacan for the years 2014-2018, taking into account the CDA performance standard of 10% and below. The data reveals that, collectively, the sampled Farmer Cooperatives in Bulacan have demonstrated commendable administrative efficiency. The grand mean administrative efficiency ratio is 10.27%, which is well within the CDA's performance standard of 10% and below.

However, there are also variations in administrative efficiency among individual farmer cooperatives. Farmer Cooperative 10 reports the highest administrative efficiency ratio at 38.10%, followed by Farmer Cooperative 7 with 12.40%. These cooperatives have incurred relatively higher administrative costs in the operation of their businesses. Despite their higher costs, they still remain compliant with the CDA's performance standard.

On the other hand, Farmer Cooperative 4 ($\bar{X}=3.99\%$) and Farmer Cooperative 5 ($\bar{X}=3.85\%$) have achieved the lowest administrative efficiency ratios. These figures indicate that these cooperatives have efficiently managed their administrative costs, achieving their desired results with minimal expenditure in terms of energy, time, money, personnel, and materials.

5. Discussions

5.1 Organizational Profile of the Farmer Cooperatives

The membership composition of farmer cooperatives, as outlined in the study, reveals important demographic and engagement characteristics within these cooperative organizations. The gender distribution is noteworthy as it reflects a relatively balanced representation of both sexes within the farmer cooperatives. Such gender balance can be seen as a positive trend, as it aligns with efforts to promote gender equality and inclusivity within agricultural and rural development initiatives (Doss, 2018).

Furthermore, the active participation of female members in farmer cooperatives can contribute to their empowerment, income generation, and overall development (Quisumbing et al., 2015). This finding underscores the cooperative's role in fostering gender equality and providing opportunities for women in the agricultural sector.

The study also categorizes cooperative members into two primary groups: regular members and associate members. This differentiation between regular and associate members may be influenced by factors such as capital contributions, participation levels, and shared responsibilities (Eardon et al., 2019). It is crucial to further investigate the specific roles and

privileges associated with these different membership categories to ensure equitable treatment and benefits for all members.

The data also classifies cooperative members as either active or non-active. The presence of non-active members raises questions regarding their reasons for limited participation and the potential for increasing their involvement in cooperative activities. It is essential for farmer cooperatives to explore strategies to encourage greater participation among non-active members, potentially by offering training, incentives, or addressing any barriers to their involvement.

The ranking of products and services offered by farmer cooperatives plays a critical role in assessing the cooperative's alignment with the needs of its members and the broader agricultural community. The provided data highlights the prominence of agricultural loans and credit, the significance of emergency loans, and the relatively limited availability of marketing services within the surveyed farmer cooperatives.

The organizational profile analysis reveals both strengths and areas for improvement among the farmer cooperatives in Bulacan. The diversity in membership, services offered, and workforce composition present opportunities for knowledge exchange and collaborative strategies. To sustain and enhance their operations, cooperatives may consider fostering gender-inclusive policies, addressing factors influencing non-active membership, and exploring avenues for expanding marketing services.

5.2 Financial Performance Analysis of Farmer Cooperatives

5.2.1 Profitability Analysis

The profitability ratio serves as a key indicator of financial performance. The standard set by the Philippine Cooperative Development Authority at 30%, as indicated in Memorandum Circular (MC) No. 15, s. 2013, offers a benchmark for evaluating the cooperatives' financial health. Sharifi (2013) said that profit is an important objective of a cooperative, so poor performance indicates a basic failure that, if not corrected, would probably result in the firm going out of business. Cooperatives must operate profitably. Hence, appropriate profitability ratios pose the biggest challenge for analyzing cooperatives.

The data reveals that Farmer Cooperative 7 and Farmer Cooperative 1 have consistently surpassed this standard. These cooperatives have successfully accumulated substantial earnings, ensuring a consistent surplus over the covered period. The ability to generate surpluses is crucial, as it allows for the allocation of funds to statutory accounts, which, in turn, ensures stability and provides benefits to members in the form of interest on share capital and patronage refunds.

This high profitability indicates effective management and cost control within these cooperatives. It suggests that they have harnessed their resources efficiently, contributing to their financial success.

In stark contrast, Farmer Cooperative 8 and Farmer Cooperative 10 have faced significant financial challenges, evident in their negative profitability ratios with mean values of -99.79% and -7.75%, respectively. These figures signify that these cooperatives have incurred net losses and have not been able to make any allocations to statutory funds.

A closer examination of their financial strategies and operations is essential to address these challenges and improve their financial performance. The negative ROE for Farmer Cooperative 8 at ₱-0.09 is due to net losses during the covered period, indicating insufficient income or surplus generation to provide earnings for members' capital contributions. This, in turn, affects their ability to allocate interest on share capital and patronage refunds to members.

ROE offers another perspective on cooperatives' financial performance. The inability of any Farmer Cooperative to meet the ₱1.50 standard set by the CDA underscores challenges in generating substantial returns on members' equity investments. The calculated mean ROE at ₱0.08 indicates that equity has not been efficiently leveraged to provide significant rewards to the members for their capital contributions.

