International Journal of
Entrepreneurship
(IJE)

Operational Efficiency and Financial Performance of Agro-Processing Firms in Acholi Sub-Region

Gladys Angee, John Baguma Muhunga Kule, John Rwakihembo, Pereez Nimusima, Mshilla Maghanga, Moreen Niwaha

AJP

International Journal of Entrepreneurship
ISSN 2790-6965 (Online)
Vol.9, Issue 1, pp 18- 34, 2026

www.ajpojournals.org

Operational Efficiency and Financial Performance of Agro-Processing Firms in Acholi Sub-Region

Gladys Angee[1*], John Baguma Muhunga Kule [2], John Rwakihembo [3], Pereez Nimusima [4], Mshilla Maghanga[5], Moreen Niwaha[6]

[1,3,4] Department of Business Administration, Faculty of Business and Management Sciences, Mountains of the Moon University, Uganda

[2] Department of Accounting and Finance, Faculty of Business and Management Sciences, Mbarara University of Science and Technology, Uganda

[5] Department of Accounting and Finance, Faculty of Business and Development Studies, Gulu University, Uganda

[6] Department of Banking and Finance, Faculty of Business and Management Sciences, Mountains of the Moon University, Uganda

Article history

Submitted 13.04.2026 Revised Version Received 12.05.2026 Accepted 08.06.2026

Abstract

Purpose: Agro-processing enterprises constitute a vital component of Uganda's industrial development agenda due to their contribution to value addition, employment generation, income creation, and economic growth. However, many firms continue to experience weak financial performance characterized by low profitability, liquidity constraints, and limited competitiveness. Since financial success is essential for firm survival, growth, and long-term viability, understanding the internal capabilities that drive superior performance remains imperative. This study examined the effect of operational efficiency on the financial performance of agro-processing firms in the Acholi Sub-region of Uganda.

Methodology: The study employed a cross-sectional survey design within an explanatory mixed-methods framework. Data were collected from 242 respondents drawn from 70 agro-processing firms in the Acholi Sub-region of Uganda using structured questionnaires, complemented by 13 key informant interviews. Data analysis involved descriptive statistics, Pearson correlation analysis, and simple linear regression. Qualitative data were analyzed using thematic analysis to complement the quantitative findings.

Findings: The study found a strong positive and statistically significant relationship between operational efficiency and financial performance among agro-processing firms ($r = 0.840$, $p < 0.001$). Regression results revealed that operational efficiency significantly predicts financial performance ($\beta = 0.840$, $B = 0.738$, $p < 0.001$), accounting for 70.5% of the variation in financial performance ($R^2 = 0.705$).

Unique Contribution to theory, Practice and Policy: Given the significant contribution of operational efficiency to financial performance, agro-processing firms should prioritize capacity utilization and cycle time management as core strategic capabilities for achieving sustainable competitiveness. Firms should adopt lean operational practices, invest in modern processing technologies, and strengthen resource optimization systems to reduce production costs and improve financial outcomes. At the policy level, interventions aimed at improving infrastructure, technological upgrading, and managerial capabilities are necessary to address external constraints that may limit the financial gains derived from operational efficiency improvements.

Keywords: *Operational Efficiency; Financial Performance; Agro-Processing Sector; Capacity Utilization; Cycle Time*

JEL Codes: *D24, L25, Q13, G32*

INTRODUCTION

Agro-processing plays a critical role in agricultural transformation by converting raw agricultural outputs into value-added products, strengthening food systems, generating employment opportunities, and contributing to industrial development and economic growth. Globally, the sector was valued at approximately USD 8.7 trillion in 2023 and has grown at an annual rate of about 4.3% since 2018 (Hallowell & Conroy, 2025; Nachiket & Soumya, 2025), reflecting its increasing significance in economic transformation and food system development. The sector is particularly important in developing economies where agriculture remains a dominant source of livelihoods and national income. In Africa, agro-processing contributes approximately 20% of GDP and up to 60% of manufacturing value added (African Development Bank, 2024), underscoring its role in industrialization and structural transformation. Similarly, across East Africa, the sector continues to stimulate productivity growth, export competitiveness, employment creation, and value chain development. Beyond enhancing agricultural commercialization, agro-processing improves market access, reduces post-harvest losses, strengthens value chain competitiveness, and contributes to poverty reduction and broader socio-economic development. Given its strategic contribution to industrialization and economic transformation, improving the operational and financial sustainability of agro-processing firms remains a policy priority in many developing economies.

Within Uganda, agro-processing encompasses a diverse range of activities including grain milling, oilseed processing, dairy processing, fruit and vegetable processing, coffee processing, and animal feed production. Agro-processing is increasingly recognized as a critical driver of industrialization, value addition, and economic growth, contributing approximately 42% of industrial output, 25% of tax revenue, 41% of employment, about 8% of GDP, and 19% of exports (Uganda Development Bank, 2022; Walugembe, 2023). Given its substantial contribution to export competitiveness, employment creation, and private sector development, the sector remains central to Uganda's national development and industrial transformation agenda. Within this broader national context, agro-processing activities in the Acholi sub-region are predominantly concentrated in grain milling enterprises processing maize, rice, millet, and sorghum, alongside oilseed processing firms engaged in the production of sunflower and sesame-based products, as well as fruit value-addition enterprises. These firms play a critical role in adding value to the region's agricultural produce, improving market access for farmers, reducing post-harvest losses, and supporting local employment and income generation. Consequently, their operational effectiveness and financial sustainability are essential for achieving the region's agricultural commercialization and industrial development objectives. Government interventions under NDP III and IV and Vision 2040 emphasize agro-industrialization through industrial parks, access to affordable credit, technology transfer, and SME support services. Additionally, institutions such as the Uganda Development Bank and Enterprise Uganda continue to support firms through financing schemes and capacity-building initiatives have sought to strengthen agro-enterprise competitiveness and improve firm sustainability. Despite these interventions, many agro-processing firms continue to experience profitability constraints, liquidity challenges, and operational inefficiencies that constrain competitiveness and long-term viability. Such conditions are particularly pronounced in structurally constrained production environments where firms operate under resource limitations, production inefficiencies, and volatile input markets. Financial performance remains a critical indicator of organizational sustainability, reflecting a firm's ability to generate profits, maintain

