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Financial Management Practices and Profitability of Small-Scale Farmers in A Disintermediated Market in Digos City

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ABSTRACT

Financial management, a detrimental factor in business survivability, is given little attention in the agriculture sector, especially among small agri-enterprises like small-scale farmers who rely entirely on selling their produce as their source of income. Thus, this study aimed to ascertain the level of financial management practices of small-scale farmers trading in disintermediated markets and their profitability and examine the significant relationship between the two variables. Simple random sampling was utilized during the selection, comprising 150 small-scale farmers in Digos City. This quantitative study used a descriptive, predictive design through an adapted-standardized research questionnaire. Findings revealed that small-scale farmers have a moderate level of overall financial management practices in terms of savings and investment, cash management, credit management, and insurance. Further, only cash management and savings and investment have a statistically significant correlation with profitability, whereas credit management and insurance proved to have none statistically. Nonetheless, overall financial management practices have a statistically significant correlation with profitability. Finally, the researchers recommended that financial institutions and governments organize informative seminars on financial management practices for rural farmers. This study could provide valuable insights into effective financial management practices and aid smallholders achieve greater financial sustainability and profitability.

INTRODUCTION

Most farm management courses and texts pay considerable attention to financial management topics on the international scene. However, there is still much less focus given to financial management in agriculture, with especially lesser attention on small and micro enterprises like farms (Argilés & Slob, 2001, Jack, 2005, & Ndemewah *et al.*, 2019, as cited in Hayden *et al.*, 2022).

Among the farms around the globe, there are approximately 500 million farms with a land size of less than 2 hectares (Wiggins *et al.*, 2010, as cited in Lowder *et al.*, 2016). According to a web blog entitled “Bayer: Empowering Smallholder Farmers” (2023), an estimated 550 million smallholder farmers are in developing countries throughout Africa and Asia. With the efforts of these farmers, who mostly own under 2 hectares of farmland, more than half of the population across these regions are fed. Thus, it is unquestionable that smallholder farmers are vital players in global agriculture and food security. However, small-scale farmers have limited access to the market, especially in the Philippines where large retailers have concerning dominance over the structure of the local markets (Digal, 2001). Therefore, some smallholders dispose of their produce in an informal and disintermediated market (Gu, 2022). A disintermediated market, allows suppliers and consumers to directly trade with each other.

Through the years, Philippine farming systems have evolved to adopt to a continually changing environment.

However there still persists those subsistent farmers (Signabon, 2017), and these small-scale farmers face difficulty in coping with global market demands due to insufficient resources, such as capital (Vargas, 2021). Thus, how farmers allocate resources is the deciding factor for their success or failure, and many farmers hardly make or struggle to make sound financial decisions (Signabon, 2017). In support, Ratnawati (2024) discussed that there is a need for the understanding of good financial management among owners for the prosperity of the business. Entrepreneurial behavior training seminars and empowerment of farmers will aid farmers in effectively managing their finances (Vargas, 2021). However, Arellano and Delos Reyes (2019) interjected that local farmers are still doubted to possess the needed entrepreneurial behavior for farming due to lack of formal trainings.

This research aimed to determine the financial management practices and profitability among small-scale farmers who dispose of their produce through a disintermediated market in Digos City. To be specific, the study sought answers to the following objectives: (1) To determine the level of financial management practices of smallholders trading in a disintermediated market in Digos City in terms of savings and investment, cash management, credit management, and insurance; (2) To assess the level of income among small-scale farmers trading in a disintermediated market in Digos City; (3) To ascertain if there exists a significant relationship on

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the level of profitability among small-scale farmers when analyzed according to the level of financial management practices; (4) To determine which domain of financial management practices predicts profitability.

LITERATURE REVIEW

In farming business, there is a need for the professionalized and stricter control over farm production and finances, through the introduction of management tools focused on monitoring inputs (Vanhuysse *et al.*, 2021), especially the financial aspect. In the research study of Kryszak *et al.* (2021), they cited the findings of Gloy and LaDue (2002 & 2003), which suggested that observing financial management practices on the farm significantly impacts the financial performance of the farm. Consequently, poorly practiced financial management results in actions detrimental to the survival of businesses (Dwangu & Mahlangu, 2021, as cited in Mang'ana *et al.*, 2023), especially smallholder farmers in the disintermediated market.

