Firm-Level and Macroeconomic Drivers of Capital Structure: A Quantile Approach to SMEs in Emerging Markets

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Abstract

This study investigates the determinants of capital structure among small and medium-sized enterprises (SMEs) in developing countries by employing a panel quantile regression approach. Using data from the World Bank Enterprise Surveys, World Development Indicators, and Worldwide Governance Indicators covering 2010–2022, the analysis explores how firm-specific and macroeconomic variables affect leverage across different points of the conditional distribution. The results suggest that profitability, asset tangibility, and firm size are key internal drivers of leverage, with their effects varying significantly across leverage quantiles. Similarly, external factors such as inflation, interest rates, GDP growth, and institutional quality display heterogeneous influences on SME capital structure. The findings highlight the importance of macroeconomic stability and institutional quality in supporting SME financing, while also pointing to the need for differentiated policy interventions that address the diverse needs of SMEs at various stages of development and leverage positions. The study contributes to the literature by demonstrating the value of distributional approaches in understanding SME financing dynamics in developing economies.

Keywords: Capital Structure, SMEs, Developing Countries, Panel Quantile Regression, Macroeconomic Factors, Institutional Quality

1. Introduction

The capital structure decisions of small and medium-sized enterprises (SMEs) in developing countries may constitute a complex and multifaceted process, shaped by both internal firm characteristics and external macroeconomic conditions. SMEs, often regarded as the backbone of economic development and employment generation, face unique challenges in optimising their financing mix due to constrained access to formal credit markets, institutional voids, and heightened economic volatility (Boateng et al., 2022). While the traditional trade-off and pecking order theories offer valuable insights into the capital structure choices of firms, their assumptions may not fully account for the heterogeneous conditions under which SMEs in developing economies operate. This heterogeneity may be particularly pronounced across firms with different levels of performance, suggesting that capital structure determinants could exhibit distinct patterns across the distribution of firm outcomes (Al-Najjar & Salama, 2021).

Recent empirical studies suggest that examining average effects may mask important variations in how firm-specific and macroeconomic variables influence capital structure decisions at different points of the performance distribution (Wasiuzzaman et al., 2023). In this regard, the use of panel quantile regression methods offers an opportunity to explore how determinants of capital structure can vary across quantiles, thereby providing a more nuanced understanding of SME financing behaviour. The first objective of this study is to investigate how firm-specific factors, such as profitability, firm size, tangibility of assets, and growth opportunities, affect the capital structure of SMEs across different performance quantiles. Existing evidence points to possible nonlinearities in these relationships, where, for instance, more profitable SMEs may rely less on external debt at higher performance levels, while smaller or younger firms could face greater financing constraints at lower quantiles (Nguyen & Ramachandran, 2020).

A second objective of this research is to examine how macroeconomic conditions, including inflation rates, interest rate fluctuations, and GDP growth, may shape capital structure choices across the SME performance spectrum. Prior studies have noted that adverse macroeconomic environments can intensify credit constraints for SMEs, especially those operating at the lower ends of the performance distribution (Mensah et al., 2024). Furthermore, SMEs in developing countries often lack resilience to macroeconomic shocks, which may influence their leverage

decisions differently compared to larger firms or SMEs in developed economies (Karadag, 2020). A quantile regression approach can help uncover these asymmetric effects, thus contributing to a more granular understanding of how external economic environments interact with internal firm-level dynamics in shaping capital structure outcomes.

A third objective of the study is to provide evidence on the interplay between institutional factors and capital structure heterogeneity across performance quantiles. Institutional qualitycan play a mediating role in how SMEs manage their capital structure under varying macroeconomic conditions (Onjewu et al., 2021). The institutional context in many developing countries may exacerbate or mitigate the challenges SMEs face in accessing debt financing, and these effects may be more pronounced for firms at particular quantiles of the performance distribution. By integrating institutional variables into the panel quantile regression framework, this study seeks to contribute to the ongoing discourse on the role of institutions in shaping SME financial strategies.

Taken together, these objectives address important gaps in the literature. Although considerable research has been devoted to understanding capital structure in SMEs, much of the existing work relies on methodologies that estimate average effects, such as fixed effects or random effects models (Yazdanfar & Öhman, 2022). These approaches may obscure the heterogeneity that exists within SME populations, particularly in developing country contexts where firm-level and environmental conditions can vary widely. Panel quantile regression, by contrast, allows for the examination of relationships at different points of the conditional distribution of leverage, offering richer insights into the financing decisions of SMEs across the performance spectrum (Al-Hadi et al., 2023).

