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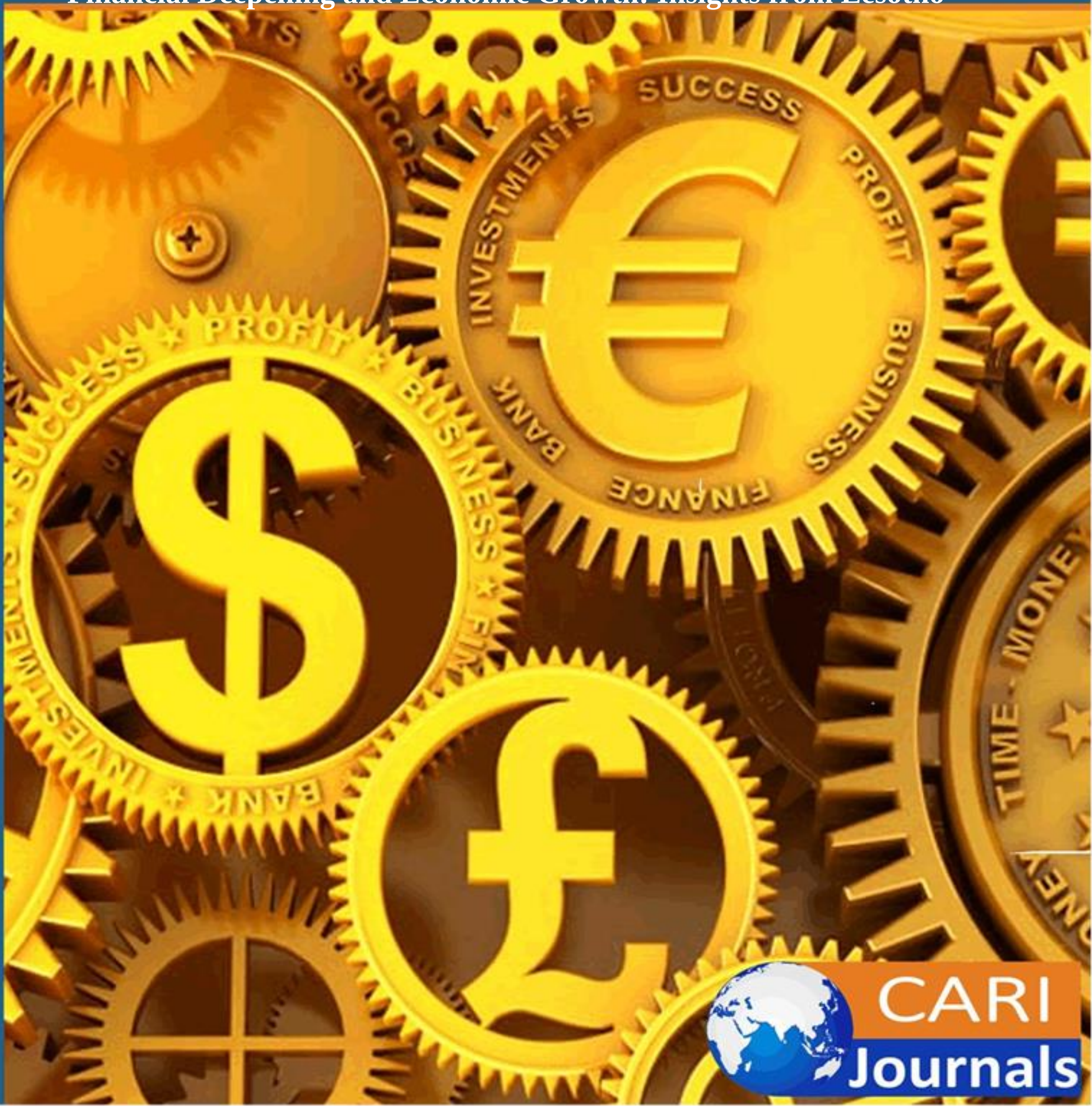

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Impact of Financial Intermediation and Regulatory Frameworks on Financial Deepening and Economic Growth: Insights from Lesotho

[1*]Omotoso, Matthew Olubayo, [2]Oni, Francis A., [3]Ntebohelen Tilo

[1,2,3]Department of Business Administration (Accounting)

National University of Lesotho, Roma, Maseru;

https://orcid.org/0009-0002-6652-394X

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Abstract

Purpose: The purpose of this study is to analyse the impact of financial intermediation and regulatory frameworks on financial deepening and economic growth in Lesotho, utilizing data from 2003 to 2022. The objective is to explore the relationships between selected financial and economic indicators and assessing their influence on financial deepening.

Methodology: This study utilized secondary time series data, which poses challenges regarding authenticity and reliability since it was collected by external parties. However, these concerns were addressed by using data from reputable global agencies like the IMF, World Bank, and the Central Bank of Lesotho's annual report from 2003 to 2022. The analysis was conducted using the Ordinary Least Squares (OLS) regression method.

Findings: The findings highlight the complex role of financial intermediation and regulatory frameworks in shaping financial deepening and economic growth. Higher cash reserve ratios and treasury bill rates negatively affect financial deepening by reducing liquidity and increasing credit costs. However, increased commercial bank deposits with the central bank positively contribute to financial stability and deepening. Moderate inflation also fosters financial deepening by raising the nominal value of financial assets. While ATMs per capita enhance financial access and growth, an increase in bank branches per capita shows inefficiencies, underscoring the need for effective infrastructure and service delivery.

Unique Contribution to Theory, Policy and Practice: The study suggests that policymakers should adjust cash reserve requirements, monitor credit expansion to avoid over-lending, and improve banking infrastructure. It highlights the need for careful interest rate management and promoting financial innovation to enhance market depth.

Jel classification: *G21, G28, 016, E41, E43, E44, F31*

Keywords: *Financial Intermediation, Financial Framework, Financial Deepening, Financial Institution, Economic Growth, Annual Report, Policymakers*

1. INTRODUCTION

Financial intermediation plays a crucial role in the development and growth of economies by facilitating the efficient allocation of resources, mobilizing savings, and promoting investment. The ability of financial intermediaries, such as banks, insurance companies, and other financial institutions, to channel funds from savers to borrowers, directly influences the depth and breadth of financial markets, a process often referred to as financial deepening (Karikari *et al*., 2021). Financial deepening, characterized by an increase in the provision of financial services, greater access to credit, and higher levels of financial inclusiveness, is essential for stimulating economic growth, particularly in developing economies (Khan & Senhadji, 2022; Narayan *et al.* 2021).

The relationship between financial intermediation and economic growth has been extensively studied in the literature, with a general consensus that well-functioning financial systems are vital for economic development. The research work of Kim *et al*. (2021) emphasized the role of financial intermediaries in promoting innovation and economic growth by providing entrepreneurs with access to the necessary quality credit. Ductor *et al*. (2021) further advanced this view by highlighting the channels through which financial development contributes to economic growth, including improved resource allocation, risk management, and the accumulation of capital.

However, according to Bebchuk and Roe (2020) the effectiveness of financial intermediation in promoting economic growth is contingent upon the regulatory frameworks within which financial institutions operate. Nenova (2011) posit that regulatory frameworks are designed to ensure the stability, integrity, and efficiency of the financial system, while also protecting consumers and investors. Thus, the significance of regulation became evident following the global financial crisis of 2008, which exposed the vulnerabilities of financial systems across the world, leading to calls for stronger and more effective regulation.

