

The Influence of Financial Literacy, Access to Capital, And Market Orientation on Farm Business Performance with Farmer Satisfaction as A Mediating Variable in Southeast Sulawesi

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ABSTRACT

This study aims to analyze the influence of financial literacy, access to capital, and market orientation on farm business performance, with farmer satisfaction as a mediating variable in Southeast Sulawesi. The study employs a quantitative approach with a causal research design and utilizes Structural Equation Modeling–Partial Least Squares (SEM-PLS) to analyze data collected from 210 farmers. This research contributes to the literature by integrating economic and psychological factors into a farm performance model through the mediating role of satisfaction.

The results indicate that financial literacy, access to capital, and market orientation have positive and significant effects on farm business performance. Access to capital has the strongest effect on performance ($\beta = 0.356$; $p < 0.01$), followed by market orientation ($\beta = 0.285$; $p < 0.01$) and financial literacy ($\beta = 0.173$; $p < 0.05$). Farmer satisfaction also has a significant effect on performance ($\beta = 0.312$; $p < 0.01$) and is proven to mediate the relationships among variables with partial mediation effects (VAF 22–34%). The model explains 58.7% of the variance in farm business performance ($R^2 = 0.587$).

These findings highlight the importance of integrating financial, market, and psychological factors in improving farm business performance. The study implies the need for a comprehensive approach to enhancing financial literacy, improving access to financing, and strengthening market orientation..

Keywords: Financial Literacy, Access to Capital, Market Orientation, Farm Business Performance, Farmer Satisfaction.

1. INTRODUCTION

The micro, small, and medium enterprises (MSMEs) sector, along with agriculture-based businesses, plays a strategic role in the national economy, particularly in generating employment, increasing household income, and promoting economic growth. In Indonesia, the agricultural sector remains the backbone of rural livelihoods. However, in the face of global dynamics and increasingly complex competition, farmers continue to encounter various structural challenges, including low financial literacy, limited access to financing, and weak responsiveness to market changes.

In the global context, the transition toward a sustainable economy requires business actors to adapt by strengthening internal capacities and leveraging technological advancements. Previous studies indicate that sustainability-oriented production and management practices significantly enhance organizational performance through operational efficiency and optimal resource utilization (Rana et al., 2025). Furthermore, the integration of sustainable agricultural

practices, green technologies, and supportive policies plays a crucial role in improving agricultural sector performance in a sustainable manner (Daraz et al., 2024).

On the other hand, the rapid development of information and communication technology has created opportunities for business actors to improve performance through the digitalization of business processes. The adoption of technologies such as e-marketing has been proven to enhance marketing performance by expanding market reach and improving customer engagement (Priyanto et al., 2020). Additionally, the use of information technology contributes to increased competitiveness and business sustainability through improved efficiency, innovation, and access to market information (Yanti et al., 2018). Therefore, the ability of business actors to understand and respond to market dynamics, commonly referred to as market orientation, becomes a critical factor in determining business success.

Beyond market factors, financial aspects also serve as key determinants of farm business performance. Financial literacy reflects an individual's ability to understand and manage financial aspects of a business, including budgeting, credit utilization, and risk management. Farmers with higher levels of financial literacy tend to make more rational and efficient financial decisions, which in turn leads to improved business performance (Sadiq & Amna, 2019). However, in reality, the level of financial literacy among rural farmers remains relatively low, potentially hindering the development of farm businesses.

In addition, access to capital is a crucial factor in enhancing farm business performance. The availability of financial resources enables farmers to increase production capacity, adopt new technologies, and expand business scale. Studies have shown that access to financial resources and institutional support plays a vital role in improving efficiency and agribusiness performance (Zarliani et al., 2026). Nevertheless, limited access to formal financial institutions remains a major constraint for farmers, particularly in rural areas.

Although numerous studies have examined the influence of economic and market factors on business performance, most have focused primarily on technical and structural aspects. From a behavioral economics perspective, however, business performance is also influenced by psychological factors, such as perception and satisfaction. Satisfaction reflects an individual's subjective evaluation of their business condition and can influence motivation and performance (Fenetahun et al., 2021). Thus, satisfaction may serve as an important mechanism that bridges the relationship between resource factors and business performance.

