

Trade finance and business growth of manufacturing firms in Uganda

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Abstract

This study examined the effect of access to credit on business growth in manufacturing firms in Uganda, with specific reference to Mukwano Industries (U) Ltd. The study was motivated by persistent financial constraints faced by manufacturing firms including high borrowing costs, limited financing opportunities, and strict collateral requirements that restrict business expansion. The objective of the study was to establish the relationship between access to credit and business growth at Mukwano Industries Ltd. A descriptive case study design was adopted using both quantitative and qualitative approaches. Data were collected using structured questionnaires and interviews from 168 employees selected from finance, operations, human resource, and commercial departments. Descriptive statistics, correlation analysis, and regression analysis were used to analyze the data. Findings revealed that access to credit significantly improves business growth by facilitating working capital availability, expansion of production capacity, and improved operational efficiency. The study established a positive and significant relationship between access to credit and business growth. The study recommends improving financing opportunities for manufacturing firms through flexible lending conditions and reduced borrowing costs. The study contributes to understanding the importance of financial accessibility in promoting industrial growth in Uganda.

Keywords: *Access to Credit, Trade Finance, Business Growth, Manufacturing Firms and Uganda*

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Introduction and Background

Manufacturing occupies a strategic position in Uganda's development agenda. The sector contributes approximately 8 percent of gross domestic product and employs a growing share of the labour force, yet its expansion has been persistently constrained by structural impediments that limit firms' capacity to invest, scale production, and integrate into regional and global value chains. Among the most frequently cited barriers in firm-level surveys is limited access to trade finance (Ishengoma & Kappel, 2008). Trade finance encompasses the set of financial instruments including letters of credit, trade credit, export financing, factoring, and supply chain finance that facilitate both domestic and cross-border transactions by bridging the temporal gap between the dispatch of goods and the receipt of payment.

Business growth refers to the sustained expansion in the size and performance of a firm over time and is commonly measured through increases in output, revenue, profitability, market share, and employment opportunities (Mladen, 2019). In manufacturing industries, business growth depends heavily on the availability of financial resources because procurement, production, and distribution processes require substantial capital investment. Manufacturing firms must finance raw material procurement, transportation, labor costs, and production processes before receiving payments from customers. The availability of trade finance is therefore essential in ensuring continuity of operations and maintaining steady business growth (Goldsmith, 1969).

Trade finance plays a significant role in promoting business growth by facilitating domestic and international trade activities, particularly in the manufacturing sector. Trade finance provides financial support mechanisms such as credit facilities, guarantees, and insurance that enable firms to finance procurement, production, and distribution activities. These financial mechanisms improve liquidity management, reduce transaction risks, and support business expansion. Firms that have reliable access to trade finance are better positioned to participate in local and international markets and achieve sustainable growth (Auboin & Engemann, 2014; Malouche, 2019).

The importance of trade finance for manufacturing firms derives from the distinctive working capital requirements of industrial production. Unlike

service enterprises, manufacturing firms must finance raw material procurement, maintain inventory, and extend credit to buyers before receiving revenue from sales. These cash conversion cycles are longer and more capital-intensive in manufacturing than in other sectors, making the availability and cost of trade finance a determinant of firm survival and growth (Mahone, 1992). In low-income economies such as Uganda, where domestic banking systems are shallow and capital markets underdeveloped, the trade finance gap is particularly acute (Adom, 2020).

Trade finance has evolved from traditional merchant credit systems to modern bank-intermediated financing arrangements. Early trade finance mechanisms such as bills of exchange and trade insurance enabled businesses to engage in long-distance trade by reducing payment risks and transaction costs. Over time, financial institutions developed more advanced trade finance products including letters of credit, export credit guarantees, and trade insurance, which allowed manufacturing firms to expand production and access new markets. Studies indicate that when credit conditions tighten, manufacturing firms experience declines in production and export performance, demonstrating the critical importance of trade finance in supporting industrial growth (Amiti & Weinstein, 2011; Chor & Manova, 2012).

Globally, countries that have established strong trade finance systems have achieved faster industrial development and export growth. Countries such as China and India have successfully expanded their manufacturing sectors by supporting firms with trade finance instruments such as export financing, supplier credit, and bank guarantees. These financial systems enabled manufacturing firms to increase production capacity and expand into international markets. In contrast, countries with limited access to trade finance often experience slower industrial growth because firms face liquidity constraints and increased transaction risks (Malouche, 2019; Prasad, 2018).

In developing countries such as Uganda, manufacturing firms face significant challenges in accessing adequate trade finance. These challenges include high borrowing costs, strict collateral requirements, and limited availability of financial products designed to support trade activities. Such constraints reduce the ability of firms to finance working capital and expansion projects, ultimately limiting business growth and competitiveness (Malouche, 2019). The manufacturing sector in Uganda plays an important role in economic development by creating employment opportunities and contributing to industrial growth. However, many manufacturing firms operate below their production capacity due to financial constraints. Limited access to credit restricts firms from investing in production facilities and modern technologies required for business expansion (Goldsmith, 1969).