liquidity, and ensure long-term viability (Buallay, 2022). However, evidence from national statistical reports and development assessments suggests that financial performance among agro-processing firms in Uganda remains suboptimal. The Uganda Bureau of Statistics (UBOS, 2023) highlights that many agro-based enterprises operate below optimal capacity, with limited profitability and constrained reinvestment potential. Similarly, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF, 2022) reports that agro-processing firms continue to face structural inefficiencies, high production costs, and weak value addition, which negatively affect financial sustainability. In addition, UNIDO (2021) notes that Uganda's agro-processing subsector is constrained by low productivity, high post-harvest losses, and liquidity challenges, all of which reduce firm-level profitability and competitiveness. Collectively, these constraints are reflected in declining margins, and heightened vulnerability to input price volatility, thereby undermining long-term financial performance and firm sustainability.

To explain these firms' financial persistent performance disparities, this study draws on the Resource-Based View (RBV), which posits that sustained competitive advantage arises from firm-specific resources and capabilities that are valuable, rare, inimitable, and non-substitutable (Wernerfelt, 1984; Barney, 1991; Kero & Bogale, 2023). Within this perspective, firm performance differences are attributed not merely to variations in resource endowments but also to the effectiveness with which internal capabilities transform resources into productive outcomes. Contemporary scholarship increasingly emphasizes operational efficiency as one such strategic capability influencing competitiveness and financial outcomes. Operational efficiency refers to a firm's ability to optimize resource utilization while minimizing waste, delays, and operational costs to maximize productivity and output performance (Nguyen & Tran, 2021). In agro-processing firms, where production systems are resource-intensive and highly sensitive to process inefficiencies, operational efficiency becomes particularly critical for strengthening competitiveness and sustaining financial outcomes. In this regard, operational efficiency is operationalized through capacity utilization and cycle time, which jointly capture the extent to which firms maximize the use of available production capacity while minimizing delays in the production process. Capacity utilization reflects the degree to which firms effectively employ installed production capacity, thereby reducing idle resources and improving throughput efficiency, whereas cycle time captures the duration required to transform inputs into finished outputs, reflecting the speed and continuity of production processes. Together, these dimensions provide a comprehensive measure of operational efficiency, linking resource utilization intensity with production process velocity. Enhanced capacity utilization and reduced cycle time are expected to improve productivity, lower unit production costs, and strengthen responsiveness to market demand, thereby translating operational improvements into superior financial performance outcomes (Kim & Lee, 2024).

Despite growing theoretical recognition of operational capabilities, empirical evidence on how internal operational efficiency mechanisms influence financial performance within Uganda's agro-processing sector remains limited. Existing scholarship has largely concentrated on external constraints including infrastructure deficits, market access barriers, and policy challenges, with relatively limited attention devoted to internal efficiency-driven capability pathways. In particular, operational efficiency encompassing capacity utilization and cycle time remains underexplored as a strategic capability shaping financial performance in agro-processing firms operating within resource-constrained contexts. This creates a conceptual and empirical gap regarding how firms

internally configure and deploy operational capabilities to improve productivity and financial outcomes. Accordingly, this study examines the effect of operational efficiency on financial performance of agro-processing firms in the Acholi sub-region of Uganda, while extending RBV capability arguments within agro-processing settings and generating context-specific evidence to inform managerial and policy interventions aimed at strengthening firm competitiveness and sustainability.

Problem Statement

The performance of agro-processing firms is critical to Uganda's industrial transformation agenda, particularly in promoting value addition, employment creation, and rural economic development. As a result, the government through MoFPED prioritized the establishment and rehabilitation of agro-processing firms to enhance value addition (MoFPED, 2024). In addition, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), in collaboration with IFAD, invested UGX 28 billion under the National Oilseed Project (NOSP) to improve road infrastructure and strengthen market linkages (MAAIF, 2021). Similarly, strategic partnerships between MAAIF, NAADS, Gulu Archdiocese, and Acholi District Local Governments have advanced cassava commercialization and value addition, with an investment of UGX 12 billion between 2018 and 2022 (NAADS Report, 2022; MAAIF Report, 2022). Despite, these initiatives, financial performance challenges persist among agro-processing firms in the Acholi sub-region. Evidence indicates declining profitability trends, with profit margins falling below the recommended benchmark of 10%, declining from 8.1% in 2020 to 5.3% in 2024 (NARO, 2023; MoFPED, 2024). This decline has been partly attributed to operational inefficiencies manifested through low capacity utilization, prolonged production cycle times, underutilization of processing equipment, production bottlenecks, and high operational costs, which reduce productivity and erode profit margins. Additionally, approximately 60% of firms reportedly operate at a loss, while liquidity constraints continue to limit firms' capacity to meet short-term financial obligations (UBOS, 2020; National Planning Authority, 2024). Persistent deterioration in financial performance threatens firm survival, reduces investor confidence, constrains agricultural value addition, and undermines broader regional development outcomes (FAO, 2021; World Bank, 2023). Empirically, literature increasingly suggests that internal operational capabilities influence firm competitiveness and financial outcomes. In particular, inefficiencies in resource utilization and production processes constrain productivity growth, profitability, and long-term sustainability (Mwangi et al., 2023). However, limited empirical evidence exists regarding how operational efficiency influences financial performance among agro-processing firms operating within Acholi sub-region's resource-constrained production environment. This study therefore addresses this gap by investigating the effect of operational efficiency on financial performance of agro-processing firms in the Acholi sub-region.