To analyze the complex relationships among these variables, a methodological approach capable of simultaneously testing both direct and indirect effects is required. Structural Equation Modeling based on Partial Least Squares (PLS-SEM) is widely used in management and agribusiness research due to its ability to analyze complex predictive models involving latent variables (Bernardes & Da Silva Macedo, 2025). Moreover, the use of validity techniques such as the heterotrait-monotrait ratio (HTMT) is recommended to ensure discriminant validity among constructs (Roemer et al., 2021).

Based on the above discussion, it can be concluded that farm business performance is influenced by the interaction between financial literacy, access to capital, market orientation, and psychological factors such as satisfaction. However, studies that integrate all these factors into a single analytical model remain limited, particularly in the context of farm businesses in Southeast Sulawesi.

Unlike the study by Zarliani et al. (2026), which emphasizes the role of institutional and technological factors as mediators, this study develops a model by incorporating satisfaction as a behavioral-based mediating variable, thereby providing a new perspective in explaining farm business performance (Zarliani et al., 2026).

Therefore, the novelty of this research lies in the development of an integrative model that combines financial literacy, access to capital, and market orientation with satisfaction as a mediating variable in explaining farm business performance using a SEM-PLS approach. This approach offers a more comprehensive understanding compared to previous studies that tend to be partial.

This study aims to analyze the influence of financial literacy, access to capital, and market orientation on farm business performance by considering the mediating role of satisfaction. The findings are expected to contribute theoretically to the development of a multidimensional farm performance model and provide practical implications for policymaking and strategies aimed at improving farm business performance sustainably

2. METHODS

2.1. Research Design

This study employs a quantitative approach with an explanatory research design to analyze causal relationships among variables in the proposed research model. This approach is selected because it enables empirical hypothesis testing through statistical analysis.

Data analysis is conducted using Structural Equation Modeling based on Partial Least Squares (PLS-SEM). This method is chosen due to its ability to accommodate complex models with latent variables and its flexibility in handling data that do not require strict normal distribution assumptions (Bernardes & Da Silva Macedo, 2025). In addition, PLS-SEM allows for the simultaneous testing of direct and indirect relationships, making it suitable for studies involving mediating variables.

2.2. Research Location and Period

This research was conducted in Southeast Sulawesi Province in 2025. The location was selected purposively based on the characteristics of the area, which is predominantly composed of small-scale farmers.

2.3. Population and Sample

The population of this study consists of all farmers engaged in agricultural businesses within the research area. The sampling technique used is purposive sampling, with the following criteria:

- a. Actively engaged in farming activities
- b. Having at least three years of farming experiences
- c. Involved in both production and marketing activities

This approach is commonly applied in agribusiness research to obtain relevant respondents with direct experience (Zarliani et al., 2026). The sample size is determined based on the PLS-SEM rule of thumb, which suggests a minimum of ten times the number of structural paths in the model (Bernardes & Da Silva Macedo, 2025).

2.3. Types and Sources of Data

The data used in this study consist of:

- Primary data: collected through questionnaires
- Secondary data: obtained from literature and official reports

The use of primary data is essential to capture respondents' perceptions and satisfaction, which are inherently subjective (Sadiq & Amna, 2019).

2.4. Data Collection Technique

Data were collected using a structured questionnaire with a Likert scale ranging from 1 to 5. This scale was used to measure respondents' perceptions of the research variable indicators.

2.5. Variables and Measurement

This study includes five main variables: financial literacy (X1), access to capital (X2), market orientation (X3), satisfaction (Z), and farm business performance (Y). The operational definitions and indicators are presented below:

- a. Financial Literacy (X1)

Refers to the level of understanding of financial concepts in managing farm businesses.

Indicators:

- Understanding of financial management
- Understanding of interest rates and credit
- Ability to prepare budgets
- Ability to manage financial risks (Sadiq & Amna, 2019)

- b. Access to Capital (X2)

Refers to the ease of obtaining financial resources for business activities.