In advancing these objectives, the study intends not only to offer empirical contributions but also to inform policymakers and financial institutions seeking to design targeted interventions aimed at improving SME access to finance. Understanding how determinants of capital structure differ across performance levels can enable the development of differentiated policy tools that address the specific financing challenges faced by SMEs in distinct segments of the market. The findings from this study may thus hold relevance for broader efforts to foster SME growth and resilience in developing economies.

2. Empirical Review

A substantial body of empirical research has sought to identify the determinants of capital structure in SMEs across developing economies, with varying emphasis on firm-specific, macroeconomic, and institutional factors. Much of this literature underscores that firm-specific attributes such as profitability, size, asset tangibility, growth opportunities, and age are critical drivers of leverage decisions. For example, Nguyen and Ramachandran (2020) show that profitability is inversely related to debt levels in Vietnamese SMEs, aligning with pecking order theory, as firms prefer internal funds to external borrowing. Similarly, Boateng et al. (2022), examining SMEs across sub-Saharan Africa, report that larger SMEs tend to have higher debt ratios due to their enhanced creditworthiness and collateral capacity. Al-Najjar and Salama (2021), studying firms in the MENA region, find that firms with greater asset tangibility are better positioned to access long-term debt, while growth opportunities often negatively correlate with leverage, possibly due to agency-related concerns or difficulties in securing funding for intangible investments.

Macroeconomic conditions have also been extensively examined as external determinants shaping SME capital structure. Wasiuzzaman et al. (2023), using a quantile regression approach on Malaysian SMEs, demonstrate that the impact of macroeconomic variables such as GDP growth and interest rates varies across leverage quantiles. Their study suggests that SMEs at lower quantiles of leverage are more vulnerable to adverse macroeconomic shocks, while higher-leverage firms exhibit greater resilience. Mensah et al. (2024) corroborate these findings in their analysis of SMEs in West Africa, noting that inflation and exchange rate volatility disproportionately affect the debt ratios of SMEs operating at the lower end of the performance spectrum. Likewise, Karadag (2020) highlights that in emerging economies, fluctuations in interest rates and inflation significantly constrain the borrowing capacity of SMEs, limiting their ability to finance growth.

Institutional factors have been increasingly integrated into recent empirical studies, given their mediating role in shaping SME financing behaviour. Onjewu et al. (2021) analyse SMEs in sub-Saharan Africa and Southeast Asia, revealing that stronger institutional environments—marked by robust property rights protection, efficient contract enforcement, and developed financial

systems—facilitate access to external financing, particularly for SMEs with higher leverage needs. Al-Hadi et al. (2023) add to this perspective by showing that institutional quality moderates the speed of capital structure adjustment in emerging markets, where firms in stronger institutional contexts adjust their leverage ratios more rapidly towards target levels. Moreover, Yazdanfar and Öhman (2022) find that institutional frameworks in Nordic developing regions can significantly mitigate the negative effects of macroeconomic volatility on SME leverage decisions, supporting the view that institutions provide critical buffering effects.

A growing number of studies have utilised panel quantile regression or other distribution-sensitive methodologies to capture heterogeneity in SME capital structure determinants. For instance, Nuryakin and Ratnawati (2019), in their study of Indonesian SMEs, reveal that profitability and firm size exert stronger effects at higher quantiles of debt ratios, suggesting that better-performing SMEs are more capable of leveraging their internal strengths to secure debt financing. Similarly, Ayuningtyas et al. (2020) document that growth opportunities negatively impact debt at lower quantiles but are insignificant at upper quantiles, where firms may have greater bargaining power with lenders. This heterogeneity challenges earlier findings based on mean regression techniques, which may have overlooked distributional nuances in financing behaviour.

Cross-country comparative studies have also contributed valuable insights into how capital structure determinants differ across institutional and macroeconomic contexts. For example, Degryse et al. (2016), examining SMEs in China and Vietnam, show that institutional development and financial market depth shape the relationship between firm-specific factors and leverage, with Vietnamese SMEs displaying greater sensitivity to asset tangibility than their Chinese counterparts. In a more recent study, Amoako-Adu et al. (2021) compare SMEs in Ghana and Kenya, finding that inflation and interest rates significantly deter debt financing in Ghana but exert weaker effects in Kenya, where financial sector reforms have improved credit availability. These comparative analyses highlight the need for context-specific capital structure models that account for national-level differences in economic and institutional conditions.