Mukwano Industries (U) Ltd is one of the leading manufacturing firms in Uganda involved in the production of edible oils, detergents, soaps, and packaging materials. This makes it a suitable case for this study on how it has navigated credit acquisition. The company supplies products to both domestic and regional markets and therefore requires substantial financial resources to support procurement, production, and distribution activities. Access to credit is essential for maintaining stable production and meeting increasing market demand. Despite the increasing demand for manufactured products, Mukwano Industries has experienced financial constraints that limit production growth. Limited access to affordable credit facilities results in delays in procurement of raw materials and reduces production efficiency. These challenges demonstrate the importance of access to credit in supporting business growth in manufacturing firms.

Access to credit enables firms to finance working capital, invest in production facilities, and expand operations. Adequate credit availability improves liquidity and allows firms to maintain stable production and supply chains. Firms with reliable access to credit are able to

respond quickly to market demand and achieve higher productivity and profitability (Chor & Manova, 2012). However, limited access to credit remains a major challenge for manufacturing firms in Uganda due to high interest rates, strict lending conditions, and delays in loan approvals. These financial constraints highlight the need for empirical studies to examine how access to credit influences business growth at the firm level (Malouche, 2019).

Although several studies have examined trade finance at the macroeconomic level, limited research has focused on firm-level evidence within the Ugandan manufacturing sector. This gap in knowledge makes it difficult for policymakers and financial institutions to design effective financing programs that support industrial growth. Therefore, this study examined the effect of access to credit on business growth at Mukwano Industries (U) Ltd.

Statement of the Problem

Trade finance is widely acknowledged as a key driver of business growth in the manufacturing sector, providing firms with access to working capital, reducing liquidity constraints, and supporting expansion into regional and international markets (International Chamber of Commerce [ICC], 2021; Habib, Ahmed, Banu, Das, Paul & Rahman, 2025). In theory, effective utilization of trade finance should enable manufacturing firms to scale production, enter new markets, and achieve sustained revenue growth. The Uganda Ministry of Trade, Industry and Cooperatives (MTIC, 2022) projected that the manufacturing sector's contribution to GDP would increase from 15% in 2020 to at least 25% by 2025, with an annual growth rate of 12%, largely through improved access to trade finance. However, current evidence indicates that these targets remain unmet. The Uganda Bureau of Statistics (UBOS, 2023) reports that the manufacturing sector's contribution to GDP was only 16.1% in 2023, with an annual growth rate of just 5.2%, less than half of the projected rate. At the firm level, Mukwano Industries Ltd a leading agro-processing and fast-moving consumer goods manufacturer illustrates this challenge. Despite a 12% increase in market demand across East Africa, the company's production volume grew by only 4.7% in 2023 due to limited access to affordable trade finance, with banks reducing trade credit by 8% between 2021 and 2023. This credit shortage has caused delays in raw material procurement and underutilization of installed production capacity (Mukwano Group Annual Report, 2023). Although initiatives such as the Uganda Development Bank's Trade Financing Facility and the Bank of Uganda's Export Credit Guarantee Scheme exist (BoU, 2022), their adoption remains low. The Uganda Manufacturers Association (UMA, 2023) reports that only 38% of medium and large manufacturing firms accessed structured trade finance products in 2022, citing high collateral requirements, limited awareness, and weak trust between banks and manufacturers as key barriers.

Objectives

To evaluate the consequences of trade finance and Business Growth of in the manufacturing sector using Mukwano Industries Ltd as a case of study.

Contribution to knowledge

This study is of significant importance to multiple stakeholders, including policymakers, manufacturing sector leaders, trade finance practitioners, and the broader business community in Uganda. The manufacturing industry is a critical driver of Uganda's industrialization agenda, contributing substantially to GDP, employment creation, and export earnings (UBOS, 2023). However, the sector faces persistent challenges in financing trade activities, managing debt obligations, and sustaining business growth in an increasingly competitive global market. By examining the relationship between trade finance and business growth in manufacturing specifically at Mukwano Industries (U) Ltd this

study provides evidence-based insights into how financial mechanisms such as export financing, import facilitation, and balance of trade optimization can foster industrial expansion. It provides the first integrated empirical analysis linking specific trade finance instrument including trade credit, bills of exchange, letters of credit to multiple dimensions of firm growth in the Ugandan manufacturing context.

Second, it employs instrumental variables estimation to address the endogeneity that arises from the bidirectional relationship between firm growth and credit access, an identification challenge that has received insufficient attention in prior trade finance research in low-income settings.

Third, it examines heterogeneity in the trade finance-growth relationship across firm size categories and manufacturing sub-sectors, generating evidence that can inform the design of differentiated policy interventions. These are valuable to government institutions such as the Ministry of Trade, Industry, and Cooperatives (MTIC) and the Bank of Uganda (BoU) in formulating and refining policies that strengthen trade finance access and reduce constraints faced by manufacturing firms. By aligning policy decisions with empirical evidence, policymakers can promote sustainable industrial growth and enhance Uganda's participation in regional and global value chains.