Much of the existing literature tackles the relevance of financial management practices in relation to agricultural SMEs. Recent empirical studies on Agri-SMEs posit the relationship between financial-based variables and the performance of SMEs (Mang'ana *et al.*, 2022, as cited in Mang'ana *et al.*, 2024). Further, the study of Mang'ana *et al.* (2023) emphasized financial management practices as an important contributor to the success of agricultural enterprises' operations. In addition, Mang'ana *et al.* (2024) quoted a study in Kenya by Nyabwanga (2012), which uncovered the generally low adoption of one of the financial management practices, specifically the small-scale enterprises' working capital management practices. It revealed a significant relationship between working capital management and the SSEs' financial performance. Enterprises must effectively implement and manage financial management practices to improve general financial performance. Thus, Mang'ana *et al.* (2024) recommended a comprehensive approach for Agri-SMEs to incorporate all the important financial management practices to attain optimal outcomes in Agri-SMEs' operation.

In the Philippine context, studies on financial management from different provinces showed moderate or not-so-impressive levels of financial management among different micro-enterprises, which includes agribusiness, due to the level of financial literacy being low, and also the low level of financial skills that is evident in the lack of recording and monitoring of financial transactions and management of cash (Sucuahi, 2013, & Barte, 2012, as cited in Caclini, 2022). The same proposition was observed in the study of Caclini (2022) in Ifugao, where the practice of financial management is significantly moderate, showing the level of financial skills among micro-enterprises to be low. Similarly, a study conducted in Danao City (Anoos *et al.*, 2020) revealed that MSMEs do not practice financial management and control, which is a factor that threatens the sustainability and overall performance of the business, especially on the level of income. Thus, it was recommended for seminar

workshops on financial literacy among micro-enterprises (Anoos *et al.*, 2020), like vendors or small-scale farmers.

Theoretically, this study was anchored on the Resource-Based View theory. The RBV theory emphasizes that businesses gain a sustained competitive advantage due to their valuable resources or capabilities, which contribute to the better financial performance of the business in the long term (Barney, 1991, as cited in Zhao & Morgan, 2017; Peteraf & Barney, 2003, as cited in Freeman *et al.*, 2021). Mashenene and Kumburu (2020) added that the effective utilization of resources and capabilities determines the performance of an enterprise. Resources and capabilities include funds, skills like technical or management ability, and enforcement of financial management practices (Wade & Hulland, 2004, & Barney, 1991, as cited in Mang'ana *et al.*, 2023). Furthermore, this study is guided by the hypothesis of the study of Mang'ana *et al.* (2023), where it is hypothesized that effective utilization and employment of resources at disposal, such as financial management practices or skills, is important for small-scale farmers or enterprises to attain objective performance.

The results of this study aided the researchers and community in determining the level of smallholder farmers' financial management practices in a farm-to-consumer market within Digos City without the presence of market intermediaries. In addition, this study showed how the dependent variable (profitability) is impacted by the independent variables (financial management practices). Through exploring how the small-scale farmers in disintermediated markets apply financial management practices and uncovering the concerns that impact their profitability, this research study contributed to further understanding of the status and the financial aspect of the disintermediated market in agriculture within the City of Digos, particularly of the small-scale farmers and in the setting of disintermediated markets. Lastly, the results of this study provided critical insights for other future researchers who plan to carry out and explore the same study in a different setting, as well as aided stakeholders, the government, and financial institutions in establishing strategies and solutions to deal with specific local concerns in business finance and profitability of small-scale farmers.

MATERIALS AND METHOD

Respondents

The respondents of this study were a portion of the small-scale farmers who traded in a disintermediated market in Digos City. It encompassed a sample size of 150 respondents, which Quota Sampling determined. Primary data was obtained by surveying selective small-scale farmers involved in a disintermediated market in Digos City, regardless of their demographic characteristics, including age, gender, educational attainment, and the produce they sell. They must be farmers who farm on small-scale farmland of less than 10 hectares in Digos City and sell their produce without the intervention of intermediaries.

To determine the disintermediation of the disposal of produce among our respondents, the smallholder farmers must be the ones who grew the crops or produce they are selling, or it could be the produce their direct family had grown. Meanwhile, farmers who cultivate more than 10 hectares of farmland and do not live in Digos City and those who participate in intermediated markets must be excluded from our target respondents. Further, if any respondents refuse to continue participating in the study, they will be given full freedom to withdraw. Additionally, the target respondents' authorized consent was necessary to participate in the study, and they shall not be coerced. The respondents were chosen through simple random sampling, where every person has an equal opportunity to be selected from the population to participate in the study (Acharya, 2013; Thomas, 2020; Noor *et al.*, 2022).