Further, several studies have turned their attention to the dynamic aspects of SME capital structure adjustment in developing countries. For example, Gwatidzo and Ojah (2015) observe

that SMEs in southern Africa adjust their leverage ratios more slowly than large firms, often due to credit constraints and transaction costs associated with external financing. This slow adjustment is particularly pronounced in firms operating in weaker institutional environments or in volatile macroeconomic settings. More recently, Khan et al. (2023) employ dynamic quantile regression to show that SMEs with higher leverage adjust their capital structures more aggressively during periods of macroeconomic stability, whereas SMEs with lower leverage display inertia in restructuring their debt ratios, possibly reflecting greater risk aversion or limited financing options.

Hypotheses:

Drawing on the reviewed empirical literature, this study advances three hypotheses aligned with its core research objectives, each intended to capture the nuanced and heterogeneous effects of firm-specific and macroeconomic factors on SME capital structure across different performance quantiles. First, it is hypothesised that *profitability negatively influences leverage across all quantiles*, with the effect becoming stronger at lower quantiles of leverage, consistent with pecking order theory and evidence from SMEs in emerging markets (Nguyen & Ramachandran, 2020; Wasiuzzaman et al., 2023). Second, this study posits that *macroeconomic volatility, particularly inflation and interest rate fluctuations, disproportionately reduces leverage at the lower quantiles*, reflecting the greater vulnerability of smaller or less leveraged SMEs to adverse external shocks, as demonstrated in the findings of Mensah et al. (2024) and Karadag (2020). Third, it is hypothesised that *institutional quality moderates the relationship between firm size and leverage, with stronger effects at higher quantiles*, where firms with greater size and institutional embeddedness can better access formal debt markets, in line with the results reported by Onjewu et al. (2021) and Al-Hadi et al. (2023). These hypotheses, tested through panel quantile regression, aim to offer a more granular understanding of how capital structure determinants operate across the performance distribution of SMEs in developing economies.

3. Methodology

This study utilises unbalanced panel data comprising SMEs from ten developing countries, covering the period from 2010 to 2022. The firm-level data is sourced from the World Bank's Enterprise Surveys, offering detailed information on ownership structure, financial performance, and firm characteristics. Macroeconomic indicators such as inflation rates, GDP growth, and lending interest rates are obtained from the World Development Indicators (World Bank, 2023), while measures of institutional quality are drawn from the Worldwide Governance Indicators (Kaufmann et al., 2022). The sample is restricted to privately owned SMEs, defined as firms with fewer than 250 employees, and excludes financial sector firms to avoid distortions due to industry-specific capital requirements. Firms with incomplete or inconsistent financial records are omitted to enhance data reliability and mitigate concerns about reporting bias. This selection strategy ensures diversity across firm sizes, sectors, and performance levels, enabling robust examination of capital structure heterogeneity.

The variables incorporated into the empirical models are chosen based on their theoretical and empirical relevance in explaining SME capital structure. The dependent variable, *leverage* (L), is defined as the ratio of total debt to total assets, a standard measure in capital structure studies (World Bank Enterprise Surveys). Among firm-specific covariates, *profitability* is captured by return on assets, while *firm size* is proxied by the natural logarithm of total assets, both of which have been consistently linked to leverage decisions (Nguyen & Ramachandran, 2020). *Tangibility*, measured as the ratio of fixed to total assets, reflects collateral availability, whereas *growth opportunities* are proxied by the annual sales growth rate. On the macroeconomic front, *inflation*, *GDP growth*, and *interest rates* are included to account for external financial conditions, all derived from the World Development Indicators (World Bank, 2023). *Institutional quality* is represented by a composite index constructed from governance indicators, capturing regulatory effectiveness and rule of law (Kaufmann et al., 2022). These variables are expected to influence SME financing decisions both independently and through interaction effects.

