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RESEARCH ARTICLE

Leadership Moderation of the Relationship between Micro-Level Factors and Financial Sustainability among Informal Financial Groups in Kirinyaga County, Kenya

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ABSTRACT

Informal financial groups (IFGs) play a significant role in enhancing financial inclusion, especially among underserved rural households. However, their long-term viability hinges on how well the groups navigate micro-level operational challenges. This study investigates leadership moderation on the relationship between micro-factors, specifically loan pricing and recovery mechanisms, and the financial sustainability of IFGs. Drawing on empirical data from 600 IFGs in Kirinyaga County, the research adopts a cross-sectional explanatory survey design to test the strength and direction of these relationships. Primary data collected through questionnaires were analyzed for descriptive and inferential statistics in STATA. The study employs moderation analysis to uncover how leadership practices influence the effectiveness of micro-drivers in sustaining group financial resilience. Results reveal that while effective loan pricing and robust recovery mechanisms are vital drivers of financial sustainability, leadership yielded a differential moderating effect on recovery. Whereas leadership positively and significantly strengthened the relationship between loan recovery mechanisms and financial sustainability, its influence on the relationship between loan pricing and financial sustainability was negative and statistically insignificant. This indicates that leadership enhances financial sustainability primarily through improving the effectiveness of loan recovery processes rather than through loan pricing practices. The findings emphasize the critical role of leadership not only as an administrative function but as a strategic enabler of financial resilience in grassroots financial ecosystems. This study contributes to the growing body of literature on informal finance by highlighting the interplay between micro-level operations and governance dynamics, offering actionable insights for development practitioners, policymakers, and community-based organizations.

Keywords: *Loan Pricing, Interaction, Loan Repayment, Leadership, Financial Sustainability.*

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Background of the Study

Informal financial groups (IFGs) have emerged as critical financial intermediaries in developing economies, playing a central role in mobilizing savings, expanding access to credit, and advancing

financial inclusion for over 419 million users (Aganze, Mersland, D'Espallier & Andersson, 2025). Despite their growing prominence, IFGs' financial sustainability remains uncertain (Mabwe & Dundu, 2018). Many groups face persistent challenges like low loan repayment rates, ineffective pricing strategies, shrinking capital bases, and eventual dissolution (Charles & Mori, 2017). These challenges are rooted in micro-level operational dynamics, mainly loan pricing and recovery mechanisms, which directly influence financial performance. Loan pricing determines borrowing costs, shapes member participation, and affects capital accumulation. Concurrently, the effectiveness of loan recovery mechanisms influences repayment behaviour, delinquency rates, and overall financial stability (Kinyondo & Kagaruki, 2019). The ability to recover disbursed funds is widely recognized as a key indicator of microfinance success (Nyirenda, Mulenga & Mwanza, 2024). Although often perceived as purely technical processes, the success of these practices is increasingly understood to be closely linked to leadership quality, which plays a crucial role in their design and enforcement and, consequently, in shaping the sustainability and performance of IFGs.

Despite the centrality of leadership in the dynamics of informal financial groups, few studies have explored leadership as a moderating factor influencing how micro-level financial mechanisms affect the financial sustainability of IFGs. This oversight creates a critical gap in both the academic literature and practical policymaking. Addressing this gap is particularly important in contexts such as Kirinyaga County, where informal financial groups continue to expand but face increasing pressure to remain sustainable and self-reliant in a rapidly changing economic landscape (Malkamäki, 2015). Where informal social structures and group dynamics significantly shape financial behaviour, leadership may be the pillar that determines whether policies on loan pricing and recovery translate into sustainable financial outcomes (Muallidin, 2026). This study addresses this gap by investigating how leadership interacts with loan pricing and recovery mechanisms to affect the financial sustainability of informal financial groups. By focusing on the intersection of micro-level financial practices and group governance, the research seeks to establish whether leadership amplifies or dampens the effectiveness of these operational strategies. The findings are intended to inform both academic discourse and practical interventions, offering valuable insights for policymakers, development organizations, and community-based financial initiatives seeking to strengthen informal financial systems.