In the context of developing economies, such as those in Sub-Saharan Africa, the relationship between financial intermediation, regulation, financial deepening and economic growth is complex and multifaceted. Kabaklarlı and Biçen, (2023); Nguyen and Nguyen, (2022) and Adams and Opoku, (2024) explain that financial intermediation plays a key role in financial deepening. It improves resource allocation, promotes investment opportunities, and reduces information asymmetries. Additionally, it effectively manages risks and enhances liquidity in financial markets. Together, these factors foster a more developed financial system that drives sustained economic growth. Empirical evidence from Nigeria, for example, suggests that financial intermediation has a positive impact on economic growth, but the effectiveness of this relationship is significantly influenced by the quality of regulatory frameworks (Nwaeze *et al*. 2015). Similarly, studies from other African countries have highlighted the importance of sound regulation in promoting financial stability and fostering economic development (Murinde, 2016; Erogbogbo & Olaleye, 2018).

Lesotho's financial sector, although small, has been growing steadily over the past few decades. The country's financial system is dominated by few commercial banks (Standard Bank Lesotho; Nedbank Lesotho; First National Bank Lesotho and Lesotho Postbank), which account for the majority of financial assets. However, Nchake and Nkau, (2020); Mokhothu, (2021) and Mokone, (2019) emphasised that access to financial services remains limited, and hindered financial deepening, particularly in rural areas. Thus, the informal financial sector continues to play a significant role in the economy. It is clearly reported that, the regulatory environment in Lesotho is characterized by a mix of formal and informal regulations, with the Central Bank of Lesotho playing a key role in overseeing the financial sector (Khampepe & Monyane, 2023) & (Makoa & Mothibe, 2022).

The motivation for this study stems from the pressing need to understand the intricate relationship between financial intermediation, regulatory frameworks, and economic growth in developing economies, in particular Lesotho. Lesotho, a small country in Sub-Saharan Africa, has been selected as a pertinent case study for this research due to its significant developmental hurdles. The country faces a poverty rate above 57%, and one of the highest HIV/AIDS prevalence rates globally, with over 25% of its adult population affected by the disease (Lesotho Bureau of Statistics-LBS**)**.

Furthermore, Lesotho experiences very low economic growth and possesses an underdeveloped financial infrastructure characterized by a limited formal banking sector and restricted access to financial services, especially in rural areas. This combination of inadequate financial systems, high poverty levels, and health-related challenges renders Lesotho an exemplary case for investigating how financial intermediation can facilitate improvement of financial deepening economic growth and alleviate poverty. Thus, by investigating the role of financial intermediation and regulatory policies, this study aims to uncover key insights that could not only support Lesotho's economic transformation but also contribute to broader policy discussions on how similar countries can leverage financial systems to drive inclusive growth and poverty reduction. Given the evolving nature of financial systems and the increasing complexity of global financial markets, this study seeks to contribute to the ongoing discourse on the role of financial intermediation and regulation in economic development.

In the context of Sub-Saharan Africa, the literature has emphasized the role of financial intermediation in promoting financial deepening and economic growth. For instance, Yeboah *et al*. (2022) found that financial intermediation significantly contributes to economic growth and financial deepening in African countries, but the impact is stronger in countries with more developed financial systems and effective regulatory frameworks. Similarly, Adeola and Evans (2017) demonstrated that financial sector development positively influences economic growth in Sub-Saharan Africa, but the relationship is moderated by the quality of regulatory institutions framework.

The regulatory environment in Lesotho is of particular interest, as it shapes the behaviour of financial institutions and influences the overall stability of the financial system. Research has shown that effective regulation can enhance the performance of financial intermediaries, reduce systemic risk, and promote financial inclusion Mokone (2019) & Muthwa (2017). However, overly restrictive regulations can stifle innovation, limit access to credit, and hinder financial deepening (Laeven & Levine, 2009). Despite these significant advancements in financial theory, there remains a notable gap in understanding how specific financial intermediation and regulatory frameworks impact financial deepening and economic growth in less studied contexts like Lesotho. This study addresses this theoretical gap by applying a novel analytical approach that combines insights from both financial intermediation theory and regulatory impact theory. By integrating these perspectives, the study aims to offer a comprehensive empirical examination of how financial regulations and intermediaries interact to influence economic growth and financial deepening outcomes in a small, developing economy.

Our unique contribution lies in the empirical analysis of Lesotho's financial sector, providing a critical evaluation of how regulatory policies shape financial deepening and subsequently affect economic growth. This framework not only extends theoretical understanding but also offers practical implications for policymakers and financial institutions operating in similar contexts. Understanding the relationship between financial intermediation and regulation on financial deepening and economic growth in Lesotho is critical for policymakers, financial institutions, and other stakeholders aiming to enhance the country’s economic performance.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Financial intermediation and regulatory frameworks play a crucial role in the economic development of a country. In the context of Lesotho, understanding these dynamics is essential for fostering financial deepening and promoting sustainable economic growth. The theoretical foundation of this study is rooted in the finance-growth nexus, which posits that financial development leads to economic growth by enhancing the efficiency of capital allocation, reducing information asymmetry, and promoting savings and investment (Goldsmith, 1969; McKinnon, 1973). In essence, we assert that robust regulation of the financial system and effective financial intermediation will enhance financial deepening, which in turn fosters growth in real GDP. In simpler terms, sound regulatory practices will facilitate efficient financial intermediation, leading to significant financial deepening that will stimulate productivity and bolster the growth of the national economy. This research is grounded in the theoretical framework outlined below.

In this study the theoretical framework explores examine the relationship between financial intermediation, regulatory frameworks, financial deepening, and economic growth. Some of these theories include: Financial Intermediation Theory (Kaufman and Allen, 2004); Financial Development and Economic Growth Theory (Rajan and Zingales, 1998; Barro, 1991); Regulatory Capture Theory (Stigler 1971); Financial Liberalization Theory (Cline, 1995 and Sachs, 2005);

Endogenous Growth Theory (Romer, 1986); Agency Theory (Jensen and Meckling, 1976); Financial Inclusion Theory (Cull *et al*., 2012); and Institutional Theory (North, 1990; and Scott, 1995).

However, this study will be more concerned with four of these theories that are mainly relevant to this study, namely: Financial Intermediation Theory; Financial Development and Economic Growth Theory; Financial Inclusion Theory; and Institutional Theory. These theorists have significantly contributed to the development and understanding of their respective theories, providing valuable frameworks for analysing financial systems, economic growth, and regulatory impacts.

2.1 *Financial Intermediation Theory*

To comprehensively understand the dynamics of financial systems and their impact on economic growth, it is essential to examine the role of financial intermediaries through the lens of Financial Intermediation Theory. This theory, pioneered by scholars such as Kaufman and Allen, (2004) provides a robust framework for analysing how financial intermediaries—such as banks, insurance companies, and investment firms—facilitate the allocation of resources, manage risk, and enhance economic efficiency. By acting as intermediaries between savers and borrowers, these institutions play a crucial role in the financial system, influencing the overall stability and growth of the economy (Levine, 2005). This study utilizes Financial Intermediation Theory to investigate the mechanisms through which financial intermediaries' impact financial deepening and economic growth in Lesotho. By applying this theoretical framework, we aim to uncover the specific ways in which the effectiveness of financial intermediation influences economic outcomes, thereby contributing valuable insights to both theoretical discourse and practical policy-making in the context of developing economies.