Purpose of the Study

The purpose of the study is to establish the association between operational efficiency and financial performance of agro-processing firms in Acholi sub-region.

LITERATURE REVIEW

Theoretical Framework

Resource-Based View Theory

The Resource-Based View (RBV) theory, prominently developed by Barney (1991), explains how firm-specific resources and capabilities generate sustained competitive advantage and superior organizational performance. The theory argues that firms achieve superior performance when they possess valuable, rare, inimitable, and non-substitutable (VRIN) resources (Kero & Bogale, 2023). RBV assumes that organizations possess heterogeneous resource bundles that cannot be easily replicated by competitors. Internal resources such as production capabilities, operational systems, managerial competencies, and organizational routines become critical sources of competitive advantage (Barney, 2021). Operational efficiency aligns closely with RBV because efficient utilization of productive resources strengthens firm competitiveness and financial outcomes. Capacity utilization and shorter production cycle times reflect organizational capability deployment that transforms resources into valuable outputs. Within agro-processing firms operating in resource-constrained environments such as Acholi sub-region, RBV provides a useful framework for understanding how operational systems create efficiency gains that ultimately improve profitability, liquidity, and financial sustainability. Agro-processing firms that effectively deploy productive assets, workforce capabilities, and operational processes are likely to achieve improved financial outcomes relative to firms characterized by operational inefficiencies and underutilization of productive capacity (Waweru et al., 2024). However, despite its explanatory value, RBV has been widely criticized for its relatively static nature, as it tends to focus on existing resource endowments while paying limited attention to how firms respond to rapidly changing and uncertain environments (Högerle et al., 2020; Hidayat et al., 2021). In dynamic contexts such as agro-processing industries in developing economies, competitive advantage is not solely determined by possession of resources but also by the ability to continuously adapt, reconfigure, and renew those resources in response to environmental changes.

Dynamic Capabilities Theory

Dynamic Capabilities Theory (DCT), developed by Teece, Pisano, and Shuen (1997), extends the Resource-Based View by explaining how firms achieve sustained competitive advantage through their ability to sense environmental changes, seize emerging opportunities, and reconfigure internal resources. The theory emphasizes that competitive advantage in dynamic environments depends not on static resource possession but on continuous adaptation driven by managerial cognition, organizational learning, innovation, and resource orchestration (Teece, 2007; Schilke et al., 2020). Key assumptions of DCT include environmental dynamism, capability heterogeneity, path dependency, continuous learning, and strategic resource reconfiguration (Helfat et al., 2022; García-Valenzuela et al., 2023). In the context of agro-processing firms in the Acholi sub-region, DCT is highly relevant due to persistent environmental uncertainties such as volatile input markets, infrastructure constraints, and policy fluctuations (Mutua, 2021). The theory conceptualizes operational efficiency as dynamic capabilities that evolve over time to enhance financial performance (Ellström et al., 2022). Operational efficiency reflects the effective deployment of these capabilities through improved resource utilization, reduced process inefficiencies, and higher productivity, while financial performance represents the ultimate outcome of successful capability transformation (Tega, 2017; Njuguna, 2021).

Empirical Review

Operational efficiency reflects a broader perspective of how firms effectively coordinate resources, production systems, and operational processes to achieve improved financial outcomes and long-term sustainability (Mwangi et al., 2023). In agro-processing firms, operational efficiency is particularly critical because it determines the extent to which firms optimize production capacity, reduce operational waste, minimize delays, and improve resource utilization within highly competitive and resource-constrained environments (Oluyinka et al., 2020). As researchers, we note that capacity utilization and cycle time, which are the measures of operational efficiency in this study, are fundamental operational processes in achieving improved profitability, liquidity stability, and solvency among agro-processing firms. As explained by the Resource-Based View (RBV), firms that effectively deploy internal operational resources are more likely to attain superior financial performance through enhanced productivity, cost reduction, and process optimization (Barney, 1991; Teece, 2007). Specifically, capacity utilization enables firms to maximize the use of machinery, labor, and production facilities, thereby lowering unit production costs and improving profitability (Singh et al., 2022). Similarly, shorter cycle time improves operational responsiveness, reduces inventory holding costs, accelerates throughput, and enhances cash flow management, all of which strengthen financial performance (Grau & Reig, 2021). However, Dynamic Capabilities Theory (DCT) complements this explanation by emphasizing that in dynamic, uncertain, and resource-constrained environments, such as agro-processing contexts in developing and post-conflict settings, sustained performance is not only a function of resource possession and utilization but also of the firm's ability to integrate, reconfigure, and adapt these operational processes in response to environmental changes (Teece, Pisano, & Shuen, 1997; Teece, 2016).

