



PRUDENTIAL REGULATIONS AND PROFITABILITY OF TIER III COMMERCIAL BANKS IN KENYA

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Abstract

Commercial banks are key to Kenya's economy because they mobilize savings and provide credit. However, Tier III commercial banks experience fluctuations in profitability, with Return on Assets ranging from -0.90 to 0.65 between 2016 and 2024. The study was pegged on Capital Buffer, Liquidity Management and Agency Theories. Explanatory research design was used. All 22 Tier III commercial banks were targeted using a census approach. Data were obtained from Central Bank of Kenya reports, audited financial statements, and regulatory publications. The empirical model adopted panel regression to analyze direct and moderating impacts of prudential regulations on profitability. Random effects outcomes revealed that credit regulations ($\beta = 0.736$, $p = 0.004$), liquidity regulations ($\beta = 0.376$, $p = 0.000$), and foreign exchange regulations ($\beta = 0.071$, $p = 0.009$) had positive and significant effect on profitability, while capital regulation ($\beta = 0.139$, $p = 0.353$) showed a positive but insignificant effect. The model explained 71.8% of profitability variations ($R\text{-square} = 0.7184$). Credit and liquidity regulations enhance

profitability by reducing default risks and ensuring operational stability, while foreign exchange regulations improve profitability through currency risk management; conversely, capital regulation alone does not meaningfully drive profitability. Tier III banks should strengthen credit assessment and non-performing loan monitoring systems, maintain optimal liquidity with contingency funding plans, adopt hedging strategies and sustain adequate capital buffers. Future studies should explore technology adoption and cost efficiency, examine other financial institutions including SACCOs and insurers, and employ alternative performance metrics like return on equity

Keywords: Prudential Regulations, Capital Regulations, Credit Regulations, Foreign Exchange Regulation, Liquidity Regulation, Profitability

INTRODUCTION

Commercial banks are key to country's economy by gathering savings, capital allocation, investment support as well as financial intermediation services that boost economies in terms of productivity and stability. Employing the stable lending process, access to liquidity, and shock resistance through their profitability are crucial to serving households and business (Farkasdi, Septiawan and Alghifari, 2021; Kuc and Teplory, 2023). Prudential standards like capital adequacy, risk management frameworks and liquidity are critical in guaranteeing commercial bank's stability and soundness via reducing excessive risk-taking and financial discipline. These laws also increase the profitability and competitiveness of banks over time by increasing their resiliency to market volatility and financial crises by protecting depositors (Smolina, Markovskaya, and Krupnov, 2023; Adelopo, Vichou, and Cheung, 2022). Commercial banks in the United States have shown strong resilience to global economic shocks. In 2023, the industry recorded an average return on assets (ROA) of 1.2% and a return on equity (ROE) of 11% (Sousa and Almeida, 2025). The total net income of U.S. commercial banks was more than USD 256 billion in 2022 confirming the field's stability even in the high interest rate environment (Stecenko, Surmacs, and Surmaca, 2024). The Federal Deposit Insurance Corporation (FDIC) reported that in 2023, over 80% of insured banks registered positive earnings growth, which is a result of profitability in the banking sector (Sousa and Almeida, 2025). The U.S banks too have also enjoyed the diversified revenue sources where non-interest revenue has comprised to close to 35 percent of overall revenues, thereby reducing reliance on interest margins (Aljanahi, 2025). In addition, more than 6% annual increases in bank lending contributed to profits based on credit growth and fee services in the post-pandemic recovery period (Stecenko, Surmacs, and Surmaca, 2024). Such prudential policies as the Dodd-Frank Act and the Basel III

requirements have been instrumental in guaranteeing that profitability is ensured by improving capital adequacy, enhancing liquidity management, and reducing systemic risks, which help to increase stability in the long term (Agarwal, 2025; Finfirst, 2024).

Chinese commercial banks net profit in 2023 is about 2.3 trillions Yuan indicating 6% year-on-year growth, with much of the growth attributed to higher lending and unchanged interest margins (Chen, Wu, Ding, and Zhang, 2025). Major banks earned 0.86% in form of ROA, and 11.1% on ROE, which is good as compared to other countries worldwide (Hutukka, 2025). A major portion of state-owned commercial banks was more than 40% of the overall industry profits, ensuring their control over joint-stock and city commercial banks (Chen, Wu, Ding, & Zhang, 2025). Meanwhile, non-performing loan (NPL) ratios deteriorated marginally to 1.62% in 2023 indicating a better quality of asset despite macroeconomic headwinds (Hutukka, 2025). Chinese banks' total assets went up to more than 400 trillion yuan, which evidences the speed of the development of the sphere and how it contributes to the country's financial resilience (Chen, Wu, Ding, and Zhang, 2025). The role of prudential regulations has been essential in maintaining profitability by preventing taking too much risk and having a robust Chinese banking system by tightening capital adequacy and liquidity requirements (Xu & Li, 2024; Gao, 2020). On the African continent (Nigeria in particular), there was a sharp rise in the aggregate bank profitability in 2023 and this has remained high until 2024. Based on the CBN Financial Stability Report, system-wide ROA improved to 2.3% by June 2023 and ROE 32.2%, and before NDIC data indicated a further rise in ROA to 3.15 by December 2023 as revaluation gains and increased rates pushed earnings (Central Bank of Nigeria). In 2024 policy and market trends held the high aggregate score steady; several analyses and regulators are aware of record or near-record industry profits due to the effects of FX revaluation gains, and proposals of extraordinary windfall taxes; by year-end 2024 the combined PBT of the five largest banks amounted to approximately ₦5.1 trillion, although IMF staff and rating agencies have noted that the effects of FX revaluation gains are one-off and that the industry must endure despite a stabilising of conditions (IMF, 2024).