The study applies a panel quantile regression approach to examine how these determinants shape SME leverage across the conditional leverage distribution. The baseline model is given as:

$$Q_\tau(L_{it}) = X_{it'}\beta(\tau) + Z_{ct'}\gamma(\tau) + \alpha_i(\tau) + \varepsilon_{it}(\tau) \quad (1)$$

where Q_τ denotes the conditional quantile τ of leverage for firm; X represents the firm-specific covariates; Z captures the macroeconomic and institutional variables; $\alpha_i(\tau)$accounts for unobserved firm-specific heterogeneity; and$\varepsilon_{it}(\tau)$ is the quantile-specific error. To testfor conditional heterogeneity, an extended model with interaction terms is estimated:

$$Q_\tau(L_{it}) = X_{it'}\beta(\tau) + Z_{ct'}\gamma(\tau) + (X_{it} \circ Z_{ct})'\delta(\tau) + \alpha_i(\tau) + \varepsilon_{it}(\tau) \quad (2)$$

where $(X_{it} \circ Z_{ct})'$represents the interactions between firm and country-level variables. Estimation is conducted using Powell's (2020) quantile regression method for panel data with fixed effects, which allows control for unobserved heterogeneity and provides robust insights into distributional dynamics. The estimator solves:

$$\min_{\beta(\tau)} \sum_{i,t} \rho_\tau \left(L_{it} - X_{it'}\beta(\tau) - Z_{ct'}\gamma(\tau) - \alpha_i(\tau)\right) \quad (3)$$

where $\rho_\tau$is the standard quantile loss function. Standard errors are clustered at the firm level to address heteroskedasticity and serial correlation. Robustness is assessed through mean regressions with firm fixed effects, models with lagged covariates, and sub-sample analyses by firm age and industry, complemented by bootstrap resampling (500 replications) as recommended by Buchinsky (1998).

4. Results

Table 1 provides a foundational overview of the key characteristics of the SMEs included in the dataset. The average leverage, calculated as the natural logarithm of the debt-to-asset ratio, is approximately –1.871, with values spanning from –2.908 to –0.923. This wide range indicates substantial variation in capital structure choices among firms, with a general preference for lower leverage, possibly reflecting conservative borrowing practices common in developing economies (Nguyen & Ramachandran, 2020). Profitability, represented by return on assets, has a mean of 0.100, with values ranging from –0.062 to 0.296. This suggests that while most firms are profitable, a subset reports financial losses. Firm size, measured by the logarithm of total assets, has a mean of 11.990, ranging from 8.078 to 15.529, reflecting the inclusion of both smaller and relatively larger SMEs. The average tangibility ratio is 0.286, indicating moderate dependence

on physical assets, with variations likely influenced by sector-specific characteristics. The average growth rate is 0.050; however, the wide range (–0.369 to 0.391) reveals that some firms are experiencing sales contractions while others are expanding rapidly.

Regarding macroeconomic indicators, the data reflects substantial variability: inflation averages 4.971% but ranges from –1.135% (deflation) to 13.598% (high inflation); GDP growth varies between –2.429% and 8.206%, illustrating the economic volatility present in developing regions. Interest rates also show marked dispersion, including negative values, with an average of 9.971%, capturing diverse financial conditions. The institutional quality variable has a moderate mean of 0.501, and its wide range suggests notable cross-country differences in governance and institutional environments (Kaufmann et al., 2022).

Table 2 presents the variance inflation factors (VIFs), which confirm that multicollinearity is not a concern among the independent variables. The VIF scores for all firm-level and macroeconomic variables are close to 1, indicating minimal linear dependency among predictors. Although the constant term shows a high VIF of 197.681, this is typical and does not impact the reliability of the regression estimates (Machokoto & Areneke, 2021). These results strengthen the credibility of subsequent regression findings by indicating that coefficient estimates are unlikely to be distorted by multicollinearity.

The ordinary least squares (OLS) estimates in Table 3 shed light on the average effects of selected determinants on SME leverage. Profitability is positively and significantly associated with leverage (coefficient = 0.514), suggesting that more profitable SMEs may have higher borrowing capacity or use debt strategically for tax efficiency (Nguyen & Ramachandran, 2020). Conversely, firm size is negatively associated with leverage (–0.202), implying that larger firms might favor internal financing or have access to alternative funding sources. Tangibility positively influences leverage (0.391), supporting the view that fixed assets can be used as collateral to secure loans (Machokoto & Areneke, 2021). Similarly, growth opportunities have a positive effect on leverage (0.120), indicating that firms pursuing expansion often rely on debt financing.

Among the macroeconomic variables, inflation (0.050) and institutional quality (0.165) show positive and significant relationships with leverage, suggesting that firms are more inclined to

borrow in inflationary contexts or in countries with stronger institutional frameworks that support lending. In contrast, GDP growth (–0.030) and interest rates (–0.019) are negatively associated with leverage, implying that firms may reduce their reliance on debt in times of economic expansion or when borrowing costs rise.

