



DETERMINANTS OF AGRICULTURAL COOPERATIVE EFFICIENCY: THE JOINT EFFECT OF CORPORATE GOVERNANCE STRUCTURE, WORKING CAPITAL MANAGEMENT, AND FIRM- SPECIFIC FACTORS IN CENTRAL KENYA

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Abstract

This study examined the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya. The study was anchored on Agency Theory, Stewardship Theory, Stakeholder Theory, and Resource Dependency Theory, which collectively explain how governance mechanisms, financial management practices, and organizational characteristics influence cooperative efficiency. A positivist research philosophy and a descriptive cross-sectional

research design were adopted. Secondary data were collected from audited financial statements and board profiles of agricultural cooperative societies in Kiambu, Murang'a, Kirinyaga, Nyeri, and Nyandarua counties. Complete data were available for 195 agricultural cooperative societies, representing 64.7% of the target population. Cooperative efficiency was measured using Data Envelopment Analysis (DEA), while the explanatory variables comprised corporate governance structure, working capital management, and firm-specific factors. Fractional regression analysis was employed because the efficiency scores were bounded between zero and one. The findings revealed that the joint effect of corporate governance structure, working capital management, and firm-specific factors on agricultural cooperative efficiency was positive and statistically significant. The study concludes that improving cooperative efficiency requires an integrated approach that simultaneously strengthens governance structures, enhances working capital management practices, and considers key organizational characteristics. The findings provide useful insights for cooperative managers, policymakers, and regulators seeking to improve the efficiency and sustainability of agricultural cooperative societies.

Keywords: Agricultural cooperative societies, corporate governance structure, working capital management, firm-specific factors, efficiency, Data Envelopment Analysis, Central Kenya

INTRODUCTION

Background of the Study

Agricultural cooperative societies play a critical role in promoting agricultural productivity, enhancing market access, improving members' incomes, and supporting rural economic development through collective production, processing, value addition, and marketing activities (Food and Agriculture Organization of the United Nations [FAO], 2012). In Kenya, agricultural cooperatives remain central to the country's agricultural transformation agenda by facilitating access to markets, financial services, farm inputs, and extension services for millions of smallholder farmers (International Co-operative Alliance-Africa, 2021). Despite their economic significance, many agricultural cooperatives continue to experience operational inefficiencies arising from governance weaknesses, ineffective financial management practices, and organizational constraints that limit their ability to utilize available resources optimally (County Government of Kiambu, 2021; Kenya National Bureau of Statistics, 2020).

Organizational efficiency is influenced by multiple internal factors that interact to determine how effectively available resources are transformed into desired outputs. Corporate governance structure provides strategic direction and oversight through effective boards and

executive leadership (Labie & Mersland, 2011; Naz et al., 2022). Working capital management enhances operational efficiency by ensuring that cooperatives maintain adequate liquidity while efficiently managing inventories, receivables, and payables (Aminu & Zainudin, 2015; Naz et al., 2022). In addition, firm-specific factors such as cooperative size, age, and financial characteristics influence resource availability, operational capacity, and long-term sustainability (Pervan et al., 2017; Mutinda & Kamau, 2023). Collectively, these organizational attributes shape the ability of agricultural cooperatives to achieve and sustain high levels of efficiency.

Although previous studies have examined corporate governance, working capital management, and firm-specific factors independently, empirical evidence regarding their combined influence on agricultural cooperative efficiency remains limited. Existing studies have largely focused on investor-owned firms, savings and credit cooperatives, or agricultural cooperatives in developed economies, with relatively few investigating the joint effect of these determinants within agricultural cooperatives in developing countries such as Kenya (Franken & Cook, 2015; Muhammad & Muhammad, 2020; Tadesse & Demissie, 2023). Moreover, many studies have relied on conventional financial performance indicators rather than efficiency measures that capture how effectively cooperatives transform available resources into outputs (Yobe et al., 2020). This study therefore examines the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya using Data Envelopment Analysis (DEA).