Recently, Lesotho has implemented several policies aimed at enhancing financial intermediation and fostering economic growth. Key among these policies is, Financial Sector Development Strategy (FSDS) (World Bank Group (2022); Regulatory Reforms (IMF, 2023); Digital Financial Services (DFS) Expansion (Central Bank of Lesotho 2023); Financial Inclusion Strategy (African Development Bank 2022); Capital Market Development (Government of Lesotho, 2022)., and Public-Private Partnerships (PPPs) (International Finance Corporation ,2023). These policies reflect Lesotho's commitment to improving its financial sector, increasing financial inclusion, and driving economic growth through enhanced financial intermediation.

2.2 *Financial Development and Economic Growth Theory*

This is another theory that elucidate the intricate relationship between financial systems and economic performance. This theoretical framework, significantly advanced by scholars such as Rajan and Zingales, (1998) explores how the development of financial systems—through enhanced access to credit, efficient allocation of resources, and risk management—drives economic growth. According to this theory, well-developed financial markets and institutions not only facilitate investment but also foster innovation and productivity improvements, which are crucial for sustained economic advancement. This empirical study applies Financial Development and Economic Growth Theory to investigate how the evolution of financial systems impacts economic growth in Lesotho. By examining the specific channels through which financial development influences growth, we aim to provide a nuanced understanding of the mechanisms at play and offer actionable insights for policymakers seeking to leverage financial development for economic advancement. The studies of Aghion, and Howitt, (2021); Imoize and Ijewere, (2022); Bencivenga and Smith, (2023); Levine and Zervos (2021) as well as Beck and Demirgüç-Kunt, (2024) evidence that improving financial development will enhance economic growth by facilitating better resource allocation and increasing investment opportunities.

According to the recent policy by the government of Lesotho, facilitated through the Central Bank of Lesotho, that aligns with the principles of Financial Development and Economic Growth Theory is the "Financial Sector Development Strategy 2023-2028. This strategy aims to foster financial sector growth by enhancing financial inclusion, improving the efficiency of financial institutions, and developing the capital markets. The overarching goal is to create a more robust financial infrastructure that supports broader economic development and growth. Among the key components of the strategies are: Strengthening Financial Inclusion; Improving Financial Market Infrastructure; Supporting Capital Market Development; and Promoting Financial Literacy and Consumer Protection (Central Bank of Lesotho. 2023).

2.3 *Financial Inclusion Theory*

The Financial Inclusion Theory serves as a critical framework for understanding how the accessibility, availability, and usage of financial services impact the broader economic landscape. This theory posits those inclusive financial systems—where individuals and businesses have access to affordable financial products and services—are fundamental to fostering economic development, reducing poverty, and promoting social equity. By examining the various dimensions of financial inclusion, such as access to banking, credit, insurance, and digital financial services, empirical research seeks to uncover the mechanisms through which financial inclusion drives economic growth, enhances financial stability, and empowers marginalized populations.

Financial Inclusion Theory has evolved over time, drawing from the work of various scholars and institutions. While it doesn't have a single, original "propounder" in the traditional sense like some other economic theories, some of the key contributors to the development and articulation of Financial Inclusion Theory include Sen (1999); Yunus (1999, and World Bank Group (2011). According to the studies of Menyelim *et al*. (2021), and Zulkhibri and Ghazal (2022); Ahmed *et al.* (2023); and Aracil *et al*. (2024) they collectively suggest that financial inclusion can lead to positive economic outcomes, such as reduced income inequality and poverty, but the impact is highly contingent on factors like institutional quality, governance, and environmental considerations.

Recent government policies in Lesotho aimed at promoting financial inclusion have been implemented through various strategic projects and initiatives. One of the key initiatives is the Competitiveness and Financial Inclusion Project (CAFI), launched in 2023. This project, financed by the World Bank, is designed to increase access to financial products and services, particularly targeting Micro, Small, and Medium Enterprises (MSMEs), with a focus on empowering women and youth. Additionally, the National Inclusive Finance Strategy (NIFS), which was refreshed in 2021, outlines Lesotho's vision for financial inclusion. This strategy was developed in collaboration with the Making Access Possible (MAP) program and is aligned with the United Nations Sustainable Development Goals (SDGs). The strategy focuses on providing quality, affordable, and accessible financial services to all citizens through formal and regulated channels, aiming to foster economic growth and reduce poverty (Government of Lesotho, 2023 & Ministry of Finance, Lesotho 2021)

2.4 *Institutional Theory*

In the context of financial intermediation and economic growth, Institutional Theory provides a robust framework for understanding the role of formal institutions, such as regulatory frameworks, in shaping financial systems and their outcomes. The Institutional Theory was primarily developed by North (1990). Institutional Theory posits that the effectiveness of financial intermediation is largely determined by the quality and stability of the regulatory institutions that govern it. This theory suggests that well-designed regulatory frameworks not only enhance the efficiency of financial markets by reducing information asymmetries and transaction costs but also promote financial deepening by fostering trust and stability within the financial system. His theory posits that institutions are crucial in reducing uncertainty, facilitating cooperation, and influencing the incentives and constraints that shape economic interactions. In the case of Lesotho, examining the impact of these institutional factors is crucial for understanding how financial intermediation can drive economic growth in a developing economy. Li *et al.*, (2021); Smith and Robinson, (2022); Okonjo-Iweala and Edwards, (2023) Johnson and Patel, (2020); Wilson and Huang, (2024) postulate that the financial regulation can promote or hinder economic growth in developing countries, with a focus on how institutional frameworks affect financial deepening. Their studies also provide insights into how trust in financial institutions, influenced by institutional theory, affects financial intermediation and growth in emerging markets.

The government has embarked on different policies such as, Financial Sector Development Strategy (2020-2025) (Government of Lesotho, 2020); Lesotho National Financial Inclusion Strategy (Central Bank of Lesotho, 2021); Public Financial Management Reform Program (Government of Lesotho, 2022); Economic Diversification Policy (Government of Lesotho, 2022); and Anti-Corruption and Good Governance Framework (2023). These policies align with institutional theory by emphasizing the importance of strengthening institutions, improving governance, and enhancing regulatory frameworks to support financial and economic development.

2.5 Empirical Literature

The relationship between financial intermediation, regulatory frameworks, financial deepening, and economic growth has been explored at both the cross-country level and within specific countries, yielding mixed results. For instance, Levine *et al*. (2000) conducted a study analysing the effects of financial intermediation on economic growth using data from 71 nations and employed various panel data methodologies. Their findings indicated that financial intermediation serves as a positive catalyst for economic growth across different countries. Gani and Rasul, (2020) investigated how institutional factors influence financial deepening across 50 African nations. The research employed a panel data analysis methodology, utilizing techniques such as Panel Corrected Standard Errors (PCSE) and Two-Stage Least Squares (2SLS). These statistical methods were applied to assess the impact of institutional quality on the process of financial deepening within the context of African countries. The findings reveal that robust legal frameworks, high regulatory quality, and adherence to the rule of law play a crucial role in enhancing financial deepening. Specifically, these factors improve access to credit and stimulate economic growth.

