Financial Management Model for Profitable Returns in Small Holder Banana Farmers in Mutasa District of Zimbabwe

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ABSTRACT

The study aimed to establish a financial management model to improve profitability for smallholder banana producers in Mutasa District, Zimbabwe. The banana farming activities of these smallholder farmers were unprofitable. The study sought to examine contemporary financial management methods, identify obstacles to obtaining financing, and evaluate the correlation between financial management and profitability within the context of the Time Value of Money (TVM) theory. A quantitative method was employed. The research comprised 134 smallholder banana farmers in the Mutasa District of Zimbabwe. The emphasis was on Ward 7 and Ward 29, the two leading banana-producing wards in the Mutasa district. The quantitative component entailed the distribution of structured questionnaires to a sample of 100, as calculated by Slovin's Formula. The research employed a questionnaire to gather data. The research successfully obtained responses from 88 smallholder farmers. Data were analyzed using statistical methods, including descriptive statistics, ANOVA, and regression analysis. The research indicated the use of community savings groups. Nonetheless, there was minimal adherence to optimal financial management methods, such as budgeting and record-keeping. Challenges such as interest rates and financial illiteracy significantly limit access to financing. Fifty-eight percent of farmers reported profits each entire season between $0 and $200. This study indicates that improving farmers' financial management is essential through the enhancement of their financial literacy and management techniques. Relevant training programs must be established to develop key financial management skills. Finance institutions must provide tailored finance packages for smallholder banana farmers. Farmers must enhance their efforts in securing money and savings, improve cash flow management, and strengthen record keeping and budgeting for the upcoming season. Future study may examine the influence of contemporary technologies on financial management practices and the effectiveness of financial literacy programs in rural areas.

Key words: Challenges faced in financial management, Financial Management, Record Keeping, Savings Groups, Small Holder Banana Farmers, Time Value of Money

INTRODUCTION

Small-scale farmers make up a large percentage of the agricultural workers in many developing countries — where agriculture is still the biggest base of economic activity. International research indicates that improving financial management is key for increasing agricultural productivity and profitability. For example, studies in several developing nations show that farm income is significantly enhanced when farmers gain financial literacy and access to credit (Mhlanga, 2020). However, the case remains different for Africa, as well as other developing continents, as smallholder farmers have significant gaps in their financial management practices, limiting their achievement of optimal productivity. Khandker (2005) found that microcredit programs had significantly boosted the incomes and productivity of rural farmers in Bangladesh. Credit enabled farm workers to invest in modern farming techniques and increase their yield per hectare. In a study conducted by Kiiza and Pederson (2001), it showed that when financial literacy among farmers improved, they made more informed investment decisions which increased their farm incomes. Higher savings and investment on the farms showed a direct correlation to higher yields for farmers who participated in financial training programs. In a study by Muriuki et al. According to Choudhury, Mitra, and Ishfaq (2018) mobile banking and digital financial services were proven effective in improving credit access to smallholder farmers. By integrating technology into their processes, farmers were able to track finances, plan better, and invest on time to boost productivity (MacKinnon and Dwyer

2023; Bacon 2005). Through microloans, farmers were able to access quality inputs and employ improved farming techniques leading to better yields and financial security A study by Agyemang et al. (2018) found that smallholder cocoa farmers had improved financial performance by receiving financial management training and access to credit. The farmers trained to budget also reported saving more, which had an effect on their overall profitability.

Zimbabwe's agriculture has been lagging behind, and banana production is an example of these struggles. Agricultural data shows that Zimbabwe's banana production was 41,000 tons in 1973, but rose to 197,458 tons in 2022, giving an average growth rate of just 3.80% per annum (FAO, 2023). Smallholder farmers have strong barriers to entry, including lack of access to financial services, despite the potential of larger yields. Mhlanga (2020) reports that a mere 27% of smallholder farmers in Zimbabwe engage with the formal financial system. The lack of financial inclusion leads to poverty and food insecurity, which calls for a comprehensive financial management model since such farmers are yet to benefit from the financial inclusion system. The financial hardships of smallholder banana farmers are exacerbated by low knowledge of financial management practices (Mhlanga, 2020). Many of these farmers do not know how to effectively budget, save, or invest, preventing them from scaling their operations but ultimately leading to more profits. Farmers do not have sufficient access to credit; thus they are unable to afford quality inputs, including fertilizers and improved seeds, which are crucial to increasing yields. As a result, there is an urgent need for a financial management model to meet these challenges and enhance the livelihoods of smallholders of banana farmers in the area. (Muriuki et al. 2018).