Empirically, literature demonstrates a generally positive but context-dependent relationship between operational efficiency and financial performance, with evidence converging around distinct contextual patterns. Studies from developed economies predominantly emphasize efficiency gains driven by technological advancement, automation, and process optimization, where firms that adopt advanced production systems and achieve reduced cycle times consistently report improved profitability and return on equity due to enhanced operational precision and reduced waste (Grau & Reig, 2021; Singh et al., 2022). In related evidence from emerging economies reinforces this relationship that operational efficiency improves financial and organizational performance through better system integration, resource optimization, and technological adoption (Wei & Wang, 2025; Nguyen-Thi-Thuy et al., 2024; Emon & Ahmed, 2025). In contrast, evidence from developing economies underscores the role of system-level coordination, lean production practices, and managerial efficiency, where improvements in capacity monitoring, inventory control, and production scheduling enhance financial performance through better resource allocation and cost reduction (Waleru & Vivian, 2024; Mang'ana et al., 2023). In the Ugandan context, similar dynamics are observed, as operational coordination, supply chain risk management, and inventory management systems contribute to improved productivity and financial outcomes through reduced inefficiencies and improved resource utilization (Tukamuhabwa, 2023; Mitchel et al., 2025). Despite this convergence, a growing strand of literature highlights that the operational efficiency–financial performance relationship is not automatic or uniform. In several contexts, improvements in operational systems do not necessarily translate into improved profitability due to structural and institutional constraints, including weak

governance systems, limited market access, and inadequate financial literacy (Ssekandi et al., 2022; Kariuki & Mutua, 2023). Additional evidence suggests that infrastructural deficiencies such as unreliable energy supply, weak production environments, and macroeconomic instability can significantly weaken the transmission of efficiency gains into financial performance (Amarasuriya et al., 2024; Thuo et al., 2021). In some cases, operational improvement initiatives may even generate additional administrative and compliance costs, thereby diluting net financial benefits despite improvements in operational processes (Wei & Wang, 2025).

In view of the foregoing, the extant literature reveals a notable limitation in the way operational efficiency is conceptualized and empirically examined. Specifically, most prior studies have largely operationalized efficiency as a single aggregated construct, thereby obscuring the potential heterogeneity in the effects of its underlying components on firm performance outcomes. This aggregation limits a more granular understanding of the mechanisms through which operational processes translate into financial performance. In response to this limitation, the present study disaggregates operational efficiency into capacity utilization and cycle time in order to examine their respective effects on financial performance. This decomposition enables a more nuanced and analytically robust assessment of how distinct operational mechanisms contribute to profitability, liquidity, and solvency outcomes within agro-processing firms operating in a rural post-conflict setting. The study further situates this analysis within the Acholi sub-region, an under-researched context characterized by infrastructural constraints, market imperfections, and institutional fragility. Accordingly, by shifting from an aggregated to a disaggregated conceptualization of operational efficiency, the study advances both theoretical and empirical understanding of performance dynamics in resource-constrained environments, while generating context-specific evidence on the differential influence of capacity utilization and cycle time on financial performance.

Research Methodology

The study adopted a cross-sectional survey design within an explanatory mixed-methods approach, enabling data collection at a single point in time to examine relationships among study variables as they exist (Figueiredo et al., 2020). The study population comprised 87 agro-processing firms in the Acholi sub-region (Gulu City, Gulu District, Kitgum Municipality, Kitgum District, Omoro, Nwoya, Amuru, Pader, Lamwo, and Agago), with firms as the unit of analysis and key informants (managers, finance/accounts, production/operations, and marketing/sales officers) as the unit of inquiry. Using the Krejcie and Morgan (1970) table, a sample of 70 firms was selected, yielding 280 respondents, with four respondents drawn from each firm. A multi-stage sampling technique was applied, involving proportional stratified sampling to ensure district representation, purposive sampling for managers due to their strategic roles, and simple random sampling for technical staff to enhance representativeness and reduce selection bias.

Data were collected using structured questionnaires with five-point Likert scale items administered to finance/accounts, production/operations, and marketing/sales staff, complemented by interview guides administered to purposively selected managers until thematic saturation was achieved. Ethical approval was obtained from MUST Faculty of Business and Management Sciences, MUST REC, and UNCST, followed by authorization from participating firms; all respondents provided informed consent and participation was voluntary. Confidentiality, anonymity, secure data storage, and data minimization principles were strictly observed, with results reported in aggregate form and all outputs subjected to plagiarism screening to ensure academic integrity. The study adhered

to strict inclusion and exclusion criteria, whereby only formally registered agro-processing firms operating for at least one year with three functional departments and relevant staff with at least one year of tenure and informed consent were included, while informal firms, those outside the region, firms below three years of operation, and non-core or non-consenting staff were excluded to ensure data reliability and contextual relevance.