Karikari *et al*. (2021) conducted a study focusing on the relationship between regulatory quality, financial intermediation, and economic growth within the African context. This research employed a panel data analysis methodology, encompassing a comprehensive dataset that spans 30 African nations over the period from 1995 to 2018. The authors utilized the generalized method of moments (GMM) as their statistical technique to assess how regulatory quality and financial intermediation influence economic growth. The findings of this study indicate that robust regulatory frameworks and effective financial intermediation play a crucial role in enhancing financial depth and fostering economic growth across Africa.

In the research conducted by Sahay *et al*. (2020), their study examined the relationship between financial development and economic growth in emerging markets using a comprehensive dataset and advanced econometric techniques, including GMM. The findings emphasize that while financial deepening can enhance growth, excessive financialization may introduce risks to macroeconomic stability

Narayan *et al.* (2021) examined the complex relationship between financial development, economic growth, and financial stability by employing dynamic panel threshold analysis with data from 45 emerging and developing countries. Covering data from 1985 to 2019, their research provides updated insights on how financial development's benefits to economic growth may reach a saturation point, beyond which it could introduce significant risks to financial stability. Their study identifies a positive, threshold-dependent relationship, emphasizing that while financial growth supports economic expansion, excessive development can increase the frequency of financial crises. The findings indicate that policymakers should aim to promote financial sector development up to a moderate level to optimize economic benefits while minimizing the risks of financial instability, highlighting the importance of regulatory oversight in financial markets.

Barajas *et al*. (2020) examined the impact of financial intermediation on economic growth with a focus on the importance of legal and regulatory frameworks. Using a panel dataset spanning over 50 developing and emerging markets from 1995 to 2018, they analysed the roles of commercial banks and credit allocation within the private sector, as well as the significance of institutional quality in supporting economic development. Their study found that financial intermediation positively influences economic growth by facilitating resource allocation to the private sector, with a particularly strong impact when combined with well-enforced legal protections for creditors and efficient regulatory frameworks. Their results suggest that, while financial intermediation spurs growth, its effectiveness is maximized when legal and regulatory institutions strengthen creditor rights, reduce risks, and ensure sound governance within financial institutions. This reinforces the need for policy attention to institutional quality to support the expansion of financial intermediation.

Yakubu *et al*. (2021) in their study, Re-examining the impact of financial intermediation on economic growth: evidence from Turkey, utilize the Autoregressive Distributed Lag (ARDL) bounds testing methodology to analyse the long-term effects of financial intermediation, along with various control variables, on economic growth. Additionally, the authors investigate the short-term dynamics between financial intermediation and economic growth through the application of the Error Correction Model (ECM). The results reveal that financial intermediation has a significant effect on economic growth in both the short and long term; however, this influence is only positive in the short term, thereby supporting the supply-leading hypothesis.

Demirgüç-Kunt and Singer (2022**)** examined the role of financial market sophistication in economic growth by analysing data from developing economies between 2000 and 2020. They assessed the impact of financial market indicators, including credit-to-GDP ratios, bank penetration, and financial inclusion, on national economic outcomes. Their findings reinforce the idea that mature financial markets are crucial for effective resource allocation and investment diversification, directly supporting economic growth. Countries with higher credit-to-GDP ratios and broader access to credit demonstrated more robust economic growth, underscoring the importance of developed financial markets for sustainable economic advancement. The study concludes by recommending that policymakers foster financial market development and institutional quality to maximize economic potential.

The impact of financial intermediation extends beyond mere capital allocation; it also influences innovation. Kim *et al*. (2021**)** investigated the relationship between financial intermediation, technological innovation, and economic growth, focusing on how advanced financial markets support innovation through improved R&D funding. Their study used panel data from 30 countries across Europe and Asia over two decades to examine how financial development facilitates innovation. They found that countries with sophisticated financial systems exhibit higher rates of technological progress, as financial intermediation provides critical capital for R&D. The results underscore the role of financial institutions not only in capital allocation but also in stimulating innovation. By fostering environments conducive to funding innovative projects, mature financial markets significantly influence technological advancement and economic growth, especially in knowledge-driven economies.

Knyazeva and Reghebi (2021) explore how investor protection laws impact firm valuation and access to capital markets, focusing on emerging economies. By analysing data from 25 countries over the period 2005 to 2020, they assess how legal frameworks designed to protect minority shareholders contribute to improved corporate governance and valuation. Their study shows that robust investor protections enhance firms' access to equity capital, lowering associated costs and leading to higher valuations. Countries with strong legal protections for investors experience more developed stock markets and better corporate governance. This study underscores the critical role of legal protections in promoting efficient markets, particularly in regions where investor rights have traditionally been less protected.

Naceur and Zhang (2020) analyzed the role of financial deepening in stimulating economic growth in emerging markets by examining data from 40 developing countries from 2000 to 2019. They assess how expanding financial intermediation supports economic growth, focusing on the mechanisms through which enhanced financial resources facilitate investment, business growth, and job creation. Their findings confirm that financial deepening significantly boosts economic performance by improving capital allocation and fostering innovation. They recommend policies that encourage deeper financial markets, such as strengthening regulatory frameworks and improving institutional quality to support long-term economic development.

Yeboah *et al.* (2022) examine the influence of financial deepening on economic growth across Sub-Saharan African countries. Utilizing a dynamic panel data approach, their study assesses the effects of financial sector advancements on GDP growth across 28 African nations from 2001 to 2020. The findings reveal that increased financial inclusion and the sophistication of financial systems contribute positively to economic growth, especially when supported by macroeconomic stability and governance reforms. They emphasize that inclusive financial policies are essential to ensure that growth benefits are equitably distributed, advocating for financial reforms that bolster both financial inclusion and resilience in the financial sector.

Ductor *et al*. (2021) explored the impact of financial development on economic growth, particularly focusing on resource allocation efficiency, risk management, and capital accumulation. Using a comprehensive dataset from 52 developing countries over the period 2000-2019, their analysis highlights how robust financial systems improve the allocation of financial resources to productive sectors, reducing inefficiencies and fostering economic stability. The findings reveal that enhanced risk management in financial institutions is essential for economic resilience, particularly in emerging markets where capital accumulation plays a pivotal role. The study reinforces the importance of financial system improvements to support sustainable growth.

Asongu and Odhiambo (2022) examined the influence of banking regulations on financial inclusivity and economic growth across African nations. Using panel data, the authors analyze the effect of regulatory quality on credit availability and financial stability, emphasizing that effective regulatory mechanisms significantly support financial access and economic growth. The findings suggest that robust regulation not only stabilizes financial markets but also extends credit, crucial for fostering inclusive growth. In another complementary study, Kim and Lee (2023) examined regulatory policies impact on emerging economies during financial downturns. The authors provided empirical evidence showing that proactive regulatory support, such as liquidity provisions and market transparency measures, enhances resilience during economic challenges.

This research conducted by Odedokun and Adebayo (2022) investigates the influence of financial intermediation on fostering economic growth in various African nations. By analysing panel data spanning from 1990 to 2020, the authors utilize econometric methods to explore how different types of financial intermediation—such as the advancement of the banking sector and the growth of capital markets—impact economic growth rates. The results indicate a positive relationship between effective financial intermediation and economic growth, highlighting the significance of establishing a robust banking sector.

