BANK PROFITABILITY AND ECONOMIC GROWTH IN THE EMERGING MARKETS: THE MEDIATING ROLE OF STABILITY

Tafirei Mashamba *, Rabson Magweva **, Shenaaz Gani ***

* *Corresponding author*, College of Accounting Sciences, University of South Africa, Pretoria, South Africa;
School of Law and Business Sciences, Great Zimbabwe University, Masvingo, Zimbabwe
Contact details: College of Accounting Sciences, University of South Africa, 1 Preller Street, Muckleneuk Ridge, Pretoria, South Africa
** School of Law and Business Sciences, Great Zimbabwe University, Masvingo, Zimbabwe
*** College of Accounting Sciences, University of South Africa, Pretoria, South Africa

How to cite this paper: Mashamba, T., Magweva, R., & Gani, S. (2023). Bank profitability and economic growth in the emerging markets: The mediating role of stability [Special issue]. *Corporate & Business Strategy Review, 4*(2), 386–401.
https://doi.org/10.22495/cbsrv4i2siart18

ISSN Online: 2708-4965
ISSN Print: 2708-9924

Received: 14.12.2022
Accepted: 23.06.2023

JEL Classification: G1, G2, C3, C5, O1, O4
DOI: 10.22495/cbsrv4i2siart18

Abstract

Bank profitability is of significant importance to economic growth since it determines banks' resilience and their ability to provide credit (Raddatz et al., 2020). However, high bank profitability (margins) as in the Sub-Saharan Africa (SSA) region can hurt economic growth through inefficient financial intermediation (Rahman et al., 2023). It is, therefore, imperative to examine the interplay between bank profitability and economic growth in SSA. This study investigates the contribution of banks' performance to economic growth in SSA by examining the impact of bank profitability on growth, as well as the mediating role of stability in this interplay. A panel dataset for 26 SSA economies that spans from 2000 to 2020 was collected and analyzed. System generalized method of moments (GMM) and structural equation model (SEM) were used for the analysis. Surprisingly, the study finds that bank profitability does not affect economic growth in SSA economies. This evidence is attributed to inefficient intermediation in the form of high bank margins and low lending volumes. However, a positive contribution of bank profitability to growth was noted in low-income economies, supporting the notion that banks dominate in economies with underdeveloped financial markets. The study also finds evidence of partial mediation of stability on the bank profitability-growth nexus in SSA.

Keywords: Bank Profitability, Economic Growth, Stability, Mediation, Sub-Saharan Africa

Authors' individual contribution: Conceptualization — T.M. and S.G.; Methodology — R.M.; Software — T.M.; Validation — S.G.; Formal Analysis — T.M.; Investigation — T.M. and R.M.; Resources — S.G.; Data Curation — T.M.; Writing — Original Draft — T.M.; Writing — Review & Editing — R.M. and S.G.; Visualisation — S.G.; Supervision — S.G.; Project Administration — R.M. and T.M.; Funding Acquisition — S.G.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Literature from both developed and developing economies has shown that financial development stimulates economic growth (Guru & Yadav, 2019; Karimo & Ogbonna, 2017; Midrigan & Xu, 2014; Levine, 2005). However, although bank profitability, a complimentary measure of financial development (Al-Sharkas & Al-Sharkas, 2022; Daradkah & Janaideh, 2022; Al Kharusi et al., 2022; Mamo et al.,

2021; Sondakh et al., 2021), is high in Sub-Saharan Africa (SSA) compared to other regions (Stijns & Revoltella, 2016; Flamini et al., 2009), the region remains haunted by low economic growth and high levels of poverty. Likewise, the economic performance of this region falls below other comparative regions such as the Middle East and North Africa (MENA) region. Notwithstanding this, literature on the contribution of bank profitability to economic growth in the Sub-Saharan region remains sparse. Yet, an analysis of banks' profitability and economic performance relationship is very important for SSA economies. Klein and Weill (2022) discuss how bank profitability can impact growth via the financial stability channel. Higher profits enable banks to retain more earnings to boost their capital (Albertazzi & Gambacorta, 2009). The more capital a bank has, the more it can lend due to its increased ability to absorb losses (Bikker & Hu, 2002). In the same vein, profit-maximizing banks devote more effort to screening borrowers to minimize losses (Manove et al., 2001). Such behavior fosters stability since high bank losses are associated with instability. Based on this view, higher capital engenders systemic stability that permits banks to lend more to the productive sectors of the economy, boosting production and output (Rahman et al., 2023; Creel et al., 2015). But rapid credit growth without proper oversight can have inflationary and stability connotations (Ibrahim & Alagidede, 2018). In support of this view, Cole et al. (2008) posit that inefficient credit allocation hurts economic growth. For example, funding politically desirable but unprofitable projects have a negative effect on growth (La Porta et al., 2002). Inefficient credit allocation could be an issue for consideration in the SSA considering the prevalence of state-owned banks, which are prone to political influence, and the political frailness of the region.

At the same time, bank failures weigh down economic growth as evidenced by historical episodes of banking sector crises such as the profound 2007–2009 financial crisis. To that end, Albertazzi and Gambacorta (2009) document that bank losses can trigger instability in the financial system with spillover effects on the real economy. Hence, analyzing how bank performance contributes to economic growth is very important for designing policies that support financial sector development and economic growth which is desperately needed in SSA to reduce poverty.

To the best of our knowledge, no study has directly explored the nexus between bank profitability and economic growth in Sub-Saharan Africa. Even literature on this important subject from other jurisdictions is scarce. A few notable examples are: Alam et al. (2021), who make an empirical analysis of the relationship between bank profitability and economic growth in India; Kumar and Bird (2020), who provide evidence from the Asian-Pacific region; Klein and Well (2018) examine a panel of 133 developing and developed economies; Aziz (2020) pays attention to the Arab region; Alkhazaleh (2017) provides evidence from Jordan. This study builds on existing studies and contributes to the literature in the following important ways. First, it expands the sparse literature on this discourse by analyzing the relationship between bank profitability and economic growth using an income statement-based profitability measure: net interest margin. This metric identifies the impact of pricing, competition, and market structure on the performance of the banks. Besides this, and most importantly, bank margins indicate the efficiency of financial intermediation (Rahman et al., 2023; Demirguc-Kunt & Huizinga, 2000). High margins result in higher costs of borrowing and reduced flow of savings which are both detrimental to economic growth (Rahman et al., 2023). However, high margins can indirectly affect economic growth by affecting banks' resilience through capital accumulation: more profitability enables banks to build their capital buffers quickly resulting in higher lending due to the increased ability to absorb credit losses (Raddatz et al., 2020). Thus, the relationship between bank profitability and economic growth is indeterminate, and this study attempts to provide empirical evidence from the SSA region.

Second, the study provides evidence from the SSA region that is missing in the literature. The SSA is characterized by high levels of poverty and slow economic growth (Roberts et al., 2021). Hence, it is imperative to suggest policies that work to reduce poverty in the SSA region. Third, the study provides empirical evidence on the moderating role of stability on the interplay between banks' performance and economic growth. As discussed above, financial stability can be a channel through which bank performance promotes economic growth. Finally, the paper provides different estimations to ensure that the findings are robust to major economic events that transpired during the sampling window, namely the 2007–2009 global financial crisis and the COVID-19 pandemic.

The remainder of the paper is structured as follows. Section 2 reviews related literature and postulates the study hypotheses. Section 3 attends to the methodology while Section 4 presents and discusses the empirical findings. Robustness tests are presented in Section 5 and Section 6 concludes the study.

2. LITERATURE REVIEW

2.1. Bank profitability and economic growth

A vibrant economy needs a thriving financial system that provides the much-needed financial resources to support businesses and the production of goods and services (Osmanovica et al., 2020). Banks play a pivotal role in this regard. Nevertheless, for banks to be able to support economic activity they ought to be profitable and sustainable (Ceylan & Ceylan, 2020). Higher profitability boosts banks' capital via retained earnings and high capital enables banks to provide more credit, resulting in higher output and productivity, against the backdrop of higher capital buffers that can absorb large credit losses (Rahman et al., 2023; Creel et al., 2015). In light of this, a handful of studies investigated the role of bank profitability on economic growth.

Aziz (2020) examined the effects of bank profits on economic growth in 14 Arab states for the period from 1985 to 2016. Using the generalized method of moments (GMM) estimation, the study finds that bank profitability, measured by return on assets (ROA) and return on equity (ROE), positively

impacts economic growth in this region, thereby confirming the notion that well-functioning and profitable banks are vital for growth. Still, from Asia, Kumar and Bird (2020) investigate the nexus between bank profitability and economic growth in 10 Asia-Pacific economies but classified their sample by the level of economic development: small emerging, large emerging, and developed emerging. Their findings corroborate with Aziz (2020) and show that the effect of bank profitability on growth is more pronounced in developed economies relative to emerging and emerging large economies.