Validity and reliability were ensured through Content Validity Index (CVI) assessment, with all constructs achieving acceptable values between 0.78 and 0.85, and expert review and pretesting of the interview guide to enhance clarity and relevance. Construct validity was further confirmed through Exploratory Factor Analysis for operational efficiency and financial performance (KMO = 0.875 and 0.859; $p < 0.001$), with satisfactory variance explained (60.228% and 68.710%), while reliability analysis indicated strong internal consistency across key constructs, including capacity utilization ($\alpha = 0.865$), cycle time ($\alpha = 0.906$), profitability ($\alpha = 0.918$), liquidity ($\alpha = 0.775$), and solvency ($\alpha = 0.869$). Diagnostic tests confirmed that the data met all assumptions for parametric analysis, with independence of errors supported by the Durbin–Watson statistic (DW = 1.801), and normality, linearity, and homoscedasticity verified through graphical and statistical procedures, while multicollinearity diagnostics indicated no serious correlations among predictors (VIF = 1.833), confirming suitability for regression analysis. Descriptive statistics were used to summarize sample characteristics and variable distributions using percentages, means, and standard deviations, while inferential analysis using Pearson correlation and simple linear regression was conducted to examine relationships and test the predictive effects of the independent variables on the dependent variable by use of Statistical Package for Social Sciences (SPSS) Version 27.

Research Findings

A total of 250 questionnaires were distributed to 70 agro-processing firms, with 242 (96.8%) returned. Responses were aggregated into 70 firm-level cases, achieving a 100% firm response rate. Additionally, 13 key informant interviews were conducted, after which qualitative data saturation was reached, supported by effective field coordination and firm cooperation.

Sample Characteristics

This section presents the sample characteristics, including the demographic profile of respondents and the characteristics of the units of analysis.

Demographic Information of the Respondents

Respondents' background information was examined in terms of gender, age, education level, position, work experience, and employment type.

Table 1: Profile of the Respondent

Items	Frequency	Percent	Cumulative Percent
Gender			
Male	159	65.7	65.7
Female	83	34.3	100.0
Total	**242**	**100.0**	
Age Group of participants			
18-25	17	7.0	7.0
26-35	80	33.1	40.1
36-45	100	41.3	81.4
46-55	45	18.6	100.0
Total	**242**	**100.0**	
Level of Education			
Certificate	64	26.4	26.4
Diploma	62	25.6	52.1
Bachelor's Degree	74	30.6	82.6
Post graduate degree	38	15.7	98.3
Others	4	1.7	100.0
Total	**242**	**100.0**	
Position of the participant			
Manager	47	19.4	19.4
Accounts/Finance Officer	55	22.7	42.1
Production and operations officer	77	31.8	74.0
Marketing and sales officer	63	26.0	100.0
Total	**242**	**100.0**	
Year of experience			
Less than 2 years	38	15.7	15.7
2-5 years	74	30.6	46.3
6-9 years	60	24.8	71.1
10-13 years	58	24.0	95.0
More than 13 years	12	5.0	100.0
Total	**242**	**100.0**	
Employment Type			
Full-time	157	64.9	64.9
Part-time	30	12.4	77.3
Contract	47	19.4	96.7
Other	8	3.3	100.0
Total	**242**	**100.0**	

Source: Primary Data, 2026

The demographic characteristics indicate that the respondents were predominantly male (65.7%) and largely within the productive working-age groups of 36–45 years (41.3%) and 26–35 years (33.1%). Most respondents possessed Bachelor's degrees (30.6%), Certificates (26.4%), and Diplomas (25.6%), while the majority were full-time employees (64.9%) serving in production and operations (31.8%), marketing and sales (26.0%), finance/accounts (22.7%), and managerial positions (19.4%). In addition, most participants had between 2–5 years (30.6%) and 6–9 years (24.8%) of work experience, suggesting that the study captured informed and experienced

perspectives relevant to cost management practices, operational efficiency, and financial performance in agro-processing firms.

Demographic characteristics of the Firms

The study examined the demographic characteristics of firms with emphasis on ownership structure and the types of agro-processing activities undertaken. It further provides an overview of the nature and operational focus of agro-processing firms within the study area.

Table 2: Firms Demographic characteristics

Items	Frequency	Percent	Cumulative Percent
Type of Ownership			
Sole proprietorship	97	40.1	40.1
Partnership	48	19.8	59.9
Private company	59	24.4	84.3
Cooperative	38	15.7	100.0
Total	**242**	**100.0**	
Type of agro processing firm			
Cereal	102	42.1	42.1
oil seed	35	14.5	56.6
Fruits	22	9.1	65.7
Roots	17	7.0	72.7
Animal-based	31	12.8	85.5
Honey	28	11.6	97.1
Others	7	2.9	100.0
Total	**242**	**100.0**	

Source: *Primary Data, 2026*

The firm characteristics indicate that the majority of agro-processing firms were sole proprietorships (40.1%), followed by private companies (24.4%), partnerships (19.8%), and cooperatives (15.7%), reflecting the dominance of individually owned small and medium-scale enterprises in the sector. In terms of operational focus, most firms were engaged in cereal processing (42.1%), followed by oil seed processing (14.5%) and animal-based processing (12.8%), while smaller proportions specialized in honey (11.6%), fruit (9.1%), and roots and tubers processing (7.0%), suggesting a diversified but cereal-dominated agro-processing industry in the study area.

Correlation Analysis

Pearson correlation analysis was used to examine the relationship between operational efficiency and financial performance, with significance tested at 0.05 and 0.01 levels. Results indicated that statistically significant relationships are denoted by * ($p < 0.05$) and ** ($p < 0.01$), showing that the associations are unlikely due to chance.