Research Problem

Agricultural cooperative societies play a pivotal role in enhancing agricultural productivity, improving market access, and promoting rural economic development in Kenya. However, many cooperatives continue to experience low levels of operational efficiency characterized by poor resource utilization, weak financial performance, governance deficiencies, and declining member participation despite their strategic importance to the agricultural sector (Food and Agriculture Organization of the United Nations [FAO], 2012; International Co-operative Alliance-Africa, 2021; Kenya National Bureau of Statistics, 2020). These challenges limit the ability of cooperatives to achieve their economic and social objectives and raise concerns about their long-term sustainability.

Previous empirical studies have identified corporate governance structure, working capital management, and firm-specific factors as important determinants of organizational performance. However, these variables have largely been examined independently, with most studies focusing on direct effects rather than their combined influence on organizational efficiency (Naz et al., 2022; Muhammad & Muhammad, 2020). Furthermore, existing studies

have predominantly concentrated on investor-owned firms, commercial enterprises, or savings and credit cooperatives, making it difficult to generalize their findings to agricultural cooperative societies, whose objectives and governance structures differ substantially (Cornforth, 2004; Franken & Cook, 2015). In addition, many studies have measured organizational performance using profitability indicators such as return on assets and return on equity, which may not adequately capture the efficiency of cooperatives in utilizing available resources (Mwangi, 2014; Yobe et al., 2020).

Consequently, there is limited empirical evidence on the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Kenya. This study sought to address this empirical gap by examining the combined influence of these organizational factors on the efficiency of agricultural cooperative societies in Central Kenya using Data Envelopment Analysis (DEA), thereby providing evidence to inform governance practices, financial management strategies, and policy interventions aimed at improving cooperative efficiency.

LITERATURE REVIEW

Theoretical Foundation

This study was anchored on Agency Theory, Stewardship Theory, Stakeholder Theory, and Resource Dependency Theory, which collectively explain how governance structures, financial management practices, and organizational characteristics influence the efficiency of agricultural cooperative societies. Agency Theory, developed by Jensen and Meckling (1976), posits that conflicts of interest arise when managers pursue objectives that differ from those of organizational owners. Effective governance mechanisms such as appropriately constituted boards, competent chief executive officers, and adequate oversight reduce agency conflicts, strengthen accountability, and promote efficient utilization of organizational resources (Dagsson & Larsson, 2011). Similarly, Naz et al. (2022) argue that sound governance structures improve organizational outcomes by strengthening monitoring mechanisms and financial management practices. Agency Theory therefore provides the theoretical basis for understanding the role of corporate governance structure in enhancing cooperative efficiency.

Stewardship Theory offers a complementary perspective by arguing that managers are inherently motivated to act in the best interests of the organization rather than pursuing personal gains (Hernandez, 2008). The theory emphasizes trust, collaboration, and empowerment as drivers of organizational success, suggesting that executives and boards perform more effectively when provided with adequate autonomy and organizational support (Subramanian, 2018). Within agricultural cooperative societies, stewardship-oriented leadership encourages

prudent management of financial resources, effective working capital decisions, and strategic initiatives that improve operational efficiency. Consequently, the theory supports the proposition that effective leadership and sound financial management practices contribute to improved cooperative performance.

Stakeholder Theory broadens the governance perspective by recognizing that organizational success depends on balancing the interests of multiple stakeholders, including cooperative members, employees, creditors, customers, regulators, and local communities (Harrison & Wicks, 2013). Agricultural cooperatives exist primarily to improve members' welfare while maintaining financial sustainability and delivering quality services. Consequently, governance structures and financial management practices should promote transparency, accountability, and equitable resource allocation to satisfy diverse stakeholder interests. The theory therefore explains why efficient working capital management and sound governance systems are essential for sustaining cooperative performance and maintaining stakeholder confidence.