Table 1: Characteristics of 150 respondents included in the study, n = 150

Profile	f	%
Gender		
Female	82	54.7
Male	68	45.3
Age		
18-25 y.o.	6	4.0
26-35 y.o.	18	12.0
36-45 y.o.	26	17.3
46-55 y.o.	42	28.0
56-65 y.o.	58	38.7
Address		
Balabag	41	27.3
Binaton	5	3.3
Goma	56	37.3
Kapatagan	32	21.3
Soong	5	3.3
Zone 3	4	2.7
Kiagot	6	4.0
Highest Level of Education Attained		
Elementary undergraduate	44	29.3
Elementary graduate	54	36.0
High School undergraduate	27	18.0
High School graduate	18	12.0
College undergraduate	4	2.7
College graduate	3	2.0
Type of Products/Crops		
Vegetables	54	36.0
Fruits	42	28.0
Rice	1	0.7
Corn	6	4.0
Potato	1	0.7

Vegetables and Fruits	23	15.3
Vegetables and Corn	10	6.7
Vegetables, Fruits, and Corn	5	3.3
Fruits and Corn	2	1.3
Vegetables and Potato	3	2.0
Vegetables, Fruits, and Potato	1	0.7
Vegetables, Fruits, Corn, and Potato	1	0.7
Others: Peanut	1	0.7
TOTAL	150	100.0

Table 1 reveals the results of the characteristics of the respondents (selected small-scale farmers) in terms of age, gender, small-scale farmers' address, highest level of education attained, and type of products/crops.

Regarding gender, there is a slight majority of female respondents, with a frequency of 82, or 54.7%, whereas the male respondents only correspond to 68, or 45.3%. Regarding age, the largest age group is the bracket 56-65 which got the highest frequency of 58 or 38.7% of the respondents; followed by brackets 46-55, 36-45, and 26-35 respectively, and lastly, the 18-25 age bracket acquired the lowest frequency of 6 or 4.0%. Moreover, majority of the respondents reside in Barangay Goma with the highest portion of 56 or 37.3%, followed by the barangay of Balabag with 41 or 27.3%, barangay Kapatagan with 32 or 21.3%, barangay Kiagot with 6 or 4%, while barangay Binaton and barangay Soong both got 5 or 3.3% and only 4 or 2.7% from the barangay of Zone III. Furthermore, most of the respondents were elementary graduates with 54 or 36.0% frequency, followed by elementary undergraduates with 44 or 29.3%, high school undergraduates with 27 or 18.0%, high school graduates with 18 or 12.0%, college undergraduates with 4 or 2.7%, and college graduate with about 3 or 2.0%. Lastly, the most common crops grown by the respondents are vegetables (36%), together with fruits (28%). Plus, the most common combination of crops grown when it comes to multiple cropping is the mix of vegetables and fruits.

Instrument

A survey questionnaire adapted from the study of Dew and Xiao (2011) entitled "The Financial Management Behavior Scale: Development and Validation" was the main instrument used to collect data regarding the survey's components. The survey questionnaire was split into three parts. The first section addressed the demographic profile of the respondents, including gender, age, highest educational attainment, and the type of crops/produce. The second part contained a 5-point rating scale, which assessed the level of the respondents' financial management practices in terms of savings and investment, cash management, credit management, and insurance subscales. This was when respondents rate how

often they practice the described practices within the past year whether it is 5 that corresponded to “always”, 4 corresponding “often”, 3 referred to “sometimes”, 2 indicated “seldom”, or 1 corresponding “never”. In the last part, the researchers questioned the respondents regarding their level of profitability through their level

of net income for the past six months on a monthly average basis. This study utilized a 5-point Likert Scale to give a basis of interpretation for the respondents’ level of Financial Management Practices and each variable: savings and investment, cash management, credit management, and insurance.

Table 2: 5-Point Likert Scale: Interpretation of Financial Management Practices Scores

Numerical Scale	Range of Means	Descriptive Level	Descriptive Interpretation
5	4.21-5.00	Very High	This implies a very high level of financial management practices among small-scale farmers.
4	3.41-4.20	High	This implies a high level of financial management practices among small-scale farmers.
3	2.61-3.40	Moderate	This implies a moderate level of financial management practices among small-scale farmers.
2	1.81-2.60	Low	This implies a low level of financial management practices among small-scale farmers.
1	1.00-1.80	Very Low	This implies a very low level of financial management practices among small-scale farmers.

Design and Procedure

The study utilized a predictive research design. Metwally (2023) defined predictive research design as a scientific method used to make predictions, as its name entails. Moreover, it is employed to forecast accurately the likelihood of a circumstance happening or the probable values of a continuous measure in a certain period. Through quantitative methods, this study aimed to explore the financial perspectives of small-scale farmers trading in a disintermediated market precisely using face-to-face survey methods.