Table 4: Pearson Correlation Analysis

	Capacity Utilization	Cycle Time	Profitability	Liquidity	Solvency	Operational Efficiency	Financial performance
Capacity Utilization	1						
Cycle Time	.796**	1					
Profitability	.736**	.680**	1				
Liquidity	.682**	.724**	.778**	1			
Solvency	.757**	.721**	.620**	.749**	1		
Operational Efficiency	.946**	.949**	.747**	.742**	.780**	1	
Financial Performance	.804**	.787**	.882**	.938**	.880**	.840**	1

**. Correlation is significant at the 0.01 level (2-tailed). *. *Correlation is significant at the 0.05 level (2-tailed).*

N= 242

Source: Primary Data, 2026

The results indicate a strong, positive, and statistically significant relationship between operational efficiency and financial performance among agro-processing firms in the Acholi sub-region ($r = 0.840$, $p < 0.01$). At the construct level, both capacity utilization ($r = 0.804$, $p < 0.01$) and cycle time ($r = 0.787$, $p < 0.01$) show strong positive associations with financial performance. This suggests that firms with higher capacity utilization and reduced production cycle time tend to achieve better profitability, liquidity, and solvency.

Regression

The regression study looked at the association between the financial performance of agro-processing companies in the Acholi sub-region and operational efficiency as presented in this section.

Table 5: Regression Coefficients Showing the Effect of Operational Efficiency on Financial Performance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.067	.125		8.569	.000
	Operational efficiency	.738	.031	.840	23.936	.000

R = .840
R Square = .705
Adjusted R Square = .704
F Change = 572.939
Sig, F Change = .000

a. Dependent Variable: Financial Performance

Source: *Primary Data, 2026*

The regression model shows a high correlation (R = 0.840) and explains 70.5% of the variation in financial performance ($R^2 = 0.705$; adjusted $R^2 = 0.704$), indicating strong explanatory power and model stability. The ANOVA results confirm overall model significance ($F = 572.939$, $p < 0.001$), demonstrating that the relationship is not due to chance. Further, the coefficients reveal a significant positive effect of operational efficiency on financial performance ($B = 0.738$, $\beta = 0.840$, $t = 23.936$, $p < 0.001$), implying that a unit increase in operational efficiency leads to a 0.738 increase in financial performance, holding other factors constant

Discussion

The findings of this study depict the existence of a strong, positive, and statistically significant relationship between operational efficiency and financial performance among agro-processing firms in the Acholi sub-region ($r = 0.840$, $p < 0.01$), a result that is further reinforced by the regression estimates ($B = 0.738$, $\beta = 0.840$, $t = 23.936$, $p < 0.001$). This implies that improvements in operational efficiency are associated with better financial performance in terms of profitability, liquidity, and overall financial stability in agro-processing firms. Capacity utilization is strongly and positively associated with financial performance ($r = 0.804$, $p < 0.01$), indicating reduced unit costs and improved profit margins through optimal use of production capacity. Cycle time also shows a strong positive relationship ($r = 0.787$, $p < 0.01$), suggesting that faster production improves responsiveness, output delivery, and cash flow. This result is consistent with prior studies for instance, Grau and Reig (2021) and Singh et al. (2022) similarly report that efficiency-enhancing practices such as reduced cycle time, automation, and optimized capacity utilization significantly improve profitability and return on assets in agri-food and manufacturing firms. Further support is provided by Mang'ana et al. (2023), who established that lean operations and effective capacity management enhance profitability and liquidity through reduced costs and improved inventory turnover. Likewise, Waleru and Vivian (2024) and Slabbert and Ketely (2020) confirm that streamlined processes and mechanized operations strengthen cost performance and financial sustainability in industrial value chains.

The qualitative findings reinforce the quantitative results by showing that operational efficiency improves financial performance through reduced wastage, lower production costs, improved product quality, and enhanced competitiveness, which collectively drive higher revenue and profitability. This is reflected in a respondent's view that *"efficient operations minimize wastage, reduce machine downtime, and improve customer satisfaction, which ultimately contributes to higher revenues and profitability"*. Similarly, respondents noted that capacity utilization enhances cash inflows, with one stating, *"around 70% of the production capacity is utilized. Yes, quality products bring in more financial cash inflows"*. Efficiency was also linked to productivity gains, as another respondent explained, *"Improved operational efficiency leads to faster production and increased output volumes, reduced unit production cost, higher sales revenue,"* while others emphasized that *"efficient processing operations enable us to serve more farmers, improve product quality, and generate more revenue"*. However, contrasting evidence from Ssekandi et al. (2022) and Kariuki and Mutua (2023) suggests that governance inefficiencies and weak market structures may weaken the relationship between operational efficiency and financial performance, indicating contextual variation in this linkage, consistent with Thuo et al. (2021) and Amarasuriya et al. (2024), who highlight that external constraints like input volatility and infrastructural limitations can limit the financial benefits of efficiency improvements.

These findings extend the Resource-Based View (RBV) by affirming that sustained financial performance in agro-processing firms is primarily driven by resources that are valuable, rare, inimitable, and non-substitutable. In particular, operational efficiency emerges as a central capability through which firms achieve superior financial outcomes, especially by improving capacity utilization and reducing production cycle time. This suggests that internal operational capabilities are not only strategic assets but also practical mechanisms through which firms convert resources into financial gains.