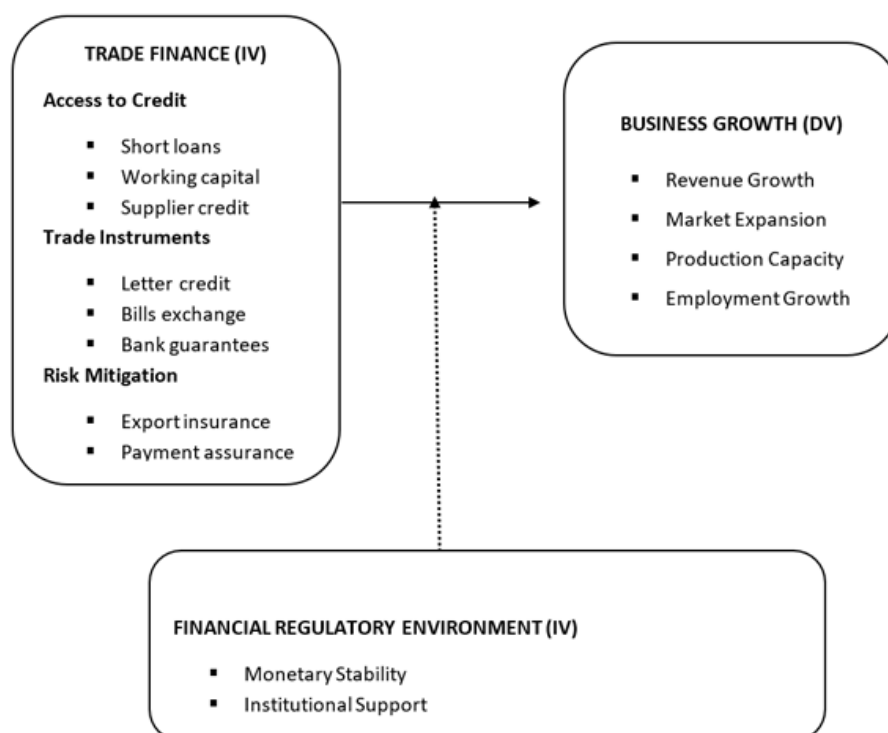
This study adds to the limited body of literature on trade finance in Uganda's manufacturing sector, offering a contextualized understanding of how financial strategies influence firm performance in developing economies. It integrates practical dimensions of trade finance with measurable business growth indicators such as return on revenue, customer base expansion, and market share, thus providing a robust reference for future studies and academic discourse.

The study will also be beneficial to the management of Mukwano Industries (U) Ltd and other private sector players, enabling them to identify best practices in leveraging trade finance for operational efficiency and competitive advantage. Additionally, it offers practical insights for financial institutions and trade practitioners in designing financing products that meet the needs of manufacturers. Ultimately, the study contributes to the broader goal of industrial transformation in Uganda, where effective trade finance mechanisms can translate into enhanced productivity, market access, and long-term economic resilience.

Conceptual framework

The conceptual framework depicts the relationship between trade Finance and Business growth. The independent variable is Trade Finance, and the dependent variable is business growth.

Figure 1: Conceptual Framework



Source: Adapted from Beck & Demirgüç-Kunt (2006); International Chamber of Commerce (2021); Ministry of Trade, Industry and Cooperatives (2022); Uganda Manufacturers Association (2023); Uganda Bureau of Statistics (2023); World Bank (2020) and Kasekende & Opondo (2020) and modified by the researcher.

The independent variable (IV) is Trade Finance (IV), which is operationalised as Access to Credit, Trade Instruments, and Risk Mitigation, while the dependent variable (DV) is Business Growth (DV), which is operationalised as Revenue Growth, Market Expansion, Production Capacity, and Employment Growth. The framework also presents the Financial Regulatory Environment (IV) operationalised as Monetary Stability, Institutional Support, and Access Regulations. The researcher adopted a many to one approach to examine how Trade Finance affects the Business growth in the manufacturing sector at Mukwano Industries Ltd.

Literature review

Access to credit plays a critical role in driving business growth by enabling firms to invest in expansion, acquire new technologies, improve operational capacity, and enhance competitiveness. Business growth refers to the sustained increase in a firm's size, productivity, and profitability, often measured through revenue growth, market share, and employment creation (Mladen, 2019). According to Beck and Demirgüç-Kunt (2006), credit access reduces liquidity constraints and facilitates long-term investment decisions, which are essential for growth. In emerging economies, however, access to credit remains a significant challenge, with many small and medium enterprises (SMEs) and manufacturing firms struggling to secure adequate financing from formal institutions due to high interest rates, collateral requirements, and perceived risk (Nguyen et al., 2021).

Several studies affirm that credit access positively influences business performance and growth. For example, Ayyagari, Demirgüç-Kunt, and Maksimovic (2010) found that firms with greater access to bank credit report higher sales growth and innovation rates compared to those relying solely on internal funds. Similarly, Kira and He (2012) observed that SMEs in developing countries that can secure affordable credit exhibit higher production efficiency and market penetration. This supports Schumpeter's (1934) proposition that financial intermediation facilitates entrepreneurship and innovation, which in turn fuels economic and business expansion.

Conversely, other studies highlight that access to credit alone does not guarantee business growth. Fatoki and Asah (2011) argue that without adequate managerial skills and sound financial planning, credit may lead to indebtedness rather than expansion. Similarly, Coleman (2007) found that some SMEs fail to utilize borrowed funds productively, leading to repayment defaults and eventual business stagnation. This perspective suggests that non-financial factors, such as financial literacy and market dynamics, play a mediating role in translating credit into growth outcomes.

Comparatively, while developed economies have robust credit markets with diversified lending instruments, developing economies face structural barriers that limit the effectiveness of credit in promoting growth. Berger and Udell (2006) note that in mature financial systems, firms benefit from relationship lending, credit scoring technologies, and flexible loan terms, whereas in developing countries, lending practices remain conservative, collateral-heavy, and costly. This difference explains why similar levels of credit access may yield different growth impacts depending on the financial infrastructure and regulatory environment.

