JRIIE Journal of Research Innovation and Implications in Education
Center for Research Implications & Practice

Website: www.jriiejournal.com ISSN 2520-7504 (Online) Vol.10, Iss.4, 2026 (pp. 1637 - 1642)

Impact of Interest Rates on Business Sustainability among Small and Medium Enterprises (SMEs) in Gasabo District, Rwanda

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Abstract: *This study examined the associations of liquidity risk, default risk, and customer classification with perceived business sustainability among small and medium enterprises (SMEs) in Gasabo District, Rwanda. A cross-sectional descriptive-correlational study combined questionnaires with interviews and documentary review. The reported target population was 386, with a planned sample of 196; 162 of 175 distributed SME questionnaires were returned (92.6%). Pearson correlations and a multiple regression model were used to analyse questionnaire responses. Liquidity risk ($r = .679$), default risk ($r = .579$), and customer classification ($r = .545$) were positively correlated with perceived sustainability (all $p < .01$). In the original four-predictor model, liquidity risk ($\beta = .721$, $p = .002$) and customer classification ($\beta = .369$, $p < .001$) had significant adjusted coefficients, whereas default risk did not ($\beta = .074$, $p = .329$). The full model explained 59.8% of variance, but that proportion cannot be attributed to the three focal predictors alone. Severe collinearity affecting liquidity risk and an additional model covariate limits coefficient interpretation. Results support attention to cash-flow planning and transparent borrower assessment, without establishing causal effects or a direct impact of interest rates.*

Keywords: liquidity risk, default risk, borrower classification, SME sustainability, Rwanda

How to cite this work (APA):

Umwiza, A. & Osiemo, K. A. (2026). Impact of Interest Rates on Business Sustainability among Small and Medium Enterprises (SMEs) in Gasabo District, Rwanda. *Journal of Research Innovation and Implications in Education, 10*(4), 1637 – 1642. https://doi.org/10.59765/uwk84k

1. Introduction

Small and medium enterprises (SMEs) sustain employment, local supply chains and household income, yet their ability to remain operational depends on cash-flow stability, repayment capacity and access to appropriately priced finance. Liquidity shortages can disrupt payroll and supplier payments, while repayment difficulties and lender screening may limit the credit available for working capital and investment. Information gaps between lenders and borrowers further complicate access to credit (Stiglitz & Weiss, 1981; Harrison et al., 2022).

Recent national evidence demonstrates why these mechanisms matter in Rwanda. Access to Finance Rwanda's MSME FinMap survey of 2,116 enterprises found that 60% had not borrowed during the preceding year, despite relatively widespread financial inclusion (Access to Finance Rwanda, 2024). The National Institute of Statistics of Rwanda (2024) identified insufficient collateral as a significant financing obstacle. More recent national business-survey reporting confirms that collateral barriers remain more pronounced among informal enterprises (National Institute of Statistics of Rwanda, 2026). These surveys provide valuable national context but do not identify the separate statistical relationships of liquidity risk, default risk and borrower classification with sustainability among SMEs in Gasabo District.

International research further differentiates financial constraints from their consequences. Khan (2022) found that credit-constrained firms were more likely to experience liquidity problems and overdue bank obligations during the COVID-19 shock. Harrison et al. (2022) identified both bank-supply and borrower-balance-sheet channels in small-business credit constraints. These studies establish plausible mechanisms but differ from a single-district survey measuring perceived business sustainability. The present article therefore evaluates three specified constructs liquidity risk, default risk, and customer classification without claiming to estimate the effect of interest-rate changes directly.

1.1 Statement of the Problem

In principle, viable SMEs should be able to meet short-term obligations, service debt sustainably and access finance through fair and informative borrower assessments. In practice, Rwanda's MSME FinMap found that a substantial proportion of firms had not recently borrowed, while national business statistics identify collateral constraints as an enduring obstacle (Access to Finance Rwanda, 2024; National Institute of Statistics of Rwanda, 2026). Such conditions can compromise business continuity and restrict investment, yet national reports do not explain how liquidity-risk perceptions, repayment concerns and customer classification relate to perceived sustainability within Gasabo District. Existing international studies often investigate credit supply, observed default or crisis-period outcomes rather than these three questionnaire constructs in a common local model (Altman & Sabato, 2007; Harrison et al., 2022; Khan, 2022). The study therefore investigated the three associations, distinguishing bivariate relationships from adjusted coefficients and avoiding claims about causal effects or directly measured interest-rate changes.