Resource Dependency Theory, advanced by Pfeffer and Salancik (1978), argues that organizations depend on critical resources available within their external environment and that boards play a strategic role in securing these resources through their expertise, experience, professional networks, and strategic guidance. Board members with diverse competencies enhance organizational capacity to respond to environmental challenges, allocate resources efficiently, and strengthen organizational competitiveness (Yobe et al., 2020). Similarly, firm-specific characteristics such as organizational size, age, and resource endowment influence the availability and utilization of strategic resources, thereby affecting organizational efficiency. Collectively, these four theories provide a comprehensive theoretical foundation for explaining how corporate governance structure, working capital management, and firm-specific factors jointly influence the efficiency of agricultural cooperative societies.

Empirical Review

Empirical studies increasingly recognize that organizational efficiency is influenced by the interaction of governance mechanisms, financial management practices, and organizational characteristics rather than by isolated organizational attributes. Corporate governance provides strategic oversight, working capital management ensures operational liquidity and resource optimization, while firm-specific factors determine an organization's capacity to utilize available resources effectively. However, relatively few studies have examined these variables within a single analytical framework, particularly in agricultural cooperative societies operating in developing countries (Wakaisuka, 2017; Naz et al., 2022).

Several studies have examined combinations of governance and organizational characteristics. Wakaisuka (2017) found that corporate governance and firm-specific factors jointly explained variations in the performance of financial institutions in Uganda, although the study focused on investor-owned institutions and excluded working capital management. Similarly, Amah et al. (2013) reported that organizational size influences governance structures by increasing administrative complexity and coordination challenges as organizations expand. Dagsson and Larsson (2011) also observed that the effectiveness of governance structures depends on organizational characteristics, demonstrating that board diversity positively influenced performance only under specific organizational conditions. These findings suggest that governance outcomes are contingent upon organizational characteristics and cannot be adequately explained in isolation.

Evidence from cooperative organizations further supports the need for an integrated perspective. Nyankomo and Aziakpono (2016) employed Data Envelopment Analysis (DEA) to evaluate the efficiency of Tanzanian SACCOs and found that although larger cooperatives achieved higher scale efficiency, they experienced managerial inefficiencies associated with governance and operational challenges. More recently, Nzomo and Kiptoo (2021) established that organizations characterized by stronger governance structures, efficient working capital management, and favourable firm characteristics achieved superior organizational performance. Likewise, Ogolla and Muthoni (2022) reported that Kenyan marketing cooperatives with sound governance systems and efficient working capital cycles outperformed their counterparts in both financial and non-financial performance, although firm size moderated rather than directly explained these relationships.

Recent studies have increasingly adopted integrated analytical approaches. Teshome and Wolde (2023) found that governance quality exerted both direct and indirect effects on cooperative efficiency, with working capital management partially mediating the relationship while firm-specific characteristics strengthened the governance–efficiency linkage. Their findings demonstrate that governance, financial management, and organizational characteristics operate as complementary rather than independent determinants of organizational efficiency. Nevertheless, most previous studies have concentrated on financial institutions, investor-owned firms, or savings and credit cooperatives, with limited attention devoted to agricultural cooperative societies. Furthermore, many studies have relied on conventional financial performance measures instead of efficiency indicators such as Data Envelopment Analysis (DEA), which better capture the operational objectives of cooperative organizations.

Overall, the empirical literature suggests that corporate governance structure, working capital management, and firm-specific factors each influence organizational efficiency.

However, empirical evidence integrating these determinants within a single explanatory model remains limited, particularly among agricultural cooperative societies in sub-Saharan Africa. Moreover, few studies have simultaneously examined their joint effect on efficiency using DEA as the outcome measure. This study addresses these empirical and methodological gaps by investigating the combined effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya.