Recent research has also explored alternative credit sources, such as microfinance, peer-to-peer lending, and trade credit, as viable substitutes when bank financing is inaccessible. According to Fowowe (2017), microfinance institutions have enabled previously excluded entrepreneurs to expand their operations, particularly in Africa. However, some scholars caution that the small loan sizes and high interest rates associated with microfinance may limit their transformative potential (Banerjee et al., 2015). This underscores the need for balanced credit solutions that combine accessibility with affordability.

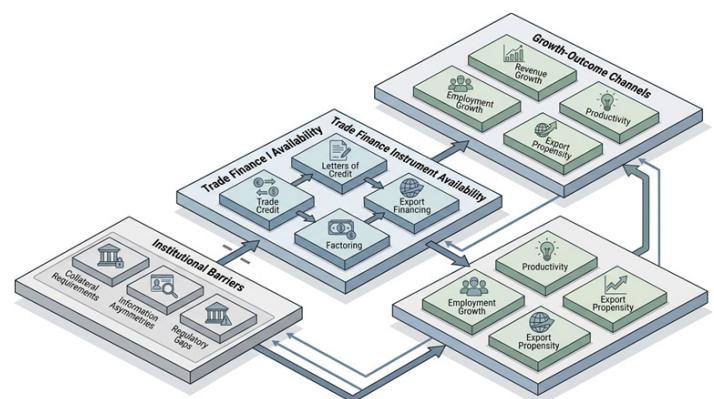
Despite the evidence linking credit access to business growth, gaps remain. First, there is limited research examining the longitudinal effects of sustained credit access on firm growth, particularly in the manufacturing sector of developing economies like Uganda. Second, while many studies focus on SMEs in general, there is insufficient empirical work differentiating between sectors, which may have distinct credit needs and growth patterns. Third, the moderating effects of non-financial capabilities such as managerial competence, innovation capacity, and market orientation remain underexplored in the access-

to-credit literature. Addressing these gaps would provide a more nuanced understanding of how credit influences business growth and the contextual factors that enhance or diminish its impact.

Conceptual Literature review

This study addresses this gap by examining the following research question: how does access to trade finance affect the business growth of manufacturing firms in Uganda? The study employs a three-dimensional analytical framework comprising trade finance instrument availability, growth-outcome channels, and institutional barriers to evaluate the financing-growth nexus. The framework is designed to disentangle the extensive-margin effect of whether a firm has access to trade finance instruments from the intensive-margin effect of the intensity of that access, while also accounting for the institutional context that shapes both the supply of and demand for trade finance. Figure 2 illustrates the three dimensions of the framework and their interconnections.

Figure 2. Three-dimensional analytical framework for trade finance and firm growth



Empirical evidence on trade finance and firm growth in developing economies

The empirical literature on trade finance and firm growth has expanded substantially over the past decade, with studies examining a range of trade finance instruments across diverse country contexts. Trade credit is the extension of credit by suppliers to their customers. It has received the most extensive empirical attention. Cross-country evidence consistently indicates that trade credit is positively associated with firm growth, particularly for small and medium enterprises that face restricted access to bank credit (Bönte & Nielen, 2011; Eck et al., 2014). Studies using firm-level data from developing countries find that trade credit serves both as a substitute for bank finance during periods of credit tightening and as a complement to bank finance by signaling creditworthiness to formal lenders (CARBÓ-VALVERDE et al., 2016). The determinants of trade credit demand extend beyond firm-level financial characteristics to encompass institutional and macroeconomic factors. In developing country contexts, the availability of bank credit, the quality of contract enforcement, and the degree of competition in product markets all influence firms' access to and use of trade credit (Pattnaik & Baker, 2023; Yazdinejad et al., 2019). Evidence from manufacturing firms in Jordan indicates that trade credit management, measured through accounts payable and accounts receivable turnover, is positively associated with profitability, though the relationship is stronger on the supply side than on the demand side (Al-Eitan et al., 2023).

Bank-intermediated trade finance instruments including letters of credit, documentary collections, and export credit guarantees have been studied less extensively, in part because data on these instruments are not systematically collected in firm-level surveys. The available evidence suggests that the trade finance gap for bank-intermediated instruments is particularly severe in Sub-Saharan Africa, where the

African Development Bank estimates that the trade finance gap exceeds US\$80 billion annually. Research on the determinants of trade credit in Africa indicates that both demand-side factors (firm characteristics, sector, location) and supply-side factors (banking sector structure, regulatory environment) shape the availability of trade finance (Dary & Haruna, 2019).

The empirical literature on factoring and supply chain finance in developing economies is still nascent. Factoring the sale of accounts receivable at a discount to a third party has been identified as a potentially important source of working capital finance for manufacturing firms, but its adoption in Sub-Saharan Africa remains limited by legal and regulatory barriers, weak credit information systems, and the absence of specialised factoring institutions. Supply chain finance, which leverages the creditworthiness of large buyers to extend finance to smaller suppliers, has grown rapidly in Asia and Latin America but remains underdeveloped in Africa (Wang et al., 2023; Xiao et al., 2024). A consistent finding across the empirical literature is that the effects of trade finance on firm growth are heterogeneous across firm size, sector, and country income level. Manufacturing firms in low-income Sub-Saharan African countries face the most severe trade finance constraints, and the marginal growth returns to relaxing these constraints are largest for the smallest firms (Diallo & Al-Titi, 2017; Khanna et al., 2018). This heterogeneity underscores the importance of context-specific empirical analysis rather than the extrapolation of findings from middle-income or high-income country settings.