East Africa commercial banks have remained to express varied results. To illustrate, Kenyan listed-bank aggregates demonstrate that profitability is still strong, but Net Interest Margin issues persist since cost of funds increased, and asset quality was still low. According to the supervision by CBK, 24 reviews, the sector remained profitable in 2023-2024 but continued with a high NPLs and increasing cost of funds; KBA (2024) banking industry state report indicates that increasing costs of higher deposit prices restricts the sector with NIMs peaking despite expanding balance sheets (CBK Report, 2024). In the case of the listed-bank cohort, specific to 2023 and 2024, independent tracking indicates the aggregate NIM floating around

the mid -7% range, in both years (approximately at 7.7%), meaning that it is not leading to growth but at best it is stable over any rate movement so the issue with the 2024 margin compression is further explained. Central Bank of Kenya has a very major responsibility of making the banking aspect to be stable and efficient due to its exclusive powers of monitoring the aspect of banking. Its supervision cuts across the major areas of regulation of foreign exchange regulation, capital adequacy, liquidity requirement and credit risk management which are instrumental in ensuring financial soundness (Kiplagat, 2020). The financial act and Central Bank of Kenya Act, which gives CBK authority to oversee and regulate banking institutions, serve as the foundation for the banking laws that control Kenya's commercial banks. In order to protect the system's steadiness, this strong prudential framework ensures that banks operate under sound financial practices (Mwangi and Omagwa, 2025).

Profitability

Profitability is the amount of money that a business can make using its available resources. Profit maximization is the aim of most organizations (Hutukka, 2025). An organization, firm, or company must be able to profit from each and every one of its business operations in order to be considered profitable. The entrepreneur typically receives profit as payment for their investment (Malika, 2024). Actually, the primary driving force behind an entrepreneur's commercial endeavors is profit. Profit is residual income after covering all costs from sales revenue, including labor and material costs, have been covered. Any business's long-term survival and growth depend heavily on its capacity to turn a profit. Profitable companies attract investors because they have a higher chance of surviving over time (Gartner, 2024). A profitability study uses net revenue and costs as its measurements. Revenue is total cash inflow from a firm's activities, whereas expenditures are the costs incurred during such operations. Operating profit, which is determined by subtracting taxes and interest from earnings, is a gauge of an organization's capacity to make money from continuing operations. The main indicator of a business's performance is its profitability. A highly successful business might give its investors substantial returns on their investment, but an unsuccessful one might not be able to endure (Bond and Auerbach, 2024).

Profitability denotes financial institutions' capacity to realize returns from both their asset base and operational activities, making it a central objective for commercial banks (Kipchoge, 2022; Shahin, Khalil, & Sallam, 2022). Banks also have social and economic goals, but their sustainability relies on their capacity to be profitable under regulatory and market constraints (Freeman, Dmytriiev, & Phillips, 2021; Osolo, 2022). Financial ratios, such as Return on Assets (ROA) and Return on Equity (ROE), are often used to measure profitability. ROE shows the

returns generated by the company's shareholders compared to the amount of equity that they have invested, but the results can vary depending on the capital structure and any external factors that may affect the company (Wanjiru, Jagongo, & Ndede, 2024; Khrawish, 2018). On the other hand, ROA is a more direct measure of a bank's efficiency in using its asset base to produce income, making it a more stable indicator of the manager's efficiency and prudence (Wen, 2010; Shen et al., 2023). However, emerging market evidence indicates that the impact of prudential policies and interest rates on profitability outcomes is significant (Katsiampa et al., 2022; Soomiyol et al., 2023). Factors that have negatively affected Tier III commercial banks profitability in Kenya include non-performing loans, undercapitalization, and compliance costs (Kiplagat, 2020; Kipchoge, 2022). ROA is included as the main indicator of banks' profitability because it reflects the efficiency of banks in generating returns from the total of their assets and it takes into account the impact of prudential policy on fiscal performance.

Prudential Regulations

The concept of prudential regulations as defined and discussed by Arege and Njagi (2023) can be described as series of rules and regulations that have befallen banks to perform their operations within as defined by the regulations; conversely, in such a manner that a regulatory authority will ensure that the degree of profit made by these banks is within the bounds of the system finance operational environment. This course of action ensures that the profitability of the banks is evaluated and followed. Prudential regulation is a critical legal framework of commercial banks' activities. This is a major difference factor in minimizing or eliminating problems in the financial sector (Jibrin, Adegbe & Ogbonnaya-Orji, 2020). To avoid certain risks undermining the financial wellbeing of commercial banks as they occur as long as they are operational, prudential regulation helps the banks to conduct their business within established boundaries. Accordingly, the purpose of the prudential regulation is regarded as that which benefits the financial system. The banking industry as a whole has been supporting prudent restrictions to cushion depositor cash and maximize profit made by the banks. Such unrests are the outcome of the prolonged financial crisis, which has been witnessed. Countries have however been increasing the sophistication of their mechanisms of managing financial institutions and enforcing regulations, which target capital, liquidity, credit, and foreign exchange regulations that are all essential factors in ensuring that banks are able to profit out of a sound and advanced financial system (Kiplagat & Kalui, 2020). Mwangi and Omagwa (2025) used indicators pertaining to capital adequacy, credit risk management, and liquidity requirements to operationalize prudential legislation; Kiplagat and Kalui (2020) operationalized prudential regulation in terms of capital, liquidity, credit and foreign exchange regulation; Xu and Li (2024)

operationalized prudential regulation in terms of the oversight mechanisms implemented concerning the banking operations related to fintech with an emphasis on risk containment and systemic stability. In this research, Prud When these metrics are combined, it is possible to fully comprehend how prudential frameworks affect commercial banks' resilience and profitability.