Inadequate financial management practices contribute to low profitability among smallholder banana farmers in Mutasa District However, the financial literacy during the decision-making process is lacking, even in the face of financial and managerial decisions related to farming operations. A large number of these farmers don't have access to credit, it has been shown that only 27% of have access to formal financial service (Mhlanga, 2020). Additionally, the vast majority of farmers have very low levels of financial literacy: only 15 % reported understanding basic financial concepts such as budgeting and savings (Zimbabwe National Statistics Agency, 2022). Worse still, they have little access to markets, driving their produce prices down to unsustainable levels, often below production cost. Surveys show that more than 40% of smallholder farmers sold their bananas at prices that only covered their production costs, resulting in unsustainable farming practices. While there are numerous studies analyzing financial management in agriculture, there is still little research on applying the Time Value of Money (TVM) principles to smallholder banana farmers in Zimbabwe (Muriuki et al. 2018). There are some studies that emphasize the significance of financial literacy and access to the credit, but not so much research have been done to analyze the incorporation of the concepts of TVM (which include record keeping, tax compliance, risk management, and budgeting, among many others) in the financial behaviors of farmers in these underdeveloped countries. This gap suggests the need for a full-blown financial management model that not only appeals to the proximate financial distress needs of smallholder farmers but also is a tool that mainstreams TVM into their long-term financial sustainability strategies.

Problem Statement

A considerable proportion of smallholder banana cultivators in Mutasa District are deprived of credit access, with just 27% employing official financial services (Mhlanga, 2020). Furthermore, hardly 15% of these farmers comprehend fundamental financial concepts, like budgeting and savings (Zimbabwe National Statistics Agency, 2022). Restricted market access exacerbates their predicament, compelling over 40% to sell bananas at prices only sufficient to meet production expenses, leading to unsustainable agricultural methods. Although current studies examine financial management in agriculture, there is a significant deficiency in research about the application of Time Value of Money (TVM) principles to farmers (Muriuki et al., 2018). The insufficient focus on TVM topics such as record-keeping, tax compliance, risk management, and budgeting underscores the necessity for a holistic financial management framework.

Research Objectives

This study aims to achieve the following objectives:

1. To establish existing financial management practices in smallholder banana farming in Mutasa District.

2. To ascertain challenges faced in financial management among smallholder banana farmers in Mutasa District.
3. To assess the profitability of smallholder banana farming in Mutasa District.
4. To establish financial management practices for profitable smallholder banana farming in Mutasa District.

MATERIALS AND METHODS

This study adopted quantitative research methodology. The study was directed to 134 smallholder banana farmers in Mutasa District of Zimbabwe. These farmers were registered by the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development's Mutasa District Agricultural Extension Office. The focus was on Ward 7 and 29 which were the top 2 banana producing wards in the district. The quantitative component involved administering structured questionnaires to a sample of 100. The study made use of the sample size by the Slovin's Formula.

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{134}{1 + 134\,(0.05)^2}$$

$$\mathbf{n = 100}$$

Stratified random sampling was used to ensure representation across the 2 wards. The study made use of the questionnaire to collect data. The survey was done physically and the instrument was transcribed in the local dialect. Anonymity and confidentiality were upheld. Respondents were given two weeks to fill the questionnaires. Data analysis was done using Statistical Package for Social Scientists (SPSS) version 23. Descriptive and regression analysis was conducted. Questionnaires returned and analyzed were 88. The regression model used in this study is specified as follows:

$$Profitability = \beta_0 + \beta_1 \text{(Recordkeeping)} + \beta_2 \text{(Savings)} + \beta_3 \text{(FinancialManagementTraining}_i) + \beta_4 \text{(Budgeting)} + \beta_5 \text{(CashFlowManagement}_i) + \epsilon_i$$

Where:

$Profitability_i$

Profitability i = Dependent variable representing the profitability of farmer

ii (e.g., measured in income per season).

β_0 = Intercept of the regression equation.

β_1, β_2, β_3, β_4, β_5 = Coefficients representing the expected change in profitability for a one-unit change in each respective independent variable.

Recordkeeping i = Independent variable indicating the quality of record-keeping practices by farmer ii.

Savings i = Independent variable representing the involvement in savings groups.

FinancialManagementTraining i = Independent variable indicating participation in financial management training.

Budgeting i = Independent variable reflecting the use of budgeting practices.

Cashflow Management i = Independent variable representing the effectiveness of cash flow management.

ϵ i = Error term representing the unobserved factors affecting profitability.

FINDINGS AND DISCUSSION

This section presents the findings from the study on financial management practices among smallholder banana farmers in Mutasa District, Zimbabwe. The analysis includes reliability statistics, descriptive statistics on financial management practices, challenges in accessing finances, profitability, and the effectiveness of various financial management strategies.