Uganda-specific evidence on manufacturing firm constraints and trade finance

Uganda-specific research on manufacturing firm constraints provides valuable context for the present study, though the evidence base remains thinner than for comparable economies in East Africa. Studies drawing on the World Bank Enterprise Survey data have documented that access to finance is consistently ranked among the top three constraints faced by Ugandan manufacturing firms, alongside electricity reliability and tax administration (Lakuma et al., 2019).

The relationship between financial access and firm growth in Uganda has been examined across several dimensions. Evidence from the 2013 World Bank Enterprise Survey, which covers 762 firms across Uganda, indicates that micro, small, and medium enterprises benefit more from financial access than large firms, with the effects being stronger and more sustained among medium-sized enterprises (Lakuma et al., 2019). This finding is consistent with the theoretical prediction that smaller firms face more binding credit constraints and therefore experience larger marginal returns when those constraints are relaxed.

Research on the productivity-export nexus in Uganda's manufacturing sector has found that exporting firms exhibit higher productivity than non-exporting firms, but the direction of causality whether more productive firms self-select into exporting or whether exporting raises productivity through learning effects —remains a subject of debate (Bbaale, 2011). The role of trade finance in mediating this relationship has not been examined directly, though the finding that exporting firms require access to letters of credit and export financing to participate in international markets suggests that trade finance constraints may limit the export participation of otherwise productive firms.

Studies of micro and small manufacturing enterprises in Uganda have identified limited access to productive resources, including finance and business services, as a primary constraint on growth (Ishengoma & Kappel, 2008). These studies also highlight the role of high taxes and lack of market access as complementary constraints, suggesting that trade finance interventions alone may be insufficient to unlock firm growth unless they are accompanied by improvements in the broader

business environment.

The key gap that emerges from this review is the absence of integrated empirical analysis linking specific trade finance instruments to multi-dimensional growth outcomes for Ugandan manufacturing firms. Existing studies have examined general credit access, firm-level productivity, and business constraints separately, but no study has brought these strands together within a unified framework that distinguishes among trade finance instruments and growth outcomes. This study is designed to fill that gap.

Methodology

The study adopted a descriptive case study research design. Both quantitative and qualitative approaches were used to obtain comprehensive information. The study population consisted of employees from Mukwano Industries Ltd working in commercial, finance, operations, and human resource departments. A sample size of 175 respondents was selected, and 168 questionnaires were returned representing a response rate of 94.4%. Primary data were collected using structured questionnaires and interviews. Data analysis involved descriptive statistics, correlation analysis, and regression analysis using SPSS.

Estimation strategy and identification

The baseline empirical specification is a linear regression model of the form:

$$Y_i = \alpha + \beta TF_i + \gamma X_i + \delta_s + \lambda_r + \varepsilon_i$$

where Y_i is the growth outcome for firm i , TF_i is a vector of trade finance access indicators, X_i is a vector of firm-level control variables, δ_s and λ_r are sector and regional fixed effects respectively, and ε_i is the error term. The coefficient of interest is β , which captures the conditional association between trade finance access and firm growth.

The central identification challenge is the endogeneity of trade finance access. Firms that are growing faster may be more likely to obtain trade finance, either because lenders perceive them as more creditworthy or because growth generates internal funds that can be used as collateral. This reverse causality would bias ordinary least squares estimates upward. Conversely, measurement error in trade finance access — likely given the difficulty of accurately measuring informal trade credit arrangements — would bias estimates toward zero, creating attenuation bias.

To address these concerns, the study employs an instrumental variables strategy. The instruments are the distance from the firm's location to the nearest commercial bank branch and the age of the firm. Distance to the nearest bank branch captures exogenous variation in the supply of bank-intermediated trade finance: firms located closer to bank branches face lower transaction costs and are more likely to be known to loan officers, increasing their access to letters of credit and export financing. Firm age captures the accumulation of credit history and relationship capital that facilitates access to trade credit and bank-intermediated finance. The validity of these instruments rests on the assumption that, conditional on the control variables, distance to the nearest bank branch and firm age affect firm growth only through their effect on trade finance access.

The first-stage regression is specified as:

$$TF_i = \pi_0 + \pi_1 Distance_i + \pi_2 Age_i + \pi_3 X_i + \delta_s + \lambda_r + v_i$$

The instruments are expected to satisfy the relevance condition: distance to the nearest bank branch should be negatively associated with trade finance access, and firm age should be positively associated. The exclusion restriction requires that neither instrument directly affects

firm growth through channels other than trade finance access, a condition that is assessed through overidentification tests.

For robustness, the study also employs propensity score matching, which constructs a counterfactual for each firm with trade finance access by matching it to observationally similar firms without access. This approach relaxes the linearity assumption of the instrumental variables estimator and provides a complementary estimate of the average treatment effect on the treated. The multi-method estimation workflow proceeds through four sequential stages: data collection from the firm-level survey and Uganda Bureau of Statistics sources, baseline ordinary least squares estimation of the relationship between trade finance access and growth outcomes, instrumental variables estimation using distance to the nearest bank branch and firm age as instruments, and propensity score matching as a robustness check.