Great caution and effectiveness were observed as the survey questionnaires were distributed to the respondents in person. Roopa and Rani (2012, as cited in Noviana & Oktaviani, 2022) described a questionnaire as a form of listed questions that allows respondents to give their opinions about a certain topic. The questionnaire was intended to determine small-scale farmers’ financial management practices and profitability in a disintermediated market. Before distributing the survey questionnaires, the researchers asked for a letter of permission from the university’s Research and Publish Center to conduct the survey. In addition, respondents’ approval was ensured before distributing the questionnaires, and they were allowed to answer them. Consequently, the survey questionnaires were retrieved by the researchers from the respondents; the results were then tabulated and submitted to the statistician for interpretation and analysis by the problem statements.

Furthermore, four statistical tools were applied in this study to evaluate and understand the data. First, the study utilized means to ascertain the level of financial management practices among selective smallholders who traded in a disintermediated market in Digos City. Plus, the frequency was employed to ascertain the selected respondents’ profitability level, specifically their average monthly gross income. Furthermore, the Spearman

Rho test was applied to assess if there is a significant relationship between the financial management practices and profitability among smallholders when analyzed according to each of their levels per respondent. Lastly, this study used Ordinal Logistic Regression to determine the specific domain of the financial management practices that can predict profitability. The main objective of logistic regression models is to predict outcomes through the utilization of variables that are based on specific existing data (Liang *et al.*, 2020). Sesay *et al.* (2021) defined ordinal logistic regression as a regression technique utilized to measure a dependent variable at the ordinal level, with one or more explanatory variables that can be continuous, categorical, or ordinal.

RESULTS AND DISCUSSION

Level of Financial Management Practices of Smallholders Trading in a Disintermediated Market in Digos City

Table 3 discloses the level of financial management practices of smallholders trading in a disintermediated market in Digos City, with an overall mean of 3.01 (SD=0.60), characterized as moderate. This implies a moderate level of financial management practices among small-scale farmers. In other words, this indicates that small-scale farmers’ overall practice of financial management is neither weak nor strong; to put it differently, it is neutral. This study has four indicators: savings and investment, cash management, credit management, and insurance. The savings and investment category mostly encompasses items discussing savings, emergency funds, saving for long-term goals, and investing in retirement accounts (Xiao *et al.*, as cited in Saxon, 2020). As for the cash management section, in the study of Garcia and Cagatao (2023), it contains activities such as price comparison when shopping, paying the bills on time, keeping a list of monthly expenses, and tracking and staying within

the budgeted spending plan. The items in the credit management category focuses on the payment of loans on time, the size of loans, and the amount of payment. Moreover, the insurance section revolves around availing and maintaining insurance for health, property, and life (Dew & Xiao, 2011, as cited in Saxon, 2020). These items were designed to assess the smallholders' level of saving and investing, managing cash, credit/loans, and insurance. Among these four indicators, cash management acquired the highest mean of 3.80 (SD=0.64), reflected as high. It was followed by credit management with a mean of 3.32 (SD=0.69), characterized as moderate. Next are savings, investment, and insurance, with means of 2.47 (SD=0.94) and 2.46 (SD=1.23), respectively, both classified as low. Cash management, which is the most relevant to the respondents, serves as the primary indicator for the financial management practices of smallholders. Based on the results, the respondents have proven actions of cash planning, timely payment of obligations, financial recording, and budgeting (Ouma, 2021) at a high level. This aligns with the study of Kiai *et al.* (2020), in which it was found that cash management is prudently practiced by SACCO members in Kenya like farmers. Furthermore, Eton *et al.* (2019) ascertained in their study that enterprises tend to have good capability and practice management of cash, especially in paying their obligations. Kakaire (2019) argued that proper cash management is utilized to meet obligations and prepare for upcoming seasons and unexpected occurrences in farming, such as drought. The next indicator is credit management, which got the second-highest mean of 3.32 (SD=0.69) and was deemed moderate. Daemane and Muroyiwa (2022) cited that agricultural credit can be accessed from formal and informal sources. The formal sources include establishments such as commercial banks, microfinance institutions, and other licensed lenders. In contrast, informal sources include contributions from friends, family, acquaintances, and rotating credit schemes. The difficulty and limited access to loans from financial institutions compel farmers to avail from informal sources with small amounts (Haryanto *et al.*, 2023).