Statement of the Problem

Despite the vital role that informal financial groups play in advancing financial inclusion, many struggle to remain financially sustainable over time. Research estimates that 25% of informal financial groups disintegrate prematurely due to default and liquidity problems (Malkamäki, 2015). Poorly structured loan pricing and weak loan recovery mechanisms often result in high default rates, low capital retention and the eventual collapse of the group. While micro-level operational practices are known to influence financial sustainability, their effects appear to be inconsistent across groups (Simons-Cappa, Huaranga-Rivera, Sánchez-Castro, Ruiz-Camus, Cabezas-Ramírez, Juárez-Rivero & Vega-Chavez, 2026; Oluoch, 2024; Aganze et al., 2025), suggesting the presence of an intervening or moderating variable yet empirical research in this area remains limited. Several studies have examined the impact of microfinance and informal lending models in Kenya (Odari, Ngigi & Muluvi, 2025; Ochieng, Njagi & Kiveu, 2023), but few have specifically explored the moderating role of leadership in the relationship between micro factors and financial sustainability. In particular, how pricing and sanctions combine with leadership to affect group sustainability through covering costs, maintaining membership, and reducing dropout rates remains underexplored. This lack of focused research on the moderating role of leadership hinders the development of effective policies and support mechanisms for these grassroots financial institutions. This study therefore establishes how well micro-level practices are implemented and adhered to, addressing the gap by investigating how leadership interacts with loan pricing and recovery mechanisms to affect the financial sustainability of informal financial groups in Kirinyaga County, Kenya.

Objective of the Study

The objective of the study was to determine the moderating role of leadership on the relationship between micro factors and the financial sustainability of non-rotating informal financial groups in Kirinyaga County, Kenya.

Specific Objectives

1. Evaluate the relationship between loan pricing and financial sustainability among non-rotating informal financial groups in Kirinyaga County, Kenya.
2. Investigate the relationship between loan recovery mechanisms and financial sustainability among non-rotating informal financial groups in Kirinyaga County, Kenya.
3. Determine the moderating effect of leadership on the relationship between micro factors and financial sustainability among non-rotating informal financial groups in Kirinyaga County, Kenya.

Theoretical Framework

The resource-based theory or resource-based view (RBV) conceptualizes a firm as a collection of resources and capabilities, arguing that strategy and performance are shaped by controlled resources (Wernerfelt, 1984). This theory posits that an organization's sustained competitive advantage depends on its ability to effectively utilize resources that are valuable, rare, inimitable, and non-substitutable (Miller, 2019; Ferreira & Ferreira, 2025; Iliyas & Barca, 2025; Mailani, Hulu, Simamora & Kesuma, 2024). In the context of informal financial groups, financial resources and the mechanisms used to manage them, such as loan pricing and recovery systems, are critical in determining group sustainability. The RBV suggests that proper management of these micro factors can lead to sustained financial viability; however, these resources must be effectively leveraged through sound internal capabilities, including leadership, to maximize their value and impact (Caldwell & Anderson, 2017).

Sulaeman, Haryono, Sunaryo, Hendarsjah, Riani and Wahyuni (2024) observe that both transformational and situational leadership emphasize the role of leadership in influencing group performance, motivation and organizational outcomes. Transformational leadership theory explains how visionary, motivating and participatory leadership can inspire group members to adhere to group rules (Bakker, Hetland, Olsen & Espevik, 2023; Sahid, Amirullah, Khaeriyah, Natsir & Syafaruddin, 2023; Korejan & Shahbazi, 2016), including fair loan pricing and rigorous loan recovery practices. Situational leadership theory suggests that effective leaders adapt their style to the context and needs of the group, while enhancing compliance and cohesion (Alvi, Nudzulul, Arifin & Anshori, 2024; Darmawan, 2024). In this study, leadership is viewed as a moderating variable that influences how well loan pricing and recovery mechanisms are implemented and adhered to, thereby affecting financial sustainability.

Social capital theory posits that social behaviour results from an exchange process in which individuals seek to maximize benefits and minimize costs (Ari, Prayitno, Fikriyah, Dinanti, Usman, Prasetyo & Onishi, 2024). Informal finance groups rely heavily on trust, reciprocity and mutual accountability among members to function effectively. Effective leadership fosters an environment in which social exchange norms encourage members to honour loan agreements and participate in recovery efforts; leadership's ability to manage these social dynamics moderates how loan pricing and recovery mechanisms translate into actual financial sustainability.