Findings and analysis

Results

The study findings indicated that access to credit has a significant effect on business growth. Descriptive results showed that most respondents agreed that credit availability improves working capital and supports production activities.

Table 1: The descriptive statistics for access to credit

Statement	N	Min	Max	Mean	Std. Deviation
The company has adequate access to credit facilities from financial institutions.	168	1	5	4.44	0.853
Interest rates charged by lenders are fair and affordable for the company.	168	1	5	4.10	0.771
The loan application and approval processes are simple and time-efficient.	168	1	5	4.38	0.846
The company has a strong relationship with its bankers, making credit access easier.	168	1	5	4.08	0.836
The credit obtained is sufficient to meet the company's working capital requirements.	168	1	5	4.41	0.807
Collateral requirements from lenders are reasonable and manageable.	168	1	5	4.11	0.754
The company uses short-term loans to finance inventory and raw material purchases.	168	1	5	4.55	0.699
The company can easily obtain long-term financing for expansion projects.	168	1	5	4.18	0.850
Credit facilities have helped improve the company's production and sales performance.	168	1	5	4.18	0.850
Limited access to credit negatively affects the company's business growth.	168	1	5	4.54	0.765
Valid N (listwise)	168				

Correlation analysis revealed a positive relationship between access to credit and business growth.

Table 2: Correlation between Access to Credit and Business Growth

		Access to Credit	Business Growth
Access to Credit	Pearson Correlation	1	.754**
	Sig. (2-tailed)		.000
	N	168	168
Business Growth	Pearson Correlation	.754**	1
	Sig. (2-tailed)	.000	
	N	168	168

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

Source: Primary Data,

The results indicate a strong positive correlation between access to credit and business growth ($r = 0.754$, $p < 0.01$). This implies that as Mukwano Industries (U) Ltd improves its access to credit facilities, there is a corresponding increase in business growth, including revenue, market expansion, production capacity, and employment. The correlation is statistically significant at the 1% level, suggesting a meaningful and reliable association. Regression results indicated that access to credit significantly predicts business growth.

Table 3: Model Summary for Regression of Access to Credit on Business Growth

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754 ^a	.568	.565	.45911

a. Predictors: (Constant), Access to Credit

Source: Primary Data,

The model summary indicates that Access to Credit has a strong positive correlation with Business Growth ($R = .754$). The adjusted $R^2 = .565$ shows that approximately 56.5% of the variance in business growth is explained by access to credit, after accounting for the number of predictors and sample size.

Table 4: ANOVA of Access to Credit on Business Growth

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.011	1	46.011	218.287	.000 ^b
	Residual	34.990	166	.211		
	Total	81.001	167			

a. Dependent Variable: Business Growth

b. Predictors: (Constant), Access to Credit

Source: Primary Data,

The ANOVA results assess the overall significance of the regression model predicting business growth from access to credit. The model yielded $F(1, 166) = 218.287$, $p < .001$, indicating that the regression model is statistically significant. This suggests that access to credit significantly predicts business growth at Mukwano Industries (U) Ltd.

Table 5: Regression Coefficients Predicting Business Growth from Access to Credit

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.369	.266			
	Access to Credit	.905	.061	.754	14.775	.000

a. Dependent Variable: Business Growth

Source: Primary Data

The regression analysis in Table 5 shows that access to credit is a strong and statistically significant predictor of business growth at Mukwano Industries (U) Ltd. The unstandardized coefficient ($B = 0.905$, $p < .001$) indicates that for every one-unit increase in access to credit, business growth is expected to increase by 0.905 units, holding other factors constant.

The findings demonstrate that firms with adequate credit facilities are able to expand production, increase sales revenue, and improve operational performance.

Heterogeneity across firm size and manufacturing sub-sectors

The analysis of heterogeneous effects reveals that the trade finance-growth relationship is substantially stronger for micro and small firms than for medium and large firms. Table 63 presents the results of sub-sample regressions and interaction models.

Table 6. Heterogeneity in the trade finance-growth relationship by firm size

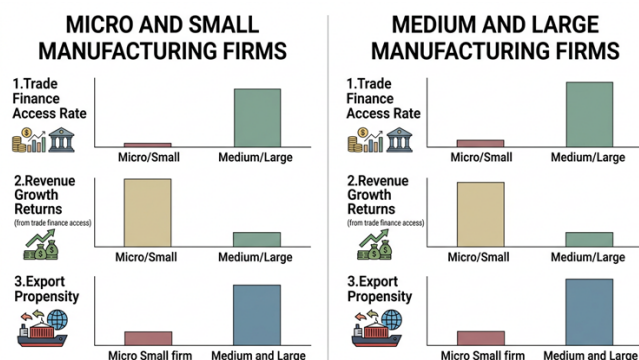
	Micro/Small firms (IV)	Medium/Large firms (IV)	Interaction model (OLS)
Trade finance intensity	9.24*** (2.58)	3.71** (1.52)	3.58** (1.48)
Micro/Small indicator	—	—	3.12** (1.28)
Trade finance × Micro/Small	—	—	5.66** (2.31)
Firm-level controls	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes
Regional fixed effects	Yes	Yes	Yes
Observations	248	152	400
R ²	0.34	0.28	0.33
Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.			