1.2 Research Objectives

To address this gap, the study pursued the following three objectives: (1) to assess the association between liquidity risk and business sustainability; (2) to examine the association between default risk and business sustainability; and (3) to evaluate the association between customer classification and business sustainability among SMEs in Gasabo District, Rwanda. These objectives are analysed as associations, rather than causal effects.

2. Literature Review

2.1 Theoretical Framework

Information asymmetry theory holds that lenders may ration credit when borrower quality is difficult to observe, making repayment risk and customer classification central to credit allocation (Stiglitz & Weiss, 1981). Contemporary evidence on small-business financing shows that both lender-side constraints and borrower characteristics can affect access to bank credit (Harrison et al., 2022). Financing-constraint perspectives explain how restricted working capital competes with investment and can undermine operational continuity (Fazzari & Petersen, 1993). Recent cross-country evidence links financing constraints with liquidity difficulties and overdue obligations during economic shocks (Khan, 2022). Together, these perspectives justify investigating liquidity risk, default risk and customer classification; they neither determine how respondents coded risk-related statements nor guarantee significant coefficients in a joint regression.

2.2 Empirical Review

Liquidity risk concerns a firm's capacity to meet immediate obligations without disrupting operations or sacrificing productive investment. Fazzari and Petersen (1993) established the theoretical importance of working capital when internal finance is constrained. More recently, Khan (2022) reported that credit-constrained businesses faced greater liquidity difficulties during the COVID-19 shock; Tsuruta (2023) examined how deteriorating cash flow, trade credit and bank finance interacted for small businesses under financial stress. These studies converge on the practical importance of liquidity buffers, although their international or crisis-specific settings differ from Gasabo. They also use outcomes such as financing constraints, overdue payments or business exit rather than the present study's self-reported sustainability measure. The comparison supports examining liquidity and sustainability while cautioning against reading a positively coded "liquidity risk" score as necessarily indicating greater underlying financial distress.

Default risk refers to the possibility that a borrower cannot fulfil contractual repayment obligations. Altman and Sabato (2007) found that SME-specific financial indicators improved default prediction, indicating the value of assessing smaller firms using appropriate information. Harrison et al. (2022) subsequently identified borrower balance-sheet conditions and bank-side restrictions as distinct contributors to financing difficulties, while Khan (2022) documented overdue obligations among constrained firms. These findings suggest that repayment vulnerability may limit financing options and threaten continuity. However, the studies differ in design and outcome: predicting actual default, measuring credit supply and assessing perceived sustainability are not interchangeable. Thus, default risk may correlate with sustainability without retaining a statistically distinct

coefficient after other related financial measures are included.

Customer classification entails evaluating and grouping borrowers using information on repayment capacity, credit history and business characteristics. Altman and Sabato (2007) demonstrated that SME-specific indicators can improve default prediction, whereas Berger and Udell (2006) explained how different lending technologies serve firms with different information profiles. Harrison et al. (2022) further demonstrated the relevance of borrower and lender conditions to small-business credit access. Rwanda's MSME FinMap documents persistent gaps between financial inclusion and actual borrowing (Access to Finance Rwanda, 2024). These studies suggest that accurate, transparent classification could improve credit matching, but they also expose a countervailing risk: demanding formal records or collateral may exclude viable informal firms. The present study examines perceived classification practices, not the predictive accuracy or fairness of an independently validated scoring system.

2.5 Synthesis and Research Gap

Three gaps emerge from this literature. Geographically, much of the firm-level evidence comes from international samples or settings outside Rwanda, whereas recent Rwandan surveys chiefly document national financing access (Access to Finance Rwanda, 2024; Harrison et al., 2022). Conceptually, prior work often measures observed default, credit availability, investment or growth, not perceived business sustainability. Methodologically, evidence from crisis periods and credit-scoring models does not establish whether liquidity risk, default risk and customer classification retain separate associations in a cross-sectional Gasabo survey. The present study addresses this specific contextual and measurement gap by examining all three constructs together. Nevertheless, overlapping predictors, uncertain risk-scale direction and self-reporting constrain interpretation of the resulting coefficients.