While the RBV highlights the importance of managing micro-financial resources such as loan pricing and recovery as critical assets for sustainability, leadership theories explain how leadership styles and behaviour can enhance or impede the effective use of these resources (Michael, Kinyua, Mwamba, 2021). Social capital theory, in turn, provides insight into the interpersonal and social dynamics that leadership must manage to ensure compliance and cohesion among group members (Sulaeman et al., 2024; Ari et al., 2024). Together, these theories underpin the hypothesis that leadership moderates the relationship between

micro factors, loan pricing and recovery mechanisms, and the financial sustainability of informal financial groups.

Empirical Review

Scholars and practitioners continue to invest substantial financial and intellectual resources in developing models and strategies aimed at enhancing organizational competitiveness. Such advantage may derive from a range of factors, including human capital, the quality of products and services, and other internal capabilities (McCracken, McIvor, Treacy & Wall, 2017). Increasingly, however, attention has shifted toward the strategic importance of intangible assets, particularly leadership in sustaining competitive advantage. According to Liden, Wang and Wang (2025), leadership encompasses the capacity to influence, motivate and guide individuals through the effective execution of roles and responsibilities that underpin organizational survival and growth. Central to this is the choice of leadership style, one of the most consequential decisions within any organization. Well-formulated policies and ambitious strategic goals are unlikely to yield the desired outcomes in the absence of effective leadership to translate them into action. Robust leadership not only operationalizes organizational vision but also cultivates discipline, fosters a constructive organizational culture, and motivates members to exceed performance expectations. Ultimately, leaders play a critical role in aligning individuals with shared objectives and providing direction, particularly in periods of uncertainty and challenge (Sott & Bender, 2025).

Cadena and Schoar (2011) conducted a randomized controlled field experiment in Uganda to examine the effects of alternative incentive mechanisms on loan repayment behaviour, generating important insights into loan pricing, repayment dynamics and borrower motivation. The study evaluated three interventions: a lump-sum cash reward equivalent to a 25% reduction in interest payments, a 25% reduction in the interest rate applied to the borrower's subsequent loan, and monthly SMS repayment reminders. The results indicate that all three treatments produced comparable outcomes, increasing the probability of on-time repayment by approximately 7-9% and reducing late payments by an average of two days per month. Notably, the effectiveness of each intervention varied across borrower segments: cash incentives were more impactful among smaller or less experienced borrowers, interest rate reductions were more effective for larger or more established clients, and short message service reminders yielded stronger results among younger borrowers. These findings underscore the potential of low-cost behavioural interventions, such as reminders (Geberemdhin, Yang & Lee, 2026; Saulītis, 2023; Al Maruf, Kowsar, Mohiuddin, Mohna, 2024), to achieve repayment outcomes comparable to more resource-intensive financial incentives. Nevertheless, a critical gap remains in the literature regarding how leadership dynamics such as trust, communication style and leadership practice interact with these incentive mechanisms to sustain long-term repayment discipline and advance broader financial inclusion objectives.

Vuong (2025) analyzed the role of group leadership in shaping loan repayment performance within group lending programmes at the Social Policy Bank in Ca Mau province, Vietnam. Using data from 105 participants and multinomial logit regression, the study found that leader-related factors, including education, frequency of member interaction, community embeddedness, adherence to group rules, proximity to members and meeting regularity significantly influence repayment outcomes (Akram, Bano, Ali & Akram, 2026; El-Gohary, 2019; Hermes, Lensink & Mehrteab, 2006). These results highlight the importance of active and well-connected leadership in enhancing repayment efficiency, positioning leadership quality as a key determinant of microfinance performance. A notable gap remains, however, regarding how leadership's relational dimensions, such as trust and communication, affect repayment performance over time and across contexts, warranting further investigation.