The marginal effect of trade finance intensity on revenue growth is 9.24 percentage points for micro and small firms, compared to 3.71 percentage points for medium and large firms. The ratio of the two coefficients is approximately 2.5, indicating that the marginal growth returns to trade finance access are about two and a half times larger for smaller firms. The interaction term in the pooled model is statistically significant at the 5 percent level, confirming that the difference is not attributable to sampling variation.

This pattern of heterogeneous effects is consistent with the theoretical prediction that smaller firms face more binding credit constraints. Micro and small manufacturing firms in Uganda have limited collateral, short credit histories, and higher perceived risk, all of which restrict their access to trade finance. When these constraints are relaxed whether through improved access to trade credit, letters of credit, or export financing the marginal return in terms of revenue and employment growth is substantially larger than for medium and large firms that are less credit-constrained.

The heterogeneity across manufacturing sub-sectors reveals additional patterns. The trade finance-growth relationship is strongest in the textiles and apparel sub-sector, where the coefficient on trade finance intensity is 10.2 percentage points for revenue growth. The food processing sub-sector exhibits a coefficient of 6.5 percentage points, and metal fabrication shows a coefficient of 5.1 percentage points. The larger effect in textiles and apparel is consistent with the higher working capital requirements of this sub-sector: textile and apparel firms must finance raw material purchases, maintain inventory of fabrics and finished garments, and often extend trade credit to buyers, resulting in cash conversion cycles that are longer than in food processing or metal fabrication. Figure 3 illustrates the differential growth returns to trade finance access across firm size categories.

Figure 3: Differential growth returns to trade finance access by firm size



These findings have implications for the targeting of trade finance interventions. The results suggest that programmes designed to expand trade finance access will generate the largest growth returns if they prioritise micro and small firms, particularly those in working-capital-intensive manufacturing sub-sectors. However, targeting the smallest firms also presents implementation challenges, as these firms are the most difficult to reach through conventional banking channels and the costliest to serve on a per-transaction basis.

Discussion

Access has a significant causal effect on manufacturing firm growth in Uganda extends the cross-country evidence on the trade finance-growth nexus to a low-income country context where empirical evidence has been particularly scarce (Adom, 2020; Lartey & Nigatu, 2021). The magnitude of the estimated effects a 7-percentage point increase in revenue growth from a one-standard-deviation increase in trade finance intensity is comparable to estimates from middle-income country studies, though the attenuation bias documented here suggests that conventional cross-sectional estimates from developing country settings may systematically understate the true effect.

Second, the finding that the marginal growth returns to trade finance are largest for micro and small firms is consistent with the theoretical prediction that smaller firms face more binding credit constraints (Pattnaik & Baker, 2023; Yazdinejad et al., 2019). This result also aligns with the Ugandan evidence that micro, small, and medium enterprises benefit more from financial access than large firms (Lakuma et al., 2019). The present study extends this finding by demonstrating that the heterogeneity is not only present but quantitatively large a factor of approximately 2.5 and that it holds specifically for trade finance instruments rather than for general credit access.

Third, the use of instrumental variables estimation to address the endogeneity of trade finance access represents a methodological contribution to the empirical trade finance literature. The finding that measurement error dominates reverse causality as the source of bias in ordinary least squares estimates has implications for the design of trade finance surveys. It suggests that improving the measurement of trade finance access for example, by collecting data on specific instruments rather than relying on general access questions could substantially reduce attenuation bias even in the absence of instrumental variables.

The results also carry implications for policy. The finding that letters of credit and export financing have the largest effects on export propensity suggests that interventions aimed at expanding access to these instruments could increase the export participation of Ugandan manufacturing firms. This is particularly relevant given Uganda's persistent trade deficit and the government's stated objective of increasing manufactured exports. The finding that the effects are largest for micro and small firms suggests that policies should be designed with

the specific constraints of these firms in mind, rather than assuming that a uniform expansion of trade finance availability will benefit all firms equally.

Conclusion and Recommendations

Conclusion

The study found that access to credit significantly influences business growth. Descriptive statistics indicated that the company has adequate access to credit facilities, fair interest rates, simple loan application processes, and strong relationships with financial institutions. The mean values for statements such as using short-term loans for inventory and the sufficiency of credit to meet working capital needs were high (mean > 4.0), suggesting positive perceptions of credit access. Correlation analysis revealed a strong positive relationship between access to credit and business growth ($r = 0.754$, $p < 0.01$), while regression analysis indicated that access to credit explains 56.5% of the variation in business growth (Adjusted $R^2 = 0.565$). This implies that better access to credit enables Mukwano Industries to finance operations, expand production, and increase profitability. These findings align with Beck and Demirgüç-Kunt (2006), who noted that credit availability is a critical growth constraint for SMEs and manufacturing firms. The findings support Financial Growth Theory which suggests that financial accessibility promotes business expansion. The results also agree with Trade Credit Theory which explains that credit improves liquidity and business operations. Access to credit enables Mukwano Industries Ltd to finance production activities and maintain stable supply chains. Limited credit availability can restrict production and reduce business growth. Therefore, improving credit accessibility is essential for manufacturing firms in Uganda.

