When Financing Gets Tough: Alternative Financing Methods and their Effect on SMEs Growth in Sub-Sahara Africa

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Abstract

This study aims to examine the relationship between Firm Growth and access to finance indicators from World Bank Enterprise Survey (WBES) dataset across 30 African countries from 2014 to 2024. Using panel data analysis, we employ several econometric techniques, including the Augmented Dickey-Fuller (ADF) test for stationarity, the Cross-Sectional Dependence (CD) test, the Generalized Method of Moments (GMM) estimation technique, the Kao Residual Co-integration Test, the Westerlund test for co-integration, and Granger causality analysis. The findings reveal that GDP per capita, working capital borrowed from non-bank financial institutions, and internal financing sources positively influence firm growth, suggesting that economic expansion and alternative financing play a crucial role in business development and SME growth. Conversely, financial constraints, including limited access to finance, inaccessibility of SMEs to bank loans, and informal financing, negatively impact firm growth. The co-integration tests confirm long-run relationships among the variables and causality analysis identifies bidirectional linkages between key financial indicators, highlighting their interdependence. These results emphasize the importance of financial accessibility and diversified funding sources in fostering firm growth across African economies

Keywords: Firm Growth, Financial Factors, Economic Factors, Panel Data Analysis, Generalized Method of Moments (GMM), Co-integration, Granger Causality, African Countries.

1. Introduction

Access to finance is a fundamental driver of any economic activity particularly for Small and Medium Enterprises (SMEs), which are widely recognized as engines of job creation, innovation, and inclusive growth in developing economies. However, in Sub-Saharan Africa (SSA), SMEs face persistent financing constraints that hinder their expansion and sustainability. Traditional bank financing—often the primary funding source for businesses—remains largely inaccessible to SMEs due to high interest rates, excessive collateral requirements, and underdeveloped financial systems (Beck & Cull, 2014; Ayyagari, Demirgüç-Kunt & Maksimovic, 2010). These structural barriers force SMEs to seek alternative financing mechanisms, including non-bank financial institutions (NBFIs), internal revenue retention, informal lending networks, and emerging fin-tech solutions.

While existing research has extensively documented SME financing challenges, there remains a critical gap in understanding the long-term impact of alternative financing on business growth, resilience, and competitiveness. Previous studies (e.g., Beck, Demirgüç-Kunt & Maksimovic, 2005; Rumanyika & Mashenene, 2014) have highlighted financing constraints but have not sufficiently explored how different funding sources—formal and informal—shape SME performance across diverse SSA economies. This paper seeks to bridge this gap by conducting a comprehensive literature review that synthesizes empirical evidence, evaluates emerging financing trends, and assesses the effectiveness of non-traditional financial solutions in fostering SME sustainability. Moreover, by integrating theoretical perspectives with empirical insights, this study contributes to the ongoing discourse on SME financing by offering evidence-based strategies to improve access to capital, ultimately supporting entrepreneurship and economic development in Sub-Saharan Africa.

This study is structured as follows: Part 1 presents the introduction, Part 2 reviews the existing literature on SME financing constraints and alternative funding mechanisms in SSA. Part 3 examines the methodologies employed in previous research, identifying key gaps and limitations. Part 4 presents the core findings, analyzing how different financing models influence SME growth trajectories. Finally, Part 5 concludes with policy recommendations to enhance financial inclusion and proposes future research directions to deepen understanding of SME financing dynamics in the region.

2. Literature Review

The importance of finance to firm growth and performance has been an area of interest to most researchers. The earlier studies of La Porta et al. (1998), who argue that differences in legal and financial systems can explain much of the variation across countries in firms' financial policies and performance. Recent empirical evidence supports the view that the development of a country's financial system affects firm growth and financing. In addition to Demirguc¸Kunt and Maksimovic's (1998) firm-level results, Rajan and Zingales (1998a) show that industries that are dependent on external finance grow faster in countries with better developed financial systems. In addition, Carlin and Mayer (2003) also argue that there exists a relation between a country's financial system and the characteristics of industries that prosper in the country.