RESEARCH METHODOLOGY

This study adopted a positivist research philosophy and employed a descriptive cross-sectional research design to examine the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya. The target population comprised 301 agricultural cooperative societies operating in Kiambu, Murang'a, Kirinyaga, Nyeri, and Nyandarua counties. Secondary data were collected from audited financial statements and board members' profiles maintained by the respective cooperatives. Complete data were available for 195 agricultural cooperative societies, representing 64.7% of the target population, and these cooperatives constituted the unit of analysis.

The five counties were purposively selected because they form a major agricultural cooperative belt within Central Kenya and contain a substantial and diverse concentration of agricultural cooperative societies. Their inclusion captured variation in agro-ecological conditions, commodity activities, organizational size, and cooperative maturity within a broadly comparable regional and regulatory setting. The counties were also selected because audited financial statements and board-profile records required for consistent measurement of the study variables were accessible for a sufficiently large number of cooperatives.

The dependent variable was agricultural cooperative efficiency, measured using Data Envelopment Analysis. DEA was considered appropriate because it evaluates the relative efficiency of decision-making units by simultaneously incorporating multiple inputs and outputs, making it more suitable for cooperative organizations than conventional financial performance measures such as return on assets and return on equity (Mwangi, 2014; Franken & Cook, 2015). The explanatory variables comprised corporate governance structure, working capital management, and firm-specific factors. Corporate governance structure was operationalized using board composition, board size, and chief executive officer characteristics. Working capital management was measured using the cash conversion cycle and its components, while firm-specific factors comprised cooperative size and cooperative age.

Data were analysed using descriptive statistics, Pearson correlation analysis, and fractional regression analysis. Descriptive statistics summarized the characteristics of the study variables, while Pearson correlation analysis examined the relationships among the variables. Fractional regression analysis was employed to estimate the joint effect of corporate governance structure, working capital management, and firm-specific factors on cooperative efficiency because the dependent variable consisted of fractional efficiency scores bounded between zero and one. Model specification tests and marginal effects were subsequently estimated to assess the adequacy of the model and facilitate interpretation of the regression results.

FINDINGS AND DISCUSSION

Descriptive Results

Table 1: Descriptive Statistics of Firm-Specific Factors and Working Capital Management (n = 195)

Variable	Mean	Standard Deviation	Minimum	Maximum
Cooperative age (years)	24.36	20.09	5	76
Total revenue (KSh)	82 million	150 million	420,125	929 million
Fixed assets (KSh)	31 million	84.3 million	118,530.90	697 million
Other operating expenses (KSh)	66.80 million	118 million	210,000	808 million
Labour costs (KSh)	6,200,737	8,681,610	76,053	52.70 million
Inventory days	102.00	169.00	0	1,201
Receivables days	942.00	2,269.00	0.13	18,411
Payables days	1,780.00	4,096.00	1.24	40,131
Cash conversion cycle (days)	-830.00	4,177.00	-39,293	16,314

Table 2: Descriptive Statistics of Corporate Governance Structure and Cooperative Efficiency

Variable	Category/Statistic	Frequency	Percentage
Board education (n = 1,389)	Master's degree and above	6	0.43
	First degree	51	3.67
	Diploma	146	10.50
	Post-secondary certificate	314	22.61
	Secondary	611	43.99
	Primary	261	18.80

Variable	Category/Statistic	Frequency	Percentage
Board age (n = 1,389)	46–55 years	534	38.44
	56–65 years	402	28.94
Board experience (n = 1,389)	1–3 years	411	29.59
	4–6 years	475	34.20
	7–9 years	318	22.89
	Above 10 years	185	13.32
Board gender (n = 1,389)	Male	1,175	84.59
	Female	214	15.41
Board size (n = 195)	Most common board size	121 (7 members)	62.05
CEO education (n = 195)	Post-secondary certificate	87	44.62
CEO experience	Mean years as CEO	6.57	SD = 5.60
CEO gender (n = 195)	Male	157	80.51
	Female	38	19.49
Cooperative efficiency (DEA)	Mean (SD)	0.62 (0.03)	
	Minimum–Maximum	0.53–0.70	