Table 1 Reliability Statistics

Cronbach's Alpha	N of Items
.896	28

The Cronbach's Alpha of .896 indicates a high level of internal consistency among the items in the questionnaire. This suggests that the questions related to financial management practices yield reliable responses, reinforcing the validity of the findings. High reliability is crucial in social science research, as it ensures that the measures used reflect the constructs being studied (Tavakol & Dennick, 2011).

Table 2 Descriptive Statistics on financial management practices

	N	Mean	Std. Deviation
Budgeting	88	1.7955	1.12607
Record keeping	88	1.7386	1.13961
Savings	88	1.7500	1.13715
Cashbook	88	1.5795	.96754
financial management training	88	1.5114	.89692
Financial education	88	2.5114	1.77463
Tax compliance	88	2.4318	1.77981
Saving groups	88	4.3068	1.31619
Review of financial records	88	1.7955	1.12607
Risk management	88	2.5682	1.74063
Valid N (listwise)	88		

The mean scores indicate that saving groups (mean = 4.3068) are the most utilized financial management practice, reflecting a community-oriented approach to accumulating resources. This practice inherently connects with TVM theory, as pooling savings can lead to greater investment opportunities that yield returns over time. Conversely, practices such as budgeting (mean = 1.7955) and maintaining cashbooks (mean = 1.5795) are less frequently employed, indicating a gap in understanding how to effectively manage and grow their financial resources. This lack of engagement in budgeting and record-keeping can hinder farmers from appreciating the

benefits of future investments, a core tenet of TVM. Mhlanga (2020) notes that inadequate financial literacy limits farmers' capacity to apply TVM principles effectively.

Table 3 Descriptive Statistics on challenges in accessing finances

	N	Mean	Std. Deviation
high interest rates	88	4.3068	1.31619
lack of collateral	88	4.3068	1.31619
financial illiteracy	88	4.3068	1.31619
Financial fraud	88	1.3523	1.02878
Distrust in banks	88	4.3068	1.31619
Record keeping	88	4.3068	1.31619
lack of information on access to credit	88	4.3068	1.31619
No suitable financial products	88	4.3068	1.31619
Valid N (listwise)	88		

The high mean scores for challenges such as high interest rates and lack of collateral (4.3068) signify significant barriers to accessing finance. These barriers directly impact farmers' ability to leverage the TVM principle, as high borrowing costs diminish the potential returns on investments. Financial illiteracy exacerbates these issues, as farmers may not fully understand the implications of interest rates on future profits (Khandker, 2005). Distrust in banks further complicates matters, as it prevents farmers from engaging with financial institutions that could facilitate better access to credit. Research demonstrates that when farmers lack adequate information about credit options, they are less likely to make informed decisions that could enhance their financial well-being (Kiiza & Pederson, 2001).

Table 4 Profitability per season

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$0-200	51	58.0	58.0	58.0
	$201-400	15	17.0	17.0	75.0
	$401-600	4	4.5	4.5	79.5
	$601-800	10	11.4	11.4	90.9
	$801 and above	8	9.1	9.1	100.0
	Total	88	100.0	100.0	

The data reveals that 58% of farmers earn between $0 and $200 per season, indicating low profitability. This situation reflects the challenges in applying TVM principles effectively; without sufficient profits, farmers cannot reinvest in their operations to capitalize on future opportunities. Low profitability is often associated with inadequate financial management practices, which prevent farmers from making the necessary investments that leverage the time value of their resources (Mhlanga, 2020). The link between profitability and TVM is crucial,

as understanding that money today can generate future returns is essential for making long-term financial decisions.

Table 5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575[a]	.331	.253	1.19672
a. Predictors: (Constant), Risk management, Cashbook, saving groups, Review of financial records, financial management training, Tax compliance, Savings, Record keeping, financial education				

The R Square value of .331 suggests that approximately 33.1% of the variance in profitability can be explained by the financial management practices included in the model. This moderate relationship emphasizes the importance of effective financial management in enhancing profitability, consistent with TVM theory, which posits that better financial practices can lead to increased future returns. The findings are in line with Agyemang et al. (2018), who argue that improved financial management can significantly enhance agricultural productivity by enabling farmers to recognize and act upon investment opportunities.