Indicators:

- Ease of obtaining credit

- Availability of financial institutions
- Loan requirements
- Interest rates (Zarliani et al., 2026)
- c. Market Orientation (X3)
Refers to the ability to understand and respond to market conditions.
Indicators:
 - Understanding market demand
 - Monitoring price changes
 - Product adaptation
 - Marketing network (Priyanto et al., 2020)
- d. Satisfaction (Z)
Refers to farmers' perceptions of their business conditions.
Indicators:
 - Satisfaction with income
 - Satisfaction with business outcomes
 - Satisfaction with business processes
 - Satisfaction with market conditions (Fenetahun et al., 2021)
- e. Farm Business Performance (Y)
Refers to the level of success in achieving economic objectives.
Indicators:
 - Income growth
 - Productivity improvement
 - Business development
 - Profit increase (Daraz et al., 2024)

2.6. Data Analysis Method

Data analysis is conducted using PLS-SEM with the following stages:

(1) Measurement Model Evaluation (Outer Model)

This stage aims to assess the validity and reliability of the constructs:

- Convergent validity: loading factor (>0.70), AVE (>0.50)
- Reliability: Cronbach's Alpha and Composite Reliability (>0.70)
- Discriminant validity: HTMT

The HTMT approach is used as it provides more accurate estimates compared to traditional methods (Roemer et al., 2021).

(2) Structural Model Evaluation (Inner Model)

This stage aims to examine the relationships among variables:

- Coefficient of determination (R^2)
- Predictive relevance (Q^2)

- Significance testing (bootstrapping)
PLS-SEM is effective in identifying causal relationships within complex models (Bernardes & Da Silva Macedo, 2025).

(3) Mediation Analysis

This stage is conducted to test the role of satisfaction as an intervening variable:

- Indirect effects
- Variance Accounted For (VAF)

2.7. Analytical Framework

This study develops an integrative model that combines economic factors (financial literacy and access to capital), market factors (market orientation), and psychological factors (satisfaction) in explaining farm business performance.

This approach aligns with previous studies indicating that business performance is influenced by the interaction of market dynamics, technological adoption, and institutional factors (Zarliani et al., 2026), as well as the importance of innovation and efficiency in enhancing competitiveness (Rana et al., 2025).

The novelty of this study lies in the integration of financial literacy, access to capital, and satisfaction into a single SEM-based model that provides a more comprehensive explanation of farm business performance compared to previous partial approaches.

3. RESULTS AND DISCUSSIONS

3.1. Results

3.1.1. Descriptive Results

Based on Table 1, the majority of respondents are male farmers within the middle productive age group. The relatively low level of education indicates limitations in managerial and business capabilities. In addition, the dominance of farmers with small landholdings suggests that farming activities are still largely subsistence to semi-commercial in nature.

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	Percentage
Gender	Male	164	78.1%
	Female	46	21.9%
Age	41–55 years	116	55.2%
Education	Primary School	102	48.6%
	Junior High School	68	32.4%
Land Size	0.5–1 ha	132	62.9%

Commodity	Rice	122	58.1%
	Corn	52	24.8%
	Cocoa	36	17.1%

This study involved 210 respondents, predominantly male farmers (78.1%), while female farmers accounted for 21.9%. In terms of age, most respondents were between 41–55 years (55.2%), indicating that farming activities are dominated by middle-aged productive individuals. The educational level is relatively low, with most respondents having only completed primary education (48.6%) and junior high school (32.4%). This condition reflects limited human capital capacity in managing modern agricultural businesses. Regarding land ownership, most farmers operate on small landholdings ranging from 0.5 to 1 hectare (62.9%), indicating small-scale farming operations. The main commodities cultivated are rice (58.1%), followed by corn (24.8%) and cocoa (17.1%). Overall, these characteristics indicate that respondents belong to smallholder farmers with limited capital and managerial capacity.

3.1.2. Descriptive Analysis of Variables

Based on Table 2, financial literacy and access to capital fall into the low category, indicating that farmers still face limitations in financial understanding and access to financing. Meanwhile, market orientation and satisfaction are categorized as moderate, suggesting some awareness of market importance, although not yet optimal. Farm business performance remains in the low-to-moderate category, indicating the need for interventions to improve productivity and efficiency.

Table 2. Descriptive Statistics of Research Variables

Variable	Mean	SD	Category
Financial Literacy	2.54	0.78	Low
Access to Capital	2.38	0.82	Low
Market Orientation	3.02	0.74	Moderate
Farmer Satisfaction	3.15	0.81	Moderate
Farm Business Performance	2.87	0.79	Low–Moderate

The descriptive analysis indicates that financial literacy among farmers is still relatively low, with an average score of 2.54. This suggests that most farmers lack sufficient understanding of basic financial concepts such as interest rates, inflation, and risk management. A similar condition is observed for access to capital, with a mean value of 2.38, indicating

difficulties in obtaining formal financing. This limitation may serve as a major barrier to farm business development. Meanwhile, market orientation has a mean value of 3.02, categorized as moderate, suggesting that some farmers are aware of the importance of market information, although not yet optimal. Farmer satisfaction shows a mean value of 3.15, indicating a moderate level of satisfaction. Farm business performance has a mean value of 2.87, reflecting that performance is still not optimal. Overall, these findings highlight that the main issues lie in financial literacy and access to capital.