Capital regulation, also commonly known as regulatory capital, capital adequacy, or capital base, relates to the least amount of capital that a financial regulator mandates a bank or financial institution to hold. Normally, it is provided in the terms of capital adequacy ratio, the ratio between equity and Risk-oriented assets. This is an important part of the bank regulation to ensure that companies in the sector are managed in a responsible manner (Muya, 2022). Regulations regarding capital adequacy provide a set up to ensure that all the institutions maintain an adequate capital stock to protect their creditors and depositors. It correlates with risk related activities and profile of institutions and enhances confidence of the people in an institution (CBK 2022). Capital sufficiency will help shield a banking organization against credit, operational, and market risks by accepting any possible losses and securing creditors. Core capital also comprises Tier two capital that cushions losses when a bank winds up in addition to being able to provide less protection to depositors. Capital to Risk (Weighted) Assets Ratio will be applied in this research. Liquidity rules refer to policies that regulate the financial institutions, including banks, to ensure they have the resources necessary to prevent any market-imposed disruption in liquidity (Davis and John, 2022). To identify the requirements of liquidity of a bank, a number of quantitative indicators are adopted such as net stable funding ratio, loan-to-stable funding constraints, loan-to-deposit or liquidity coverage ratio, and price-based tools such as systemically important institutions general liquidity surcharge and liquidity surcharge (Biondi, 2025). The liquidity regulation is aimed at ensuring that there are sufficient minimum amounts of liquidity that can enable banks to execute their functions as intermediaries effectively (Lijuan, 2025). Liquidity is a bank's capacity to settle liabilities primarily the ones owed by its investors once they fall due. Liquidity is an important measure of monetary stability. Liquidity guarantees the capability of banks to carry out the very important role of intermediation on a sustained basis (CBK, 2022). Liquidity regulation in this research will be calculated with the help of liquid asset/total deposit.

Companies employ credit regulation, often known as common sense or credit policy, as a tactic to boost sales by letting prospective customers buy on credit (Emmanson and Ajayi, 2021). Generally speaking, most businesses lend to people with good credit records and avoid those with bad ones high-risk clients who may have a history of default. Credit management is also known as the Credit control depending on the circumstances involved. To provide customers with an easier way to buy products or services offered by the company, it is defined

to credit them in more credit (Kenton and Brock, 2023). This strategy increases the attractiveness of the purchase by paying later or installing the price in manageable payments and this is also what makes customers justify the purchase even then the interest cost will add to the final price. The decision of whom to lend credit to is an important element of a credit management policy but. The provision of credit to people with bad credit scores can end in to obtain payment of the good or service (Brown, 2024). It will be quantified during the research as net loans to the total loans.

Regulation of Foreign exchange majorly applies to the decentralized Forex market that does not have a clearinghouse or central exchange. Foreign exchange industry has not been adequately regulated as compared to other financial markets and it has been prone to foreign currency frauds due to its decentralized and global nature (Tide, 2024; Erri, Olalekan, Ugwuanyi, Olowolaju & Sulaimon, 2025). The CBK has published the Foreign Exchange Exposure Limits regulation to be followed by the institutions, to safeguard financial system's reliability and efficiency. The regulation purposes to curtail risk that foreign exchange rates variability will pose to a bank's capital base. Exchange rates fluctuations and its impact on performance is referred to as foreign exchange risk. Such fluctuations are normally occasioned by unexpected variations in the value of two currencies. To remain within the provision of a safe and effective financial system, CBK issued Foreign Exchange Exposure Limits regulation. The goal of the legislation is to maintain the safety of the capital base of a bank during a fluctuation in the foreign exchange rates. The primary cause of the foreign exchange risk is unexpected fluctuations of the exchange value of two currencies, which thus can be defined as fluctuations in exchange rates and the resulting consequences of the performance (CBK. 2022). The indicators of foreign exchange regulation that would be used in this study are the net foreign currency exposure ratio.

Tier III Commercial Banks in Kenya

Central Bank of Kenya categorises Kenyan commercial banks into Tier I, Tier II and Tier III depending on weighted aggregate index of net assets, customer deposits, amount of deposit accounts and loans, reserves and capital base. The biggest banks called Tier I dominate more than half of the market, the medium sized banks are called Tier II and the smallest players are called Tier III banks, which are likely to collectively control close to 8.4% of the market share as of 2023 (Kinini, Kariuki & Ocharo, 2024). The CBK directory lists 22 Tier III banks, among which is Spire bank, Consolidated Bank and US first community bank, with some struggling to survive due to low customer base and poor capital capitals (CBK, 2022). Tier III bank regulation is also within CBK's mandate as Banking Act and Prudential Guidelines (CBK, 2013) note. The CBK

has mandatory minimum back-up reserves that the banks must maintain their 8% for core capital to deposits, 14.5% for total capital to risk-weighted assets and 10.5% for core capital to risk-weighted assets. These prudential capital requirements are to protect banks' solvency, systemic risk, and viability of the operations, especially of smaller banks, which are more prone to liquidity shocks (CBK, 2022). Recent statistics however indicate that several Tier III institutions are not always in a position to consistently post these levels which makes them to be prone to insolvency in times of economic turbulence.