Table 6 Anova Table

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.191	9	6.132	4.282	.000[b]
	Residual	111.707	78	1.432		
	Total	166.898	87			
a. Dependent Variable: Taking into consideration all costs, how much profit do you make per season						
b. Predictors: (Constant), Risk management, Cashbook, saving groups, Review of financial records, financial management training, Tax compliance, Savings, Record keeping, financial education						

The ANOVA results indicate that the model is statistically significant ($p < .001$), suggesting that the predictors used significantly contribute to explaining the variance in profitability among smallholder banana farmers. This statistical significance reinforces the need for targeted financial management interventions to improve profitability, echoing findings from studies that advocate for enhanced financial literacy and access to credit (Muriuki et al., 2018).

Table 7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.187	.587		2.020	.047
	Record keeping	.738	.924	.607	.799	.427
	Savings	-.265	.732	-.217	-.361	.719
	Cashbook	-.007	.321	-.005	-.021	.983

financial management training	.951	.309	.616	3.079	.003
Financial education	-.363	.633	-.466	-.574	.568
Tax compliance	.229	.286	.294	.800	.426
Saving groups	-.076	.105	-.072	-.723	.472
Review of financial records	-.645	.566	-.525	-1.141	.258
Risk management	.146	.583	.183	.250	.803
a. Dependent Variable: Taking into consideration all costs, how much profit do you make per season					

The significant positive coefficient for financial management training (B = .951, p = .003) indicates that training in financial management is positively associated with increased profitability. This finding underscores the critical role of education in financial management, consistent with literature that highlights the benefits of training programs in enhancing the financial acumen of farmers (Agyemang et al., 2018).

Table 8 Financial Management Practice's

	N	Mean	Std. Deviation
Budgeting in banana farming	88	3.7500	1.42434
Use of financial records in banana farming	88	3.7500	1.42434
Long term financial planning in banana farming	88	3.6818	1.48978
Effectively managing cost to maximize profitability in banana farming	88	3.5682	1.46056
Risk management in banana farming	88	3.6250	1.41675
Make informed investment decision based on financial analysis	88	3.6023	1.50509
Actively monitor and manage cash flow throughout the year	88	3.7045	1.44762
Seeking training of resources to improve financial management skills	88	3.6705	1.47564
Use of electronic financial management tools to assist with my banana farming finances	88	3.6932	1.41712
Valid N (listwise)	88		

The mean scores indicate that practices such as budgeting and maintaining accurate financial records are relatively common among farmers (mean = 3.7500). However, there remains significant room for improvement, particularly in areas like financial management training and the adoption of electronic tools. The findings align with Ranjan and Borle (2020), who argue that integrating technology into financial management can lead to enhanced efficiency and profitability for smallholder farmers.
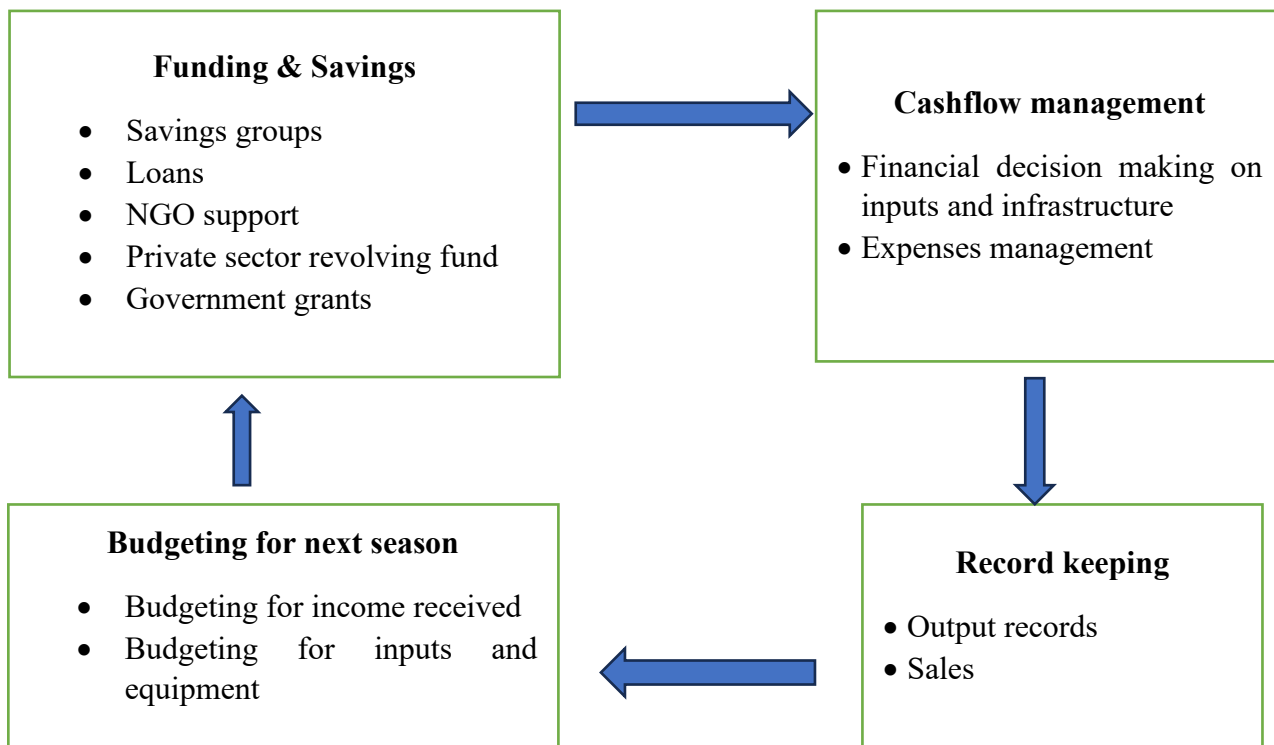
CONCLUSION