3.1.3. Measurement Model Evaluation (Outer Model)

Based on Table 3, all indicators have loading factor values above 0.70 and AVE values above 0.50, indicating good convergent validity. Furthermore, Cronbach's Alpha and Composite Reliability values are also above 0.70, suggesting high reliability of the measurement instruments.

Table 3. Validity and Reliability Results

Variable	Loading Factor	AVE	Cronbach Alpha	Composite Reliability
Financial Literacy	0.712– 0.881	0.58 4	0.821	0.873
Access to Capital	0.734– 0.892	0.67 3	0.845	0.902
Market Orientation	0.721– 0.865	0.61 2	0.834	0.889
Satisfaction	0.745– 0.881	0.62 8	0.856	0.901
Performance	0.730– 0.870	0.60 1	0.842	0.894

The evaluation of the measurement model shows that all indicators have loading factor values above 0.70, indicating good convergent validity in measuring the constructs. In addition, the Average Variance Extracted (AVE) values for all variables exceed 0.50, demonstrating that each construct adequately explains the variance of its indicators. In terms of reliability, Cronbach's Alpha and Composite Reliability values for all variables are above 0.70, indicating strong internal consistency. Therefore, it can be concluded that the measurement model meets the criteria of validity and reliability and is suitable for further structural analysis.

3.1.4. Structural Model Evaluation (Inner Model)

Based on Table 4, the R^2 value for farm business performance is 0.587, indicating that the model has a strong explanatory power. Meanwhile, the Q^2 value greater than zero indicates good predictive relevance.

Table 4. R-Square and Q-Square Values

Variable	R ²	Q ²
Satisfaction	0.436	—
Farm Business Performance	0.587	0.341

The structural model evaluation shows that the coefficient of determination (R²) for farmer satisfaction is 0.436, meaning that 43.6% of the variation in satisfaction can be explained by financial literacy, access to capital, and market orientation. Meanwhile, the R² value for farm business performance is 0.587, indicating that 58.7% of the variation in performance can be explained by the independent and mediating variables in the model. This value reflects moderate to strong explanatory power. Additionally, the predictive relevance value (Q²) of 0.341 (>0) indicates that the model has good predictive capability. Therefore, the model is not only statistically robust but also relevant in explaining empirical phenomena.

3.1.5. Hypothesis Testing Results (Direct Effects)

Based on Table 5, all structural paths show positive and significant relationships. Access to capital has the strongest effect on both satisfaction and farm business performance, indicating that financial factors are the primary determinant in improving performance.

Table 5. Hypothesis Testing Results

Path	Coefficient (β)	t-stat	p-value	Result
X1 $\rightarrow$ Z	0.285	3.958	0.000	Significant
X2 $\rightarrow$ Z	0.412	6.059	0.000	Significant
X3 $\rightarrow$ Z	0.267	3.468	0.001	Significant
X1 $\rightarrow$ Y	0.173	2.110	0.035	Significant
X2 $\rightarrow$ Y	0.356	4.395	0.000	Significant
X3 $\rightarrow$ Y	0.285	3.608	0.000	Significant
Z $\rightarrow$ Y	0.312	4.105	0.000	Significant

The following is a picture of the relationship structure model.