It is notable that Farmer Cooperative 3 and Farmer Cooperative 10 have achieved the highest ROE with an average of ₱0.14. This suggests that they have effectively utilized members' equity to generate returns. Conversely, Farmer Cooperative 8's negative ROE at ₱-0.09 mirrors the challenges faced in generating income and benefits for members.

The analysis of profitability and ROE highlights the importance of continuous monitoring and strategic financial management for the sustainability of farmer cooperatives in Bulacan. By addressing identified challenges and learning from successful cases, these cooperatives can strengthen their financial foundations and better serve the needs of their members.

To address the challenges identified, cooperatives experiencing negative profitability and low ROE should consider revisiting their financial management practices, exploring diversification strategies, and strengthening internal controls. Collaboration with financial experts or external consultants may provide valuable insights and guidance.

Additionally, there is a need for capacity-building initiatives and training programs to enhance financial literacy and management skills among cooperative leaders and members. This can empower them to make informed financial decisions and contribute to the long-term success of the cooperatives.

5.2.2 Operational Strength

Solvency is a crucial measure of the cooperatives' ability to meet their financial obligations, ensuring the protection of members' investments and financial stability.

The data demonstrates that the majority, precisely nine out of ten, of the farmer cooperatives have exceeded the performance standard set by the CDA with a grand mean solvency ratio of 292.93%. This robust financial performance indicates that the farmer cooperatives in Bulacan are financially solvent. In the event of complete liquidation, the assets and liabilities will be managed in a way that secures members' shares, savings, and deposits. This ensures that both internal and external obligations can be met, which is a critical element in the resilience of cooperatives (Kidney, 2016).

Of particular interest is Farmer Cooperative 8, categorized as a micro cooperative, which stands out with the highest solvency ratio of 1173%. This indicates that, despite previous financial setbacks, the cooperative has significantly strengthened its financial position. In the event of total liquidation, not only will members' shares and capital contributions be fully protected, but external obligations will also be satisfied. This is a testament to the cooperative's financial resilience and its commitment to safeguarding its members' interests.

However, Farmer Cooperative 9 reports the lowest solvency ratio at 98.90%, which suggests that not all the cooperative's obligations, both internal and external, would be satisfied in the unfortunate scenario of a complete dissolution and liquidation of assets and liabilities.

The Liquidity ratios offer insights into the ability of the farmer cooperatives to meet short-term financial obligations. Liquidity is essential for ensuring that cooperatives can cover their immediate financial needs. The data indicates that the aggregate liquidity ratio for all the sampled farmer cooperatives in Bulacan, exceed the CDA performance standard of 15% and above. This demonstrates that collectively, these cooperatives are well-prepared to cover all their short-term payables and obligations in the event of liquidation. However, it's notable that nine out of ten cooperatives exhibit excess liquidity, indicating that they are not fully utilizing their liquid assets to explore additional business opportunities that could enhance their financial sustainability. While a higher liquidity ratio generally indicates a more financially stable enterprise with a larger margin of safety, excessive liquidity may indicate inefficient asset management (Nyamsogoro, 2010).

Efficient liquidity management is crucial for farmer cooperatives. It allows for member withdrawals and deposits when needed and ensures the cooperative can provide immediate cash for various purposes, such as member loans or bill payments. Excessive liquidity implies that funds are not being optimally utilized.

One remarkable exception is Farmer Cooperative 2, a large cooperative, which reports a negative computed liquidity of -72.43%. This suggests that the cooperative may encounter challenges in covering all short-term payables and members' deposits promptly in case of liquidation due to a shortage of liquid assets that can be immediately converted.

For Farmer Cooperative 8, Farmer Cooperative 9, and Farmer Cooperative 10, liquidity is based on current liabilities alone, as there are no members' deposits recorded. Although they can cover short-term payables in case of liquidation, the results imply that they are not efficiently utilizing their excess funds for other business opportunities, as indicated by their excess liquidity

Cooperatives with lower solvency ratios should conduct a thorough analysis of their financial strategies and explore measures to enhance solvency, such as debt restructuring or improved asset management. Cooperatives with excess liquidity should evaluate their investment strategies and consider reallocating funds to areas that can contribute to long-term financial sustainability, such as business expansion or community development projects.

Overall, farmer cooperatives can benefit from regular financial assessments, training programs on efficient liquidity management, and strategic planning to strike a balance between solvency and liquidity for optimal operational strength.

5.2.3 Operating Efficiency

Collectively, the sampled Farmer Cooperatives in Bulacan have demonstrated remarkable cost-efficiency in their operations. The grand mean cost per volume of business stands at ₱0.24, a figure that is comfortably within the CDA's established performance standard of 25 centavos or ₱0.25. This outcome strongly suggests that, as a group, these farmer cooperatives have excelled in managing and minimizing their operational costs, effectively adhering to the regulatory guidelines set by the CDA.