Increasing non-performing loans (NPLs), poor governance and minimal profitability have compromised the performance of Tier III banks. As an example, as at the end of September 2024, Tier III banks Sh121.05 billion in bad loans, outperforming the Tier I banks by Sh82.3 billion, although Tier III banks have by far a smaller market share (CBK, 2024). Tier III impairment charge increased significantly to KSh 75.84 billion in September 2024 almost doubling the amount of KSh 34.47 billion in June 2023, which shows their susceptibility to a decrease in assets quality. Tier III banks' NPL increased by 40.31 in June 2022 to September 2022, and the growth is significantly higher than the increase in the NPLs of Tier I banks by 22.69% over the same span (CBK, 2024). These weaknesses notwithstanding, Tier III commercial banks will continue to be critical in financial inclusion. They offer cheap credit facilities to the small businesses, microenterprises, and low-income families that are mostly locked out by other larger banks. Yensu et al., (2021) are incapable of serving more underserved markets due to their niche positioning, but it requires them to increase their credit risk. The paper will concentrate on Tier III banks since these banks would offer a key test case regarding financial sustainability in the banking sector of Kenya. The systemic weaknesses that jeopardize not only their existence but also the overall stability of the Kenya financial sector are their continuous profitability vulnerability, significant predisposition to NPLs, and regulative pressure. The study will help to reveal how small banks can survive a difficult economic and regulatory environment through the examination of their performance and risk management practices (CBK, 2022).

The Tier III commercial banks are under investigation since these groups constitute the most susceptible portion of the banking sector in Kenya having a low market share but with disproportionately high non-performing loans and impairment charge than the larger banks (CBK, 2024). Such banks have a consistent struggle to meet prudential levels like capital adequacy and liquidity standards, which put them at risk of being insolvent when the economy is volatilizing (Kinini, Kariuki, and Ocharo, 2024). Notwithstanding these shortcomings, they are very critical in promoting financial inclusions by catering to microenterprises, small businesses and low-income households that are usually marginal to Tier I and II banks (Yensu et al., 2021).

The investigation of Tier III banks can thus be used to comprehend the interaction of prudential regulations and market power to influence the sustainability of smaller financial institutions in Kenya which is fundamental to Kenyan financial system's resilience and inclusivity (CBK, 2022).

Statement of the Problem

Commercial banks are heavily relied upon by Kenya in its economic growth because it facilitates access to credit by businesses and homes, mobilization of savings, and financial intermediation (Maina & Omagwa, 2020). In spite of this, the industry has been struggling with issues of low profitability especially among Tier III banks in past decade. At the sector-wide level, pre-tax profits decreased in 2017 by nearly a quarter of 9.6% when compared with KSh 147.4 billion in 2016 going down to KSh 133.2 billion prior to slightly increasing to KSh 152.7 billion in 2018 as costs continued to exceed revenues (CBK, 2018; CBK, 2020). With a negative ROA value of -0.90 in 2016 and mostly decreasing since then, a negative ROA at the Tier III level creates a concerning picture: the average Return on Assets (ROA) dropped to 1.14 in 2021 but has since then continued to decrease (CBK, 2016-2024). This prolonged poor performance is a subject of concern concerning the sustainability of the Tier III commercial banks in the long run, their competitive advantage, and monetary stability despite continued regulatory interventions (CBK, 2024). Therefore, knowing how prudential regulations affect profitability is crucial for banks.

There are a number of gaps in the results of research that has been done on the relationship between Kenyan banks' profitability and prudential regulatory measures. Leone (2024) reviewed prudential laws and then looked at how they affected Sierra Leone's commercial banks' financial performance. Regulations pertaining to capital sufficiency, credit risk, and liquidity were found to significantly impact financial performance. The proposed study would investigate Kenya's tier III commercial banks in an effort to remedy contextual vacuum brought by the research conducted in Sierra Leone. Evidence from WAEMU banks, as analyzed by Sonehekpon (2024) through quantile regression with fixed effects, confirms that prudential regulation has a pronounced effect on bank stability. Methodology of the study was to use quantile regression with fixed effects, which created a gap in the methodology. There will be a methodological gap to fill, which will be via panel regression to nine years of yearly data. In a research by Mwangi and Omagwa (2025), the authors conducted an investigation into prudential regulations impacts on NSE-listed Kenya commercial banks. Examination used panel data from 2013 to 2021 to identify the prudential requirements on credit risk, capital adequacy and liquidity. The NSE's listed commercial banks were the focus of the study, and bank size acted as a moderator. The gap in concepts generated in the proposed study will be

filled by operationalizing the prudential regulation in terms of capital adequacy, credit risk, liquidity and foreign exchange regulation, which will incorporate a period within the years 2016 and 2024, respectively. Thus, the contextual gap, conceptual gap, and methodological gaps generated by the reviewed literature on a different sector, prudential regulations with various operationalizations and application of different study methods and materials respectively in research will be bridged in by current study. It is suggested that profit outcomes for Kenya's tier III banks is affected by the prudential standards.

Objectives of the Study

General Objective of the study was the effect of prudential regulations on profitability of tier iii commercial banks in Kenya. The specific objectives were:

- i. To ascertain effects of capital regulations on profitability of Kenya's tier III commercial banks.
- ii. To determine effects of liquidity regulation on profitability of Kenya's tier III commercial banks.
- iii. To establish effects of credit regulation on profitability of Kenya's tier III commercial banks.
- iv. To ascertain effects of foreign currency regulations on profitability of Kenya's tier III commercial banks.

Research Hypotheses

H₀₁: Capital regulations do not significantly affect profitability of Kenya's tier III commercial banks.