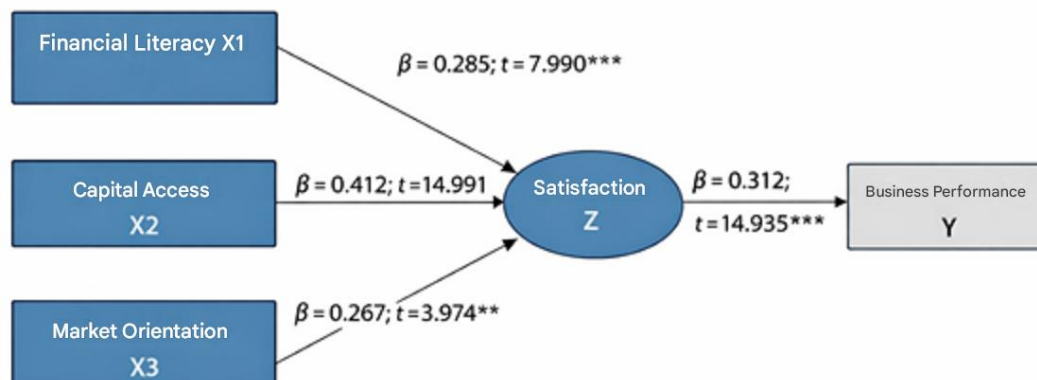


Figure 1. SEM-PLS Model of the Effect of Financial Literacy, Capital Access, and Market Orientation on Farming Business Performance with Farmer Satisfaction as a Mediating Variable in Southeast Sulawesi

The hypothesis testing results indicate that all independent variables have positive and significant effects on farmer satisfaction. Financial literacy significantly affects satisfaction ($\beta = 0.285$), suggesting that improved financial understanding enhances farmers' satisfaction. Access to capital shows the strongest effect on satisfaction ($\beta = 0.412$), indicating that ease of obtaining financing is a key factor in improving farmer satisfaction. Market orientation also has a significant effect ($\beta = 0.267$), demonstrating that understanding market demand contributes positively to farmers' perceptions of their business.

Regarding farm business performance, financial literacy has a positive and significant effect ($\beta = 0.173$), although relatively smaller compared to other variables. Access to capital again shows the most dominant effect ($\beta = 0.356$), followed by market orientation ($\beta = 0.285$). Additionally, farmer satisfaction significantly influences performance ($\beta = 0.312$). These findings indicate that both economic and psychological factors play important roles in improving farm business performance.

3.1.6. Mediation Test Results

Based on Table 6, farmer satisfaction partially mediates the relationship between the independent variables and farm business performance.

Table 6. Mediation Test Results

Path	Indirect Effect	VAF	Type of Mediation
X1 → Z → Y	0.089	33.9 %	Partial
X2 → Z → Y	0.128	26.4 %	Partial
X3 → Z → Y	0.083	22.6 %	Partial

The mediation analysis shows that farmer satisfaction acts as a partial mediator in the relationship between financial literacy, access to capital, and market orientation on farm business performance. This is indicated by the Variance Accounted For (VAF) values ranging from 22% to 34%. Financial literacy has an indirect effect of 0.089 (VAF = 33.9%), indicating that part of its influence on performance occurs through satisfaction. Access to capital has an

indirect effect of 0.128 (VAF = 26.4%), showing that satisfaction strengthens its impact on performance. Meanwhile, market orientation has an indirect effect of 0.083 (VAF = 22.6%). These findings confirm that satisfaction serves as an important mechanism linking resource-related factors to farm business performance.

3.2. Discussion

The findings of this study indicate that financial literacy, access to capital, and market orientation have positive and significant effects on farm business performance, both directly and indirectly through satisfaction as a mediating variable. These results confirm that farm business performance is shaped by the interaction between economic factors, market capabilities, and behavioral aspects of farmers.

Access to capital emerges as the most dominant factor influencing farm business performance. This is evidenced by its higher coefficient compared to other variables, indicating that the availability and ease of obtaining financial resources play a crucial role in enhancing productivity and business scale. This finding is consistent with previous studies emphasizing that access to financial resources and institutional support significantly improves agribusiness efficiency and performance (Zarliani et al., 2026). In the context of smallholder farming, limited capital often acts as a major constraint in adopting technology, improving input quality, and expanding business operations. The results clearly show that access to capital has the strongest effect ($\beta = 0.356$), exceeding the influence of market orientation ($\beta = 0.285$) and financial literacy ($\beta = 0.173$).

In addition to capital access, market orientation also has a significant influence on farm business performance. This indicates that farmers who are capable of understanding market demand, monitoring price fluctuations, and adapting their products to consumer needs tend to achieve better performance. This finding aligns with previous research suggesting that market orientation and marketing strategies, including e-marketing adoption, enhance business performance by expanding market access and increasing competitiveness (Priyanto et al., 2020). Therefore, market orientation plays a critical role in strengthening farmers' bargaining position within the agribusiness value chain.

Financial literacy also shows a positive and significant effect on farm business performance, although its influence is relatively smaller compared to access to capital and market orientation. This suggests that understanding financial concepts such as budgeting, credit management, and risk control still plays an important role in improving business efficiency. Farmers with higher financial literacy are more likely to make rational financial decisions, which ultimately contributes to improved performance. This finding is consistent with the behavioral economics perspective, which highlights that individuals' financial knowledge influences decision-making quality (Sadiq & Amna, 2019).