Klein and Weill (2018) analyzed the impact of bank profitability on economic growth in 133 countries over the period from 1999 to 2013 using different estimations. Consistent with their expectations, they find that high bank profits promote growth while the past levels of bank profits have a negative effect on growth. To that end, they conclude that the effect of bank profit on growth is short-lived. On the other hand, Albertazzi and Gambacorta (2009) provide evidence of bank profit procyclicality, i.e., the co-movement of bank profits and business cycles. Using a sample of 10 developed economies over the period from 1981 to 2003, their study finds that bank profits are positively related to business fluctuations: economic booms are associated with high bank profits while recessions erode banks' profitability. Their evidence demonstrates reverse causality between economic performance and banks' performance which carries stability connotations. Ceylan and Ceylan (2020) analyzed the causal relationship between bank profitability and economic growth in 8 emerging market economies sampled from South America, Europe, and Asia for the period from 2009 to 2018. They identified one-way causality running from profitability to growth in Chile, Poland, Turkey, and Russia.

Although literature generally agrees that bank profitability steers economic growth, the contribution of bank profitability to growth only works in an environment with efficient credit allocation, perfect competition, and stable financial markets (Ibrahim & Alagidede, 2018; Klein & Weill, 2017; Creel et al., 2015). Such conditions may not exist in SSA. Thus, the impact of bank profitability on economic growth is indeterminate and subject to further investigation. Based on this analysis, the study hypothesizes that bank profitability spurs economic growth in Sub-Saharan Africa:

H1: The profitability of banks has a positive effect on economic growth in Sub-Saharan Africa.

2.2. Bank profitability and economic growth: The role of financial stability

Bank profitability is one of the macroprudential measures of bank stability and bank stability is a key determinant of real economic activity given the central intermediation roles played by banks in an economy. A stable banking system is therefore vital for economic prosperity. Using a sample of 27 countries in the EU, Creel et al. (2015) examined the relationship between different measures of financial instability and economic growth and find an association between financial instability and economic growth. Their study concludes that financial instability dampens economic growth. Using a dynamic fixed-effect estimator on a sample drawn from 29 countries between 1996 and 2006, Manu et al. (2011) find that financial stability positively impacts economic growth in Africa. Similar evidence was identified by Nguyen and Le (2022) in Asia and by Klein and Weill (2018) in 133 mixed economies. Stewart and Chowdhury (2021) add that stability not only promotes long-run economic growth but also lessens the impact of a financial crisis. On the other hand, Ranciere et al. (2008) contend the view that stability fosters growth by finding that countries that have undergone occasional financial crises grew faster than countries with stable financial markets. Thus, the belief that financial stability stimulates growth becomes questionable. That said, the literature on the relationship between bank profitability and financial stability is also mixed. One strand of literature argues that high bank profitability is achieved through high risk-taking which jeopardizes financial stability (Xu et al., 2019). The other strand maintains that higher profitability is associated with higher franchise value and therefore creates incentives for low risk-taking (Keeley, 1990). Hence, the profitability-stability-growth interplay is open to investigation. Therefore, the study seeks to fill this gap and formulates the second hypothesis as follows:

H2: Financial stability mediates the relationship between bank profitability and economic growth in Sub-Saharan Africa.

3. METHODOLOGY

3.1. Data

The study is based on country-level macroeconomic and financial market data obtained from each respective country's World Bank Economic Indicators. The study covers the period from 2000 to 2020. Similar to Guan et al. (2021), a long timescale is chosen to improve the efficiency of the estimates. However, this period coincides with two major economic events, namely the 2007–2009 global financial crisis and the COVID-19 pandemic that may affect the findings. The study controls for these events by adding dummy variables for the global financial crisis and the COVID-19 pandemic under the robustness tests. Following Dietrich and Wanzenried (2014), the dummy variable for global financial crisis takes the value of 1 for the years 2007, 2008, and 2009 and 0 otherwise whereas the dummy variable *COVID_19* takes the value of 1 for the year 2020. As a caveat, the *COVID_19* results should be taken with caution since only one year (2020) of the crisis was considered, hence, they may not present the full impact of the pandemic.

The population comprises 33 countries in the Sub-Saharan Africa region and 26 countries were sampled. Seven countries were dropped due to insufficient data. The final sample (unbalanced) used in the study is presented in Appendix (Table A.1). For richer analysis and to facilitate comparisons, the sample was subdivided into three income classes based on the World Bank income classifications: low income, lower middle income, and upper middle income.

3.2. Estimation technique

The objectives of this study are twofold. First, the study examines the direct relationship between bank profitability and economic growth. Second, an analysis of the indirect effect of bank profitability on economic growth via the stability channel is made. To answer the first objective, a dynamic panel regression model is formulated as follows.

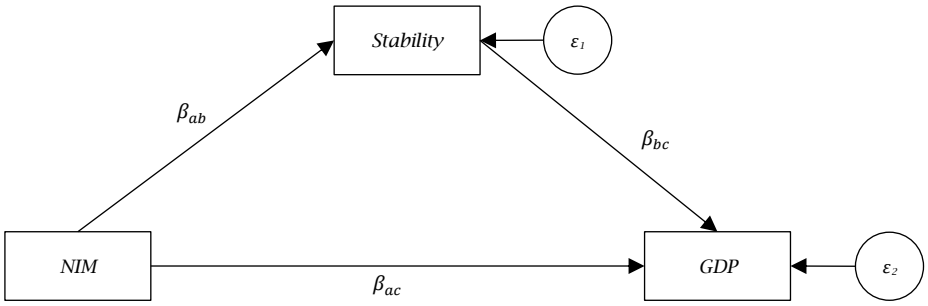
$$GDP_{it} = \lambda GDP_{i,t-1} + \phi_1 NIM_{it} + \phi_2 DOM\_CRED_{it} + \phi_3 EXP_{it} + \phi_4 CAP\_MKT_{it} + \phi_5 TRADE\_OPEN_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

where, *GDP* is the gross domestic product (GDP) per capita; *NIM* is net interest margin (a measure of bank profitability); *DOM_CRED* is domestic credit to GDP; *EXP* is a measure of exports; *CAP_MKT* is a proxy for capital market and *TRADE_OPEN* is trade openness. λ is the speed of adjustment whereas $\phi_1 \ldots \phi_5$ are coefficients to be estimated; η_i is country fixed effects and ε_{it} is the error term. The description and measurement of the variables are presented in Appendix (Table A. 2).

Equation (1) can be estimated with pooled ordinary least squares (OLS), or the fixed effects estimator. However, in the presence of country-fixed effects (η_i), OLS estimates will be biased upwards because of endogeneity, i.e., likely correlation between the lagged dependent variable ($GDP_{i,t-1}$) with the error term (ε_{it}) (Blundell & Bond, 1998). The fixed effects model can be used to address country-fixed effects; however, its weakness is that it only considers within-country variations thereby ignoring the cross-sectional variations. Moreover, fixed effects estimates of the lagged dependent variable ($GDP_{i,t-1}$) tend to be biased downwards (Arellano & Bond, 1991). Arellano and Bond (1991) suggest the GMM estimator that addresses the presence of the dependent variable among regressors and endogeneity. GMM uses first differencing to remove country-fixed effects and then uses all lagged variables as instruments. However, Arellano and Bond's (1991) first differencing GMM is likely to perform poorly in the presence of a persistent dependent variable (Blundell & Bond, 1998). Besides this, the use of first differencing to remove the country-fixed effects also removes information on the cross-country variation in levels. Thus, Blundell and Bond (1998) introduced the system GMM that combines the standard set of moment conditions in first differencing with the lagged values as instruments, thereby creating an additional set of moment conditions from the levels equation. Hence, the study opts for the one-step system GMM estimate Eq. (1) due to its efficiency, robustness to endogeneity, heteroskedasticity, and autocorrelation (Roodman, 2009; Blundell & Bond, 1998). The *xtabond2* command is used to address the instrument proliferation problem (Roodman, 2009).

To examine the mediating role of stability on the profitability-growth nexus, the study utilizes structural equation modeling (SEM) for estimation. The path diagram is depicted in Figure 1 below.

Figure 1. SEM path diagram



The SEM path diagram in Figure 1 shows the causal relationship between bank profitability (*NIM*), financial sector stability (*Stability*), and economic growth (*GDP*). *Stability* is the endogenous variable, *NIM* is the exogenous variable, and *GDP* is the outcome variable. The structural equation model for the mediation analysis is given by:

$$Stability = \beta_0 + \beta_{ab} NIM_{ic,t} + \eta_i + \varepsilon_1 \quad (2)$$

$$GDP = \beta_1 + \beta_{ac} NIM_{ic,t} + \beta_{bc} Stability_{ic,t} + \eta_i + + \varepsilon_2 \quad (3)$$

In this model, β_{ac} measures the direct effect of bank profitability on economic growth; the product of β_{ab} and β_{bc} measures the indirect effect of bank profitability on economic growth, while the total effect is the sum of the direct (β_{ac}) and indirect effect (β_{ab} and β_{bc}), i.e., $\beta_{ac} + \beta_{ab} + \beta_{bc}$.