Table 3: Level of financial management practices of smallholders trading in a disintermediated market in Digos City, n = 150

Indicators	X	SD
Savings and Investment	2.47	0.94
Cash Management	3.80	0.64
Credit Management	3.32	0.69
Insurance	2.46	1.23
Overall	3.01	0.60

Thus, most smallholders tend to avail of small loans that they think they are capable of paying off. Repayment behavior was influenced by the rule of minimum repayment of financial institutions, like CARD Inc. in Digos, as well as informal sources' leniency to extending

repayment duration (Chantararat *et al.*, 2023). Consequently, based on the results, most farmers could repay their loans in a particular year. The same findings were revealed in the study of Chantararat *et al.* (2023).

The next indicator is savings and investment, which has the second-lowest mean of 2.47 (SD=0.94) and is identified as low. Poor access to income and inadequate savings are major problems smallholders face in agriculture (Uhuegbulem *et al.*, 2016, as cited in Odoh *et al.*, 2020). According to Wieliczko *et al.* (2020), low savings levels for farms limit economic activity and development; this is especially evident among small-scale farms. The low real income these small-scale farmers earn hugely impacts their poor capacity to save. On the other hand, large farm owners could save more money compared to small farmers, as stated by Singh *et al.* (2021), while the lowest income category had negative savings. It is more common among rural households to have lesser savings and instead rely on assets, such as livestock and other family members or relatives when dealing with emergencies (Hill *et al.*, 2021). Ruedas and Guico (2021) specify that when financial institutions and the government provide guidance and encouragement, residents in rural areas and other low income earners can save money.

The last indicator is insurance, with a mean of 2.46 (SD=1.23), also characterized as low. Agricultural insurance helps to mitigate the financial effect of natural disasters. It appears that several countries have used insurance to help control agricultural hazards. As stated by Ankrah *et al.* (2021), farmers' adoption of insurance has been limited due to a lack of that said, smallholder farmers have not been able to acquire insurance services that are indemnity-based, which require assessments for farm losses (Raithatha & Priebe, 2020). This is mostly because of the landscape where the population group from rural areas is hard to reach, making it impossible for insurance companies to obtain them (Contró, 2023). Therefore, the respondents' level of financial management practices emphasizes the dominance of these two commonly practiced indicators, cash management and credit management. Empirical data indicates that the practice of cash and credit management among small-scale farmers is that investment and insurance are both classified as low. The level of these financial management practices is influenced by formal financial markets that are underdeveloped in rural areas, high costs in terms of participating or availing, and lower financial literacy among people (DemirgucKunt & Klapper, 2012, & Klapper *et al.*, 2015, as cited in Chigusiwa & Kairiza, 2022). Plus, this may be due to the usage of insurance being yet to be widespread in the Philippines, especially for low-income individuals in rural areas like small-scale farmers. Van Nguyen *et al.* (2022) revealed the same findings as Dew and Xiao (2011), the author of this study's adapted standardized questionnaire. Furthermore, most people, especially farmers, put less importance on the need for self-protection and insurance than other necessities that require prior attention (Rohayati *et al.*, 2020).

Profitability of Smallholders Trading in a Disintermediated Market in Digos City

Table 4 shows the range of profitability among the respondents, where most of the respondents have an average monthly income within the range of Php5,001 to Php10,000 with a frequency of 68, which is 45.3% of the total respondents. It is followed by the bracket below 5,000 pesos, which has a 48 or 32% frequency. The Php10,001 to Php15,000 bracket got a frequency of 17 or 11.3%, whereas the bracket Php15,001 to Php 20,000 got the second to the least frequency of 7 or 7.3%. Lastly, the bracket above Php20,001 acquired the lowest frequency of 11, equivalent to 4% of the total respondents. This indicates that small-scale farmers earning a monthly income below Php10,000 make up the total. This aligns with the findings of Casinillo and Dargantes (2023), which reveal the low-income level of farmers that mostly ranges from Php4,000 to Php7,000. The same results were revealed in the study of Casinillo and Serio (2022), where the minimum monthly income earned from farming is about Php5,000. On the other hand, in the study of Sanglay *et al.* (2021), it was found that farmers are low-income earners with below Php10,000 monthly income.