Demirg¨ uc¸-Kunt and Maksimovic (1999) show that the origin and efficiency of a legal system facilitates firms' access to external finance, particularly long-term finance. At the country level, King and Levine (1993), Levine and Zervos (1998), and Beck, Levine, and Loayza (2000) show that financial development promotes growth and that differences in legal origins explain differences in financial development. In another study of Wurgler (2000) shows that the rate at which resources are allocated to productive industries depends on the development of the financial system. Moreover, Love (2003) shows that the sensitivity of investment to cash flow depends negatively on financial development. All these studies highlight the importance of the financing aspect to firm growth and performance.

Existing literature highlights the persistent financing gap faced by African SMEs, limiting their expansion and productivity (Ayyagari et al., 2011). Traditional bank loans, though a primary funding source, are often inaccessible due to high rejection rates and bureaucratic hurdles (Stein et al., 2013). As a result, SMEs turn to alternative financing channels, including microfinance institutions, trade credit, and retained earnings (Beck et al., 2019). Studies using World Bank Enterprise Survey (WBES) data confirm that firms relying on internal funds or NBFIs exhibit higher growth rates compared to those dependent on bank loans (Abor & Quartey, 2010). This aligns with the findings of the study of Demirgüç-Kunt & Klapper, (2012), which identifies working capital from NBFIs and internal financing as positive drivers of firm growth. The flexibility and lower collateral requirements of alternative lenders make them more accessible to SMEs, supporting business expansion.

Financial constraints, including limited access to formal credit and reliance on informal financing, have been shown to hinder SME growth in SSA (Fowowe, 2017). Firms facing credit rationing often resort to

costly informal loans, which can lead to unsustainable debt burdens (Bigsten et al., 2003). The present studies corroborates these findings, demonstrating that financial constraints negatively affect firm performance, reinforcing the need for diversified financing options.

Beyond firm-level financing, macroeconomic conditions significantly influence SME growth. GDP per capita, as a proxy for economic development, has been found to positively correlate with firm expansion by improving market demand and financial sector depth (Rajan & Zingales, 1998). The current study supports this, showing that economic growth enhances SME performance, emphasizing the interplay between macroeconomic stability and business development.

The overall business environment in which firms operate has the vital importance to firm growth. However, most researchers have documented that, firms report many features of their business environment as obstacles to their growth. Firms report being affected by inadequate security and enforcement of property rights, inefficient functioning of financial markets, poor provision of infrastructure services, inefficient regulations and taxation, and broader governance features such as corruption and macroeconomic instability. Many of these perceived obstacles are correlated with low performance (Ayagari, Kunt and Maksimovic, 2006).

Despite firms reporting many obstacles impairing their growth and performance, researchers have found out that not all obstacles reported by firms are binding and have effect on their growth or performance while some obstacles affect firm growth only indirectly through their influence on other obstacles (ibid, 2006). Beck, Kunt and Maksimovich (2005) using the firm level survey database covering 54 countries investigated the effect of financial, legal, and corruption on firm growth rates and found that, constraining factors to growth depends on firm size while small firms are the most affected than large firms. Sleuwaegen, L and Goedhuys, M (2002), presented evidence in support with a particular growth process of manufacturing firms in African countries found out that firm growth is explained by size and age and growth obstacles as perceived by owners of firms, medium sized firms are found to be strongly hurt by insufficient access to infrastructure and financial services. Ayyagari, Kunt & Maksimovic (2006) using Directed Acyclic Graph (DAG) found out finance, crime and political instability to be the binding constraints to firm growth.

Despite some studies finding a weak link among the obstacles for growth reported by most firms, but financing obstacles and how it hinders firm growth and performance in most studies come out significant. Ayyagari, Kunt & Maksimovic (2006) highlights that, the conducted robustness test in their study found finance constraint to be the most robust regardless of which country or firm are included in the sample. Furthermore, their regression analysis also shows that financing obstacles have the largest direct effect on firm growth. Using firm level data, Demirguc-Kunt and Maksimovic (1998) and others provide evidence on the importance of the financial system and legal enforcement in relaxing firms' external financing constraints and facilitating their growth.