4. RESULTS

4.1. Descriptive statistics

Table 1 reports the summary statistics for the variables that were used in the study. The results also provide some stylized facts about the financial and economic characteristics of SSA economies. GDP per capita averaged $2.030 during the period of the study for the sampled economies. However, it varied remarkably across the countries (min = $150; max = $11.208) demonstrating high-income differences across the region. The same scenario holds for exports which also show large differences among the sampled countries. Domestic credit to the private sector scaled by GDP averaged 19% over the sampling window, confirming the low development of financial markets in most SSA economies (Soumaré et al., 2021). Bank profitability measured by the net interest margin also shows

huge dispersions among the countries used in the sample. Some banks in the regions reported very high margins (max = 23%) while others had very low margins (min = 1.93). Interestingly, all the economies used in the study reported positive net interest margins, suggesting that banks in the sampled economies are profitable. This evidence corroborates with extant literature which shows that banks in SSA economies have high profits (Stijns & Revoltella, 2016; Flamini et al., 2009).

Table 1. Summary statistics

Variable	*Mean*	*Std. Dev.*	*Min*	*Max*	*Obs.*
Whole sample					
GDP	2030.45	2354.61	150.15	11208.34	546
NIM	6.67	3.14	1.93	23.32	465
DOM_CRED	19.01	17.79	0.25	106.31	433
EXP	9.86 bn	2.16 bn	0.55 bn	145.7 bn	522
CAP_MKT	0.58	0.49	0	1	546
TRADE_OPEN	66.83	25.67	20.72	175.8	461
Low-income region					
GDP	514.48	196.06	150.15	914.95	210
NIM	7.85	3.44	2.01	18.63	182
DOM_CRED	13.31	7.84	0.25	40.16	175
EXP	2.45 bn	2.83 bn	55 m	16.08 bn	187
CAP_MKT	0.30	0.46	0	1	210
TRADE_OPEN	53.17	17.81	25.04	112.76	167
Lower middle-income region					
GDP	1490.87	821.01	258.47	4527.57	231
NIM	6.50	2.79	1.93	23.32	204
DOM_CRED	15.73	7.75	4.83	84.81	189
EXP	1.05 bn	1.97 bn	392 m	144 bn	230
CAP_MKT	0.73	0.45	0	1	231
TRADE_OPEN	66.14	24.97	20.72	175.8	210
Upper middle-income region					
GDP	6249.45	2056.08	1808.89	11208.34	105
NIM	4.36	1.47	1.98	8.76	79
DOM_CRED	42.48	31.84	1.81	106.31	69
EXP	2.16 bn	3.51 bn	1.46 bn	127 bn	105
CAP_MKT	0.80	0.40	0	1	105
TRADE_OPEN	95.68	15.01	70.13	129.78	84

On a comparative basis, the results show an interesting pattern: as the nation's income level increases, the net interest margin decreases (from 7.87, in the low-income region, to 4.36 in upper-middle income). This suggests that banks in low-income economies generate higher profits in terms of net interest margin compared to banks in upper-middle-income economies. This might be attributed to financial market efficiency associated with financial development (Demirguc-Kunt & Huizinga, 2000). As expected, the average GDP per capita varies with income levels ($514.48 in the low-income region; $1490.87 in lower-middle income, and $6249.45 in upper-middle income). This verifies the notion that income levels improve with economic development (Coulibaly et al., 2018). A similar trend can be noted for capital markets development. Trade openness and GDP per capita are both increasing with income growth, suggesting that countries that open their economies experience higher levels of economic growth than closed economies.

4.2. Unit root results

The unit root test results using the Fisher-type test conducted through the augmented Dicker-Fuller unit root test are presented in Table 2. This test applies to unbalanced panel data such as the one used in this study.

Table 2. Unit root test results

Variable	*Level*	*1st difference*
GDP	Stationary	N/A
NIM	Stationary	N/A
DOM_CRED	Stationary	N/A
EXP	Stationary	N/A
CAP_MKT	Stationary	N/A
TRADE_OPEN	Stationary	N/A

The unit root test results in Table 2 indicate that all variables are stationary in levels implying that no variable was differenced before model estimation. Furthermore, and most importantly, these results show that the variables used in the study are stationary.

4.3. Correlation matrix

The study used the correlation matrix to check for multicollinearity. The correlation matrix is shown in Table 3.

As shown in Table 3, there are no variables with a correlation above 0.70, thereby demonstrating that there are no highly correlated independent variables. On the other hand, correlations provide a suggestive relationship between variables of interest. *NIM* and *GDP* are negatively correlated indicating that as *NIM* is increasing, *GDP* decreases and vice-versa. As the study consisted of mostly low- and lower-middle-income economies, the relationship is not surprising since underdeveloped markets are characterized by high margins (inefficiencies) which impede growth (Demirgüc-Kunt & Huizinga, 2000). Consistent with Demirgüc-Kunt et al. (2013), the results show that both bank development and stock market development are positively correlated with GDP. Bank development and stock market development are positively correlated with each other.

Table 3. Correlation matrix

	GDP	*DOM_CRED*	*EXP*	*NIM*	*CAP_MKT*	*TRADE_OPEN*
GDP	1.00					
DOM_CRED	0.5399**	1.00				
EXP	0.5851**	0.0710	1.00			
NIM	-0.4547**	-0.3907**	-0.2272**	1.00		
CAP_MKT	0.3977**	0.3334**	0.2112**	0.0192	1.00	
TRADE_OPEN	0.5453**	0.4657**	0.0976**	-0.2143**	0.3786**	1.00

*Note: ** significant at 5%.*
Source: Authors' estimates based on World Bank data.

4.4. Findings and discussion

The results for estimating Eq. (1) with GMM are displayed in Table 4. The regression estimates in column 2 relate to the full sample, while the ones in columns 3, 4, and 5 relate to low-, lower-middle, and upper-middle-income classes, respectively. The split was done to enable comparisons and for richer analysis. The study initially interprets and discusses findings for the full sample to avoid confusion. Moreover, the short-run and long-run coefficients are analyzed.

Table 4. Empirical findings

Variable (1)	*Full sample (2)*	*Income level*		
		Low-income (3)	*Lower-middle (4)*	*Upper-middle (5)*
Short-run estimates				
GDP	0.7974***	0.0844***	0.6154***	0.602**
DOM_CRED	0.0036**	0.1038***	0.0124	0.00
EXP	0.042**	0.2207***	0.122**	0.4778**
NIM	0.0098	0.0128***	-0.0014	-0.0282
CAP_MKT	0.3035***	-1.1223***	-0.3502	-6.9271**
TRADE_OPEN	0.0025***	-0.0027***	0.0039**	-0.0004
Diagnostics				
Arellano–Bond (2)	0.185	0.292	0.163	0.089
Sargan	0.092	0.107	0.761	0.187
Long-run estimates[a]				
DOM_CRED	0.0176***	-[b]	0.0323	0.0001
EXP	0.2072***	0.2411***	0.3172***	1.2000***
CAP_MKT	1.4978***	-1.2262***	-0.9105	-17.4047***
TRADE_OPEN	0.0123***	-	0.0102***	-0.0012

*Note: a. Long-run GMM estimates can only be estimated on statistically significant coefficients (Zheng et al., 2019). b. Long-run coefficients could not be generated for these variables. ***, **, * statistical significance at 1%, 5%, 10%, respectively.*
Source: Authors' estimates based on World Bank data.

Full sample: The full sample findings show that all the explanatory variables, save for net interest margin, have a positive and significant effect on *GDP*. The lagged *GDP* point estimate is also statistically significant at the 0.01 level, thereby justifying the adoption of GMM for estimation. Moreover, this evidence suggests that economic growth for the sampled SSA economies is persistent.

Contrary to expectations, the variable *NIM* has an insignificant impact on economic growth in SSA ($\phi_1 = 0.001$; $p > 0.05$), suggesting that bank profitability does not influence economic growth in the SSA region. Hence, *H1* cannot be supported. The findings contradict the literature that says bank profitability positively impacts economic growth (Klein & Well, 2022; Kumar & Bird, 2020; Aziz, 2020). The results may be attributed to inefficiencies and low competition that creates financing constraints in the SSA region. Aziz (2020) documents that when bank competition is low, as in the SSA region (Mengistu & Perez-Saiz, 2018), high bank profitability can be detrimental to economic growth due to high-interest rate spreads which inhibit efficient financial intermediation with knock-on effects on the real economy. Similar views are echoed by Ustarz and Fanta (2021).

The results in Table 4 above also show that, both in the short and long run, domestic credit provided by the financial sector has a positive relationship with economic growth. However, the impact of domestic credit on economic growth is weak (coefficients = 0.0036 for the short-run and 0.0176 the for long-run), suggesting that the role of banks in SSA to economic growth is less

important in both the short- and long-term. The underdevelopment of banking systems in the SSA may explain this evidence. Aluko and Ajayi (2018) attribute economic backwardness in the SSA region to an underdeveloped banking sector because underdeveloped banking systems stifle growth through inadequate credit supply. Andrianova and Demetriades (2018) concur that African banks lend little to local businesses and attributed this behavior to inadequate information about the creditworthiness of the potential borrowers. Hence, without adequate financial support businesses are not able to exploit productive investment opportunities (Andrianova & Demetriades, 2018). Equally, African markets are dominated by commercial banks with very few large development banks with the capacity to finance large-scale projects that have a significant effect on economic development (Soumaré et al., 2021).