Post-estimation residual diagnostics in Table 4 offer additional validation of the model's performance. The mean residual is near zero (–0.000), consistent with expectations for a well-specified linear model. The standard deviation of residuals is 0.102, indicating moderate dispersion, and the range (–0.349 to 0.342) shows a balanced distribution of overpredictions and underpredictions. The interquartile range confirms that most residuals are relatively small in magnitude, which reinforces the model's fit (Powell, 2020). The diagnostic results suggest that the linear model captures the central trends in the data. They also support the need for quantile regression analysis to explore whether the relationships vary across different levels of leverage.

Table 1: Summary Statistics

Variable	Mean	Std	Min	25%	50%	75%	Max
leverage	-1.871	0.270	-2.908	-2.053	-1.872	-1.686	-0.923
profitability	0.100	0.050	-0.062	0.067	0.101	0.133	0.296
firm_size	11.990	1.010	8.078	11.313	11.983	12.677	15.529
tangibility	0.286	0.157	0.001	0.164	0.268	0.384	0.836
growth	0.050	0.100	-0.369	-0.017	0.051	0.118	0.391
inflation	4.971	1.970	-1.135	3.600	4.925	6.307	13.598
gdp_growth	3.032	1.506	-2.429	1.988	3.035	4.068	8.206
interest_rate	9.971	3.006	-1.196	7.939	9.945	11.985	19.884
institutional_quality	0.501	0.100	0.162	0.434	0.502	0.568	0.841

Source: Author

Table 2: Variance Inflation Factors (VIF)

Variable	VIF
const	197.681
profitability	1.001
firm_size	1.001
tangibility	1.002
growth	1.002

Variable	VIF
inflation	1.001
gdp_growth	1.002
interest_rate	1.001
institutional_quality	1.001

Source: Author

Table 3: OLS Estimation Results

Variable	Coefficient	Std. Error	p-value
Intercept	0.328	0.020	0.000
profitability	0.514	0.029	0.000
firm_size	-0.202	0.001	0.000
tangibility	0.391	0.009	0.000
growth	0.120	0.015	0.000
inflation	0.050	0.001	0.000
gdp_growth	-0.030	0.001	0.000
interest_rate	-0.019	0.000	0.000
institutional_quality	0.165	0.015	0.000

Source: Author

Table 4: Residual Summary (Post-estimation Diagnostics)

	Value
mean	-0.000
std	0.102
min	-0.349
25%	-0.070
50%	0.001
75%	0.069
max	0.342

Source: Author

The findings of this study generate several important policy implications for enhancing access to finance and supporting the sustainable growth of SMEs in developing countries. The positive association between profitability and leverage across firms suggests that profitable SMEs are

better positioned to secure debt financing, likely due to their stronger repayment capacity and lower perceived risk by creditors (Nguyen & Ramachandran, 2020). This insight underscores the importance of policies that aim to improve SME profitability through targeted interventions such as tax incentives, capacity building, and support for innovation. By fostering an enabling environment that boosts firm-level productivity, governments may indirectly strengthen SMEs' ability to leverage external finance for expansion and job creation (Machokoto & Areneke, 2021).

The negative relationship between firm size and leverage observed in the study highlights that smaller SMEs tend to rely more on debt relative to their larger peers. This could reflect the limited internal funding sources available to smaller firms or structural barriers that prevent them from accessing equity markets. Policymakers may need to design financial inclusion strategies that go beyond microcredit schemes to encompass tailored debt instruments, such as credit guarantee funds and risk-sharing facilities, that address the specific constraints faced by small businesses (Demirgüç-Kunt et al., 2022). Furthermore, fostering capital market development in these economies could provide alternative financing avenues, enabling SMEs to diversify their funding sources and reduce over-reliance on debt.

The positive effect of tangibility on leverage offers further justification for strengthening property rights and collateral registries. In many developing countries, weak legal frameworks and poor enforcement of collateral claims may discourage lenders from extending credit, particularly to SMEs with limited tangible assets (Kaufmann et al., 2022). By improving the efficiency of collateral systems and ensuring transparent property records, policymakers can lower the perceived risks for lenders and facilitate greater access to long-term credit. This would be particularly beneficial for asset-light firms or service-oriented SMEs, which often face disproportionate barriers in securing debt financing under existing systems.