Table 4: Profitability of smallholders trading in a disintermediated market in Digos City, n = 150

Monthly Income	f	%
Below Php5,000	48	32.0
Php5,001-Php10,000	68	45.3
Php10,001-Php15,000	17	11.3
Php15,001-Php20,000	11	7.3
Above Php20,001	6	4.0

Relationship Between Financial Management Practices and Profitability of Smallholders Trading in a Disintermediated Market in Digos City

Table 5 shows the correlation of the variables in this study using Spearman Rho. The results indicate a significant relationship between the respondents' level of financial management practices, $r(150) = .283, p < .01$. The implication is that profitability also tends to increase as the level of financial management practices increases. The results of this study are in line with the study of Pena (2008, as cited in Folajinmi and Peter 2020), which stated that financial management practices hold an importance in the agricultural business, specifically in boosting performance or profitability. Plus, implications in the study of Folajinmi and Peter (2020) further proved that adopting good financial management practices will increase and grow agribusinesses' economic profit and financial worth. In accord, businesses that perform well tend to observe good financial management practices (Mohammed *et al.*, 2023). Put differently, small-scale farmers who engage in more financial management practices tend to earn higher profits. This aligns with

the Resource-Based View Theory (Barney, 2003) that hypothesizes the effective utilization of resources and capabilities, including the financial aspect, contributes to the financial performance and sustainability of an enterprise (Putra *et al.*, 2021), in this study the farmers' level of income. It proved that effective utilization of resources and capabilities determines the performance of an enterprise, as argued by Mashenene and Kumburu (2020), even among farmers who sell their own produce. These resources and capabilities include funds, skills like technical or management ability, and enforcement of financial management practices (Wade & Hulland, 2004, as cited in Mang'ana *et al.*, 2023). Furthermore, the same hypothesis was found in the study of Mang'ana *et al.* (2023), where effective usage and employment of resources determine the performance of small-scale agricultural enterprises or farmers.

Additionally, it can be observed that only some indicators for financial management practices are significantly related to profitability. For instance, the results in line with savings and investment, $r(150) = .407, p < .01$, indicate that there is a relatively strong positive correlation between the indicator and profitability. In their study's findings, Kryszak *et al.* (2021) ascertained that investment significantly influences farm profitability. They added that it is evident that investments are a way to make opportunities for income growth in the long term. The same was discovered in the study of Agbenyo *et al.* (2022), implying that an increase in farmers' savings attitude would lead to a rise in income or profitability.

On the other hand, the results for cash management that has a lower correlation coefficient, $r(150) = .244, p < .01$, suggest a moderately positive relationship between the indicator and profitability. In the study of Sitienci and Thuita (2021), it was revealed that an increase in the level of cash management would lead to a significant increase to financial performance. Both indicators have a statistically significant correlation to overall profitability at 0.01 level, which means there is a very low probability of the correlation to happen by random chance.

On the contrary, credit management and insurance have no statistically significant correlation with profitability. The p-values of both indicators insinuate a higher probability of observed correlation to occur by chance. Credit management has no significant relationship with rural household income as it only temporarily raises household funds when credit is granted, as discovered by Si *et al.* (2021). In the same case, Yanuarti (2019) supported the idea that insurance does not significantly affect farm operations and farmers' income in China. In support, insurance is believed to be a tool that only protects farmers' income, which is effective in post-disaster events (Zhou *et al.*, 2017, as cited in Bhuiyan *et al.*, 2022). In the overall sense, the correlation between financial management practices and the profitability of smallholders is statistically significant, except for some indicators, specifically credit management and insurance.

Table 5: Correlation matrix between financial management practices and profitability of smallholders trading in a disintermediated market in Digos City

Financial Management Practices	Profitability
Savings and Investment	.407** (.000)
Cash Management	.244** (.003)
Credit Management	.098 (.231)
Insurance	.101 (.217)
Overall	.283** (.000)

* $p < .05$ ** $p < .01$

The Impact of Savings, Cash, Credit, Insurance, and Overall Financial Health on Profitability

This study conducted an ordinal logistic regression to examine the impact of savings, cash, credit, insurance, and overall financial health on profitability, an ordinal dependent variable. Table 6 shows that the final model significantly improved the fit compared to the intercept-only model, [Chi-square(45) = 120.972, $p < .001$], which indicates that the predictors as a set reliably distinguished between different levels of profitability.

On the other hand, Table 7 revealed that the goodness-of-fit statistics were non-significant, with the Pearson [Chi-square (117) = 97.411, $p = 1.000$] and Deviance [Chi-square(117) = 248.578, $p = 1.000$], which suggested that the model fits well with the data. Whereas in Table 8, Pseudo R-square values indicated that there is a moderate to good level of explanatory power for the model (Cox and Snell = .542, Nagelkerke = .568, McFadden = .302).