Intuitively, the study finds that capital market development promotes economic growth in sampled SSA economies in both the short and long run as shown by the positive and statistically significant coefficients for the variable *CAP_MKT*. This evidence corroborates with extant literature (Guru & Yadav, 2019; Karimo & Ogbonna, 2017; Midrigan & Xu, 2014; Levine, 2005), that supports the notion that stock market development spurs economic growth. Interestingly, the short and long-run point estimates for the *CAP_MKT* variable are larger than those for bank credit, suggesting that stock markets play a more important role than banks in driving economic growth in SSA. This supports the view that the nature of financing provided by banks and equities markets have different effects on economic growth. Banks tend to provide less risky, short-term, and secured forms of financing whereas stock markets provide relatively risky, long-term, and unsecured finance (Demirguc-Kunt et al., 2013). As such, the research findings convey that the financing provided by equities markets matters more for growth than financing from banks for SSA economies.

As expected, exports have a positive association with GDP growth in both the short and long term. These results are intuitive and resonate with the literature (Mosikari & Eita, 2020). The same evidence holds for trade openness although its coefficient is small (0.25%), implying a low contribution of trade openness to economic growth in SSA. The positive relationship between trade openness and economic growth is consistent with earlier studies on SSA economies (Gabriel & David, 2021; Yameogo & Omojolaibi, 2021; Brueckner & Lederman, 2015). Overall, these findings demonstrate how important trade is to SSA economies. Nevertheless, Zahonogo (2016) identified an inverted U-curve association between trade openness and economic growth, suggesting that there is an optimal level of trade openness beyond which opening economies to international trade dampens economic growth. To that end, Zahonogo (2016) cautions that SSA countries need to control import levels if they are to fully benefit from international trade.

Effect of income variations: Turning to the effects of different levels of income on economic growth in SSA, the following findings are obtained. In the short-run, domestic credit provided by banks has a significant contribution to economic growth in low-income countries, an insignificant contribution in lower-middle-income countries, and no effect on growth in upper-middle economies. The evidence suggests that the importance of banks to economic growth becomes less important with economic development consistent with the view that banks dominate in economies with smaller and less liquid financial markets (Demirguc-Kunt et al., 2013). The same view is shared by Song and Thakor (2010), who document that bank financing dominates financing at lower levels of economic development. From a different perspective, Rioja and Valev (2014) show that banks affect growth in low-income countries through capital accumulation. In the long run, although this variable has a positive coefficient on growth in lower-middle and upper-middle-income countries its impact is insignificant. Thus, the study could not find evidence of an effect of domestic credit on economic growth in the three economic classes.

Counterintuitively, the study finds that stock market development has a negative and significant relationship with economic growth in low-income and upper-middle-income SSA economies. The same coefficient sign holds for lower-middle-income countries, but it is statistically insignificant. It can be inferred that equities markets play a less important role in promoting economic growth in low-income and upper-middle-income economies in the SSA region. Alternatively, the results could be confirming that most stock markets in SSA are still small to make a significant overall effect on the economy. This could be true when one considers that SSA stock markets are dominated by small and medium-sized firms (Soumaré et al., 2021), which may have no significant impact on economic growth. Daway-Ducanes and Gochoco-Bautista (2019) assert that underdeveloped financial systems cannot finance capital-intensive high-growth-enhancing industries such as the infrastructure, mining, and manufacturing sector.

The coefficient for exports is statistically significant at a 1% level in both the short and long term across all income groups. However, the effect of exports on growth is more pronounced in upper-middle-income economies relative to low-income and lower-middle-income countries. This evidence makes sense as exports are a key determinant of economic growth (Mosikari & Eita, 2020); hence, richer economies have more exports.

In the short run, the study finds that bank profitability has a strong impact on economic growth only in low-income countries. This evidence corroborates with Katusiime (2021), who identified a positive association between bank profitability (measured by *NIM*) in Uganda, a low-income country. The results also concur with Kumar and Bird's (2020) finding that the effect of bank profitability on economic growth is stronger in economies with smaller banking systems. On the other hand, the negative but insignificant coefficients for *NIM* in lower-middle and upper-middle-income countries show that bank profitability does not affect growth in these economies. In the long run, no relationship between *NIM* and *GDP* was identified.

In the short run, trade openness has a negative and positive significant contribution to growth in low-income and lower-middle-income countries but is insignificant in upper-middle-income economies.

Similar evidence holds in the long run. Based on these findings it can be inferred that trade openness positively impacts growth in lower-middle-income countries in both the short and long term but hurts economic growth in low-income countries possibly due to capital flights associated with economic instabilities in these countries. The positive contribution of trade openness to economic growth in lower-middle-income is consistent with Ustarz and Fanta's (2021) finding that opening Sub-Saharan economies to the world positively contributes to their economic growth.

On the whole, in the short run, it can be concluded that domestic credit provided by banks and bank profitability, proxies for banking sector development, promote economic growth only in low-income countries. On the other hand, stock market development hurts economic growth in low-income, as well as upper-middle-income economies. Exports drive growth in all income classes whereas trade openness is good for economic growth in lower-middle-income countries but retards growth in low-income countries. Long-run estimates show that there is no relationship between financial development and economic growth in all three income classifications; only exports promote growth.

4.5. The mediating role of stability

Using the structural equation modelling, the direct effect of bank profitability (*NIM*) on *GDP*, the direct effect of *Stability* on *GDP*, the direct effect of *NIM* on *Stability*, and the indirect effect of *NIM* on *GDP* via *Stability* were analyzed. The results are presented in Table 5a.

Table 5a. Direct effects among variables

Variable	*Coefficient*	*Std. error*	*p-value*
Stability ←			
NIM	-0.2863	0.0812	0.000
Constant	16.11	0.60	0.000
GDP ←			
Stability	0.0264	0.0073	0.000
NIM	-0.1343	0.0129	0.000
Constant	7.5654	0.1562	0.000

The direct effect of bank profitability (*NIM*) on *Stability* is negative (-0.2863) and statistically significant, meaning an increase in *NIM* leads to a decrease in Z-score (bank stability measure). These results suggest that the profitability of banks in SSA is associated with financial instability contrary to Nguyen and Le's (2022) evidence from five Southeast Asian countries. Nevertheless, this evidence corroborates with Xu et al. (2019), who find a negative association between bank profit and the contribution of banks to both idiosyncratic and systemic risk in developed economies.

The direct effect of *Stability* on economic growth (*GDP*) is positive (0.02864) and statistically significant implying that financial stability enhances economic growth in the economies under study. This finding is consistent with the literature and confirms that financial stability fosters economic growth (Klein & Weill, 2022). The direct effect of *NIM* on *GDP* is negative (-0.1343) and statistically significant consistent with findings made by Tan and Floros (2012) in China. Klein and Weill (2017) assert that bank profitability may hurt economic growth if the level of competition among banks is low which leads to reduced access to credit.

The indirect effect of *NIM* on *GDP* is also negative (-0.0082) and statistically significant as presented in Table 5b.

Table 5b. Indirect effect of *NIM* on *GDP*

Variable	*Coefficient*	*OIM std. error*	*p-value*
Stability ←			
NIM	0	no path	-
GDP ←			
Stability	0	no path	-
NIM	-0.0082	0.0031	0.009

The results suggest the existence of a significant mediating role of stability between *NIM* and *GDP* in SSA economies given that all the paths' coefficients are statistically significant. As both the direct and indirect effects are significant, it implies that the effect or influence of *NIM* on *GDP* is exerted indirectly through the mediator (*Stability*) and other factors.

The overall direct and indirect effects of *NIM* on *GDP* are presented in Table 5c.

Table 5c. Total effects among variables

Variable	*Coefficient*	*OIM std. error*	*p-value*
Stability ←			
NIM	-0.2863	0.0812	0.000
GDP ←			
Stability	0.0286	0.0073	0.000
NIM	-0.1425	0.0129	0.000

The total effect of *NIM* on *GDP* is negative and statistically significant. These results are consistent with the direct effect of *NIM* on *GDP* presented in Table 5a. The results discount the view that bank profitability promotes economic growth in the low-, lower-middle, and upper-middle-income economies under study. This evidence concurs with Tan and Floros (2012) who identifies a negative relationship between GDP growth and bank profitability in China. The negative relationship between *NIM* and *GDP* might be attributed to large volumes of non-performing loans in developing nations (Reddy, 2015). The volume of interest-earning assets might be increasing (spurring investment and consumption in the economy), but non-performing loans also increase thereby reducing the net interest revenue generated by banks, leading to a negative relationship identified in this study.