H₀₂: Liquidity regulations do not significantly affect profitability of Kenya's tier III commercial banks.

H₀₃: Credit regulations do not significantly affect profitability of Kenya's tier III commercial banks.

H₀₄: Foreign exchange regulations do not significantly affect profitability of Kenya's tier III commercial banks.

Scope of the Study

Prudential regulation effects on the profitability of Kenya's tier III commercial banks between 2016 and 2024 were the research problem being investigated. Secondary data drawn from these banks' audited yearly reports and fiscal statements formed study's basis, which was analyzed using panel regression. Prudential laws, which include capital, credit, liquidity, and foreign currency controls, are the independent variables. ROA, a bank profitability metric, was

the dependent variable. The geographical focus can be explained by the fact that Kenya banking sector has been central to financial intermediation and economic development but Tier 3 banks have specific regulatory and profitability issues than other Tier I and Tier II banks. Kenya is another appropriate case due to the well-developed regulatory space under the Central Bank of Kenya that has consistently applied prudential frameworks in protection of financial stability hence a proper environment in which to be able to assess the effects of regulations. The contextual scope can be explained because the paper aims specifically at the prudential regulations as it has direct impacts on the risk management, capital adequacy and the general solvency of the banks. Reducing the sample to Tier III banks helped catch the dynamics of a smaller bank population that is extremely sensitive to compliance expenses despite being essential to advance financial inclusion in underserved parts of the market.

The study was conducted on the period between 2016 and 2024; this is attributable to the fact that this period experienced important development in the regulatory and economic environment that graven consequence on the banks' profitability. This was initiated in 2016 with interest rate capping, which shook the lending margin of the banks and led to the fall in profitability, especially to the smaller banks. The following years include the regulatory changes CBK carried out to tighten prudential requirements, evolving state of economic turmoil occasioned by COVID-19 in 2020 and recovery and stabilization process within the banking sector in 2021 and 2022. 2023 and 2024 are the later years with emerging challenges of increased non-performing loans, macroeconomic strains, and declining profit margins and hence are vital in the interpretation of the present and shifting prudential regulations effects on bank performance. This nine-year window coverage thus gave broad platform on which to examine short-term and long-term impact of regulatory and economic changes on Tier III banks' profitability.

LITERATURE REVIEW

Theoretical Review

The study was anchored on Capital Buffer, Liquidity Management, credit theory and Purchasing Power Parity theory and Agency theories to support the relationships of the variables.

Capital Buffer Theory

Governed capital Marcus (1984) developed capital buffer theory. The concept is that sufficient capital should be available in order to make the capital required by the law sustainable as well as to respond to the shocks that may arise because of the lack of capitalization. As per

capital buffer, banks with a low ratio of capital will be in a better position to absorb the risk and economic recession rather than those without minimum capital (Calem and Robs (1996). Therefore, it encourages banks to save more capital. Although banks that have substantial capital buffers maintain them in order to protect themselves against such problems, banks with little capital cushion try to raise more capital to keep their standing against an unsuitable selection shock. The long-term, under-capitalized banks, which are adversely affected by a change in regulations, are liquidated since they cannot compete in terms of financial performance (Akims & Akims, 2019).

As stipulated by the hypothesis, the banks may opt to hold a reckoning of extra reserves of funds to reduce the chances, they may fail to comply with the requirements of the minimum capital requirements. The capital buffer can be defined as excess capital on top of the minimum capital a bank possesses. Based on the concept, banks having a high capital buffer would strive to preserve the buffer, and those with poor buffers would seek to raise capital to restore an appropriate buffer. The CBK does not tolerate the breach of capital requirements as this is regarded as the severe violation of the banking laws. Bank runs may happen to banks that still operate and have insufficient capital (Kipruto et al., 2017). Also, concept suggests banks may opt to have bank capital buffer should they wish to mitigate the chances that the bank capital may fall below the statutory provision especially when the ratio is not steady at all. The small capital banks can enhance systemic risk in financial crises thereby hindering financial stability. Nevertheless, capital requirements effects on bank behavior will be reduced in case it possesses buffer capital and surpasses the statutory minimum capital (Lotto, 2018). The research is relevant to the capital of adequacy as one of the most dangerous types of business in the financial sector, the capital its use, according to the buffer theory, gives banks a powerful tool to secure their profitability and solvency.

The capital buffer hypothesis states that a financial institution near the capital threshold usually strengthen reserves and manage risks avert penalties for violating the capital requirements, such as fines. Bellem and Gartner (2016) argue that the hypothesis is pegged on capital adequacy ratio's volatility along with the reliability and the credibility of long-term strategy funds. The theory asserts that capital is more reliable and can be used to look into long-term planning (Yu et al., 2014). Therefore, the bank's ability to obtain sufficient deposits prevent the stagnation of the capital base. The buffer hypothesis states that when banks have a capital that is not below the appropriate capital ratios constituted by the regulatory authorities they should increase their capital level and minimize their risk. In doing so, a regulatory fine as a consequence penalty is evaded (Lotto, 2018). The hypothesis postulates that banks with a notably fragile capital adequacy ratio may build up extra capital to prevent slipping below the

minimum legal capital adequacy ratio. Monetary holdings of a bank which exceeds the minimum required is referred to as the capital buffer (Belém & Gartner, 2016). The idea matters to this examination since it mandates banks to raise enough cash deposits to strengthen their capital base, which will boost their stability and profitability. Given the first of the two research aims, which is the regulation of capital adequacy, the theory's assumption that financial institutions use buffers or other mechanisms that might result in capital adequacy suggests that the study was applicable to it.