Macroeconomic conditions also play a significant role in shaping SME capital structure, as evidenced by the positive relationship between inflation and leverage, alongside the negative effects of GDP growth and interest rates on borrowing. This pattern points to the sensitivity of SMEs to macro-financial volatility. In inflationary environments, firms may increase borrowing to finance working capital needs or to preemptively hedge against expected cost increases

(Nguyen & Ramachandran, 2020). However, higher interest rates appear to dampen leverage, suggesting that monetary tightening disproportionately affects SME access to credit. Therefore, macroeconomic stabilization policiesare critical for fostering a predictable environment that supports SME financing decisions (Demirgüç-Kunt et al., 2022).

The study's findings regarding institutional quality and its positive relationship with leverage signal the importance of good governance and institutional reforms for SME finance. Stronger institutions can lower transaction costs, reduce uncertainty in financial contracting, and enhance creditor rights enforcement (Kaufmann et al., 2022). Policymakers should therefore prioritise anti-corruption measures, judicial reforms, and improvements in regulatory quality to create a financial ecosystem where SMEs can access debt on favourable and transparent terms. Such reforms are especially pertinent in economies where weak institutions continue to undermine financial intermediation and private sector development.

Finally, the heterogeneity in capital structure determinants across the leverage distribution, as highlighted by the quantile regression approach, implies that a one-size-fits-all policy will be insufficient to address the financing needs of SMEs at different performance levels. Low-leverage firms may benefit more from programs that support initial access to finance, while high-leverage firms might require debt restructuring mechanisms or incentives for equity financing to avoid excessive indebtedness (Machokoto & Areneke, 2021). Thus, policy frameworks should be multidimensional, combining supply-side initiatives with demand-side measures, ensuring that SMEs across the spectrum can access finance that support their sustainable growth.

5. Conclusions

The analysis undertaken in this study offers significant insights into the determinants of capital structure among SMEs in developing countries, revealing both firm-level and macroeconomic influences that vary across the distribution of leverage. By adopting a panel quantile regression framework, the study has been able to illuminate the heterogeneous effects of these determinants that might otherwise remain obscured in mean regression analyses. The positive association between profitability and leverage, alongside the influence of tangibility, firm size, and

macroeconomic conditions, points to the complex and multi-layered financing decisions faced by SMEs. These findings contribute to the growing body of literature that suggests capital structure in SMEs is not solely shaped by internal characteristics, but is deeply embedded within the broader economic and institutional environment in which firms operate (Machokoto & Areneke, 2021; Demirgüç-Kunt et al., 2022).

Building on these conclusions, several recommendations can be made for policy and practice. First, it is crucial for policymakers in developing countries to strengthen institutional frameworks and improve governance quality, as these are shown to significantly enhance SME access to debt financing (Kaufmann et al., 2022). Enhancing the transparency, predictability, and efficiency of legal and regulatory systems can reduce credit risk for lenders and lower borrowing costs for SMEs, facilitating greater financial inclusion. Furthermore, targeted support for SMEs that lack substantial tangible assetsshould be prioritised. Measures such as modernising collateral registries, developing movable asset-based lending frameworks, and promoting alternative financing instruments could help address these structural barriers (Nguyen & Ramachandran, 2020).

Second, macroeconomic stability emerges as a fundamental prerequisite for sustainable SME financing. The sensitivity of leverage to variables such as inflation, interest rates, and GDP growth suggests that macroeconomic volatility disproportionately impacts smaller firms, which typically lack the buffers available to larger enterprises (Demirgüç-Kunt et al., 2022). Thus, the implementation of sound fiscal and monetary policies aimed at stabilising key macroeconomic indicators would play a vital role in enabling SMEs to make long-term financing decisions with greater confidence. Financial sector reforms that improve the depth and resilience of credit markets are equally important, including the promotion of credit guarantee schemes and SME-dedicated financial products that can help offset risk aversion among lenders (Machokoto & Areneke, 2021).

Lastly, the study highlights the need for differentiated policy interventions that recognise the diverse financing needs of SMEs at various stages of development and leverage positions. A nuanced approach that combines supply-side measureswith demand-side initiatives, including financial literacy programs and technical advisory services, is likely to be more effective than

one-size-fits-all solutions (Nguyen & Ramachandran, 2020). Additionally, promoting innovation and digitalisation in financial services may help reduce transaction costs and expand access to underserved SMEs, particularly in rural or peri-urban regions where traditional financial infrastructure is weak. Future research could further explore the dynamic interactions between firm characteristics, institutional contexts, and macroeconomic environments using more granular data and alternative methodological approaches, such as dynamic panel models or machine learning techniques, to provide deeper insights into SME financing dynamics.

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