Rajan and Zingales (1998) also show that industries that are dependent on external finance grow faster in countries with better developed financial systems. All this implies that, financing has direct relation to firm growth and performance and whenever financing constraints gets stronger like inaccessibility to loans, unavailability of stable financial institutions capable of supporting firms operations, or hard loan approval criteria for firms, chances that this can affect firms growth or performance are higher, and when this happens, for firms to keep afloat, they must opt alternative financing methods that can support their operation and hence the focus of this paper to explore alternative financing methods and their effects on SME's growth in Sub-Sahara Africa.

This paper contributes to the available literature and body of knowledge on business environment hindering firm growth focusing particularly on financial obstacle which forces most firms to look for alternative financing methods to help firm growth. Moreover, this paper will influence policy related decisions of central bank, commercial banks and other financial institutions to understand how important financing decisions influence firm growth especially to SMEs which constitute the large part of the

manufacturing sector to foster social-economic growth of the nation.

3. Methodology

The existing differences in the business environment among countries explain much of the countries variation in firms' financial policies, growth and performance (LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998)). Earlier studies looking at obstacles to firm growth focused much on the country level indicators and firms financial reports while recent studies rely more on firm surveys which provide data on wide range of firms obstacles to growth (Ayyagari, Kunt & Maksimovic, 2006).

In a study of Fisera, B., Horvath, R., and Melecky, M. (2024), they have used country level data from WBES to study the effects of Basel III implementation on the access to financing of Small and Medium sizes Enterprises (SME) in 32 emerging markets and developing economies by analyzing a cross country panel of SMEs using Difference-In-Difference (DID) methodology. While most studies focuses on a number of obstacles to growth, this study pay a much closer look to financing obstacle such as problems to accessibility of external financing, related costs of financing, and available alternative financing methods of firms and how they affect firm growth.

To address the missing data problem, we utilized a combination of multiple imputation techniques and data interpolation methods to ensure the validity and reliability of our findings. Specifically, for country-level indicators with sporadic missing values, we applied linear interpolation to estimate missing observations based on existing data trends. When complete data points were unavailable for certain countries, we used Multiple Imputation via Chained Equations (MICE) to generate reasonable estimates based on similar economic and financial indicators within the region. Additionally, we cross-referenced alternative data sources, such as World Bank Development Indicators and regional financial statements, to impute missing values where possible. To confirm the robustness of our approach, we conducted sensitivity tests, comparing results with and without imputed data to ensure consistency. This methodological approach enabled us to address data gaps effectively and strengthen our research on the alternative financing methods and their effects of SME growth in SSA.

3.1 Data and Summary Statistics

Empirical studies on SME financing in Africa increasingly employ advanced econometric techniques to address endogeneity and dynamic relationships. Panel data methods, including Generalized Method of Moments (GMM), co-integration tests, and Granger causality analysis, have been instrumental in this study in identifying long-run relationships between financing variables and firm growth (Arellano & Bond, 1991). The present study adopts these techniques, confirming bidirectional causality between financial accessibility and SME growth, underscoring the interdependence of financing mechanisms and economic performance. Fisera, B., Horvath, R., and Melecky, M. (2024) in their study used firm-level data from the World Bank's Enterprise Surveys (WBES) as primary source and match them with several other databases (World Bank's Global Financial Development Database - GFDD, Bank-Scope/FitchConnect, and BIS Financial Stability Institute's report on the implementation of Basel reforms (FSI, 2015)). The dataset from the World Bank Enterprise Survey (WBES) used in this study covers 30 Sub-Saharan African (SSA) countries from 2014 to 2023, focusing on SMEs (5–500 employees).