The Conceptual Framework

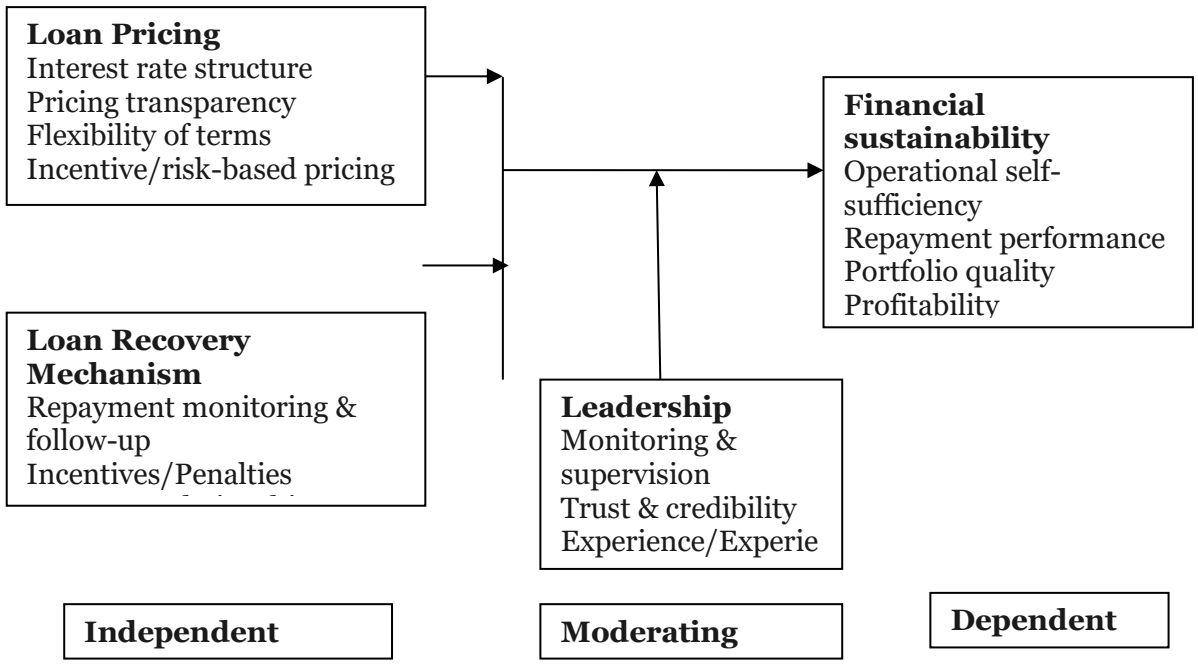

Figure 1: The Conceptual Framework

Data and Methodology

This study employed a cross-sectional explanatory survey research design targeting 600 informal financial groups registered with the Department of Social Services in Kirinyaga County. The unit of analysis comprised group leaders, with one respondent selected from each group. Leaders were purposively selected based on their comprehensive knowledge of group operations and management practices, thus enhancing the richness and relevance of data (Campbell, Greenwood, Prior, Shearer, Walkem, Young & Walker, 2020). Kirinyaga County was selected due to its high prevalence of informal financial group usage (FinAccess Household Survey, 2022), rendering it a suitable context for examining rural financial behavior and generating policy-relevant insights. The minimum sample size was initially estimated using Fisher's formula for sample size determination for proportions (Fisher et al., 1983);

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where n= sample size, z= the standard normal deviate value for the level of confidence, d= margin of error or level of precision for the total population, p= proportion to be estimated. In the absence of past empirical estimates, p was set at 0.50 to maximize the sample size. A 95% confidence level (z = 1.96) and a 10% margin of error (d = 0.10) were employed since the study sought to establish relationships among study variables rather than estimating proportions of the population with high precision. The 10% margin of error balanced practical considerations of respondents' accessibility and resource constraints against statistical precision (Mweshi & Sakyi, 2020). Substituting the values into Fisher's formula resulted in an initial sample size of 96, but with a finite target population (N = 600), the finite population correction

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

yielded a minimum sample size of approximately 83 respondents. This sample size was within the minimum recommended sample size N≥50+8m, where *m* represents study variables (Heckmann, Gegg, Gegg & Becht, 2014). A multistage sampling approach integrating stratified, purposive, and simple random techniques was employed to ensure representativeness. Primary data were collected using structured questionnaires.

Data Analysis

Data analysis involved both descriptive and inferential statistical analyses. Descriptive statistics included measures of central tendency and dispersion while inferential statistics entailed regression and moderation analysis. To test the effect of the moderating variable, the study adopted moderated multiple regression analysis. STATA version 13 was used to establish data associations and to analyze the data underpinning the study's findings, conclusions and recommendations, in line with the study's objectives (Kothari, 2013).