Theoretical Implications

Although this study is grounded in the Resource-Based View (RBV), the findings provide important theoretical contributions to its application in explaining financial performance disparities among agro-processing firms in the Acholi sub-region. The strong and statistically significant relationship between operational efficiency and financial performance supports RBV's central proposition that firm-specific capabilities are critical determinants of sustained competitive advantage (Barney, 1991). In particular, the observed effects of capacity utilization and cycle time confirm that operational efficiency functions as a strategic internal capability through which firms enhance profitability, liquidity, and overall financial stability. This reinforces RBV's argument that performance differences across firms are largely explained by heterogeneous internal resources and capabilities rather than external market conditions alone. In addition, the findings extend RBV through the lens of Dynamic Capabilities Theory (DCT), which offers a more process-oriented explanation of how firms sustain performance under conditions of environmental uncertainty and resource constraints (Teece, Pisano, & Shuen, 1997; Teece, 2016). In a post-conflict and resource-constrained setting such as the Acholi sub-region, operational efficiency is not only a function of resource endowment but also of firms' ability to continuously integrate, reconfigure, and adapt operational processes in response to infrastructural deficits, market volatility, and institutional instability. From this perspective, DCT enhances the interpretation of the results by highlighting that sustained financial performance depends not only on possessing efficient operational capabilities but also on the dynamic reconfiguration of those capabilities over time.

Conclusion

The study concludes that operational efficiency has a strong and statistically significant positive effect on financial performance among agro-processing firms in the Acholi sub-region. This conclusion is evidenced by key operational indicators, particularly cycle time and capacity utilization, which jointly explain variations in financial outcomes. Firms with shorter cycle times are better able to streamline production processes, minimize operational delays, and respond more effectively to market demand, while higher capacity utilization enhances resource efficiency, reduces idle capacity, and improves productivity levels. Grounded in the Resource-Based View (RBV), the findings affirm operational efficiency as a key internal capability that transforms inputs into financial value and sustained competitive advantage. However, the Dynamic Capabilities Theory (DCT) further strengthens this interpretation by emphasizing that in dynamic, resource-constrained, and post-conflict environments such as the Acholi sub-region, the mere possession of efficient operational systems is insufficient for sustained performance. Rather, firms must continuously integrate, reconfigure, and adapt their operational processes in response to infrastructural constraints, market volatility, and institutional uncertainties. The study therefore establishes that operational efficiency serves as a central mechanism through which production

inputs are transformed into value-generating outputs, underscoring the strategic importance of strengthening operational systems to sustain financial performance in resource-constrained and competitive agro-processing environments.

Limitations and Recommendations

First, its cross-sectional design limits the ability to establish causality between operational efficiency and financial performance, as the relationships observed reflect associations at a single point in time. Second, the study focuses on agro-processing firms in the Acholi sub-region, which may limit the generalizability of the findings to other regions or industrial contexts with different operational and market conditions. Third, the reliance on self-reported data may introduce response bias, particularly in financial and operational assessments. In addition, external factors such as macroeconomic conditions, policy shifts, and infrastructural challenges were not exhaustively controlled for, yet they may influence firm performance.

Based on these limitations, the study recommends that future research adopt longitudinal designs to better capture causal relationships between operational efficiency and financial performance over time. Comparative studies across different regions and sectors are also recommended to enhance the generalizability of findings. Methodologically, future studies should integrate objective financial data alongside survey measures to reduce potential bias. From a managerial perspective, agro-processing firms should prioritize strengthening operational systems particularly capacity utilization and cycle time management while also investing in supportive infrastructure and adaptive strategies to mitigate external constraints affecting efficiency and performance outcomes.

REFERENCES

African Development Bank. (2024). Driving Africa's Transformation, The Reform of the Global Financial Architecture. In African Development Bank Group.

Amanyire, A., Nimusima,P., Rwambale,K,M., Mbabazi,M.G., Muhumuza,G., (2024). Managerial competences and Financial Performance: A Study on NGOs in Central Division- Fort Portal City; *International Journal of Economics, Finance and Management Sciences*, Vol. 12, No. 3, pp. 185-195 https://doi.org/10.11648/j.ijefm.20241203.15

Amarasuriya, S., Burke, G., & Hsu, T. K. (2024). Operational Competitiveness and the Relationship between Corporate Environmental and Financial Performance. *Journal of Risk and Financial Management*, *17*(8). https://doi.org/10.3390/jrfm17080364

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.

Buallay, A. (2022). Sustainability reporting and agriculture industries' performance: worldwide evidence. *Journal of Agribusiness in Developing and Emerging Economies*, *12*(5), 769–790. https://doi.org/10.1108/JADEE-10-2020-0247

Donaldson, L. (2001). The Contingency Theory of Organizations.

Ellström, D., Holtström, J., Berg, E., & Josefsson, C. (2022). Dynamic capabilities for digital transformation. Journal of Strategy and Management, 15(2), 272–286. Enterprises in Kabale District, Uganda. *International Journal of Entrepreneurship;*

Emon, M. H., & Ahmed, M. (2025). Technological adoption in green practices as a mediator between green supply chain practices and operational performance : evidence from the agro-processing and food industry. *Brazilian Journal of Operations and Production Management*, *22*(4), 1–23.

FAO. (2021). Gross domestic product and agriculture value added 2012-2021, *Global and Regional trends*.

FAO and UNIDO. (2020). Agro-Industries for Development.