The results obtained in testing for the level of mediation are presented in Table 6 below:

Table 6. Testing mediation level

Baron and Kenny's approach to testing mediation				
Step 1	*Stability: NIM*	(X → M)	B = -0.286	p = 0.000
Step 2	*GDP: Stability*	(M → Y)	B = 0.029	p = 0.000
Step 3	*GDP: NIM*	(X → Y)	B = 0.134	p = 0.000
Zhao, Lynch, and Chen's approach to testing mediation				
Step 1	*GDP: NIM*	(X → Y)	B = -0.134	p = 0.000

Baron and Kenny (1986), Sobel (1982), and Zhao et al.'s (2010) tests indicate that stability partially mediates the relationship between *NIM* and *GDP*. Using the ratio of indirect to total effect (0.008/0.142 = 0.058) approximately 6% of the effect

of *NIM* on *GDP* is mediated by stability. Applying the indirect to direct effect ratio (0.008/0.134 = 0.061) the mediated effect is about 0.1 times as large as the direct effect of *NIM* on *GDP*. Hence, the study finds evidence of partial mediation of stability on the bank profitability-growth nexus in SSA. Thus, *H2* is supported. This means financial stability influences the relationship between bank profitability and economic growth in SSA.

5. ROBUSTNESS TEST

The study performs different robustness tests to check the validity of the findings. The results of using alternative measures of bank profitability are displayed in Table 7 while the results for controlling for the 2007–2009 global financial crisis and the COVID-19 pandemic are presented in Table 8 and Table 9, respectively. Lastly, the SEM for the mediation analysis was re-estimated to control for the global financial crisis and the COVID-19 pandemic. The findings are presented in Table 10 and Table 11 in that order. For brevity and to save space, only the key analysis is made.

5.1. Baseline findings

The study used alternative measures for bank profitability, namely return on assets (*ROA*) and non-interest income (*NonII*) to check the robustness of the empirical model. The robust test estimates are presented in Table 7 below.

Table 7. Robustness test estimates

Variable (1)	*ROA* (2)	*Non-interest income* (3)
Short-run estimates		
GDP	0.7164***	0.6359***
DOM_CRED	0.0052**	0.0066***
EXP	0.066***	0.0837***
NIM	0.0339	0.0004
CAP_MKT	0.38***	0.5080***
TRADE_OPEN	0.002***	0.003***
Diagnostics		
Arellano–Bond (2)	0.094	0.115
Sargan	0.189	0.078
Long-run estimates		
DOM_CRED	0.0184***	0.0182***
EXP	0.2328***	0.2299***
CAP_MKT	1.3397***	1.3952***
TRADE_OPEN	0.007***	0.0082***

*Note: ***, **, * statistical significance at 1%, 5%, 10%, respectively.*

The results displayed in Table 7 are consistent with previous findings in terms of both coefficient sign and statistical significance, thereby demonstrating that the findings are robust to alternative measures of *NIM*. Interestingly, the variable *CAP_MKT* is elastic in both models in the long-run reiterating that stock market development is important for economic growth in SSA.

5.2. Controlling for the global financial crisis

The results for re-estimating the empirical model while controlling for the global financial crisis are presented in Table 8 below. The results presented in Table 8 are consistent with earlier results presented in Table 4 with respect to coefficient signs and statistical significance.

Table 8. Controlling for the global financial crisis

Variable (1)	*Whole sample* (2)	*Income level*		
		Low-income (3)	*Lower-middle* (4)	*Upper-middle* (5)
Short-run estimates				
GDP	0.7376***	0.7205*	0.8269***	0.5831**
DOM_CRED	0.0041*	0.0089	0.0074	0.0003
EXP	0.0574*	0.0544	0.0429	0.479
NIM	0.0035	0.0427**	0.0067	-0.0314
CAP_MKT	0.3884**	0.157	0.0797	-6.7809
TRADE_OPEN	0.0032*	0.0005	0.0021	-0.0008
GFC	0.0358	-0.0428	-0.0531	0.0374
Diagnostics				
Arellano–Bond (2)	0.229	0.897	0.165	0.095
Sargan	0.345	0.195	0.365	0.092
Long-run estimates				
DOM_CRED	0.0155***	-	-	-
EXP	0.2188***	-	-	-
NIM	-	0.1528	-	-
CAP_MKT	1.4806***	-	-	-
TRADE_OPEN	0.012***	-	-	-

*Note: ***, **, * statistical significance at 1%, 5%, 10%, respectively. GFC is for global financial crisis.*

This suggests that the global financial crisis had no adverse effects on the relationship between the profitability of banks and economic growth in SSA. This evidence is consistent with the United Nations Economic Commission for Africa (2009) which reports that SSA economies experienced a minimal impact of the global financial crisis because they are less prone to financial contagion since their financial markets are less integrated with the global financial system. Secondly, the complex structured products at the heart of the crisis are rarely used in African economies (Prizzon, 2008), due to financial underdevelopment. Thirdly, banks in SSA rely more on deposits for funding and their interbank markets are shallow (United Nations Economic Commission for Africa, 2009). Hence, as shown by Vazquez and Federico (2015) banks that rely on deposit funding were less prone to the effects of the crisis.

5.3. Controlling for the COVID-19 pandemic

The study also considers the potential effects of the COVID-19 pandemic on the empirical findings and the results for controlling for this pandemic are shown in Table 9.

Table 9. Controlling for the COVID-19 pandemic

Variable (1)	*Whole sample* (2)	*Income level*		
		Low-income (3)	*Lower-middle* (4)	*Upper-middle* (5)
Short-run estimates				
GDP	0.7330***	0.7166*	0.8502***	0.566**
DOM_CRED	0.0041	0.004	0.0022	-0.0002
EXP	0.0605	0.0545	0.041	0.5406*
NIM	-0.0009	0.039*	0.0086	-0.032
CAP_MKT	0.3637**	0.2754	-0.0035	-7.9834*
TRADE_OPEN	0.0034*	0.0015	0.0022	-0.0004
COVID_19	-0.0639	0.0414	-0.0142	0.0549**
Diagnostics				
Arellano–Bond (2)	0.165		0.334	0.089
Sargan	0.193		0.393	0.085
Long-run estimates				
NIM	-	0.1375	-	-
EXP	-	-	-	1.2457***
CAP_MKT	1.4806***	-	-	-18.395***
TRADE_OPEN	0.012***	-	-	-
COVID_19	-	-	-	0.1265**

*Note: ***, **, * statistical significance at 1%, 5%, 10%, respectively.*

The results displayed in Table 9, column 2 (full sample) show that the coefficient for *COVID_19* is statistically insignificant although it has an expected negative sign (-0.06). Based on these results, the study finds no evidence of the impact of the COVID-19 pandemic on the relationship between bank profitability and economic growth in SSA during the study period. This evidence can be explained by the fact that the COVID-19 pandemic was more severe in high-income (developed) countries and infection cases and deaths were low in Africa compared to other regions (Gondwe, 2020). Counterintuitively, the positive and statistically significant coefficient (see column 5) for countries classified as upper-middle-income suggests that upper-middle-income countries experienced positive economic growth during the COVID-19 pandemic. This finding corroborates with the Organization for Economic Co-operation and Development (OECD, 2020) finding that countries in the upper-middle income class managed to maintain their growth rates during the pandemic, possibly because their stimulus packages were able to cushion their economies from COVID-19-induced recession (Gondwe, 2020). However, as a caveat, the COVID-19 results should be taken with caution since only one year (2020) of the crisis was considered, hence, they may not show the full impact of the pandemic.

5.4. Mediation analysis including the global financial crisis

The mediation analysis results controlling for the global financial crisis are presented in Table 10 below.

The results in Table 10 show that the direct and indirect effect of *NIM* on *GDP* is negative and statistically significant, indicating that financial stability partially mediates the relationship between bank performance and economic growth consistent with earlier findings. This evidence suggests that bank profitability affects economic growth via the stability channel and other factors. On the other hand, these results convey that the empirical findings are robust to the global financial crisis.

The study also controls for the potential effect of the COVID-19 pandemic on the nexus between banks' profitability and economic growth in SSA. The results of re-estimating Eq. (1) incorporating the COVID-19 pandemic are presented in Table 11.

Table 10. SEM controlling for the global financial crisis

Variable	*Coefficient*	*OIM std. error*	*p-value*
Direct effects			
Stability ←			
NIM	-0.2863	0.0812	0.000
GDP ←			
Stability	0.0286	0.0073	0.000
NIM	-0.1343	0.0129	0.000
GFC	-0.0012	0.1105	0.992
Indirect effects			
Stability ←			
NIM	0	No path	-
GDP ←			
Stability	0	No path	-
NIM	-0.0082	0.0031	0.009
GFC	0	No path	-
Total effects			
Stability ←			
NIM	-0.2863	0.0812	0.000
GDP ←			
Stability	0.0286	0.0073	0.000
NIM	-0.1425	0.0129	0.000
GFC	-0.0012	0.1105	0.992

Note: Root mean square error of approximation (RMSEA) → 0.000; Comparative fit index (CFI) → 1.00; Tucker–Lewis index (TLI) → 1.00; Standardized root mean square residual (SRMR) → 0.007.