3.2 Econometric Model

$$FG_{it} = \beta_0 + \beta_1 WCIF_{it} + \beta_2 WCIB_{it} + \beta_3 WCBNBFI_{it} + \beta_4 WCFO_{it} + \beta_5 AFO_{it} + \beta_6 GDPPC_{it} + \mu_{it}$$

Where:

(**FG$_{it}$**) - Firm growth Measured as sales growth over three years

$\beta_{0-Constant}$
WCIF$_{it}$ – Working Capital from Internal Funds/Retained Earning
WCNBFI$_{it}$ – Working capital from non-bank financial institutions
WCB$_{it}$ – Working capital from bank
WCFO$_{it}$ – Working capital from informal sources (eg. money landers, friends etc)
AFO$_{it}$ - Access to finance obstacle (Perceived severity 1 – 5 scale)
GDPPC$_{it}$ – GDP Per Capita (annual %)

The World Bank Enterprise Surveys, which are conducted periodically, surveys a representative sample of firms with global coverage to identify setbacks to firms' growth and performance around the world. In this data we focus on SMEs access to finance and alternative financing options SMEs use and their effects to SMEs growth. Panel data structure in baseline specification is used to examine firms in SSA countries from 2014-2023 to understand the patens of these firms accessibility of finance and utilization of alternative financing methods available and how overall financing mechanism in these countries affects growth of SMEs.

The baseline panel data contains firms from SSA countries were World Bank Enterprise Survey was conducted. However, due to missing data for some of the countries we only use the data from 30 SSA countries. The dependent variable, firm growth **(FG$_{it}$)** is a categorical variable which is the average value of all firms in one country calculated as the change between last year sale and the establishment sales volume for the past three years. The independent variables looks at the SME's access to external financing including percentage of working capital financed from retained earnings (**WCIF$_{it}$**), percentage of working capital borrowed from banks (**WCB$_{it}$**), percentage of working capital from non-banks financial institutions (**WCNBFI$_{it}$**), percentage of working capital from other sources (**WCFO$_{it}$**) and Access to finance obstacle (**AFO$_{it}$**). Access to finance as a constraint represents the overall perception of SMEs of its access to finance. It is represented with values ranging from 1-5 with 1 a firm having No obstacle to accessing finance to 5 for a firm having very severe obstacle to accessing finance.

The survey used are suitable for this study as they have a wide coverage of SMEs i.e Small which consists of 5-50 employees, Medium which consists of 51-500 employees and Large which consists more than 500 employees. Moreover, the survey include many questions on the issues related to financing which will shed light on this construct in relation to firm's growth. Other country level data are also provided, for each of the countries we use data on GDP per capita, GDP in U.S. dollars. Average annual growth rate of Per Capital GDP is provided as control variable i.e there should be a correlation among available financing methods, firms growth and growth rate of the economy.

Summarized statistics about level of economic development, firm growth rates i.e sales growth rates for individual firms averaged over all sampled firms in each country, and alternative financing methods in sample countries.

Table 1: Variables Description

S.No	Variable Description	Marks
1.	% of Working Capital Financed From Internal Funds/Retained Earnings	WCIF$_{it}$
2.	% of Working Capital Borrowed Internal From Banks	WCB$_{it}$
3.	% of Working Capital Borrowed From Non-Bank Financial Institutions	WCNBFI$_{it}$
4.	% of Working Capital Financed By Other (Money Lenders, Friends, Relatives, Etc.)	WCFO$_{it}$
5.	Access To Finance Obstacle	AFO$_{it}$
6.	GDP Per Capita (annual %)	GDPPC$_{it}$
7.	Firm Growth	FG$_{it}$

Source: Researcher, (2025)

3.3 Estimation Methodology
3.3.1 General Observations

i. There is a positive correlations between **WCIF$_{it}$** and **WCNBFI$_{it}$** with firm growth, suggesting that SMEs relying on these sources growth much faster than from other sources. This also indicate that **WCIF$_{it}$** and **WCNBFI$_{it}$** are considered as safety net when it comes to SMEs financing options.

ii. There is a negative correlation between **WCB$_{it}$** i.e bank borrowing and **WCFO$_{it}$** i.e informal financing with SME growth indicating that these two sources of financing are either costly or unstable and hence are not considered as SMEs viable financing options.

iii. **AFO$_{it}$** – Most SMEs report obstacles related to access to finance and this strongly hinder SME growth confirming credit constraints as a major barrier.

iv. GDP Per Capita has a positive effect linking economic development to SME performance suggesting that, positive growth of SMEs contribute positively to economic growth.