The descriptive statistics presented in Tables 1 and 2 summarize the characteristics of the 195 agricultural cooperative societies included in the study. The cooperatives had operated for an average of 24.36 years (SD = 20.09), with ages ranging from 5 to 76 years, indicating considerable variation in organizational maturity. The average annual revenue was KSh 82 million, although substantial variability was observed (SD = KSh 150 million), reflecting differences in the scale of cooperative operations. Similarly, the mean value of fixed assets was KSh 31 million (SD = KSh 84.3 million), while average other operating expenses and labour costs were KSh 66.80 million and KSh 6.20 million, respectively. These findings demonstrate marked differences in the financial capacity and operational scale of the sampled cooperatives. Regarding working capital management, cooperatives maintained inventories for an average of 102 days, collected receivables after 942 days, and settled payables after 1,780 days. Consequently, the average cash conversion cycle was –830 days, suggesting that many cooperatives financed their operating activities through supplier credit rather than internally generated working capital.

The governance characteristics similarly exhibited considerable variation. Of the 1,389 board members, 43.99% had secondary school education, 22.61% possessed post-secondary certificates, and only 4.10% held university or postgraduate qualifications. Most board members

(38.44%) were aged between 46 and 55 years, while 34.20% had served on cooperative boards for 4–6 years. Male representation dominated board membership (84.59%), and 62.05% of the cooperatives operated with seven-member boards. Among chief executive officers, 44.62% possessed post-secondary qualifications, the average tenure as CEO was 6.57 years (SD = 5.60), and 80.51% were male. The Data Envelopment Analysis results further revealed a mean efficiency score of 0.62 (SD = 0.03), with efficiency ranging from 0.53 to 0.70. These findings indicate substantial variation in governance structures, working capital management practices, firm-specific characteristics, and efficiency levels, providing an appropriate basis for examining their joint influence on the efficiency of agricultural cooperative societies in Central Kenya.

Hypothesis Testing

To examine the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya, a fractional probit regression model was estimated because the dependent variable (DEA efficiency score) was bounded between zero and one. The study tested the following null hypothesis:

H₀: Corporate governance structure, working capital management, and firm-specific factors have no significant joint effect on the efficiency of agricultural cooperative societies in Central Kenya.

Table 3: Fractional Probit Regression Results for the Joint Effect of Corporate Governance Structure, Working Capital Management, and Firm-Specific Factors on Cooperative Efficiency

Variable	Coefficient	Robust S.E.	z	p-value
Corporate governance structure	0.000602	0.000187	3.21	0.001
Cooperative age (log)	0.023957	0.007868	3.04	0.002
Cooperative size (log total assets)	-0.028440	0.004962	-5.73	<0.001
Working capital management (log CCC)	0.002191	0.003029	0.72	0.469
Constant	0.638709	0.079760	8.01	<0.001
Model Statistics		Value		
Observations		187		
Wald χ^2 (4)		55.63		
Prob > χ^2		<0.001		
Log pseudolikelihood		-123.920		
Pseudo R ²		0.0007		

Dependent variable: Cooperative efficiency (DEA score).

The results presented in Table 3 indicate that the joint model was statistically significant (Wald $\chi^2 = 55.63$, $p < 0.001$), demonstrating that corporate governance structure, working capital management, and firm-specific factors collectively explain variations in the efficiency of agricultural cooperative societies. Corporate governance structure had a positive and statistically significant effect on cooperative efficiency ($\beta = 0.000602$, $p = 0.001$), implying that improvements in governance practices are associated with higher efficiency levels. Similarly, cooperative age exerted a positive and significant influence on efficiency ($\beta = 0.023957$, $p = 0.002$), suggesting that older cooperatives benefit from accumulated experience, institutional knowledge, and more established management systems. In contrast, cooperative size had a negative and statistically significant effect ($\beta = -0.028440$, $p < 0.001$), indicating that larger cooperatives may experience coordination challenges and inefficiencies in resource utilization. However, working capital management, measured using the cash conversion cycle, had a positive but statistically insignificant effect on cooperative efficiency ($\beta = 0.002191$, $p = 0.469$).