Another important finding is the role of satisfaction as a mediating variable in the research model. Farmer satisfaction significantly influences farm business performance and mediates

the relationships between financial literacy, access to capital, market orientation, and performance. The partial mediation results indicate that the effects of independent variables on performance are not only direct but also occur through increased satisfaction. This suggests that subjective perceptions of business conditions play a crucial role in driving motivation and performance.

The results of this study reinforce the findings of Zarliani et al. (2026), which demonstrate that structural factors in agribusiness do not directly enhance performance but operate through mediating mechanisms (Zarliani et al., 2026). In this study, satisfaction functions as a behavioral mediator linking financial literacy, access to capital, and market orientation to farm business performance. This highlights that beyond economic and market factors, behavioral and perceptual aspects of farmers are also critical in improving performance.

The mediating role of satisfaction also supports previous findings that psychological and social factors significantly affect agricultural performance (Fenetahun et al., 2021). Satisfaction enhances commitment, engagement, and motivation among farmers, thereby contributing to increased productivity and business sustainability. Thus, satisfaction not only acts as an outcome of performance but also as a driving force that strengthens the relationship between resources and performance.

From a theoretical perspective, these findings support the Resource-Based View (RBV), which posits that competitive advantage is determined by the effective management of resources. However, this study extends the RBV perspective by demonstrating that resources alone are insufficient; they must be complemented by psychological factors such as satisfaction to achieve optimal performance. Furthermore, the results align with studies emphasizing the importance of integrating sustainability practices, technological innovation, and policy support to enhance agricultural sector performance (Daraz et al., 2024; Nguyen et al., 2025).

The main distinction of this study compared to previous research lies in its integrative approach, which combines financial literacy, access to capital, market orientation, and satisfaction within a single structural model based on SEM. Previous studies have generally focused on economic or technical factors in isolation, whereas this study demonstrates that farm business performance is influenced by the simultaneous interaction of economic, market, and psychological factors.

From a practical perspective, these findings suggest that improving farm business performance cannot be achieved through partial interventions. Policy efforts should adopt an integrated approach, including improving access to financing, strengthening financial literacy, and enhancing market orientation through training and extension programs. In addition, policymakers and relevant institutions should consider farmer satisfaction as an important indicator of the success of agricultural development programs.

4. CONCLUSION

4.1. Summary of Findings

This study concludes that financial literacy, access to capital, and market orientation are key determinants in improving farm business performance in Southeast Sulawesi. Among these variables, access to capital is identified as the most dominant factor ($\beta = 0.356$), followed by market orientation ($\beta = 0.285$) and financial literacy ($\beta = 0.173$).

Furthermore, farmer satisfaction has a significant effect on farm business performance ($\beta = 0.312$) and acts as a partial mediator in the relationship between the independent variables and performance, with Variance Accounted For (VAF) values ranging from 22% to 34%. This finding indicates that improvements in farm performance are influenced not only by resource-based factors but also by farmers' perceptions and satisfaction with their business conditions.

The research model explains 58.7% of the variance in farm business performance ($R^2 = 0.587$), indicating a moderate to strong explanatory power. Therefore, this study highlights the importance of an integrative approach that combines economic and psychological aspects in enhancing farm business performance.

4.2. Research Limitations

This study has several limitations:

- (1) The use of cross-sectional data, which does not capture performance dynamics across different planting seasons
- (2) Limited generalizability, as the study focuses only on selected districts and specific commodities
- (3) The potential for social desirability bias, as respondents may overreport their business performance

4.3. Recommendations for Future Research

Future studies are recommended to:

- (1) Employ a longitudinal research design covering 2–3 planting seasons
- (2) Expand the study area to include broader regions such as other provinces in Sulawesi or Eastern Indonesia
- (3) Incorporate moderating variables such as government support or digital technology adoption
- (4) Combine quantitative methods with qualitative approaches (e.g., in-depth interviews) to capture richer contextual insights

4.4. Research Contribution

This study contributes to the development of a farm business performance model by integrating resource-based factors (financial literacy and access to capital), market factors (market orientation), and psychological factors (satisfaction). This multidimensional approach provides a more comprehensive understanding of farm performance compared to previous studies that tend to focus on partial aspects.

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