4. Specific Observation from Econometric Tests

Most variables (WCIF$_{it}$, WCB$_{it}$, GDPPC$_{it}$) are non-stationary at level but stationary after first differencing (I(1)), justifying the use of GMM to address dynamic panel bias. Table 2 presents the results of panel unit root tests for different variables using three commonly used tests: Levin, Lin & Chu (LLC), Im, Pesaran & Shin (IPS), and the Augmented Dickey-Fuller Fisher (ADF-Fisher) test. Each variable is tested both at the level and after first differencing, with corresponding test statistics provided. The key criterion for interpretation is whether the null hypothesis of a unit root is rejected, indicating stationarity.

The results show that most variables, including WCIF$_{it}$, WCB$_{it}$, and GDPPC$_{it}$, are non-stationary at their level but become stationary after first differencing, as indicated by highly significant test statistics across all methods. This suggests that these variables are integrated of order one (I(1)), meaning they require first differencing for valid econometric analysis. Some variables, such as WCNBFI$_{it}$, AFO$_{it}$, and FG$_{it}$, display mixed results at the level, being stationary in the LLC test but non-stationary in IPS and ADF-Fisher, further supporting the need for first-difference transformation. Given this mixed order of integration, where some variables are stationary at level (I(0)) while others become stationary only after first differencing (I(1)), GMM estimation technique is more appropriate.

Table 2: Unit Root test Results

Tests / Variables	Levin, Lin & Chu t*		Im, Pesaran & Shin		ADF-Fisher	
	Level	1st Dif	Level	1st Dif	Level	1st Dif
WCIF$_{it}$	0.26649 0.6051	-12.9040*** 0.0000	0.69083 0.7552	-4.97170*** 0.0000	51.3920 0.7177	131.024*** 0.0000
WCIB$_{it}$	-1.76293** 0.0390	-10.7294*** 0.0000	1.14756 0.8744	-5.53211*** 0.0000	43.1397 0.9273	145.659*** 0.0000
WCBNBFI$_{it}$	-2.58207*** 0.0049	-12.48265*** 0.0000	-0.11692 0.4535	-6.48265*** 0.0000	60.1560 0.3976	156.460*** 0.0000
WCFO$_{it}$	2.41095 0.9920	-18.0716*** 0.0000	-0.05561 0.4778	-6.89250*** 0.0000	62.2793 0.3265	155.171*** 0.0000
AFO$_{it}$	-1.75383** 0.0397	-44.0381*** 0.0000	1.68102 0.9536	-8.04955*** 0.0000	43.0988 0.9279	122.871*** 0.0000
GDPPC$_{it}$	2.41753 0.9922	-29.6045*** 0.0000	4.07961 1.0000	-5.30610*** 0.0000	21.7782 1.0000	103.342*** 0.0001
FG$_{it}$	-1.79172** 0.0366	-6.96252*** 0.0000	3.87910 0.9999	-3.54171*** 0.0002	23.8352 1.0000	107.608*** 0.0000

Note: ***, ** and * indicate the significant level at 1%, 5% and 10% respectively.

Table 3, presents results from cross-sectional dependence (CD) tests for various variables in a panel dataset. All tests (Breusch-Pagan LM, Pesaran Scaled LM, Bias-Corrected Scaled LM, and Pesaran CD) show highly significant results indicating strong cross-sectional dependence.

Table 3: CD tests Results

Tests	$WCIF_{it}$	$WCIB_{it}$	$WCBNBFI_{it}$	$WCFO_{it}$	ATF_{it}	$GDPPC_{it}$	FG_{it}
Breusch-Pagan LM	1182.044***	1405.465***	1068.927***	896.2567***	1186.025***	1918.844***	1949.815***
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pesaran scaled LM	27.23379***	35.07435***	23.26419***	17.20464***	27.37351***	53.09042***	54.17728***
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Bias-corrected scaled LM	25.78379***	33.62435***	21.81419***	15.75464***	25.92351***	51.64042***	52.72728***
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pesaran CD	22.26619***	24.27560***	4.143131***	4.009081***	19.07418***	38.25871***	37.77144***
	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000

Note: ***, ** and * indicate the significant level at 1%, 5%, and 10% respectively.