Theory of Liquidity Management

Keynes (1939) came up with the theory. By the hypothesis, the amount that People would be willing to pay to invest in illiquid holdings/assets (shares and bonds) should be higher since it is more convenient to hold cash instead of other asset classes. The demand of money is triggered by the need to stay liquid and not the need to borrow the money. It purports that the higher the rate of compensation that must be made to forego liquidity in the duration in which it takes to regain its liquidity, the higher it becomes. Regarding its implementation to liquidity, the theory is dominant in comparison to critical concepts within the financial field as Central banks raises or lowers rates to influence money flow through the aspiration of gaining financial profits. The hypothesis states that individuals hold on to cash due to three reasons, which include; first, daily transactional use; second, precautionary motives; and third, speculative motives such as making use of possibilities (Bibow, 1995). This theory's analogy is crucial in grasping positions of the DMBs in the assets and liabilities since it provides the explanation of why a bank is willing to accept an obligation to pay off liabilities as well as the basics of why a bank would want the payment of its assets. This payment explains the interest rate element which is influenced by the DMB liquidity rates.

Financial organizations retain the money to cover unforeseen expenses and avoid needless losses, as the hypothesis states. As the theory notes, several problems like liquidity hazards, might jeopardize bank stability. Therefore, the goal of liquidity management is to guarantee that there is sufficient liquidity to fulfill the commercial banks' commitments on time. This means banks have to keep short-term liquid assets, mostly securities, loans, advances and interbank funds. All these measures, according to Njeule (2013), will ensure that there is sufficient liquidity, which will enhance the stability of banking. It also says that, as they demand higher rate of returns on securities with longer maturities, it would be reasonable that they will prefer that the high returns are in form of cash or other highly liquid assets, otherwise they will take other types of securities. In this regard, the greater the number of transactional dealings an organization can establish with other investors, and hence financial stability, the more an

organization will be in a position to hold highly liquid assets (Mawardi, Wahyudi, and Safitri, 2021).

Based on this school of thought, to make the financial stability of banks increase, assets must also be pegged on the government securities as well as self-liquidating bills. To enhance the stability of banking, the concept recommends that banks can be comfortable to be open-market with the short-term investment in the assets which constitute their portfolio. The hypothesis will hypothesize that the cash is held in an institution to counter declines of investments which are unacceptable. Cai and Wang (2006) assert that banks reserve funds to ensure that they are able to meet their financial requirements in a way that they do not necessarily have to lose money in doing so. Liquidity risk is caused by the inability of the market participants to meet their financial commitments promptly by converting the capital stock into solid cash as the demand increases (Kiplagat & Kalui, 2020). Capital buffer fits here because it frequently insinuates ways banks can stay liquid enough to pay their bills and commitments on schedule and to enhance their profitability.

Credit Theory

Fisher (1933) developed the credit theory and he focused on how the credit availability and its changes affected financial performance and the economy stability. The theory suggests that expansion of credit enhances economic activity and profitability through investment and that overdependence on credit may bring about financial instability by means of defaults and crises. Subsequent literature by Gurley and Shaw (1960) and Schumpeter (1934) has gone further to indicate the central role of credit in funding innovation, productive investment and corporate growth and credit is crucial to micro and macroeconomic performance. As well demonstrated by empirical studies, credit market imperfections negatively affect firms profitability and systemic risk, as shown, for instance, by Bernanke and Gertler (1989). To this end therefore, credit theory lays the ground which states that credit allocation and management is a central driver of bank success and general economy.

The hypothesis postulates profitability roots on their capacity to manage credit supply in a way that would allow them to equate the credit supply opportunities with the risk management. This theory presupposes that there are credit rationing, interest rates, and loan recovery programs which are of paramount importance in the sustainable performance of banks (Stiglitz and Weiss, 1981). Moreover, the distribution of credit should be in line with ability to repay so as to eliminate the cases of non-performing credit which directly undermine profitability (Jaffee and Russell, 1976). Another assumption made by the theory is that credit risk is part and parcel of lending operations, and that sufficient screening, monitoring and collateralization could protect

financial performance (Akerlof, 1970). In this aspect, the credit theory emphasizes that credit has dual nature and thus a profitability driver via lending income as well as a possible cause of risk that can plunge financial institutions when not managed effectively.

The theory justifies the impact of credit regulation on profitability by stating that it is the credit prudential regulations that help the banks reduce extreme risk-taking and ensure steady profits. Through means of credit regulations, including maximum concentration of loans, bad debt requirements, and standard mandatory reporting, there is a diminishing effect towards default and thus, this helps protect the profitability of the banks (Laeven and Majnoni, 2003). In Kenya, the hypothesis that a tightening of credit policies by the Central Bank will decrease exposure to non-performing loans has been confirmed to make Tier III banks more sustainable and profitable (Ngugi, 2019). In the same tone, empirical research has confirmed that credit risk management that is regulated enhances the return on an asset in terms of the quality of the loan portfolio (Kargi, 2011; Kolapo, Ayeni, and Oke, 2012). Thus, the credit theory reminds that properly developed credit regulation does not only help to minimize risks of credit but also makes banks more profitable in terms of making sure that the banks make reasonable and long-lasting lending choices.