Regression Analysis

The analysis for the main effects model took the functional form;

$$Y_i = \beta o + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \mu_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn (1)}$$

The moderated multiple regression model took the form:

$$Y = \beta o + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i1} X_{i3} + \beta_5 X_{i2} X_{i3} + \mu \ldots\ldots\ldots\ldots\ldots\text{Eqn (2)}$$

Where;

Y = Financial sustainability of informal financial groups in Kirinyaga County

X_{ij}, i,j= 1, 2, 3 represents interaction between variables loan pricing, loan recovery mechanisms and leadership respectively.

Findings

A response rate of 84% was attained (70 of the 83 sampled respondents), which was deemed sufficient for robust statistical analysis and provided a reliable basis for presenting and interpreting the study's findings.

Criteria for Pricing of Loans

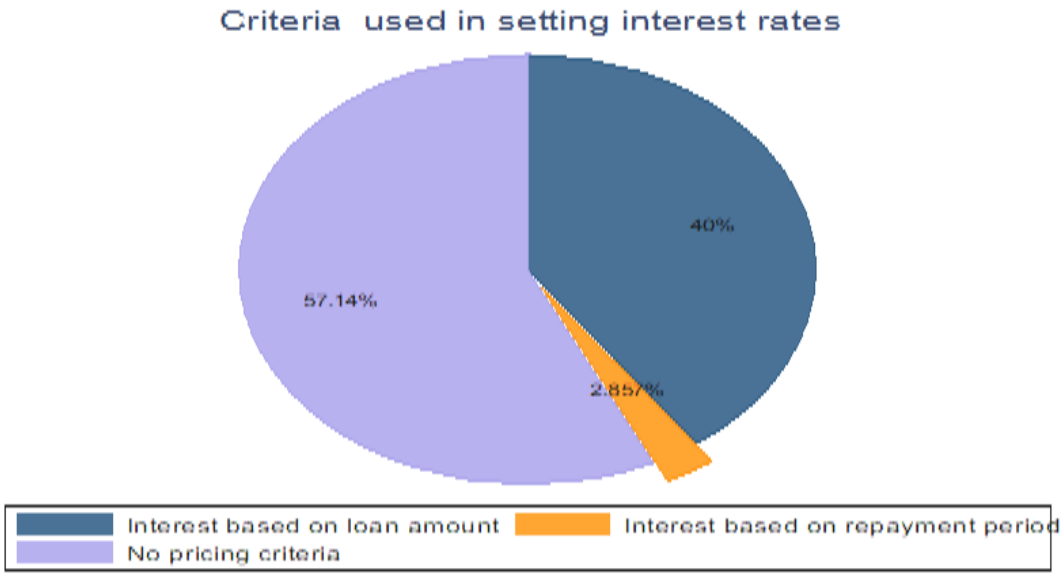

Figure 2: Criteria for Loan Pricing

The findings in Figure 2 indicate considerable heterogeneity, and, notably, the absence of formalized loan pricing frameworks among most informal financial groups (IFGs). Specifically, 40 groups (57.14%) reported not applying any explicit pricing criteria, while 28 groups (40%) determined interest rates based on the loan amount. Only 2 groups (2.86%) indicated that the repayment period served as the basis for interest rate determination. These results imply that a substantial proportion of IFGs rely on arbitrary or ad hoc pricing practices, largely motivated by a desire to avoid complex bookkeeping systems (Karlan, Savonitto, Thuysbaert & Udry, 2017). Respondents further attributed this approach to cost minimization, particularly the avoidance of expenses associated with professional financial expertise and additional administrative staffing. While such cost-cutting measures may offer short-term operational convenience, they potentially undermine financial discipline and threaten the long-term sustainability of the groups.

Incidence of Previous Loan Losses

Table 1: Groups that Have Suffered Loan Losses

Losses Suffered	Frequency	Percentage
Yes	60	85.71
No	10	14.29
Total	70	100

Table 1 indicates that 60 groups (85.71%) reported having experienced loan losses, while only 10 groups (14.29%) reported no history of such losses. These findings reflect the inherent credit risk associated with lending in informal financial settings, where the inter-temporal nature of lending advancing funds in the present with repayment expected in the future exposes groups to persistent default risk (Boiquaye, Aidoo & Gyamerah, 2026). The high prevalence of reported losses is largely attributable to the unstable and unpredictable income streams characteristic of rural households, which constrain borrowers' repayment capacity and heighten vulnerability to delinquency and default (Salifu, 2025).