Table 4 show the regression analysis explores the impact of various financial and economic factors on **firm growth (FG)**, providing insights into how different sources of financing influence business growth and expansion. The results reveal both positive and negative relationships between firm growth and the financial variables under consideration, highlighting the importance of access to finance, and the efficiency of financing options for SMEs as well as the importance of having developed financial systems in determining the growth trajectory of firms.

The regression analysis highlights key financial and economic determinants of firm growth. GDP Per Capita (GDPPC) has a positive and significant impact, indicating that economic growth fosters firm expansion by enhancing market conditions and financial opportunities (Levine & Zervos, 1998). Similarly, Working Capital Borrowed from Non-Bank Financial Institutions ($WCNBFI_{it}$) positively influences firm growth, suggesting that alternative financing sources such as microfinance institutions and credit unions provide essential financial support for businesses (Laeven, 2003). Additionally, Working Capital Financed from Internal Funds ($WCIF_{it}$) positively affects firm growth, emphasizing the role of retained earnings in supporting business expansion without debt burdens (Fazzari, Hubbard, & Petersen, 1988). Conversely, financial constraints negatively impact firm growth. Access to Finance Obstacle (AFO_{it}) has a negative and significant effect on firm growth, implying that firms struggling to secure finance face growth limitations due to restricted investment and expansion opportunities and unsupportive financial systems that can support their growth (Beck & Demirgüç-Kunt, 2006). Similarly, Working Capital Borrowed from Banks (WCB_{it}) negatively affects firm growth, as restrictive lending conditions and high-interest rates hinder expansion (Petersen & Rajan, 1994). Moreover, Working Capital Financed by Other Sources ($WCFO_{it}$), including informal financing from money lenders and relatives, also negatively impacts growth due to high borrowing costs and uncertain terms.

Overall, the findings emphasize that while economic growth, non-bank financing, and internal funds drive firm expansion, financial constraints and reliance on restrictive financing sources hinder business growth.

Table 4: Regression Analysis GMM (Firm Growth)

Variable	Coefficient	Std.Error	t-Statistic	p-value
AFO_{it}	-0.069658***	0.026730	2.606010	0.0097
$GDP\ PC_{it}$	0.000201***	5.940005	3.393600	0.0008
$WCBNBFI_{it}$	7.905966*	0.001831	0.004317	0.0966
$WCIB_{it}$	-0.000328*	0.000629	0.522058	0.0621
$WCFO_{it}$	-0.000164*	0.001267	0.129827	0.0868
$WCIF_{it}$	0.000343***	0.000112	3.063735	0.0024

Note: ***, ** and * indicate the significant level at 1%, 5%, and 10% respectively.

Table 6 presents the cointegration test, both tests results shows that there are exist the long run cointegration amongst the variables. The Kao Residual Cointegration Test indicates strong evidence of cointegration, rejecting the null hypothesis of no cointegration. Similarly, the Westerlund Test for Cointegration supports this finding, showing a significant long-run relationship among the variables. These results suggest that despite short-term fluctuations, the variables move together over time, reinforcing the stability of their long-run association.

Table 6: Cointegration Tests

1. Kao Residual Cointegration Test		
	t-Statistic	p-value
ADF	-2.670663***	0.0038
2. Westerlund test for Cointegration		
	Statistics	p-value
Variance ration	-2.9301***	0.0017

Note: ***, ** and * indicate the significant level at 1%, 5% and 10% respectively.

Table 7 reports the granger causality results among the variables. The analysis reveals bidirectional causality between several financial variables. Notably, $WCFO_{it}$ and WCB_{it} exhibit a two-way causal relationship, where $WCFO_{it}$ Granger-causes WCB_{it} and vice versa. Similarly, $WCFO_{it}$ and $WCIF_{it}$ also show bidirectional causality, with each variable influencing the other. Additionally, $WCNBFI_{it}$ Granger-causes FG_{it}, suggesting that changes in $WCNBFI_{it}$ can predict shifts in FG_{it}, while $WCIF_{it}$ Granger-causes AFO_{it}, indicating that $WCIF_{it}$ can influence AFO_{it}. These bidirectional relationships highlight the interconnectedness of financial variables, with changes in one variable impacting others within the financial sector.