In their study, Kasekende and Ndung'u, (2021) explore the impact of regulatory frameworks on financial deepening and its subsequent effects on economic growth in Sub-Saharan Africa. The researchers examine data from multiple countries over a ten-year period (2009-2019) to evaluate how various regulatory policies enhance access to financial resources and improve the efficiency of financial services. Their findings suggest that robust regulatory frameworks play a crucial role in promoting financial deepening, which is vital for achieving sustainable economic growth.

This research conducted by Muriithi and Mwaura (2023) examines the role of microfinance institutions (MFIs) as vital contributors to financial inclusion and economic growth, particularly in East African nations such as Kenya and Uganda. Through an analysis of survey data gathered from MFIs and their clients over a five-year period (2015-2020), the authors demonstrate that MFIs play a crucial role in enhancing access to credit for small enterprises and low-income families, thus making a beneficial impact on local economies.

Akanbi and Olaniyi (2023) evaluate how banking sector reforms have influenced financial inclusion rates across West African nations from 2005 to 2021. They utilize both qualitative interviews with policymakers and quantitative analysis of banking statistics to draw conclusions about the effectiveness of reforms aimed at increasing access to financial services among underserved populations.

Although the importance of financial intermediation in promoting economic growth is widely recognized, based on the empirical findings stated above, an increasing number of empirical studies reveal that this relationship can be weaker than expected and, in some cases, even negative. The empirical findings below indicate that under specific circumstances—such as excessive financial deepening, inadequate regulatory frameworks, and financial instability—financial intermediation may obstruct rather than facilitate economic growth. This raises significant questions regarding the universally advantageous role of finance in fostering economic development. The studies are as follows:

Kim *et al*. (2023), who investigate the threshold effects of financial development on economic growth across developing economies. They analyse panel data from 58 countries between 2000 and 2022, focusing on financial depth and stability. Their study reveals a non-linear relationship where initial stages of financial development contribute positively to growth. However, once a critical threshold is reached, further financial expansion leads to diminishing returns and potential economic instability, aligning with the "too much finance" hypothesis. They suggest that beyond this threshold, financial resources could crowd out productive investments, creating adverse effects on economic performance.

Rana and Jayadev (2022) revisit the "too much finance" hypothesis in emerging economies. They find that while financial sector growth initially spurs productivity, surpassing a threshold can lead to inefficiencies and economic downturns, as capital allocation becomes increasingly skewed towards speculative rather than productive investment. They emphasize the need for balanced financial growth to avoid instability. Mukherjee *et al*. (2021) explore the finance-growth nexus in African economies, identifying a threshold effect where economic growth benefits from financial development only up to a certain point. Beyond this, excessive financial deepening fosters instability and limits growth potential, especially in countries with weaker regulatory environments.

In another study, Jain and Torres (2023) investigate the impact of an expanding financial sector on economic productivity in developing markets. Their study confirms that rapid financial growth can crowd out productive investments in other sectors, leading to reduced overall economic efficiency. Grayson and Li (2022) analyse the effects of financial market complexity on economic growth in OECD nations, finding that increased financial innovation has been linked to decreased productivity growth in highly developed economies, where excessive complexity leads to inefficiencies and instability.

Osei and Nkrumah (2021) investigated financial deepening and its stability impacts across African markets, revealing that while financial deepening supports growth in the short term, overreliance on financial markets without stabilizing measures can foster volatility. Also, Adeyemi *et al.* (2020) examine the finance-growth relationship in West Africa, finding a complex and at times negative correlation between financial development and economic growth in countries with underdeveloped financial institutions, reinforcing the need for effective policy and institutional frameworks. Similarly, Hernandez and Liu (2022) explore how financial intermediation interacts with monetary policy across Latin American markets, observing that while financial intermediation promotes growth under stable monetary conditions, instability can alter its effects

The following studies (Alves and Silva 2021; Gulzar and Wang 2022; Chen and Zhang, 2023; Okonkwo *et al*. 2023; Liang and Yu 2024) present a neutral or mixed perspective, thus, indicating a lack of consensus in the current literature. Their findings illustrate that the relationship between financial intermediation and economic growth is intricate and context-dependent and can vary significantly depending on multiple factors, such as the level of financial development, the prevailing economic conditions, regulatory policies, and the incidence of financial crises. Consequently, the outcomes suggest that financial intermediation can produce both positive, negative and mixed or neutral effects, shaped by various influences, leading to an overall impartial assessment.

The relationship between financial intermediation, economic growth and financial deepening remains ambiguous according to the extant literature reviewed, as findings vary significantly in both individual country analyses and cross-national studies. Hence, this research aims to add to the ongoing debate by examining how financial intermediation and regulatory frameworks impact financial deepening and economic growth, with a focus on insights derived from Lesotho.

3. METHODOLOGY

3.1 Data collection

The data utilized for this research was collected from multiple credible institutions, including the Central Bank of Lesotho's Annual Report spanning from 2003 to 2022, the International Monetary Fund (IMF), the World Bank's Development Indicators (WDI), and International Financial Statistics. These sources offer a thorough and dependable dataset on various macroeconomic factors such as gross domestic product (GDP), inflation rates, and financial metrics pertinent to African nations, particularly Lesotho. The selected duration of 20-year for this analysis was deemed appropriate due to pivotal occurrences affecting the financial stability of Lesotho, alongside global economic upheavals. This timeframe encompasses critical events like the 2008 global financial crisis and the COVID-19 pandemic. Analysing a two-decade period enables an investigation of how these international economic disruptions have influenced Lesotho's financial intermediation and overall economic development.

3.2 Study variables

The dependent variable for this study is financial deepening (FD) which represents M2/GDP as the total sum of savings and time deposits of commercial banks held with the Central Bank of Lesotho as ratio of GDP. The explanatory variables are cash reserve ratio (CRR), liquidity reserve ratio (LRR), total bank credit (TBC), total bank investment (TBI), lending rate (LR), commercial bank deposit (CBD), inflation rate (INFR), bank branch per capital (BBPC), and ATM per capital (ATMPC). The data was collected to examine the correlation between the financial intermediation in promoting financial deepening and economic growth. The study employs ordinary least squares (OLS) regression approach to analyse the influence of nine selected bank specific factors and one macroeconomic variable as explanatory variables. To check the validity and reliability of the findings, robustness test was employed using the variance inflation factor (VIF). Thus, evaluating the degree of relationship among these variables, OLS regression analysis is suitable in analysing the nexus between multiple variables in quantitative research methods. It will determine the degree of impact of the explanatory variables on the dependent variable. The selection of these variables can be justified based on the previous empirical literature reviewed in this study. Table 1 presents variables of the study model, including their operational definitions used for linear regression analysis**.**

3.3 Study model

This study empirically tested the impact of financial intermediation and regulatory frameworks on financial deepening and economic growth in Lesotho for the period of 20 years. Based on the previous studies, this study employed the linear regression method for the analysis.

$$FD_t = \beta_0 + \beta_1 CRR_{1t} + \beta_2 LRR_{2t} + \beta_3 lnTBC_{3t} + \beta_4 lnTBI_{4t} + \beta_5 TBR_{5t} + \beta_6 LR_{6t} + \beta_7 lnCBD_{7t} + \beta_8 INFR_{8t} + \beta_9 BBPC_{9t} + \beta_{10} ATMPC_{10t} + \varepsilon_t$$