The findings indicate that while smallholder banana farmers in Mutasa District engage in various financial management practices, significant challenges remain, particularly in accessing finance and achieving profitability. The study highlights the importance of financial management training, community savings groups, budgeting, record keeping, cashbook maintenance, tax compliance, financial record review, and risk management in enhancing financial outcomes.

RECOMMENDATIONS

Based on the findings, it is recommended that supporting organizations that include the government and NGOs should implement targeted training programs to improve financial management skills among farmers. Banks and Micro finance institutions should develop financial products tailored to the needs of smallholder farmers, including lower interest rates and flexible collateral requirements. Smallholder banana farmers should the formation and support of savings groups to enhance collective financial resilience.

A comprehensive plan is necessary to improve the financial management practices of smallholder banana farmers. Initially, training programs centred on proficient budgeting strategies would assist farmers in resource allocation, facilitating informed decision-making for both immediate and future requirements. Encouraging systematic record-keeping techniques will enable farmers to maintain precise documentation of revenue, costs, and profits for enhanced financial clarity. Advocating for savings programs is essential, since motivating farmers to save incomes for emergencies and future investments may enhance their financial resilience via community savings organizations.

Implementing cashbooks to document daily transactions will furnish farmers with a transparent overview of their cash flow, facilitating efficient financial planning. Comprehensive financial education programs must be established to encompass fundamental subjects like financial literacy, investment techniques, and planning. Instruction on tax compliance will assist farmers in comprehending their responsibilities and the significance of precise record-keeping for taxation. Periodic evaluations of financial records will allow farmers to evaluate performance and pinpoint areas for enhancement based on past data. Conducting risk management seminars will enable farmers to identify possible financial risks and devise mitigation methods. By focusing on budgeting, record keeping, savings, cashbook maintenance, financial education, tax compliance, financial record review, and risk management, farmers may enhance their financial sustainability and profitability. Figure 1 presents the financial model to be followed by banana famers.

Funding & Savings

- Savings groups
- Loans
- NGO support
- Private sector revolving fund
- Government grants

Cashflow management

- Financial decision making on inputs and infrastructure
- Expenses management

Budgeting for next season

- Budgeting for income received
- Budgeting for inputs and equipment

Record keeping

- Output records
- Sales

The above-mentioned model necessitates the establishment of strong funding and savings mechanisms to improve the financial resilience of smallholder banana growers in Mutasa District. It encourages farmers to create savings groups that encourage collective financial resilience and peer support. Bank and microfinance institutions should also facilitate access to loans with products adapted to the special needs of smallholder farmers. But NGOs could step in, providing training and resources to help farmers adjust to the financial landscape. Additionally, funding in the form of a private sector revolving fund and government grants can be

crucial in providing that capital needed to invest in farming practices and infrastructure so farmers can have the right tools and facilities to be successful, thereby allowing them to grow their productivity and profitability.

The idea is not for farmers to focus on solely managing cashflow, but do it well to ensure that the farm is sustainable. It is therefore wise for farmers to spend time thinking about the best money management, inputs and infrastructure decisions to reduce expenditure while still maximizing product returns. Part of this means managing expenses properly so that farmers do not overspend or waste resources. Ensuring clean recordkeeping practices are in place is also critical, allowing farmers to write down production as well as sales data for successful accounting and data interpretation. It is also important to budget ahead for the coming season, which allows farmers to assign income they receive and plan accordingly for inputs and equipment. These can help smallholder banana farmers across the country to adopt good practice in farm finances, and achieve better economic wellbeing. Avenues for further research could examine how the use of technology has affected the financial management strategies used in rural communities and the effectiveness of financial literacy programs in these areas.

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