Table 9: Parameter estimates

	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold [PROFITABILITY = 1.00]	-1.841	3.349	.302	1	.583	-8.405	4.724
[PROFITABILITY = 2.00]	1.510	3.328	.206	1	.650	-5.013	8.034
[PROFITABILITY = 3.00]	2.972	3.331	.796	1	.372	-3.556	9.500
[PROFITABILITY = 4.00]	4.600	3.372	1.861	1	.172	-2.008	11.208
Location [SAVINGS=1.00]	-3.379	2.452	1.898	1	.168	-8.185	1.428
[SAVINGS=1.25]	-3.539	2.693	1.727	1	.189	-8.818	1.740
[SAVINGS=1.50]	-1.644	2.747	.358	1	.550	-7.028	3.740
[SAVINGS=1.75]	-3.149	2.519	1.563	1	.211	-8.086	1.788
[SAVINGS=2.00]	-1.036	2.816	.135	1	.713	-6.555	4.482
[SAVINGS=2.25]	1.254	2.703	.215	1	.643	-4.044	6.551
[SAVINGS=2.50]	-1.149	2.658	.187	1	.666	-6.358	4.061
[SAVINGS=2.75]	1.771	2.842	.388	1	.533	-3.801	7.342

Table 6: Model fitting information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	374.981			
Final	257.942	117.039	45	.000

Table 7: Goodness of fit

	Chi-Square	df	Sig.
Pearson	917.411	379	.000
Deviance	248.578	379	1.000

Table 8: Pseudo R-Square

Pseudo R-Square values	
Cox and Snell	.542
Nagelkerke	.586
McFadden	.302

In Table 9, the parameter estimates revealed two significant predictors of profitability. Specifically, the SAVINGS=1.00 category had a coefficient [$\beta = 8.320$, SE = 4.282, Wald = 3.775, $p = .052$, 95% CI [-0.073, 16.713]]. The SAVINGS=1.50 category showed a significant negative relationship with profitability, [$\beta = -11.489$, SE = 2.658, Wald = 18.713, $p < .001$, 95% CI [-16.698, -6.280]]. The INSURANCE=4.00 category was also a significant predictor [$\beta = 24.081$, SE = 2.887, Wald = 69.517, $p < .001$, 95% CI [18.422, 29.739]]. On the contrary, other predictors, such as cash and credit variables, did not show significant effects individually.

[SAVINGS=3.00]	.791	2.628	.091	1	.763	-4.361	5.943
[SAVINGS=3.25]	1.082	2.678	.163	1	.686	-4.167	6.330
[SAVINGS=3.50]	2.383	2.691	.784	1	.376	-2.892	7.658
[SAVINGS=3.75]	-.236	3.007	.006	1	.937	-6.130	5.658
[SAVINGS=4.00]	2.804	3.114	.811	1	.368	-3.298	8.907
[SAVINGS=4.25]	3.717	3.030	1.504	1	.220	-2.223	9.656
[SAVINGS=4.50]	3.575	3.267	1.197	1	.274	-2.829	9.979
[SAVINGS=5.00]	0 ^a			0			
[CASH=2.00]	3.971	2.495	2.534	1	.111	-.918	8.860
[CASH=2.25]	.868	2.205	.155	1	.694	-3.453	5.189
[CASH=2.50]	-23.368	8763.514	.000	1	.998	-17199.539	17152.804
[CASH=2.75]	1.838	1.906	.929	1	.335	-1.898	5.573
[CASH=3.00]	-2.448	2.239	1.195	1	.274	-6.836	1.940
[CASH=3.25]	-.510	1.214	.176	1	.675	-2.890	1.870
[CASH=3.50]	-.371	1.405	.070	1	.792	-3.126	2.384
[CASH=3.75]	.873	1.262	.478	1	.489	-1.600	3.345
[CASH=4.00]	.132	1.304	.010	1	.919	-2.424	2.689
[CASH=4.25]	1.723	1.656	1.083	1	.298	-1.522	4.969
[CASH=4.50]	.783	1.332	.345	1	.557	-1.827	3.393
[CASH=4.75]	-.155	1.403	.012	1	.912	-2.906	2.595
[CASH=5.00]	0 ^a			0			
[CREDIT=1.67]	2.094	1.617	1.676	1	.195	-1.076	5.264
[CREDIT=2.00]	-4.829	3.170	2.321	1	.128	-11.043	1.384
[CREDIT=2.33]	1.981	1.764	1.261	1	.261	-1.477	5.440
[CREDIT=2.67]	.720	1.831	.155	1	.694	-2.868	4.308
[CREDIT=3.00]	-1.004	1.290	.606	1	.436	-3.532	1.524
[CREDIT=3.33]	-1.227	1.258	.952	1	.329	-3.692	1.238
[CREDIT=3.67]	-.976	1.231	.628	1	.428	-3.389	1.438
[CREDIT=4.00]	-1.893	1.479	1.639	1	.200	-4.792	1.005
[CREDIT=4.33]	.251	1.392	.033	1	.857	-2.477	2.980
[CREDIT=4.67]	.553	1.802	.094	1	.759	-2.979	4.085
[CREDIT=5.00]	0 ^a			0			
[INSURANCE=1.00]	.929	1.026	.819	1	.365	-1.083	2.941
[INSURANCE=1.33]	-18.149	6772.915	.000	1	.998	-13292.818	13256.520
[INSURANCE=2.00]	-.152	1.371	.012	1	.912	-2.839	2.535
[INSURANCE=2.33]	-.202	.901	.050	1	.822	-1.968	1.564
[INSURANCE=2.67]	-23.387	0.000		1		-23.387	-23.387
[INSURANCE=3.33]	-.020	2.873	.000	1	.995	-5.650	5.611
[INSURANCE=3.67]	1.299	.960	1.830	1	.176	-.583	3.180
[INSURANCE=4.00]	-.607	1.812	.112	1	.738	-4.160	2.945
[INSURANCE=5.00]	0 ^a			0			