Recovery Mechanisms Applicable

Table 2: Recovery Mechanisms

Recovery Mechanism Applicable	Frequency	Percent
Dismissal	1	1.43
Set off against savings	31	44.29
Asset confiscation	10	14.29
Use of guarantors	7	10.00
Extension of repayment period	9	12.86
Fines and penalties	12	17.14
Total	70	100

Table 2 reveals considerable variation in the loan recovery strategies employed by IFGs in the event of member default. The most common mechanism was offsetting outstanding loan balances against members'

savings, reported by 31 groups (44.29%). This was followed by the imposition of fines and penalties in 12 groups (17.14%), confiscation of assets in 10 groups (14.29%), extension of repayment periods in 9 groups (12.86%), and recourse to guarantors in 7 groups (10%). Only 1 group (1.43%) reported dismissal of defaulting members as a recovery strategy. The predominance of savings offsetting reflects its relative efficiency and low enforcement cost compared with alternative recovery mechanisms (Gatimu, 2022). Respondents attributed this preference to reduced transaction and collection costs, which in turn enhance operational efficiency and support the financial sustainability of the groups.

Descriptive Statistics

Table 3: Financial Sustainability, Loan Pricing, Recovery Mechanisms and Leadership

	Financial Sustainability	Loan Pricing	Recovery Mechanisms	Leadership
Mean	3.8805	3.1607	3.6805	4.1400
Maximum	4.6364	3.8333	4.3636	4.8000
Minimum	2.0000	2.2500	3.2727	3.0000
Std. Dev.	0.4357	0.3810	0.2252	0.3164

The results indicate generally positive perceptions across all study constructs. Financial sustainability recorded a mean score of 3.88, indicating that respondents largely agreed with the statements assessing the various dimensions of sustainability. Loan pricing registered a mean of 3.16 with a standard deviation of 0.38, revealing moderate agreement and relatively low dispersion of responses around the mean. Recovery mechanisms reported a higher mean of 3.68 and the lowest standard deviation (0.22), implying comparatively greater consensus and lower variability in perceptions regarding recovery practices. Leadership emerged as the most strongly rated construct, with a mean of 4.14 and a standard deviation of 0.31, indicating a high level of agreement among respondents on statements relating to leadership. Collectively, these results reveal that while all constructs were viewed positively, leadership was perceived most strongly and consistently, whereas loan pricing exhibited comparatively greater variability in respondent perceptions.

Regression Results

Table 4: Main-Effects-Only Results

Predictor Variable	Coef.	Std. Error	t	p-value
Constant	-1.0997	1.1521	-0.95	0.343
Loan Pricing (X1)	0.3159	0.1110	2.84	0.006
Recovery Mechanisms (X2)	0.3979	0.1036	3.84	0.000
Leadership Aspect (X3)	0.2457	0.1050	2.34	0.022

Dependent variable: Financial Sustainability. Predictors: X_1, X_2, X_3.

Individually, all three predictors exhibited positive and statistically significant relationships with financial sustainability. Loan pricing yielded a positive and statistically significant effect ($\beta = 0.3160$, $p = 0.006$), indicating that an improvement in loan pricing mechanisms is associated with an increase in financial sustainability; well-structured and favourable loan pricing enhances the performance and, subsequently, the sustainability of informal financial groups. Recovery mechanisms revealed a strong, positive and statistically significant effect ($\beta = 0.3980$, $p < 0.000$), suggesting that effective loan recovery mechanisms significantly improve financial sustainability. Recovery mechanisms formed the strongest predictor in the model, signifying that proper enforcement and recovery strategies play a key role in financial sustainability. Finally, the leadership aspect had a positive and statistically significant effect ($\beta = 0.2458$, $p = 0.022$), revealing that better leadership practices significantly enhance financial sustainability. This underscores the crucial role of leadership quality and governance as determinants of performance. A summary of the model is presented in Table 5.