Table 11. SEM controlling for *COVID_19*

Variable	*Coefficient*	*OIM std. error*	*p-value*
Direct effects			
Stability ←			
NIM	-0.2863	0.0812	0.000
GDP ←			
Stability	0.0287	0.0073	0.000
NIM	-0.1338	0.013	0.000
GFC	0.0859	0.2518	0.733
Indirect effects			
Stability ←			
NIM	0	No path	-
GDP ←			
Stability	0	No path	-
NIM	-0.0082	0.0031	0.009
GFC	0	No path	-
Total effects			
Stability ←			
NIM	-0.2863	0.0812	0.000
GDP ←			
Stability	0.0287	0.0073	0.000
NIM	-0.142	0.013	0.000
COVID_19	0.0859	0.2518	0.733

Note: RMSEA → 0.000; CFI → 1.00; TLI → 1.00; SRMR → 0.008.

Consistent with the baseline mediation analysis findings, the results in Table 11 above show that financial stability has a complementary (partial) mediation effect on the bank profitability-growth nexus since the direct and indirect effects are significant and point in the same direction (negative). Accordingly, it can be concluded that the COVID-19 pandemic had no impact on the mediating effect of financial stability on the bank profitability-growth relationship. Hence, the empirical findings are robust to the COVID-19 pandemic. However, these results should be taken with care as they only consider one year of the pandemic, i.e., 2020, implying that they may not reflect the full impact of the crisis.

6. CONCLUSION

Using a sample of 26 countries in Sub-Saharan Africa from 2000 to 2020, the study provided empirical evidence on the nexus between bank profitability and economic growth. It further examines the mediating role of stability on the bank profitability-economic growth relationship. The findings are summarized as follows. Based on the full sample, surprisingly, the study documents that bank profitability, proxied by net interest margin, does not have a significant effect on economic growth in the SSA during the study period. The study, therefore, conclude that bank profitability does not impact economic growth in the SSA region. This evidence implies that there is inefficient financial intermediation in SSA which policymakers need to address. Inefficient financial intermediation can be addressed by improving competition in the financial markets. By promoting the entry of new fintech players policymakers can "cure" high bank margins and at the same time provide incentives for banks to provide financial services cost-effectively. The emerging literature on the impact of fintech on financial markets has shown that fintech exerts indirect pressure on banks to improve efficiency (as they strive to defend their market share) and they foster competition (Lee et al.,

2021; Wang et al., 2021). Not only that, fintechs improve access to finance, and they reduce financial frictions in credit markets (Dolson & Jagtiani, 2021). Next, besides efforts aimed at improving financial depth through high competition, policymakers in the SSA region should also pay more attention to improving financial access. Yusifzada and Mammadova (2015) show that for finance to promote growth; financial depth, access, efficiency, and stability should work in unison. Therefore, it is imperative for policymakers to not only focus on policies that promote financial depth but also advance financial access. Again, promoting fintech's entry can go a long way in improving financial access since literature has shown that fintech improves access to financial services (Erel & Liebersohn, 2020).

As expected and consistent with the literature, the full sample results show that banking sector development, proxied by domestic credit supply, exports, capital markets development, and trade openness has a positive effect on economic growth in both the short and long term.

As for the sub-sample analysis, the results show that bank (bank profitability and domestic credit) play an important role in economic growth in low-income SSA relative to lower-middle and upper-middle economies in the short-run, thereby confirming the view that banks dominate in economies with smaller and less liquid financial markets. The weak contribution of banks in most of the SSA economies supports the dominance of commercial banks funding which is restrictive when it comes to financing large-scale capital projects. From these results, the study advocates for the establishment of more highly capitalized and liquid development banks within the region. Presently, there are very few large development banks in Africa that can finance large-scale projects.

Next, contrary to expectations, capital market development has a negative relationship with economic growth in all sub-samples in both the short and long run. However, the impact is statistically significant in low-income and upper-middle-income economies. This evidence implies that stock markets play a less important role in economic development in SSA economies. The evidence is attributed to the underdevelopment and low liquidity of most stock markets within the SSA region. Thus, the results reiterate calls for more effort in improving the functioning of stock markets within the SSA. Strategies such as educating the masses about stock investments, improving the operation and technical efficiency of the markets, good governance, trustworthy investor protection policies, and trade automation among other policies may go a long way in improving the functioning of the stock markets with a positive effect on economic growth.

Intuitively, the study documents that exports promote economic growth in both the short-term and long-term in all sub-samples. Although this evidence is commendable, relevant authorities need to ensure that exports are resilient to severe economic shocks to guarantee sustainable economic growth. Severe crises such as the COVID-19 pandemic can have detrimental effects on international trade; hence, policymakers need to safeguard exports and international trade to mitigate growth disruptions. To that end, the promotion of development aid flows is one of the measures that ensure exports and trade resilience (Gnangnon, 2022).

The evidence of the impact of trade openness on economic growth is mixed. Trade openness has a positive effect on economic growth in lower-middle-income countries in the short and long-term, implying that trade openness stimulates economic growth in lower-middle-income SSA countries. At the same time, opening the economy hurts economic growth in low-income countries in the short run. No evidence was identified on the impact of trade openness in upper-middle-income countries. Thus, the study concludes that trade openness affects economies heterogeneously depending on the level of income (development). Economies classified as lower-middle income benefit from trade openness while lower-middle income suffers from it.

The mediation analysis results show that bank profitability partially mediates the relationship between bank profitability and economic growth in SSA, implying that bank profitability affects economic growth via stability and other factors. However, the effect is negative suggesting that there is intermediation inefficiency in the SSA region. This calls for policymakers to improve the role of banks in economic development. Besides regulatory measures, policymakers can enhance the efficiency of banks by promoting the entry of new Fintech players. The emerging literature on the interplay between incumbent banks and fintechs has shown that fintech players can motivate banks to improve their efficiency through competition which forces banks to develop or improve their internal fintech solutions (Claessens et al., 2018). Internal fintech solutions not only help banks to improve their efficiency but also helps them to reduce operational costs. Banks can pass these benefits to consumers through low-interest rates, thereby boosting access to finance and economic development. Overall, the results are robust to alternative profitability measures, the 2007–2009 global financial crisis, and the COVID-19 pandemic.

The limitations of this paper are as follows. First, it only considers a sample of emerging economies in SSA, hence, the findings may not be generalized amongst all emerging economies. Future studies may widen the sample to make it comprehensive by considering emerging economies from Europe, Asia, and South America and comparing the results. Second, the study did not consider the emerging role of fintech on banks' activities and economic growth. Emerging literature has shown that fintechs, although they still have a minimal economic impact on financial systems and the economy, are stronger contenders with traditional banks in both deposits and credit markets (Hodula, 2022; Buchak et al., 2021). Thus, future studies can look into the role of fintech in the interplay between banks and economic growth.