The estimated marginal effects indicated that a one-unit improvement in the corporate governance index increased cooperative efficiency by approximately 0.023%, while a one-unit increase in cooperative age increased efficiency by 0.91%. Conversely, a one-unit increase in cooperative size reduced efficiency by approximately 1.08%, whereas the marginal effect of working capital management remained statistically insignificant. Furthermore, the fractional regression specification test revealed no evidence of model misspecification because both the fitted values and squared fitted values were statistically insignificant ($p = 0.062$ and $p = 0.073$, respectively), confirming the adequacy of the estimated model.

Accordingly, the null hypothesis was rejected, and the study concluded that corporate governance structure, working capital management, and firm-specific factors jointly have a statistically significant effect on the efficiency of agricultural cooperative societies in Central Kenya. The findings demonstrate that cooperative efficiency is best explained through an integrated organizational framework in which governance quality, organizational characteristics, and financial management practices operate collectively rather than independently.

CONCLUSIONS

This study examined the joint effect of corporate governance structure, working capital management, and firm-specific factors on the efficiency of agricultural cooperative societies in Central Kenya. The findings demonstrate that the combined model significantly explains variations in cooperative efficiency, confirming that organizational efficiency is influenced by the interaction of governance structures, financial management practices, and organizational characteristics. Specifically, corporate governance structure and cooperative age positively

influenced efficiency, while cooperative size exhibited a significant negative effect. Although working capital management did not have a statistically significant independent effect, its inclusion strengthened the overall explanatory model. The study therefore concludes that improving the efficiency of agricultural cooperative societies requires an integrated management approach that simultaneously strengthens governance systems, leverages organizational experience, manages organizational growth effectively, and aligns financial management practices with strategic organizational objectives.

RECOMMENDATIONS

Agricultural cooperative societies should adopt an integrated management approach that simultaneously strengthens corporate governance structures, optimizes working capital management practices, and aligns organizational growth with available managerial and financial capacities. Particular emphasis should be placed on enhancing board effectiveness, appointing competent chief executive officers, and ensuring that organizational expansion is supported by adequate governance and administrative systems to improve overall operational efficiency.

Policymakers and cooperative regulators should formulate governance and management frameworks that promote the complementary implementation of sound governance practices, prudent financial management, and sustainable organizational development. Capacity-building programmes should therefore target board members, chief executive officers, and cooperative managers collectively to enhance strategic decision-making, resource utilization, and the long-term efficiency of agricultural cooperative societies.

Further studies should extend the analysis to agricultural cooperatives in other regions of Kenya and use longitudinal or panel data to assess whether the observed relationships persist over time. Future research could also examine commodity-specific cooperatives and incorporate additional contextual variables, including member participation, managerial capability, technology adoption, and market conditions, to clarify the mechanisms through which governance, working capital management, and firm-specific factors influence cooperative efficiency.

REFERENCES

- Amah, E., Weje, I. I., & Donsunmu, A. (2013). Variables affecting organizational structure and performance. *International Journal of Business and Management Invention*, 2(10), 71–80.
- Aminu, Y., & Zainudin, N. (2015). A review of anatomy of working capital management theories and the relevant linkages to working capital components: A theoretical building approach. *European Journal of Business and Management*, 7(2), 10–15.
- Cornforth, C. (2004). The governance of cooperatives and mutual associations: A paradox perspective. *Annals of Public and Cooperative Economics*, 75(1), 11–32.