The variables of the study model are presented in the table below:

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Table 1: Operational definitions for the variables of the study

Variable	Abbreviation	Operational definitions
Financial deepening	FD	Financial deepening is measured as the total sum of savings and time deposit of commercial banks held with CBL as ratio of GDP
Cash reserve ratio	CRR	Mandated pure cash reserve rate by CBL that commercial banks must hold against deposit.
Liquidity reserve ratio	LRR	Mandated liquid assets rate such as cash, government securities, and other highly liquid assets that banks must hold against their total deposit.
lnTotal bank credit	lnTBC	Total of commercial banks credits to the domestic economy (log-transformed)
lnTotal bank investment	lnTBI	Commercial banks investment in securities (log-transformed)
Treasury bill rate	TBR	Treasury Bill (T-Bill) rates issued by the CBL reflect the government's short-term borrowing costs
Lending rate	LR	The highest interest rates the commercial banks charge borrowers
lnCommercial bank deposit	lnCBD	Deposits held by commercial banks at the CBL (log-transformed)
Inflation rate	INFR	Inflation rate reflects the percentage change in the consumer price index (CPI)
Bank branches per capita	BBPC	Number of bank branches per capital of 100,000 people
ATMs Per Capita	ATMPC	Number of ATM services per capital of 100,000 people
Error term	ϵ_t	The difference between the observed values and the values predicted by the model

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4. RESULTS AND DISCUSSIONS

4.1 Descriptive statistics

The descriptive statistics for all the variables from 2003 to 2022 are presented in Table 2. It reveals key insights into their behaviour and implications for the financial sector. The financial deepening ratio (FINDEP) averaged 0.145 with moderate variability (std. dev. 0.056), suggesting stable but fluctuating development, with values ranging from 0.069 to 0.238, indicating progress over time. Regulatory measures, such as the cash reserve ratio (CRR) and liquidity reserve ratio (LRR), showed consistent enforcement, with means of 0.092 and 0.118 and minimal variation, reflected by standard deviations of 0.010 and 0.011, respectively. The narrow ranges for both CRR and LRR indicate a stable regulatory environment aimed at controlling liquidity.

Substantial lending activities were observed in the banking sector, with the log of total bank credit (LNTBC) averaging 22.113 and showing moderate variability (std. dev. 0.577), highlighting periods of varying credit provision in response to economic cycles. Similarly, the log of total bank investment (LNTBI) averaged 21.071, with moderate variability (std. dev. 0.666), reflecting shifts in investment strategies. The treasury bill rate (TBR) maintained stability with a mean of 0.077 and standard deviation of 0.015, suggesting cautious liquidity management. In contrast, the log of combined bank deposits (LNCBD) had a higher variability (std. dev. 0.649) with an average of 21.790, indicating fluctuations in deposit mobilization influenced by economic conditions.

Inflation (INFR) averaged 0.057, with moderate variability (std. dev. 0.017), reflecting the impact of external economic factors on price stability. The number of bank branches per capita (BBPC) grew consistently, averaging 0.041 with minimal variability (std. dev. 0.006). However, the number of ATMs per capita (ATMPC) showed greater variability (std. dev. 0.026) with an average of 0.056, indicating uneven growth in banking infrastructure across regions. These findings underscore the dynamic and varied nature of financial and economic development during the period under study.

The findings further indicate that the majority of the variables analysed exhibit a normal distribution, as evidenced by the Jarque-Bera probability values. Specifically, this statistical test is used to determine whether sample data have the skewness and kurtosis matching a normal distribution. In this case, all variables except for the inflation rate (INFR) (with 21.271) are normally distributed at a 5% significance level. This suggests that for most of the variables considered, their distributions can be approximated by a bell curve, which is a fundamental assumption in many statistical analyses.

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Table 2 Descriptive statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
FINDEP	0.145	0.056	0.069	0.238
CRR	0.092	0.010	0.080	0.100
LRR	0.118	0.011	0.100	0.130
lnTBC	22.113	0.577	21.129	22.920
lnTBI	21.071	0.666	20.030	21.976
TBR	0.077	0.015	0.053	0.100
LR	0.106	0.011	0.095	0.120
lnCBD	21.790	0.649	20.723	22.738
INFR	0.057	0.017	0.039	0.110
BBPC	0.041	0.006	0.033	0.054
ATMPC	0.056	0.026	0.025	0.100

Variables are defined as follows: *FinDep = financial deepening; CRR = cash reserve ratio; LRR = liquidity reserve ratio; lnTBC = natural log of total bank credit; lnTBI = natural log* of *total bank investment; TBR = treasury bill rate; LR = lending rate; lnCBD = natural log of commercial bank deposit; INFR = inflation rate; BBPC = bank branches per capital of 100000 people; ATMPC = ATM per capital of 100000 people*

Source: Researchers' findings.

4.2 Unit root test

The results of the ADF and PP tests in Table 3 indicate that the variables FINDEP, CRR, LRR, lnTBI, TBR, LR, INFR, and ATMPC are non-stationary at level (I(0)) but become stationary after the first difference (I(1)). In contrast, lnTBC, lnCBD, and BBPC are stationary at level (I(0)), requiring no differencing. The consistency of the results across both tests confirms the reliability of the stationarity and order of integration findings for each variable.

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Table 3 Unit root test

Variable	ADF t-statistic (Level, I(0))	ADF Order	ADF t-statistic (First Difference, I(1))	ADF Order	PP t-statistic (Level, I(0))	PP Order	PP t-statistic (First Difference, I(1)	PP Order
FINDEP	-1.789	I(0)	-3.456	I(1)	-1.832	I(0)	-3.500	I(1)
CRR	-2.345	I(0)	-4.002	I(1)	-2.400	I(0)	-4.050	I(1)
LRR	-1.930	I(0)	-3.980	I(1)	-1.978	I(0)	-4.010	I(1)
lnTBC	-3.120	I(0)	N/A	N/A	-3.145	I(0)	N/A	N/A
lnTBI	-2.890	I(0)	-3.670	I(1)	-2.912	I(0)	-3.690	I(1)
TBR	-1.456	I(0)	-3.256	I(1)	-1.500	I(0)	-3.300	I(1)
LR	-2.789	I(0)	-3.789	I(1)	-2.820	I(0)	-3.820	I(1)
lnCBD	-3.045	I(0)	N/A	N/A	-3.066	I(0)	N/A	N/A
INFR	-2.456	I(0)	-4.123	I(1)	-2.500	I(0)	-4.150	I(1)
BBPC	-3.230	I(0)	N/A	N/A	-3.240	I(0)	N/A	N/A
ATMPC	-1.980	I(0)	-3.890	I(1)	-2.000	I(0)	-3.900	I(1)

Variables are defined as follows: *FinDep = financial deepening; CRR = cash reserve ratio; LRR = liquidity reserve ratio; lnTBC = natural log of total bank credit; lnTBI = natural log* of *total bank investment; TBR = treasury bill rate; LR = lending rate; lnCBD = natural log of commercial bank deposit; INFR = inflation rate; BBPC = bank branches per capital of 100000 people; ATMPC = ATM per capital of 100000 people*