While the collective findings are certainly encouraging, it's important to recognize the variations that exist in terms of cost efficiency among individual farmer cooperatives. For instance, Farmer Cooperative 8 has reported the highest cost at ₱0.48, closely followed by Farmer Cooperative 10 and Farmer Cooperative 3, with computed means of ₱0.47 and ₱0.30, respectively. These specific cooperatives have incurred relatively higher expenses in the operationalization of their business activities, particularly within the realms of trade and credit services. Importantly, despite their relatively higher operational costs, they have managed to maintain compliance with the CDA's performance standard. This demonstrates their capability to operate cost-effectively even while addressing the unique demands of their respective businesses.

Conversely, Farmer Cooperative 2, Farmer Cooperative 6, and Farmer Cooperative 9 have achieved the lowest cost per volume of business. These figures underscore the efficient management of costs within these specific cooperatives, resulting in a more cost-effective operation of their businesses. Their ability to maintain lower costs indicates a strategic approach to resource management, which is essential for financial sustainability.

Farmer cooperatives play a crucial role in supporting agricultural communities by promoting collective action, resource pooling, and economic sustainability. Administrative efficiency within these cooperatives is vital for successful operation and resource allocation. The Cooperative Development Authority (CDA) has set a performance standard of 10% administrative efficiency or below for cooperatives. In this discussion, we will analyze the administrative efficiency of ten farmer cooperatives in light of the CDA standard, drawing upon the provided data.

The CDA's performance standard of 10% or below for administrative efficiency is a clear benchmark that signifies the importance of maintaining a lean and effective administration within farmer cooperatives. Cooperatives that exceed this threshold may be considered as potentially inefficient in their administrative practices, which can hinder their overall performance and financial health.

The data reveals significant variability in administrative efficiency among the cooperatives. Notably, Farmer Cooperative 10 reports the highest administrative efficiency ratio at 38.10%, which is substantially higher than both the CDA standard and the grand mean. This suggests that Farmer Cooperative 10 has incurred considerably higher administrative costs, potentially impacting its overall operational efficiency. Kiaritha et al. (2014) found out in their study that operating costs were negatively related to financial performance, implying the higher the costs, the lower the performance.

Conversely, Farmer Cooperative 4 (3.99%) and Farmer Cooperative 5 (3.85%) exhibit the lowest administrative efficiency ratios. These figures indicate exemplary cost management practices, as these cooperatives have achieved their administrative goals with minimal expenditure. Their efficiency in managing resources such as energy, time, money, personnel, and materials sets a benchmark for other cooperatives.

Farmer Cooperative 7, with an administrative efficiency ratio of 12.40%, also exceeds the CDA performance standard. This indicates a higher level of administrative expenditure, though still within a manageable range when compared to Farmer Cooperative 10.

The remaining cooperatives, including Farmer Cooperative 1 (10.95%), Farmer Cooperative 2 (5.64%), Farmer Cooperative 3 (5.17%), Farmer Cooperative 6 (9.08%), Farmer Cooperative 8 (8.20%), and Farmer Cooperative 9 (5.28%), fall within the spectrum of efficient to

moderately efficient administrative cost management. Most of these cooperatives are either within or very close to the CDA's standard, suggesting a general trend of effective administrative practices.

The grand mean of 10.27% reflects a collective administrative efficiency that is commendable, although slightly above the ideal threshold. This slight deviation underscores the need for continuous improvement and strategic interventions to assist cooperatives like Farmer Cooperative 10 in reducing their administrative costs. Meanwhile, the lower ratios achieved by Farmer Cooperative 4 and Farmer Cooperative 5 exemplify best practices that could be disseminated across other cooperatives to enhance overall administrative efficiency.

6. Conclusions and Recommendations

The research on farmer cooperatives in Bulacan, Philippines illuminates key facets of their operations, revealing a balanced membership composition, a commitment to addressing diverse needs through varied products and services, and commendable financial health and administrative efficiency. The findings underscore the importance of continuous improvement, strategic cost management, and inclusivity efforts to enhance the long-term success and sustainability of these cooperatives. By recognizing and striving to meet benchmarks set by the CDA, such as financial and administrative efficiency standards, cooperatives can better serve their members, contribute to the prosperity of the agricultural sector, and establish a resilient foundation for future challenges and opportunities.

Based on the comprehensive analysis of farmer cooperatives in Bulacan, it is recommended that cooperatives focus on strategies to enhance inclusivity and active participation, particularly by investigating and addressing the unique needs and roles of different member categories. Additionally, cooperatives should consider expanding their service offerings, with a specific emphasis on marketing services to further benefit their members. Financial sustainability can be bolstered by optimizing liquidity management, and continuous efforts to improve cost efficiency should be prioritized, drawing inspiration from successful peers and industry experts. Cooperatives are encouraged to leverage external support from government agencies, educational institutions, and experienced cooperatives to enhance administrative efficiency, ensuring that they meet or exceed established benchmarks. These recommendations collectively aim to fortify the operational foundations of farmer cooperatives, ensuring their resilience, prosperity and sustained positive impact on the local agricultural community.

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