Table 5: Main-Effects Model Summary

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Prob > F
1	0.4195	0.3741	0.34471	0.0000

Based on Table 5, the regression model explained a substantial proportion of variation in financial sustainability, with an R^2 of 0.4195 and an adjusted R^2 of 0.3741, revealing moderate explanatory power after controlling for the number of predictors. An R^2 of 0.4195 implies that the independent variables jointly explain 41.95% of the total variation in financial sustainability. The overall model was statistically significant ($p < 0.001$), evidence that the predictors jointly contribute to explaining financial sustainability. The fitted model is given in Equation (1):

$$Y_i = -1.10 + 0.3159\, X_{i1} + 0.3979\, X_{i2} + 0.2457\, X_{i3} \quad \ldots. \qquad \text{Eqn (1)}$$

To determine whether leadership moderates the relationship between lending practices and financial sustainability, the study further conducted a moderation analysis. Whereas the main-effects analysis examined the independent contribution of each predictor to financial sustainability, the moderation analysis was undertaken to determine whether the strength or direction of these relationships varies with the level of leadership within informal financial groups (Sathyanarayana & Mohanasundaram, 2025). The significance of the interaction effects was assessed to determine whether leadership enhances, weakens or otherwise changes the relationship between lending practices and financial sustainability. The results of the moderation analysis are presented below.

Table 6: Moderated Regression Results

Predictor Variable	Coef.	Std. Error	t	p-value
Constant	-1.1559	1.2102	-0.96	0.3430
Loan Pricing (X1)	0.3228	0.1339	2.41	0.0190
Recovery Mechanisms (X2)	0.8012	0.2204	3.63	0.0010
Leadership Aspect (X3)	0.3693	0.1755	2.10	0.0400

Predictor Variable	Coef.	Std. Error	t	p-value
Loan Pricing × Leadership (X1X3)	-0.5906	0.5510	-1.07	0.2880
Recovery Mechanisms × Leadership (X2X3)	0.9467	0.3655	2.59	0.0110

Dependent Variable: Financial Sustainability. Predictors: (Constant), X_1, X_2, X_3, X_1X_3, X_2X_3.

Loan pricing, loan recovery mechanisms, leadership, interaction between loan pricing and leadership and the interaction between recovery mechanisms and leadership had coefficient values of 0.3228 (t=2.41, p-value = 0.0190 < 0.05), 0.8012 (t=3.63, p-value = 0.0010 < 0.05), 0.3693 (t=2.10, p-value = 0.0400 < 0.05), -0.5906 (t= -1.07, p-value = 0.0288 < 0.05) and 0.9467 (t=-2.59, p-value = 0.0110 < 0.05) respectively.This implies that each of these variables, except the interaction of loan pricing with leadership, significantly influenced the dependent variable, financial sustainability.

The findings in Table 6 show that leadership had a negative and insignificant effect on the relationship between loan pricing and financial sustainability. This may be attributed to the nature of pricing, which is largely driven by group by-laws, leaving leaders with limited flexibility to alter it (Rachmad, 2022). The negative coefficient further suggests that leaders may rely less on loan pricing as a determinant of group performance, instead emphasizing risk management, member retention and operational efficiency over revenue generation through higher interest rates.

Conversely, leadership had a positive and significant effect on the relationship between loan recovery mechanisms and financial sustainability. This could be associated with effective leadership improving the implementation, monitoring and enforcement of recovery mechanisms, following up on non-performing loans and supporting better decision-making on loan recovery, leadership therefore amplifies the benefits of recovery mechanisms (Detthamrong, Nguyen &Chansanam, 2023). While loan pricing is largely policy-driven, recovery mechanisms are process- and human-driven, and can therefore be directly influenced by leadership quality.

The increase in R^2 from 0.4195 to 0.4564 indicates that including leadership and the interaction effects improved the explanatory power of the model, as illustrated in Table 7. All independent variables jointly explain 45.64% of the total variation in financial sustainability, underscoring the practical relevance of group leadership in strengthening loan recovery-related activities.

Table 7: Moderated Model Summary

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Prob > F
2	0.4564	0.3749	0.34451	0.0000

Prob > F = 0.0000 indicates the joint significance of all independent variables in explaining the dependent variable at the 5% level. The fitted moderated regression model is specified in Equation (2):

$$Y_i = -1.155992 + 0.3228\,X_{i1} + 0.8012\,X_{i2} + 0.3693\,X_{i3} - 0.5906\,X_{i1}\,X_{i3} + 0.9467\,X_{i2}\,X_{i3} \quad \ldots\ldots\text{Eqn (2)}$$

Discussion of the Findings

The main-effects regression results revealed a positive and significant relationship between micro factors (loan pricing and recovery mechanisms) and the financial sustainability of informal financial groups. These

findings concur with Wangari (2013), who found a positive relationship between interest rates and the financial sustainability of microfinance institutions. They also align with Kamanda, Ondabu, Teimet and Matanda (2024), whose research associates' debt-recovery practices among microfinance banks with enhanced financial sustainability.