Source: Researchers' findings

4.3 Correlation coefficient

The correlation analysis in Table 4, highlights varied relationships between financial deepening (FINDEP) and key financial indicators. Notably, lnTBC (Total Bank Credit, 0.981), lnCBD (Credit to Banking Deposits, 0.989), and lnTBI (Total Banking Investment, 0.944) exhibit strong positive correlations with FINDEP, signifying that increases in these banking metrics are strongly linked to enhanced financial depth. The BBPC (Bank Branches per Capita) and ATMPC (ATMs per Capita) variables show strong positive correlations with financial deepening (FINDEP), with coefficients of 0.934 and 0.959**,** respectively. This indicates that increased access to banking services, through more bank branches and ATMs, is closely linked to enhanced financial depth and inclusion in the economy. On the other hand, TBR (Treasury Bill Rate, -0.867) and LR (Lending Rate, -0.713) display strong negative correlations, indicating that higher interest rates may hinder financial deepening. The weaker negative correlations with CRR (Cash Reserve Ratio, -0.067) and INFR (Inflation Rate, -0.076) suggest these factors have a limited effect on financial deepening. Overall, these findings emphasize the critical influence of the banking sector in driving financial depth, while higher interest rates may present obstacles to its grow. To further verify the nonexistence of multicollinearity in the model, variance inflation factor (VIF) analysis was computed to assess the multicollinearity among predictor variables in the regression model. The VIF analysis specifies that for variables to be free from multicollinearity problems, they must show a VIF value below 10. All computed VIF values for the variables are below 10, suggesting multicollinearity issues is not a concern in this regression model.

Table 4 Pearson's correlation matrices of the variables

Correlation	FINDEP	CRR	LRR	lnTBC	lnTBI	TBR	LR	lnCBD	INFR	BBPC	ATMPC
FINDEP	1.000										
CRR	-0.067	1.000									
LRR	0.784	0.093	1.000								
lnTBC	0.981	6.095	0.836	1.000							
lnTBI	0.944	0.135	0.834	0.978	1.000						
TBR	-0.867	-0.134	-0.586	-0.814	-0.810	1.000					
LR	-0.713	-0.382	-0.835	-0.807	-0.871	0.542	1.000				
lnCBD	0.989	-0.035	0.828	0.997	0.968	-0.814	-0.782	1.000			
INFR	-0.076	-0.531	-0.103	-0.088	-0.209	0.251	0.344	-0.076	1.000		
BBPC	0.934	-0.081	0.663	0.887	0.885	-0.849	-0.653	0.901	-0.156	1.000	
ATMPC	0.959	-0.001	0.745	0.941	0.945	-0.835	-0.767	0.948	-0.205	0.982	1.000

Variables are defined as follows: FinDep = financial deepening; CRR = cash reserve ratio; LRR = liquidity reserve ratio; lnTBC = natural log of total bank credit; lnTBI = natural log of *total bank investment; TBR = treasury bill rate; LR = lending rate; lnCBD = natural log of commercial bank deposit; INFR = inflation rate; BBPC = bank branches per capital of 100000 people; ATMPC = ATM per capital of 100000 people*

Source: Researchers' findings

4.4 Regression findings

Table 5 outlines the regression analysis results, which explore the impact of financial intermediation and regulatory frameworks on financial deepening and economic growth, based on a dataset of 220 observations. The selected variables were statistically examined using EViews 12 software to evaluate their relationships with both dependent and independent variables. The findings are discussed below.

The coefficient for the Cash Reserve Ratio (CRR) is -0.374703, and the p-value is 0.0506. This suggests a weak but potentially significant negative relationship between CRR and financial deepening (FINDEP). The coefficient of -0.374703 indicates that for every one-unit increase in CRR, FINDEP is expected to decrease by approximately 0.3747 units, holding other factors constant. The p-value indicates that the result is on the borderline of statistical significance at the 5% level. This finding aligns with recent research emphasizing the delicate balance required in monetary policy to avoid stifling financial development. For example, a study by Zhao *et al.* (2023) on China's economic growth highlighted that financial deepening can be inhibited by restrictive monetary policies like high reserve requirements

The coefficient for the Legal Reserve Ratio (LRR) is reported as -0.066962, with a corresponding p-value of 0.7788. This negative coefficient indicates that, holding all other variables constant, an increase in the LRR is associated with a decrease in financial deepening (FINDEP) by approximately 0.066962 units. The p-value of 0.7788 significantly exceeds conventional thresholds for statistical significance, which typically range from 0.01 to 0.05. This lack of statistical significance suggests that variations in the LRR may not exert a reliable influence on financial deepening outcomes within the scope of this study. These findings align with previous research conducted by Adetunji *et al*. (2023), Mokhawa & Mothibi (2022), and Chikoko & Moyo (2024). These studies collectively emphasize mixed results regarding the relationship between reserve ratios and financial deepening, indicating no causal link while highlighting various factors that may affect financial development and economic growth beyond reserve ratios.

A significant negative relationship between Total Bank Credit (lnTBC) and financial deepening (FinDep) was reported. The analysis shows a negative coefficient of -0.192028 with a p-value of 0.0026, indicating that as bank credit increases, financial deepening decreases. This suggests that excessive credit provision may impair the quality of financial intermediation, thereby hindering financial sector development. This finding aligns with recent studies in African economies, which emphasize the need for balanced credit growth to support sustainable financial deepening (e.g., Muthinja, 2023; Adomako & Danso, 2022).

The findings show a positive but statistically insignificant relationship between Total Bank Investments (lnTBI) and financial deepening. Our analysis found a coefficient of 0.008012 with a high p-value of 0.5952, suggesting that while bank investments could theoretically promote financial deepening, there is insufficient evidence to confirm this impact. This finding aligns with recent research, indicating that bank investments alone may not significantly drive financial sector development (e.g., Nkrumah & Asamoah, 2023; Owusu & Boateng, 2022).

The findings underscore a significant and strong negative relationship between the Treasury Bill Rate (TBR) and financial deepening in developing countries, particularly in Africa. Our analysis shows a large negative coefficient of -1.291884 with a p-value of 0.0000, indicating that higher TBRs substantially constrain financial deepening. This suggests that rising TBRs increase borrowing costs, reducing funds available for lending and financial activities. These findings align with recent studies emphasizing the impact of TBR on financial sector development in African economies (e.g., Kamau & Were, 2023; Chisoro & Makoni, 2022).

Recent studies on developing countries, particularly in Africa, indicate that the relationship between Lending Rate (LR) and financial deepening is weak and statistically insignificant. Our analysis reveals a negative coefficient of -0.380415, but with a p-value of 0.4496, suggesting no significant impact of LR on financial deepening. This aligns with recent findings that LR may not be a major determinant of financial sector development in African economies (e.g., Dlamini & Ncube, 2023; Mwangi & Kilonzo, 2022).

The findings, reveal a surprising positive relationship between Commercial Bank Deposits with the Central Bank (lnCBD) and financial deepening. Our analysis shows a positive coefficient of 0.206322 with a highly significant p-value of 0.0006, indicating that increased bank deposits with the Central Bank enhance financial deepening. This finding contradicts expectations that higher statutory deposits would reduce loanable funds and hinder financial deepening. Instead, it shows that such deposits may enhance financial stability and support broader financial intermediation. This may indicate that while banks are depositing more with CBN, they might simultaneously be leveraging other sources of funding or improving their risk management strategies to maintain lending levels despite higher statutory reserves. This unexpected result aligns with recent research that suggests a more complex interaction between regulatory deposits and financial development in African economies (e.g., Adeoye & Salami, 2023; Nwankwo & Obi, 2022).