REFERENCES

1. Al Kharusi, S., Murthy, Y. S. R., & Al Foori, A. (2022). Performance and profitability of local banks: The case of the emerging market. *Corporate & Business Strategy Review, 3*(1), 55–63. https://doi.org/10.22495/cbsrv3i1art6
2. Alam, M. S., Rabbani, M. R., Tausif, M. R., & Abey, J. (2021). Banks' performance and economic growth in India: A panel cointegration analysis. *Economies, 9*(1), 38–51. https://doi.org/10.3390/economies9010038
3. Albertazzi, U., & Gambacorta, L. (2009). Bank lending and the business cycle. *Journal of Financial Stability, 5*(4), 393–409. https://doi.org/10.1016/j.jfs.2008.10.002
4. Alkhazaleh, A. M. K. (2017). Does banking sector performance promote economic growth? Case study of Jordanian commercial banks. *Problems and Perspectives in Management, 15*(2), 55–64. https://doi.org/10.21511/ppm.15(2).2017.05
5. Al-Sharkas, A. A., & Al-Sharkas, T. A. (2022). The impact on bank profitability: Testing for capital adequacy ratio, cost-income ratio and non-performing loans in emerging markets [Special issue]. *Journal of Governance & Regulation, 11*(1), 231–243. https://doi.org/10.22495/jgrv11i1siart4
6. Aluko, O. A., & Ajayi, M. A. (2018). Determinants of banking sector development: Evidence from Sub-Saharan African countries. *Borsa Istanbul Review, 18*(2), 122–139. https://doi.org/10.1016/j.bir.2017.11.002
7. Andrianova, S., & Demetriades, P. O. (2018). Financial development and financial fragility: Two sides of the same coin? *Comparative Economic Studies, 60*(1), 54–68. https://doi.org/10.1057/s41294-017-0047-z
8. 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
9. Aziz, O. G. (2020). Does bank profitability stimulate economic growth in the Arab region? *Review of Middle East Economics and Finance, 16*(2), Article 20190017. https://doi.org/10.1515/rmeef-2019-0017
10. Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173
11. Bikker, J. A., & Hu, H. (2002). *Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the Basel capital requirements* (BNL Quarterly Review No. 221). De Nederlandsche Bank. https://www.researchgate.net/publication/4810043_Cyclical_Patterns_in_Profits_Provisioning_and_Lending_of_Banks_and_Procyclicality_of_the_New_Basel_Capital_Requirements
12. Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115–143. https://doi.org/10.1016/s0304-4076(98)00009-8
13. Brueckner, M., & Lederman, D. (2015). Trade openness and economic growth: Panel data evidence from Sub-Saharan Africa. *Economica, 82*(s1), 1302–1323. https://doi.org/10.1111/ecca.12160
14. Buchak, G., Hu, J., & Wei, S.-J. (2021). *Fintech as a financial liberator* (NBER Working Paper No. 29448). National Bureau of Economic Research. https://doi.org/10.3386/w29448
15. Carbó-Valverde, S., & Sánchez, L. P. (2013). Financial stability and economic growth. In J. F. Guevara Radoselovics & J. M. Pastor Monsálvez (Eds.), *Crisis, risk and stability in financial markets* (pp. 8–23). Palgrave Macmillan. https://doi.org/10.1057/9781137001832_2
16. Ceylan, F., & Ceylan, I. E. (2020). Does bank profitability promote economic growth and vice versa? Panel causality evidence from the selected countries. In A. Appolloni, E. Ozeren, E. Aydin, & M. Gokerik (Eds.), *Proceedings of the Third EBOR Conference 2020* (pp. 105–115). EBOR Academy Ltd. https://dergipark.org.tr/tr/download/article-file/1468727
17. Claessens, S., Frost, J., Turner, G., & Zhu, F. (2018). Fintech credit markets around the world: Size, drivers and policy issues. *BIS Quarterly Review*. https://www.bis.org/publ/qtrpdf/r_qt1809e.htm
18. Cole, R. A., Moshirian, F., & Wu, Q. (2008). Bank stock returns and economic growth. *Journal of Banking & Finance, 32*(6), 995–1007. https://doi.org/10.1016/j.jbankfin.2007.07.006
19. Coulibaly, S. S., Gakpa, L. L., & Soumaré, I. (2018). The role of property rights in the relationship between capital flows and economic growth in SSA: Do natural resources endowment and country income level matter? *African Development Review, 30*(1), 112–130. https://doi.org/10.1111/1467-8268.12316
20. Creel, J., Hubert, P., & Labondance, F. (2015). Credit, banking fragility and economic performance. *Economic Modelling, 48,* 25–40. https://doi.org/10.1016/j.econmod.2014.10.025
21. Daradkah, D., & Janaideh, R. (2022). The effect of financial consumer protection on banks' competitiveness and profitability. *Corporate Governance and Organizational Behavior Review, 6*(4), 134–140. https://doi.org/10.22495/cgobrv6i4p12
22. Daway-Ducanes, S. L. S., & Gochoco-Bautista, M. S. (2019). Manufacturing and services growth in developing economies: "Too little" finance? *Progress in Development Studies, 19*(1), 55–82. https://doi.org/10.1177/1464993418807585
23. Demirgüc-Kunt, A., & Huizinga, H. (2000). *Financial structure and bank profitability* (Policy Research Working Paper No. 2430). World Bank. http://hdl.handle.net/10986/21368
24. Demirgüc-Kunt, A., Feyen, E., & Levine, R. (2013). The evolving importance of banks and securities markets. *The World Bank Economic Review, 27*(3), 476–490. https://doi.org/10.1093/wber/lhs022
25. Dietrich, A., & Winzanried, G. (2014). The determinants of commercial banking profitability in low-, middle-, and high-income countries. *The Quarterly Review of Economics and Finance, 54*(3), 337–354. https://doi.org/10.1016/j.qref.2014.03.001
26. Dolson, E., & Jagtiani, J. (2021). *Which lenders are more likely to reach out to underserved consumers: Banks versus fintechs versus other nonbanks?* (Research Department Working Paper No. 21-17). Federal Reserve Bank of Philadelphia. https://doi.org/10.21799/frbp.wp.2021.17
27. Erel, I., & Liebersohn, J. (2020). *Does fintech substitute for banks? Evidence from the paycheck protection program* (NBER Working Paper No. 27659). National Bureau of Economic Research. https://doi.org/10.3386/w27659

28. Flamini, V., McDonald, C. A., & Schumacher, L. B. (2009). *The determinants of commercial bank profitability in Sub-Saharan Africa* (IMF Working Paper No. 09-15). International Monetary Fund. https://doi.org/10.5089/9781451871623.001
29. Gabriel, A. A., & David, A. O. (2021). Effect of trade openness and financial openness on economic growth in Sub-Saharan African countries. *African Journal of Economic Review, 9*(1), 109–130. https://www.ajol.info/index.php/ajer/article/view/201730
30. Gakunu, P. (2007). Reforming the financial system in Sub-Saharan Africa: The (long) way ahead. *Finance Bien Commun, 3*(28–29), 139–146. https://doi.org/10.3917/fbc.028.0139
31. Gnangnon, S. K. (2022). Development aid and export resilience in developing countries: A reference to aid for trade. *Economies, 10*(7), Article 161. https://doi.org/10.3390/economies10070161
32. Gondwe, G. (2020). *Assessing the impact of COVID-19 on Africa's economic development*. United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/aldcmisc2020d3_en.pdf
33. Guan, L., Zhang, W.-W., Ahmad, F., & Naqvi, B. (2021). The volatility of natural resource prices and its impact on the economic growth for natural resource-dependent economies: A comparison of oil and gold dependent economies. *Resources Policy, 72,* Article 102125. https://doi.org/10.1016/j.resourpol.2021.102125
34. Guru, B. K., & Yadav, I. S. (2019). Financial development and economic growth: Panel evidence from BRICS. *Journal of Economics, Finance and Administrative Science, 24*(47), 113–127. https://doi.org/10.1108/jefas-12-2017-0125
35. Hodula, M. (2022). Does Fintech credit substitute for traditional credit? Evidence from 78 countries. *Finance Research Letters, 46*(Part B), Article 102469. https://doi.org/10.1108/JEFAS-12-2017-0125
36. Ibrahim, M., & Alagidede, P. (2018). Effect of financial development on economic growth in sub-Saharan Africa. *Journal of Policy Modeling, 40*(6), 1104–1125. https://doi.org/10.1016/j.jpolmod.2018.08.001
37. Imbierowicz, B., Löffler, A., & Vogel, U. (2021). The transmission of bank capital requirements and monetary policy to bank lending in Germany. *Review of International Economics, 29*(1), 144–164. https://doi.org/10.1111/roie.12500
38. Karimo, T. M., & Ogbonna, O. E. (2017). Financial deepening and economic growth nexus in Nigeria: Supply-leading or demand-following? *Economies, 5*(1), Article 4. https://doi.org/10.3390/economies5010004
39. Katusiime, L. (2021). COVID-19 and bank profitability in low-income countries: The case of Uganda. *Journal of Risk and Financial Management, 14*(12), Article 588. https://doi.org/10.3390/jrfm14120588
40. Keeley, M. C. (1990). Deposit insurance, risk, and market power in banking. *The American Economic Review, 80*(5), 1183–1200. https://www.jstor.org/stable/2006769
41. Klein, P.-O., & Weill, L. (2017). *Bank profitability: Good for growth?* (Working Paper No. 2017-02). University of Strasbourg. http://ifs.u-strasbg.fr/large/publications/2017/2017-02.pdf
42. Klein, P.-O., & Weill, L. (2018). Bank profitability and economic growth. *BOFIT Discussion Papers, 2018*(15), 4–42. https://www.proquest.com/docview/2067211405
43. Klein, P.-O., & Weill, L. (2022). Bank profitability and economic growth. *The Quarterly Review of Economics and Finance, 84,* 183–199. https://doi.org/10.1016/j.qref.2022.01.009
44. Kumar, V., & Bird, R. (2020). Do profitable banks make a positive contribution to the economy? *Journal of Risk and Financial Management, 13*(8), Article 159. https://doi.org/10.3390/jrfm13080159
45. La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). Government ownership of banks. *The Journal of Finance, 57*(1), 265–301. https://doi.org/10.1111/1540-6261.00422
46. Lee, C.-C., Li, X., Yu, C.-H., & Zhao, J. (2021). Does fintech innovation improve bank efficiency? Evidence from China's banking industry. *International Review of Economics & Finance, 74,* 468–483. https://doi.org/10.1016/j.iref.2021.03.009
47. Levine, R. (2005). Finance and growth: Theory and evidence. In P. Aghion & S. N. Durlauf (Eds.), *Handbook of economic growth* (Vol. 1, Chapter 12, pp. 865–934). Elsevier. https://doi.org/10.1016/S1574-0684(05)01012-9
48. Mamo, W. B., Feyisa, H. L., & Yitayaw, M. K. (2021). Financial performance of commercial banks in the emerging markets [Special issue]. *Corporate Governance and Organizational Behavior Review, 5*(2), 244–257. https://doi.org/10.22495/cgobrv5i2sip12
49. Manove, M., Padilla, A. J., & Pagano, M. (2001). Collateral versus project screening: A model of lazy banks. *The RAND Journal of Economics, 32*(4), 726–744. https://www.jstor.org/stable/2696390
50. Manu, L. P., Adjasi, C. K. D., Abor, J., & Harvey, S. K. (2011). Financial stability and economic growth: A cross-country study. *International Journal of Financial Services Management, 5*(2), 121–138. https://doi.org/10.1504/ijfsm.2011.041920
51. Mengistu, A., & Perez-Saiz, H. (2018). *Financial inclusion and bank competition in Sub-Saharan Africa* (IMF Working Paper No. 18-256). International Monetary Fund. https://doi.org/10.5089/9781484386163.001
52. Midrigan, V., & Xu, D. Y. (2014). Finance and misallocation: Evidence from plant-level data. *American Economic Review, 104*(2), 422–458. https://doi.org/10.1257/aer.104.2.422
53. Mosikari, T. J., & Eita, J. H. (2020). Modelling asymmetric relationship between exports and growth in a developing economy: Evidence from Namibia. *South African Journal of Economic and Management Sciences, 23*(1), Article a2905. https://doi.org/10.4102/sajems.v23i1.2905
54. Nguyen, D. T., & Le, T. D. (2022). The interrelationships between bank profitability, bank stability and loan growth in Southeast Asia. *Cogent Business & Management, 9*(1), Article 2084977. https://doi.org/10.1080/23311975.2022.2084977
55. Organization for Economic Co-operation and Development (OECD). (2020). *COVID-19 in Africa: Regional socio-economic implications and policy priorities*. https://read.oecd-ilibrary.org/view/?ref=132_132745-u5pt1rdb5x&title=COVID-19-in-Africa-Regional-socio-economic-implications-and-policy-priorities
56. Osmanovica, N., Kb, P., & Stojanovic, I. (2020). Impacts of Islamic banking system on economic growth of UAE. *Journal of Talent Development and Excellence, 12*(3s), 1555–1566. https://www.researchgate.net/publication/344015990_Impacts_of_Islamic_Banking_System_on_Economic_Growth_of_UAE
57. Prizzon, A. (2008). *The fallout from the financial crisis (2): External debt sustainability should more be done for the poor?* (OECD Development Centre Policy Insights No. 84). OECD Publishing. https://doi.org/10.1787/20772599