Agency Theory

This was proffered by Jensen and Meckling (1976). According to assumption that an agency is created when a party outsources another party to perform a task on his behalf, the agency theory gives the party which hires the other party the right to make affirmations. This is believed to be a bad correlation between the interests of shareholders and company executives. Although the executives are directed to direct the interests of the shareholders, they focus on their own interests rather than the interests of the company. Therefore, agency problem emerges and can be addressed through various methods including ownership, audit enforcement and control. The shareholders delegate their own decisions to be made by the executives on their behalf, which affect the organization. These decisions must put into consideration the increasing shareholder wealth, which the management must take into account. Nonetheless, that is not how things are. One such example is that the board could end up misappropriating funds earned to invest in risky businesses and go on unnecessary leverage, which in most cases, will land shareholder assets in severe losses.

In an effort to address issues pertaining to the relationships between the agents and the principals, the agency theory was developed (Laiho, 2011). An agreement between a principal and an agent that permits the agent to provide a service on the principal's behalf is known as an agency connection. The agents are given the authority to make decisions by the principal. The

impracticality of attempting to take into account every possible course of action that an agent whose choices affect both his own and the principals' welfare may take is the root of these agency issues (Donnellan and Rutledge, 2016). The conflicts of interest between two contracting parties due to the lack of convergence between the interests of the corporate managers and shareholders thus make the issues inherently unlimited, leading to an agency cost seen as a loss to shareholders (Palia & Porter, 2007).

The agency theory holds that sometimes the agents act in the best interest of the principal by succumbing to opportunistic self-interested behaviour. Against this disappointments, there are the division of ownership and control as highlighted by the theory that seeks to guarantee owners-management goals alignment (Palia & Porter, 2007). Due to the availability of all the information by managers, bank regulations exist to control asymmetric knowledge that can make shareholders vulnerable to unknown risks. Banks which deal with money are much susceptible to defrauds and other malicious practices including funding terrorist groups. Namazi (2013) notes that the separation of ownership and control will result in the agency issue, where managers no longer serve owners' goals and protecting the shareholders; its interest is focused on achieving their individual interests. Therefore, the agency theory would be compatible with the findings of this investigation that the Regulation of banks could be applied to minimize agency issues that allow the ownership and management separation, and control of the behavior in management. This concept is relevant to the question since it addressed the growing issue of managers expanding empires at the cost of the shareholders growing wealth maximization motivation. This was enabled by the emergence of the agency theory.

Purchasing Power Parity Theory (PPP)

It was Gustav Cassel who advanced PPP theory and introduced it as a systematic explanation of exchange rate changes in the early 20 th century (Cassel, 1916). Its antecedents, however, can be tracked to Henry Thornton and John Wheatley, who investigated the relationship between the money supply and the exchange rates during the 19 th century and were later strengthened by other scholars like Ricardo (1810), and Mises (1912). The proponent of PPP in the modern era was Cassel who was defended by Holmes (1967) because of his contribution to the international economics. In the more recent past, the IMF scholars also have recognized the pioneering effort of Cassel in deriving the parity condition as one of the cornerstone of the exchange rate determination (Officer, 1976). In such a way, the PPP theory was developed using an amalgamation of classical thinking and formalization by Cassel, which appears to be one of the most cited theories in international finance.

PPP theory is constructed on the law of one price which holds the view that the same goods should yield the same price in different countries which are noted to be using the same currency, as long as they are not subjected to trade barriers and transportation costs (Froot, Rockeff, and Rogoff, 1995). Absolute type of PPP assumes that exchange rates will equalize the overall price level of various economies whereas in relative type of PPP, exchange rate variations are caused by difference in price inflation across nations (Taylor and Taylor, 2004). The theory also makes the assumption of flexible prices, perfect competition and a frictionless trade which is not usually the case with the actual economies (Lothian and Taylor, 2008). Empirical research findings have revealed that the short term assumption of PPP deviations is not uncommon but the theory is expected to intersect more towards the long run (Cheung and Lai, 1993). Although the assumptions it has are limiting, the principle is essential in international economics as a framework of assessing behavior in the exchange rates.

The efficacy of PPP in practice is determined by foreign exchange policies because it is exposed to interventions by the banks and these interventions usually pervert natural exchange rates adjustments. As an example, South African evidence indicates that exchange controls undermine the validity of PPP in the determination of real exchange rate motions (Ocran & Biekpe, 2007). In Kenya, deviations are created by regulatory interventions and foreign exchange limitations like central bank controls and foreign exchange restraint because inflation differentials have significant topic of exchanging rate change in accordance with relative PPP views (Ouma, 2013; Kemboi and Kosgei, 2020). Likewise, Ndagara, Mugendi, and Galo (2020) established that the volatility of the exchange rates was moderated by the monetary policy interventions, which implies that the regulation can relax the adjustment process, as anticipated towards the PPP. These results indicate that although PPP offers a right theoretical model, the theoretical framework of application becomes conditional based on the level of regulatory involvement in the foreign exchange market.

Empirical Reviews

An empirical review of literature encompasses the evaluation of previous studies that are similar to the one being proposed about acquiring the knowledge of their conceptualization, methodologies, contextualization, findings, and conclusions. This allows reproaches to determine the gaps to be filled with this study (Kothari, 2012). This study offers a comprehensive analysis of the effect of prudential regulations on profitability of tier iii commercial banks in Kenya.

Capital Regulation and Profitability

Soomiyol, Bwuese, and Yua (2023) studied capital regulation has an impact on deposit money banks' profitability in Nigeria. Several regression estimate analyses, correlation analyses, and descriptive techniques are used. Financial effectiveness was measured using ROE and ROA. According to analysis's findings, CAR has a negative and negligible impact on ROA and positively largely impact ROE of Nigerian DMBs. Consequently, to guarantee that DMBs in Nigeria are operating at their best, minimum capital requirements are required. The examination, which was based on the multiple regression approach, was carried out with the DMBs of Nigeria. Nonetheless, the proposed research concentrated on the tier iii Kenyan commercial banks through the panel regression method of analysis.