Link function: Logit.
a. This parameter is set to zero because it is redundant.

The findings of this study indicate that specific levels of savings and insurance plans have a significant influence on profitability outcomes. The positive relationship between certain savings categories and profitability suggests that higher levels of savings contribute positively to financial

success. Conversely, the negative relationship observed in the SAVINGS=1.50 category might indicate that lower or moderate savings levels could be detrimental to profitability due to insufficient financial buffers or investment opportunities. In support, Wieliczko *et al.*

(2020) quoted Gokhale's basic functions of savings, which are as a buffer and a catalyst in accumulating wealth due to its aid in grabbing new opportunities. Moreover, savings also play an important role in smoothing consumption when facing unpredictable income on the farm and other variables in the future. Similarly, in the study of Ademba (2021), it was found that savings significantly influence business performance, where an increase in savings results in a rise in profitability. Savings serves as key contributing factor in farms as well as as financial energy (Gikonyo *et al.*, 2022), thus a low savings level may result in a significant decrease in profitability, especially in uncertain times.

Insurance, particularly at the highest level (INSURANCE=4.00), shows a strong positive impact on profitability. This finding aligns with previous studies suggesting that comprehensive insurance plans can mitigate risks and provide financial stability, thereby enhancing profitability. Bhuiyan *et al.* (2022) defined insurance in farms as an effective tool to transfer risk and reduce volatility of the income of farmers, thus protecting their overall profitability. Insurance in agricultural settings aids in reducing losses caused by natural disasters and consequently stabilizes farm income (Ivashkiv *et al.*, 2021). Thus, farmers can distribute risks effectively and secure a stable financial position even in times of emergencies through insurance (Wei *et al.*, 2021). On the other hand, cash and credit variables did not emerge as significant predictors, implying that these factors might not independently predict profitability when accounting for savings and insurance levels. The same was found in the study of Kirama and Semvua (2024) where accessibility to credit and source of capital (cash) do not significantly predict profitability, but its role is still vital in business growth.

The model fitting information, goodness-of-fit statistics, and pseudo-R-square values suggest that the ordinal logistic regression model reasonably explains the data. However, the interpretation of pseudo R-square values should be done cautiously, as these do not represent the proportion of variance explained as in linear regression. Plus, the pseudo-R-square only encompasses the variance in proportion to the outcome accounted for by the explanatory variable, and thus many other factors must be considered (Adenomon & John, 2020). Furthermore, in this study, the outcome variable is polychotomous and ordinal. Therefore, an ordinal logistic regression model was employed to preserve the information regarding the order of the dependent variables' categories (Sesay *et al.*, 2021).

CONCLUSION

The researchers found that the small-scale farmers' level of financial management practices in terms of savings and investment, cash management, credit management, and insurance is moderate. This insinuates that there is a moderate level of overall financial management practices among smallholders. Plus, it was found out

that smallholders in Digos City earn an average gross income of below Php10,000 on a monthly basis when they sell their produce in a disintermediated market. In addition, the findings revealed that there is a statistically significant relationship between the overall financial management practices and profitability. Specifically, cash management and savings and investment have a statistically significant correlation to profitability. Conversely, there was no statistically significant correlation between credit management, insurance, and profitability. On the other hand, insurance, savings, and investment were determined to be significant predictors of profitability, whereas credit and cash management did not emerge as significant predictors. This denotes that high levels of savings and insurance for farmers may increase farm profitability. Therefore, it was observed that not all financial management practices may directly impact small-scale farmers' profitability nor be significant predictors of profitability.

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