58. Raddatz, C., Kerry, W., Caparusso, J., Chen, Y., Sole, J., Tsunga, T., & Xu, Y. (2020). Low rates, low profits? In *Global financial stability report: Markets in the time of COVID-19* (Chapter 4, pp. 68–83). International Monetary Fund. https://doi.org/10.5089/9781513529196.082
59. Rahman, M. M., Rahman, M., & Masud, M. A. K. (2023). Determinants of the cost of financial intermediation: Evidence from emerging economies. *International Journal of Financial Studies, 11*(1), Article 11. https://doi.org/10.3390/ijfs11010011
60. Ranciere, R., Tornell, A., & Westermann, F. (2008). Systemic crises and growth. *The Quarterly Journal of Economics, 123*(1), 359–406. https://doi.org/10.1162/qjec.2008.123.1.359
61. Reddy, S. (2015). Non-performing loans in emerging economies — Case study of India. *Asian Journal of Finance & Accounting, 7*(1), 183–206. https://doi.org/10.5296/ajfa.v7i1.7687
62. Rioja, F., & Valev, N. (2014). Stock markets, banks and the sources of economic growth in low and high income countries. *Journal of Economics and Finance, 38*(2), 302–320. https://doi.org/10.1007/s12197-011-9218-3
63. Roberts, K. J., Smith, C., Cluver, L., Toska, E., & Sherr, L. (2021). Understanding mental health in the context of adolescent pregnancy and HIV in Sub-Saharan Africa: A systematic review identifying a critical evidence gap. *AIDS and Behavior, 25,* 2094–2107. https://doi.org/10.1007/s10461-020-03138-z
64. Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal, 9*(1), 86–136. https://doi.org/10.1177/1536867X0900900106
65. Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology, 13,* 290–312. https://doi.org/10.2307/270723
66. Sondakh, J. J., Tulung, J. E., & Karamoy, H. (2021). The effect of third-party funds, credit risk, market risk, and operational risk on profitability in banking. *Journal of Governance & Regulation, 10*(2), 179–185. https://doi.org/10.22495/jgrv10i2art15
67. Song, F., & Thakor, A. V. (2010). Financial system architecture and the co-evolution of banks and capital markets. *The Economic Journal, 120*(547), 1021–1055. https://doi.org/10.1111/j.1468-0297.2009.02345.x
68. Soumaré, I., Kanga, D., Tyson, J., & Raga, S. (2021). *Capital market development in sub-Saharan Africa: Progress, challenges and innovations* (ODI Working Paper No. 2). Overseas Development Institute (ODI). https://odi.org/en/publications/capital-market-development-in-sub-saharan-africa-progress-challenges-and-innovations/
69. Stewart, R., Chowdhury, M., & Arjoon, V. (2021). Bank stability and economic growth: Trade-offs or opportunities? *Empirical Economics, 61*(2), 827–853. https://doi.org/10.1007/s00181-020-01886-4
70. Stijns, J. P., & Revoltella, D. (2016). *Banking in sub-Saharan Africa recent trends and digital financial inclusion*. European Investment Bank. https://www.eib.org/attachments/efs/economic_report_banking_africa_digital_financial_inclusion_en.pdf
71. Tan, Y., & Floros, C. (2012). Bank profitability and GDP growth in China: A note. *Journal of Chinese Economic and Business Studies, 10*(3), 267–273. https://doi.org/10.1080/14765284.2012.703541
72. United Nations Economic Commission for Africa. (2009). *Africa and the global financial crisis: Towards a "just bargain" at the G20 Summit*. https://www.un.org/esa/ffd/wp-content/uploads/2015/07/ie-23042010-paper3.pdf
73. Ustarz, Y., & Fanta, A. B. (2021). Financial development and economic growth in sub-Saharan Africa: A sectoral perspective. *Cogent Economics & Finance, 9*(1), Article 1934976. https://doi.org/10.1080/23322039.2021.1934976
74. Vazquez, F., & Federico, P. (2015). Bank funding structures and risk: Evidence from the global financial crisis. *Journal of Banking & Finance, 61,* 1–14. https://doi.org/10.1016/j.jbankfin.2015.08.023
75. Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? — An analysis based on big data. *Research in International Business and Finance, 55,* Article 101338. https://doi.org/10.1016/j.ribaf.2020.101338
76. Xu, M. T., Hu, K., & Das, M. U. S. (2019). *Bank profitability and financial stability* (IMF Working Paper No. 19-5). International Monetary Fund. https://doi.org/10.5089/9781484390078.001
77. Yameogo, C. E. W., & Omojolaibi, J. A. (2021). Trade liberalisation, economic growth and poverty level in sub-Saharan Africa (SSA). *Economic Research-Ekonomska Istraživanja, 34*(1), 754–774. https://doi.org/10.1080/1331677x.2020.1804428
78. Yusifzada, L., & Mammadova, A. (2015). *Financial intermediation and economic growth* (William Davidson Institute Working Paper No. 1091). https://doi.org/10.2139/ssrn.2600191
79. Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade, 3*(1–2), 41–56. https://doi.org/10.1016/j.joat.2017.02.001
80. Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197–206. https://doi.org/10.1086/651257
81. Zheng, C., Perhiar, S. M., Gilal, N. G., & Gilal, F. G. (2019). Loan loss provision and risk-taking behavior of commercial banks in Pakistan: A dynamic GMM approach. *Sustainability, 11*(19), Article 5209. https://doi.org/10.3390/su11195209

APPENDIX

Table A.1. List of countries

No.	*Country*	*Income class*
1	Benin	Lower middle income
2	Botswana	Upper middle income
3	Burkina Faso	Low income
4	Cameroon	Lower middle income
5	The Democratic Republic of the Congo	Low income
6	Côte d'Ivoire	Lower middle income
7	Eswatini	Lower middle income
8	Gabon	Upper middle income
9	Ghana	Lower middle income
10	Kenya	Lower middle income
11	Madagascar	Low income
12	Malawi	Low income
13	Mali	Low income
14	Mauritania	Lower middle income
15	Mauritius	Upper middle income
16	Namibia	Upper middle income
17	Niger	Low income
18	Nigeria	Lower middle income
19	Rwanda	Low income
20	Senegal	Lower middle income
21	Sierra Leone	Low income
22	South Africa	Upper middle income
23	Togo	Low income
24	Uganda	Low income
25	Zambia	Lower middle income
26	Zimbabwe	Lower middle income

Source: World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups).

Table A.2. Variables

Variable	*Measurement*	*Literature*
Economic growth (*GDP*)	GDP per capita	World Bank Economic Development Indicators
Bank profitability (*NIM*)	Net interest revenue as a share of average interest-bearing (total earning) assets	World Bank Global Financial Development
Financial stability (*Stability*)	$Z\_score = \frac{\left(ROA + \left(\frac{Equity}{Assets}\right)\right)}{sd(ROA)}$	World Bank Global Financial Development
Domestic credit (*DOM_CRED*)	Domestic credit to the private sector (% of GDP)	World Bank Global Financial Development
Exports (*EXP*)	Exports to GDP	World Bank Economic Development Indicators
Capital market (*CAP_MKT*)	Dummy variable, 1 = presence of a stock market; 0 otherwise	World Bank Global Financial Development
Trade openness (*TRADE_OPEN*)	Imports plus exports to GDP	World Bank Economic Development Indicators

Source: Authors' construction.