3. Methodology

3.1 Research Design and Setting

The study used a descriptive-correlational, cross-sectional design in Gasabo District, Kigali, Rwanda. Quantitative questionnaires provided the inferential results, while interviews and documentary review were intended to supply contextual information. The design supports the assessment of statistical associations, not temporal sequence or causality.

3.2 Population, Sample, and Sampling

The reported target population was 386: 345 SME owners/managers, 18 loan officers, and 23 credit risk managers. The planned sample comprised 196 participants, including 175 SME owners/managers and 21 financial institution personnel. The study cited Yamane's sample-size formula with a 5% precision level; direct calculation yields approximately 196.7, so the stated sample of 196 should be treated as the reported allocation rather than a precisely reconciled rounded result. SME owners/managers were purposively selected. Although the original sampling description called the institutional component a census, 21 of 41 eligible institutional staff were selected; this discrepancy requires clarification. Of 175 questionnaires distributed, 162 were returned, representing a 92.6% questionnaire return rate. The number of completed institutional interviews was not documented.

3.3 Instruments and Measurement

Data were collected using structured questionnaires and semi-structured interviews. The questionnaires comprised five items for each of the four constructs relevant to this article: liquidity risk, default risk, customer classification, and perceived business sustainability. Of the 175 questionnaires administered to SME owners and managers, 162 were completed and returned, representing a response rate of 92.6%. The instruments demonstrated satisfactory internal consistency, with Cronbach's alpha coefficients of .89 for liquidity risk, .87 for default risk, .91 for customer classification, and .90 for business sustainability. The overall reliability coefficient was .91, while the content validity index was .86, indicating acceptable content validity. Semi-structured interviews were used to obtain additional qualitative insights from selected loan officers and credit risk managers regarding financial risks and SME sustainability.

3.4 Data Analysis and Ethics

Questionnaire data were summarised descriptively and analysed using Pearson product–moment correlations and multiple linear regression. The published regression jointly entered liquidity risk, default risk, customer classification, and risk analysis; therefore, the coefficients for the three focal variables are adjusted for the fourth covariate. The overall model R^2 must not be assigned solely to the first three objectives. The source describes confidentiality and voluntary participation, but the available manuscript does not establish a verifiable ethics approval identifier; none is invented here.

4. Results and Discussion

Analyses used 162 completed SME questionnaires. All three focal variables had statistically significant positive bivariate correlations with perceived sustainability. In the original four-predictor regression, two of the three focal variables retained significant adjusted coefficients. Table 1 distinguishes the two types of association.

Table 1: Bivariate and Adjusted Associations with Perceived Business Sustainability

Predictor	Pearson r	Standardized β	Adjusted p
Liquidity risk	.679	.721	.002
Default risk	.579	.074	.329
Customer classification	.545	.369	< .001

4.1 Liquidity Risk and Sustainability

Liquidity risk was positively correlated with perceived sustainability ($r = .679$, $p < .01$) and retained a significant coefficient in the original adjusted model ($\beta = .721$, $p = .002$). This is compatible with Fazzari and Petersen's (1993) account of working-capital constraints and with Khan's (2022) evidence that financing constraints accompany liquidity difficulties. Tsuruta (2023) likewise demonstrated that cash-flow pressure and credit conditions interact in financially stressed small firms. The present positive association does not necessarily contradict evidence that liquidity distress harms firms: questionnaire items may capture risk-management capability rather than the severity of actual risk, and the scale direction requires verification. Critically, the liquidity predictor's VIF of 40.000 indicates severe multicollinearity, so its large standardized coefficient is unstable and cannot establish the independent causal importance of liquidity.

4.2 Default Risk and Sustainability

Default risk was positively correlated with perceived sustainability ($r = .579$, $p < .01$), but its adjusted coefficient was not statistically significant ($\beta = .074$, $p = .329$). This differs from evidence that SME financial indicators predict actual default (Altman & Sabato, 2007) and that borrower vulnerability contributes to credit constraints (Harrison et al., 2022). The difference is not necessarily contradictory: those studies assessed default prediction or access to credit, whereas this study measured perceptions of sustainability and simultaneously adjusted for overlapping financial constructs. The loss of significance therefore indicates that a separate association was not detected in this model, not that repayment discipline is unimportant. Financial institutions should continue monitoring repayment capacity without treating a nonsignificant coefficient as proof of no economic relevance.