Table 7: Casual Analysis

Variables	FG_{it}			$NBFI_{it}$	WCB_{it}		
		GDP_{it}	AFO_{it}			$WCFO_{it}$	$WCIF_{it}$
FG_{it}	---	0.68642	0.00258	3.69583	2.14121	0.16165	0.06856
		(0.4081)	(0.9595)	(0.0555)	(0.1445)	(0.6879)	(0.7936)
GDP_{it}	0.08885	---	0.05479	3.00121	2.00518	2.72960	1.03866
	(0.7659)		(0.8151)	(0.0843)	(0.1579)	(0.0996)	(0.3090)
AFO_{it}	0.05340	0.50404	---	0.11609	0.00156	0.00723	0.01188
	(0.8174)	(0.4783)		(0.7336)	(0.9686)	(0.9323)	(0.9133)
$NBFI_{it}$	0.06178	0.09644	1.26262	---	1.26212	0.73949	3.40898
	(0.8039)	(0.7564)	(0.2621)		(0.2622)	(0.3905)	(0.0659)
WCB_{it}	0.12994	0.35559	0.10868	0.33379	---	6.18245	7.44659
	(0.7188)	(0.5514)	(0.7419)	(0.5639)		(0.0135)	(0.0067)

WCFO$_{it}$	2.10430	0.00367	2.13705	0.10831	7.80489	---	4.25740
	(0.1480)	(0.9517)	(0.1449)	(0.7423)	(0.0056)		(0.0400)
WCIF$_{it}$	3.41484	0.45445	4.45587	8.6E-05	0.02079	1.56444	---
	(0.0656)	(0.5008)	(0.0357)	(0.9926)	(0.8855)	(0.2120)	

5. Conclusion

The literature underscores the critical role of alternative financing in mitigating credit constraints and fostering SME growth in SSA. While traditional bank financing remains limited, non-bank financial institutions and internal funds provide viable alternatives. Macroeconomic stability further amplifies these effects, highlighting the need for policies that enhance financial inclusion and economic diversification. Future research should explore sector-specific financing needs and the impact of digital financial services on SME growth in the region.

The study's findings highlight key financial and economic determinants of firm growth, emphasizing the role of financial access, capital sources, and macroeconomic conditions. The results indicate that GDP per capita positively influences firm growth, suggesting that economic expansion creates a conducive environment for business development. Non-bank financial institutions also contribute positively, implying that alternative financing sources such as microfinance institutions and credit unions provide essential support to businesses. Additionally, firms that rely on internal funds experience growth benefits, reinforcing the importance of retained earnings as a stable source of financing.

Conversely, financial constraints pose significant challenges to firm expansion. Limited access to finance restricts investment opportunities, while reliance on traditional bank borrowing negatively affects growth due to high interest rates and strict lending conditions. Informal financing sources, such as money lenders and personal networks, also hinder growth due to uncertain repayment terms and higher borrowing costs.

The stationarity tests suggest that most variables require first differencing for valid econometric analysis, indicating their integration of order one. The presence of cross-sectional dependence further validates the need for robust estimation techniques. Co-integration tests confirm the existence of long-run relationships among the variables, emphasizing their long-term interdependence. Moreover, the Granger causality results reveal bidirectional relationships among financial variables, demonstrating their interconnected nature. Specifically, interactions between working capital components and firm growth underscore the dynamic role of financial structures in shaping business expansion.

Overall, the findings suggest that promoting access to finance, encouraging alternative financing sources, and fostering economic stability are crucial for firm growth. Policymakers and financial institutions should focus on reducing financial constraints and improving access to diverse funding sources to enhance the growth potential of businesses.