The study concludes that access to credit significantly influences business growth at Mukwano Industries (U) Ltd. Descriptive statistics indicated that the company has adequate access to both short-term and long-term financing, which supports working capital needs, expansion projects, and operational efficiency. Correlation and regression results showed a strong positive relationship between credit access and business growth ($r = 0.754$, $p < 0.01$; Adjusted $R^2 = 0.565$), indicating that credit explains a substantial portion of variations in business growth. This finding aligns with the literature (Beck & Demirgüç-Kunt, 2006; Ali & Hussain, 2017), which highlights the critical role of financial accessibility in enhancing firm performance.

Policy Recommendations

The findings support a three-pillar policy approach to closing the trade finance gap for Ugandan manufacturing firms. The first pillar concerns expanding trade finance availability. The Bank of Uganda, in coordination with development finance institutions, could establish a trade finance refinancing facility that provides liquidity to commercial banks for on-lending to manufacturing firms. Export credit guarantees, which address the information asymmetry between lenders and exporters, could be expanded through the Uganda Development Bank and the African Trade Insurance Agency. The introduction of factoring services, supported by legal and regulatory reforms that clarify the priority of claims on assigned receivables, could provide an additional source of working capital finance for manufacturing firms.

The second pillar concerns strengthening the institutional framework for trade finance. Reforms to the collateral registry, including the incorporation of movable assets and the streamlining of registration procedures, would enable manufacturing firms to pledge a broader range of assets as collateral. Improvements to credit information sharing, potentially through the integration of trade credit data into the credit reference bureau system, would reduce the information asymmetry that limits trade credit availability. Contract enforcement reforms, including the establishment of specialized commercial courts or fast-track procedures for trade finance disputes, would reduce the

legal uncertainty that deters lenders from extending trade finance.

The third pillar concerns addressing the specific constraints faced by micro and small manufacturing firms. Simplified trade finance products, designed with lower documentation requirements and faster processing times, could expand access for firms that are currently excluded from the formal trade finance system. Capacity-building programmes, delivered through business development service providers and manufacturing associations, could improve the financial literacy and creditworthiness of small firms. The integration of trade finance with digital financial services, including mobile money platforms, could reduce transaction costs and expand the reach of trade finance to rural manufacturing enterprises.

The study established that access to credit significantly influences business growth, particularly by enabling higher production capacity, supporting expansion projects, and increasing sales and profitability. It is therefore recommended that Mukwano Industries (U) Ltd continues to strengthen relationships with financial institutions to secure affordable and flexible financing. The company should negotiate favorable interest rates, simplify internal loan application procedures, and explore alternative financing options such as supplier credit or trade financing to maintain consistent working capital. Additionally, management should implement regular financial planning, monitoring, and reporting to optimize the use of credit in ways that directly support measurable growth outcomes.

Novelty and further Research

This study has examined the relationship between trade finance access and business growth among manufacturing firms in Uganda, employing a three-dimensional framework that integrates trade finance instrument availability, growth-outcome channels, and institutional barriers. The empirical results, based on a multi-method estimation strategy that addresses the endogeneity of trade finance access, yield three principal findings.

First, trade finance access particularly access to letters of credit and export financing has a statistically significant and economically meaningful positive effect on revenue growth, employment growth, and export propensity for Ugandan manufacturing firms. The instrumental variables estimate, which are approximately 50 percent larger than the ordinary least squares estimates, suggest that the causal effect of trade finance on growth is substantially larger than cross-sectional correlations indicate.

Second, the marginal growth returns to trade finance access are approximately 2.5 times larger for micro and small firms than for medium and large firms. This finding is consistent with the theoretical prediction that smaller firms face more binding credit constraints and therefore experience larger marginal returns when those constraints are relaxed. Third, the trade finance-growth relationship is strongest in the textiles and apparel sub-sector, where working capital requirements are most pronounced. This finding underscores the importance of sector-specific analysis in understanding the trade finance-growth nexus.

The study has several limitations that should be acknowledged. The cross-sectional design, while appropriate for the research question, limits the ability to examine the dynamics of trade finance access and firm growth over time. The reliance on self-reported survey data introduces measurement error, particularly for informal trade credit arrangements, though the instrumental variables strategy partially addresses this concern. The instruments themselves distance to the nearest bank branch and firm age may not satisfy the exclusion restriction perfectly, though the Hansen J-test results are reassuring. Finally, the generalizability of the findings to other low-income country contexts cannot be assumed, given Uganda's specific institutional and economic characteristics.

The most significant research gap that remains is the absence of firm-level panel data linking trade finance access to long-run growth trajectories. A panel dataset tracking Ugandan manufacturing firms over multiple years, with detailed information on trade finance instrument use, would enable the estimation of dynamic models that distinguish between short-run and long-run effects of trade finance on firm growth. Such data would also permit the examination of threshold effects whether there is a minimum level of trade finance access below which the growth effects are negligible and the analysis of complementarities between trade finance and other firm-level investments in technology, skills, and market development.

Cross-country comparative research, examining the trade finance-growth relationship across East African Community member states, would provide evidence on the extent to which the findings from Uganda generalize to comparable institutional contexts. Research on the interaction between trade finance and digital financial services, including the potential of blockchain-based trade finance platforms to reduce transaction costs and improve transparency, represents a promising frontier. Finally, experimental or quasi-experimental evaluations of specific trade finance interventions such as the introduction of factoring services or the expansion of export credit guarantees would provide the causal evidence needed to guide policy design with greater precision than observational studies can offer.

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