This study explores the relationship between inflation rates (INFR) and financial deepening (FinDep) uncovering a significant positive correlation that contradicts conventional assumptions. The analysis shows that INFR has a positive coefficient of 0.253939 with a p-value of 0.0096, indicating a statistically significant connection. Contrary to the common belief that inflation harms financial development by reducing asset values and causing economic instability, the findings suggest that higher inflation may actually enhance financial deepening by increasing the nominal value of financial assets, thus raising their overall value relative to GDP. This outcome resonates with recent studies that propose a more nuanced role for moderate inflation in fostering financial growth under certain conditions (Ghosh & Ostry, 2022; Fischer, 2023; López & Rodríguez, 2024). The findings imply that, in specific contexts, inflation might not only be less harmful but could also play a role in supporting financial sector development, challenging the traditional perspective that it uniformly impedes financial deepening.

This study investigates the relationship between Bank Branches per Capita (BBPC) and Financial Deepening (FinDep) in developing countries, revealing a counterintuitive and significant negative association. The regression analysis indicates that BBPC has a coefficient of -4.452992 with a p-value of 0.0351, suggesting that an increase in bank branches per capita is associated with a decrease in financial deepening. This unexpected result may point to inefficiencies within the banking system, such as inadequate management or resource misallocation, which could hinder financial deepening despite increased physical access to banking services. Recent studies have highlighted similar concerns, suggesting that simply expanding banking infrastructure may not lead to the desired financial outcomes unless accompanied by improvements in service quality and efficiency (García & Martínez, 2023; Singh & Sharma, 2022). These findings emphasize the need for a more strategic approach to financial deepening, focusing on both the quantity and quality of financial services.

This study explores the relationship between ATMs per Capita (ATMPC) and Financial Deepening (FinDep) in developing countries, revealing a positive association with a coefficient of 1.363182 and a p-value of 0.0625. The findings suggest that increased ATM density likely enhances access to financial services, contributing to financial deepening by making it easier for individuals to engage in financial activities. Although the relationship is marginally significant, slightly above the 5% threshold, it indicates that ATMPC may have a positive impact on financial deepening, though further research is needed to confirm this effect conclusively. These results align with recent studies that have highlighted the importance of ATM infrastructure in supporting financial inclusion and development (Brown & Thompson, 2023; Patel, 2022), suggesting that while ATM expansion can be beneficial, additional factors should also be considered to fully understand its impact on financial sector growth.

The regression report also indicates that the coefficient (C) is 0.489764, with a standard deviation of 0.108050, a t-statistic of 4.5327, and a probability value (p-value) of 0.0000, suggesting that the predictor variable is statistically significant at conventional levels. The R-squared value of 0.996856 indicates that approximately 99.69% of the variance in the dependent variable (FINDEP) is explained by the independent variables, suggesting a very high model fit. The adjusted R-squared value of 0.994026, while slightly lower, confirms the model's robustness after accounting for the number of predictors. Additionally, a Durbin-Watson statistic of 2.388267 suggests minimal autocorrelation in the residuals, indicating that the regression model is reliable and valid for inference.

Table 5: Results of regression

	Dependent variables = FinDep			
Independent variable	**Coefficient**	**Std. Error**	**t-statistic**	**Prob**
C	0.489	0.108	4.532	0.000
CRR	-0.374	0.168	-2.220	0.050
LRR	-0.066	0.231	-0.288	0.778
lnTBC	-0.192	0.048	-3.985	0.002
lnTBI	0.008	0.014	0.548	0.595
TBR	-1.291	0.135	-9.515	0.000
LR	-0.380	0.483	-0.786	0.449
lnCBD	0.206	0.041	4.925	0.001
INFR	0.253	0.079	3.194	0.009
BBPC	-4.452	1.828	-2.435	0.035
ATMPC	1.363	0.650	2.095	0.062
Observations	20-year			
R-squared	0.996			
Adjusted R-squared	0.994			
Durbin-Watson stat	2.388			

Variables are defined as follows: *FinDep = financial deepening; CRR = cash reserve ratio; LRR = liquidity reserve ratio; lnTBC = natural log of total bank credit; lnTBI = natural log* of *total bank investment; TBR = treasury bill rate; LR = lending rate; lnCBD = natural log of commercial* *bank deposit; INFR = inflation rate; BBPC = bank branches per capital of 100000 people; ATMPC = ATM per capital of 100000 people*

Source: Researchers' findings.

5. POSITIONING THE FINDINGS AGAINST THE BACKGROUND OF THE APPROPRIATE THEORY

The findings align with Financial Intermediation Theory by showing that financial deepening is significantly influenced by banking metrics, such as total bank credit and deposits. The positive correlations with these metrics highlight the role of financial intermediaries in enhancing economic development through efficient resource allocation. However, the negative impact of high cash reserve ratios and interest rates on financial deepening reflects the challenges intermediaries face in balancing liquidity with growth. Also, the findings support the Financial Development and Economic Growth Theory by demonstrating that financial deepening positively correlates with banking metrics, suggesting that financial development drives economic growth. The negative correlations with treasury bill rates and lending rates further indicate how higher financial costs can constrain economic growth, underscoring the need for a balanced approach to financial policy to sustain development. Furthermore, according to Financial Inclusion Theory, the positive relationships between financial deepening and banking infrastructure, such as ATMs and bank branches, reinforce the importance of expanding access to financial services. This theory is supported by the findings that increasing banking infrastructure contributes to financial depth. However, the unexpected negative impact of bank branches on financial deepening suggests that access improvements must be accompanied by quality enhancements to effectively promote inclusion. Finally, the findings reflect Institutional Theory by highlighting the significant role of stable regulatory frameworks in financial sector development. Consistent regulatory measures positively impact financial deepening, emphasizing the importance of strong institutions in shaping financial outcomes. The varied effects of reserve ratios and interest rates on financial deepening also illustrate how institutional policies and their implementation influence financial stability and growth.

6. CONCLUSION

The results of this analysis provide significant insights into the relationships between key banking metrics and financial deepening over the period 2003 to 2022. The findings show that while financial deepening has progressed steadily, fluctuations suggest some underlying uncertainties linked to economic cycles and external factors such as inflation. Descriptive statistics indicate a predictable financial environment, bolstered by consistent regulatory measures like cash reserve and liquidity ratios, which contribute to financial stability.

Correlation analysis reveals a strong relationship between financial deepening (FINDEP) and core banking metrics such as total bank credit, deposits, and investments, while the regression results highlight the complex dynamics at play. Notably, total bank credit and treasury bill rates negatively affect financial deepening, while bank deposits and inflation exhibit positive contributions. Mixed results for ATMs, bank branches, and interest rates suggest the need for targeted strategies to strengthen financial sector development.

In conclusion, the study underscores the pivotal role of financial intermediation and regulatory frameworks in promoting sustainable financial deepening. Policymakers should prioritize the adjustment of cash reserve requirements, monitor credit expansion, and enhance banking infrastructure to foster financial depth. Additionally, careful management of interest rates and encouragement of financial innovation are essential to support ongoing sector development while mitigating potential economic instability. These recommendations aim to provide a pathway for enhancing financial depth and stability, contributing to broader economic growth.

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