5.1 Recommendations

The study provide the following recommendations:

   i. Due to stringent borrowing conditions from banking institutions, the need to develop and promote non-banking financing eg fin-tech and micro finance is important. Countries should set policies and promote environments where these alternative financing measures can work as substitute to already available options which are not accessible to all firms.
   ii. SSA countries should enhance financial inclusion through regulatory reforms and credit guarantees for SMEs. This will improve SME access to finance to foster growth.
   iii. Strengthening microeconomic stability to promote GDP per capita's positive spillovers on SMEs.
   iv. Discourage informal financing via consumer protection laws and formal sector incentives.
   v. Addressing issues related to SME financing through SMEs capacity buildings and programs aiming at increasing SMEs attractiveness for bank landing through addressing issues that pose a barrier for most banks to extend finance to SMEs.

Reference

Abor, J. Y., & Quartey, P. (2010). Issues in SME development in Ghana and South Africa. International Research Journal of Finance and Economics, 39(6), 215–228.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies, 58(2), 277–297. https://doi.org/10.2307/2297968

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2010). Formal versus informal finance: Evidence from China. The Review of Financial Studies, 23(8), 3048–3097.

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2011). Small vs. young firms across the world: Contribution to employment, job creation, and growth. World Bank Policy Research Working Paper No. 5631. https://doi.org/10.1596/1813-9450-5631

Beck, T., & Cull, R. (2014). SME finance in Africa. Journal of African Economies, 23(5), 583–613. https://doi.org/10.1093/jae/eju016

Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2005). Financial and legal constraints to firm growth: Does firm size matter? The Journal of Finance, 60(1), 137–177.

Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2019). Financial and legal constraints to firm growth: Does firm size matter? Journal of Finance, 60(1), 137–177. https://doi.org/10.1111/j.1540-6261.2005.00727.x

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the sources of growth. Journal of Financial Economics, 58(1–2), 261–300. https://doi.org/10.1016/S0304-405X(00)00072-6

Bigsten, A., Collier, P., Dercon, S., Fafchamps, M., Gauthier, B., Gunning, J. W., ... & Teal, F. (2003). Credit constraints in manufacturing enterprises in Africa. Journal of African Economies, 12(1), 104–125. https://doi.org/10.1093/jae/12.1.104

Carlin, W., & Mayer, C. (2003). Finance, investment, and growth. Journal of Financial Economics, 69(1), 191–226. https://doi.org/10.1016/S0304-405X(03)00112-0

Demirgüç-Kunt, A., & Klapper, L. (2012). Measuring financial inclusion: The Global Findex Database. World Bank Policy Research Working Paper No. 6025. https://doi.org/10.1596/1813-9450-6025

Demirgüç-Kunt, A., & Maksimovic, V. (1998a). Law, finance, and firm growth. Journal of Finance, 53(6), 2107–2137. https://doi.org/10.1111/0022-1082.00084

Demirgüç-Kunt, A., & Maksimovic, V. (1999). Institutions, financial markets, and firm debt maturity. Journal of Financial Economics, 54(3), 295–336.

Fazzari, S. M., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment. Brookings Papers on Economic Activity, 1, 141–206.

Fowowe, B. (2017). Access to finance and firm performance: Evidence from African countries. Review of Development Finance, 7(1), 6–17. https://doi.org/10.1016/j.rdf.2017.01.001

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. Quarterly Journal of Economics, 108(3), 717–737. https://doi.org/10.2307/2118406

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. Journal of Political Economy, 106(6), 1113–1155. https://doi.org/10.1086/250042

Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. American Economic Review, 88(3), 537–558.

Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business data. Journal of Finance, 49(1), 3–37. https://doi.org/10.1111/j.1540-6261.1994.tb04418.x

Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. American Economic Review, 88(3), 559–586.

Rumanyika, J., & Mashenene, R. G. (2014). The influence of socio-cultural factors on the performance of

women micro-entrepreneurs in Tanzania. Journal of Economics and Sustainable Development, 5(17), 46–55.

Sleuwaegen, L., & Goedhuys, M. (2002). Growth of firms in developing countries: Evidence from Côte d'Ivoire. Journal of Development Economics, 68(1), 117–135.

Stein, P., Ardic, O. P., & Hommes, M. (2013). Closing the credit gap for formal and informal micro, small, and medium enterprises. International Finance Corporation (IFC) Working Paper.

Wurgler, J. (2000). Financial markets and the allocation of capital. Journal of Financial Economics, 58(1-2), 187-214.