García-Valenzuela, V. M., Jacobo-Hernandez, C. A., & Flores-López, J. G. (2023). Dynamic Capabilities and Their Effect on Organizational Resilience in Small and Medium-Sized Commercial Enterprises. *Management and Marketing*, 18(4), 496–514. https://doi.org/10.2478/mmcks-2023-0027

Grau, A., & Reig, A. (2021). Operating leverage and profitability of SMEs: agri-food industry in Europe. *Small Business Economics*, *57*(1), 221–242. https://doi.org/10.1007/s11187-019-00294-y

Hallowell, A., & Conroy, T. (2025, March 6). *US Food and Beverage Production Sector Trends*. EDO Marketplace.

Kero, C. A., & Bogale, A. T. (2023). A Systematic Review of Resource-Based View and Dynamic Capabilities of Firms and Future Research Avenues. *International Journal of Sustainable Development and Planning*, *18*(10), 3137–3154. https://doi.org/10.18280/ijsdp.181016

Kim, J., & Lee, S. (2024). *Enhancing operational efficiency in agro-processing firms: A process optimization approach. International Journal of Production Economics,* 260, 108-119. https://doi.org/10.1016/j.ijpe.2023.108119

Kimiti, P., Muathe, S., & Murigi, E. (2020). Cost Leadership Strategy, Competitive Advantage, and Performance: a Cross-Sectional Study in the Context of Milk Processing Firms in Kenya. *International Journal of Management, Innovation & Entrepreneurial Research*, *6*(2), 64–76. https://doi.org/10.18510/ijmier.2020.627

Mang'ana, K. M., Ndyetabula, D. W., & Hokororo, S. J. (2023). Financial management practices and performance of agricultural small and medium enterprises in Tanzania. *Social Sciences and Humanities Open*, *7*(1), 100494. https://doi.org/10.1016/j.ssaho.2023.100494

Ministry of Agriculture Animal Industry and Fisheries. (2021). MAAIF Annual Performance Report. *October*.

Mitchel, K. A., Arthur, S., Marus, E., & Mpora, E. B. (2025). Disaggregating Financial Management Practices and SME Performance : Evidence from Agro-Processing Firms in Emerging Markets. *International Journal of Research and Scientific Innovation*, *XII*(2321–2705), 3607–3613. https://doi.org/10.51244/IJRSI

MoFPED. (2024). Agro-Industrialisation Programme Semi-Annual Budget Monitoring Report. *Ministry of Finance Planning and Economic Development, April*.

MTIC. (2020). National Industrial Policy - A Framework for Uganda's Industrialization, Employment and Wealth Creation. *Ministry of Trade, Industry and Cooperatives, December*, 1–58. www.mtic.go.ug

Nachiket, K., & Soumya, M. (2025). Boosting India's Agricultural Economy: Transforming India's Growth through Post-Harvest Management and Agro-Processing. *Agricultural Engineering Today*, *49*(1), 45–50. https://doi.org/10.52151/aet2025491.1813

NARO. (2023). Survey Report on Agro-Manufacturing Industries in Northern Uganda. *National Agricultural Research Organisation*.

National Planning Authority. (2024). *Mid-Term Review of the Third National Development Plan(NDPIII) 2020/21-2024/25*. *January 2023*.

Nguyen, T. H., & Tran, V. Q. (2021). Operational efficiency and firm performance: Evidence from manufacturing industries. *Journal of Business Research, 134, 180-189. https://doi.org/10.1016/j.jbusres.2021.05.014*

Nguyen-Thi-Thuy, L., Ngo-Tuan, N., To-The, N., Hoang-Duc, C., Nguyen-Thu, H., Dao-Viet, A., Do-Hoang, P., & Nguyen-Thi-Lan, H. (2024). Unleashing the association between technical efficiency of agro- processing industry and economic growth: A pathway towards development sustainability. *Discover Sustainability*, *5*(1), 69. https://doi.org/10.1007/s43621-024-00248-9

OECD. (2023). SME and Entrepreneurship Outlook.

OECD. (2026). Financing SMEs and Entrepreneurs 2026.

Tukamuhabwa, B. R. (2023a). Supply Chain Orientation and Supply Chain Risk Management Capabilities : Mechanisms for Supply Chain Performance of Agro-Food Processing Firms in Uganda. *Journal of African Business*, *24*(4), 649–672. https://doi.org/10.1080/15228916.2023.2165894

Uganda Development Bank. (2022). *Development Impact Report 2021*. 1–24.

UMA. (2023). Uganda Manufactrures Association Business Annual Report. 9–25.

URSB. (2024). URSB Annual Report.

USDA. (2022). The Outlook for U.S. Agriculture – 2022 New Paths to Sustainability and Productivity Growth. *U.S. Department of Agriculture*, 1–11.

Waleru, H. A., & Vivian, C. A. (2024). *Operational Efficiency and Financial Sustainability of Quoted Industrial Goods Manufacturing Firms in Nigeria*. *September 2024*. https://www.researchgate.net/publication/388830719

Walugembe, J. K. (2023). *Assessment of the Agricultural Tax regime in Uganda*. *July*.

Wei, J., & Wang, X. (2025). Total Quality Management & Business Excellence Impact of quality management system on operational efficiency in agro-processing SMEs. *Total Quality Management*, *3363*(May), 1000–1038. https://doi.org/10.1080/14783363.2025.2502566

World Bank. (2021). Policy and Investment Priorities Promoting Agrifood Sector Transformation in Bangladesh.

World Bank. (2023). *2023* Annual Report on Africa Economic Performance Africa. https://thedocs.worldbank.org/en/doc/e0f016c369ef94f87dec9bcb22a80dc7-0330212023/original/Annual-Report-2023.pdf