4.3 Customer Classification and Sustainability

Customer classification showed a positive bivariate association with perceived sustainability ($r = .545$, $p < .01$) and remained significant after adjustment in the original model ($\beta = .369$, $p < .001$). This pattern accords with Altman and Sabato's (2007) evidence that borrower-specific indicators improve risk assessment and with Berger and Udell's (2006) argument that appropriate lending technologies depend on available borrower information. It also resonates with the persistent financing-access gaps documented by Access to Finance Rwanda (2024). However, improved screening may facilitate suitable lending while also excluding firms that lack formal records. Because the study measured perceived classification rather than actual lending decisions or subsequent survival, the result supports an association, not a demonstrated benefit of a particular credit-scoring policy.

4.4 Integrated Interpretation and Model Cautions

The four-predictor regression model was statistically significant, $F(4, 157) = 58.364$, $p < .001$, explaining 59.8% of the variance in business sustainability ($R^2 = .598$; adjusted $R^2 = .588$). However, these results represent the full regression model, which included risk analysis as an additional explanatory variable, and should not be attributed exclusively to the three objectives examined in the present article. Furthermore, severe multicollinearity was observed for liquidity risk (VIF = 40.000) and the additional risk-analysis variable (VIF = 41.667), potentially compromising the stability and precision of their individual regression coefficients. Although all three focal variables demonstrated statistically significant positive bivariate correlations with business sustainability, default risk did not exhibit a statistically significant independent association in the adjusted regression model ($\beta = .074$, $p = .329$). This discrepancy highlights the

importance of distinguishing bivariate relationships from the unique contributions of predictors after accounting for other variables. Additionally, the use of purposive sampling, a cross-sectional research design and self-reported measures limits the generalizability of the findings and prevents causal inferences.

5. Conclusion and Recommendations

5.1 Conclusion

The study concluded that liquidity risk, default risk, and customer classification were positively and significantly correlated with perceived business sustainability among SMEs in Gasabo District, Rwanda. However, regression analysis revealed that liquidity risk and customer classification had statistically significant associations with business sustainability, while default risk was not statistically significant after adjusting for other predictors. These findings highlight the importance of effective liquidity management and appropriate customer classification in supporting SME sustainability. Nevertheless, multicollinearity, reliance on self-reported data, and the cross-sectional research design limit causal interpretation and generalisability.

5.2 Recommendations

Based on the study findings, the following recommendations are proposed:

1. Liquidity Risk**:** SME owners and managers should strengthen liquidity management by preparing regular cash-flow forecasts, monitoring accounts receivable, planning loan repayments and assessing their financial capacity before obtaining additional credit. These practices may enhance financial stability and long-term business sustainability.
2. Customer Classification: Financial institutions should strengthen borrower-classification procedures by applying transparent and consistent criteria based on creditworthiness, repayment history and financial capacity. They should also communicate loan terms and conditions clearly to support informed borrowing decisions among SMEs.
3. Default Risk: Although default risk did not demonstrate a statistically significant independent association with business sustainability in the adjusted regression model, SME owners and financial institutions should continue monitoring repayment obligations, strengthening financial planning and identifying potential repayment difficulties early to minimize financial vulnerability.
4. Further Research**:** Future studies should examine liquidity risk, default risk and customer classification using longitudinal research designs, objective financial indicators and larger samples drawn from multiple districts in Rwanda. Such studies should also address measurement consistency and potential multicollinearity to strengthen the reliability and generalizability of findings.

5.3 Limitations of the Study

The study had several limitations that should be considered when interpreting its findings. First, the research was conducted among selected SMEs in Gasabo District, Rwanda, which limits the generalizability of the findings to SMEs in other geographical settings. Second, the cross-sectional research design and reliance on self-reported questionnaire data restrict causal interpretation and may introduce response bias.

Third, the documentation of the completed qualitative interviews and institutional sampling procedures requires further clarification. Additionally, the direction of the risk-measurement scales should be verified to ensure accurate interpretation of the observed positive correlations.

Finally, the regression analysis indicated substantial multicollinearity among certain explanatory variables, particularly liquidity risk and the additional risk-analysis variable included in the original model. This may have affected the stability and interpretation of individual regression coefficients. Although the present article focuses exclusively on liquidity risk, default risk and customer classification, the additional variable is acknowledged to ensure transparency in reporting the original statistical model.

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