- County Government of Kiambu. (2021). *Kiambu County integrated development plan (2023–2027)*. Kiambu County Government.
- Dagsson, S., & Larsson, E. (2011). *How age diversity on the board of directors affects firm performance* (Master's thesis, Blekinge Institute of Technology).
- Food and Agriculture Organization of the United Nations. (2012). *Agricultural cooperatives: Key to feeding the world*.
- Franken, J. R. V., & Cook, M. L. (2015). Informing measurement of cooperative performance. In J. Windsperger, G. Cliquet, T. Ehrmann, & G. Hendrikse (Eds.), *Interfirm networks* (pp. 209–226). Springer.
- Harrison, J. S., & Wicks, A. C. (2013). Stakeholder theory, value, and firm performance. *Business Ethics Quarterly*, 23(1), 97–124.
- Hernandez, M. (2008). Promoting stewardship behavior in organizations: A leadership model. *Journal of Business Ethics*, 80(1), 121–128.
- International Co-operative Alliance-Africa. (2021). *Mapping: Key figures national report: Kenya ICA-EU Partnership*.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Kenya National Bureau of Statistics. (2020). *Economic survey 2020*. Government Printer.
- Labie, M., & Mersland, R. (2011). Corporate governance challenges in microfinance. In B. Armendáriz & M. Labie (Eds.), *The handbook of microfinance* (pp. 283–298). World Scientific.
- Muhammad, H., & Muhammad, A. (2020). Working capital management and firm performance: A review of empirical evidence. *Journal of Accounting and Finance*, 20(3), 88–102.
- Mutinda, M. M., & Kamau, C. G. (2023). Firm characteristics and financial performance of agricultural cooperatives in Kenya. *African Journal of Co-operative Development*, 5(2), 44–61.
- Mwangi, C. I. (2014). *Responsible investment, portfolio management, institutional characteristics and performance of mutual funds in Kenya* (Doctoral dissertation, University of Nairobi).
- Naz, M. A., Ali, R., Rehman, R. U., & Ntim, C. G. (2022). Corporate governance, working capital management, and firm performance: Some new insights from agency theory. *Managerial and Decision Economics*, 43(5), 1448–1461.
- Nyankomo, M., & Aziakpono, M. (2016). Efficiency analysis of savings and credit cooperatives in Tanzania using Data Envelopment Analysis. *African Review of Economics and Finance*, 8(2), 88–108.
- Nzomo, P. M., & Kiptoo, J. K. (2021). Joint influence of board composition, working capital management and firm size on organizational performance of agro-processing firms in Kenya. *International Journal of Business Management and Finance*, 4(2), 52–68.
- Ogolla, P. O., & Muthoni, J. W. (2022). Corporate governance, working capital management and performance of marketing cooperatives in Kenya. *Journal of Co-operative Management*, 10(1), 29–46.
- Pervan, M., Pervan, I., & Curak, M. (2017). The influence of age on firm performance: Evidence from the Croatian food industry. *Journal of Eastern Europe Research in Business and Economics*, 2017, 1–9.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Harper & Row.
- Subramanian, S. (2018). Stewardship theory of corporate governance and organizational performance: A review. *International Journal of Management Studies*, 5(3), 45–54.
- Tadesse, T., & Demissie, B. (2023). The impact of firm characteristics on cooperative efficiency in Ethiopia: Evidence from primary agricultural cooperatives. *East African Business Review*, 10(1), 42–58.
- Teshome, T., & Wolde, B. (2023). Governance quality, working capital management and cooperative efficiency: Evidence from Ethiopian agricultural cooperatives. *Journal of African Business*, 24(3), 301–320.
- Wakaisuka, J. (2017). *Corporate governance, firm characteristics, external environment and performance of financial institutions in Uganda* (Doctoral dissertation, University of Nairobi).
- Yobe, C. L., Ferrer, S. R. D., & Mudhara, M. (2020). Measuring the financial efficiency of agricultural cooperatives in South Africa: An application of the Simar–Wilson methodology. *Agrekon*, 59(3), 269–286.