On moderation, this study established that leadership does not significantly moderate the relationship between loan pricing and organizational performance, as evidenced by the negative but insignificant interaction coefficient. This suggests that the influence of loan pricing is largely determined by group by-laws and other factors that may not be considerably swayed by leadership practices. The finding contradicts De Franco, Hope and Lu (2017) findings on formal lending institutions that revealed that banks with higher managerial capability provide loans at lower cost.

However, leadership significantly and positively moderated the relationship between recovery mechanisms and financial sustainability. This implies that effective leadership enhances the implementation and effectiveness of loan recovery processes through improved supervision, accountability and member motivation. These results align with Maharani, Wiagustini, Baskara and Rahyuda (2024), who found that leadership influences financial sustainability. Proactive leadership that tracks and identifies repayment issues early may reduce the need for frequent and severe sanctions, thereby lowering member conflict and dropout rates. Leaders may also determine the type of sanction to impose financial, social or formal, as well as its strictness and timing, in order to shape borrower responses.

Conclusions and Recommendations

The study found that leadership did not significantly moderate the relationship between loan pricing and financial sustainability; the effect was negative, indicating that leadership practices within informal financial groups were insufficient to strengthen loan pricing strategies for improved financial sustainability. Leadership did, however, have a positive and statistically significant influence on the relationship between loan recovery mechanisms and financial sustainability. This suggests that effective leadership reinforces the implementation and oversight of loan recovery processes, hence strengthening financial sustainability. The results highlight the fundamental role of leadership in enforcing loan recovery policies, promoting accountability and supporting group strategic decisions for enhanced resilience through improved loan-portfolio performance.

Given that leadership did not significantly influence the effect of loan pricing on financial sustainability, IFGs should reassess and enhance their loan pricing strategies by considering risk profiles, member affordability, market conditions and operational costs. Policymakers and support institutions should provide technical tools, support and guidelines needed to help groups develop equitable, transparent, sustainable and customer-friendly pricing strategies that balance accessibility with financial viability. Development partners should also support the testing and adoption of innovative pricing approaches suited to community contexts.

Since effective leadership significantly strengthened the contribution of loan recovery mechanisms to financial sustainability, IFGs should develop structured and well-enforced recovery systems supported by strong leadership. Leaders need to promote member engagement, accountability and timely monitoring of loan repayments to minimize default rates. Governments and local authorities should also facilitate access to mediation and dispute-resolution mechanisms, and encourage networking platforms where IFG leaders can exchange best practices in loan recovery and financial management. Such initiatives will enhance learning and improve recovery performance, further strengthening financial sustainability among informal financial groups.

For policymakers and practitioners, these findings imply that investment in leadership training and development is likely to yield greater sustainability benefits if targeted at strengthening loan recovery

strategies, rather than relying exclusively on leadership interventions to enhance the effectiveness of loan pricing. Leadership development programmes should focus on strategic monitoring, enforcement of recovery policies and the promotion of a culture of risk management and accountability, with an emphasis on transparent, adaptive and participatory leadership styles that encourage adherence to recovery policies and loan pricing while building member trust. Leadership assessment should also be incorporated into group formation and support frameworks, with mentorship components introduced both at inception and throughout a group's operations, to ensure leaders can effectively manage the micro factors that affect financial sustainability.

Finally, the study recommends the development and promotion of policy frameworks that recognize the importance of informal financial groups. Both national and local governments should formulate policies that formally recognize IFGs as key contributors to financial inclusion, creating supportive environments that foster their growth and sustainability through legal recognition, capacity building and improved access to support services. Policymakers should also promote ongoing research and data collection on leadership and microfinance practices within these groups; continuous study and monitoring of how leadership interacts with micro-level financial operations will provide data-driven insights to guide adaptive and responsive policy interventions addressing the evolving challenges facing IFGs.

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