Anozie, Muritala, and Ininm (2023), in a research carried out to determine capital regulation impacts on financial performance of Nigerian oil and gas companies. Panel regression approach and the descriptive approaches did data estimation. According to review outcomes, long-term debt impacts ROA in a negative way more than the short-term debt affects the overall assets and the total debt affects overall equity in a positive manner. Research findings made it a point to conclude that when making decisions on the capital structure, oil and gas companies in Nigeria are advised to be cautious. This current research was conducted on Kenyan tier III commercial banks between 2016-2024 compared to those by Danladi and Alhasan that analyzed the financial effectiveness of Nigeria oil and gas businesses under different capital structure between the years 2011 and 2020, respectively.

Olusola, Mengze, Chimezie, and Chinedum (2022) study of capital regulation impacts on Hong Kong enterprises' financial performance. Finally, capital structure as well as performance were put in panel data model form. Empirical model was a proxy of the capital structure with total debt (TDR), and a proxy of performance with respect to ROA. The study dealt with the time category of 2014-2018 and comprised 1010 observations and 202 cross-sections. The results revealed that capital structure and financial performance showed some minimal negative relationship. Consequently, it could not make strong conclusions basing on capital structure effects analysis on performance. Years 2014-2018 was selected to conduct the investigation on Hong Kong enterprises. Nevertheless, in the current study, the commercial banks of Kenya analyzed in the year 2016-2024 are the tier III.

Profitability and Liquidity Regulation

Soomiyol, Bwuese, and Yua (2023) examined how Nigerian deposit money institutions' financial performance is affected by liquidity requirements. Multivariate regression estimation, correlation and descriptive statistics are all used by this promotional study. Financial

performance indicators were ROE and ROA. According to findings, LR negatively correlated with Nigeria's DMB's financial success. The multiple regression approach was employed in this investigation, which was carried out in Nigeria. However, Kenyan tier III commercial banks were focused upon, employing panel regression analysis approach.

Osolo (2022) investigated liquidity rules impacts on Kenya's business banks' financial success. All 43 of Kenya's commercial banks were the target population. The commercial banks engaged in the inquiry were sampled using a stratified random sampling. Data was evaluated descriptively and by linear regression. As the study uncovered, Kenyan banks' liquidity requirements and financial stability are positively correlated. The study concluded that the commercial banks' financial stability was improved by stricter restrictions regarding liquidity requirements. The review focused on how profitable tier III Kenyan banks are, while earlier work looked at their stability.

Kipchoge (2022) examined how liquidity rules impacted Kenya banks' financial outcomes. All 42 commercial banks made up the research sample, and an explanatory research methodology was used. Because the census approach was employed, the 42 commercial banks were included in the research. Descriptive estimation techniques and panel regression estimated panel data. As per outcomes, Kenyan commercial banks' financial performance suffered greatly as a result of the liquidity restrictions. According to the study's findings, Kenyan commercial banks will perform better financially if laws governing liquidity are strengthened. The present study was based on how profitable Kenyan tier iii banks are, while previous review concentrated on financial performance of Kenyan commercial banks.

Credit Regulation and Profitability

Arifaj and Baruti (2023) examined 26 Western Balkans' banks between 2010 and 2022 on the effect of credit risk reduction on financial institutions' profitability. ROE and ROA were proxied fiscal outcomes metrics. The evaluation's findings show credit risk negatively correlating with both ROA and ROE. The Balkan nations between 2010 and 2022 have demonstrated how credit risk is managed influences how banks make money. Both ROA and ROE were employed as profitability proxies, which focused on financial institutions in the Western Balkans. Nevertheless, the new study targeted Kenyan tier iii commercial bank in which ROA is assumed to serve as a measure of profitability.

Chibuzor and Eze (2023) studied how credit risk management laws affect Nigerian banks' financial performance. Between 2012 and 2021, 18 banks were assessed whose data was regressed via panels and descriptive techniques. ROE and ROA indicated financial performance and NPL and credit provisioning were the credit regulatory metrics. According to

these results, ROA and ROE were negatively and significantly impacted by high NPLs. The study discovered that strict credit management does improve financial stability at the price of immediate profitability. The planned study instead employed panel regression to concentrate on Kenyan Tier III commercial banks.

Abdullah, Rashid, and Karim (2023 studied Capital sufficiency impacts on Malaysian Islamic banks fiscal performance was examined by) via panel data regression and descriptive statistics on 15 Islamic banks between 2012 and 2021. ROE and ROA gauged fiscal performance, while capital adequacy ratio (CAR) gauged capital regulation. Results demonstrated that while CAR has a little impact on ROA, it has a very strong and positive influence on ROE. It was used that optimizing capital levels is crucial to guaranteeing the financial stability of Malaysia's Islamic institutions. However, using panel regression, the current analysis centered on Kenya's Tier III commercial banks from 2016 to 2024.

Foreign Regulation and Profitability

Okoth and Wanyama (2023), analyzed foreign exchange legislation in relation to its impact on East African banks' financial outcomes. Using panel regression and descriptive statistics, the researchers studied 28 banks in Kenya, Uganda, and Tanzania between 2012 and 2021. Financial performance was assessed using ROA and ROE, while foreign currency exposure ratios were used to gauge how arbitrary foreign restrictions were. These results demonstrated that FX fluctuations had a minor positive impact on ROE and a considerable negative impact on ROA. The study's conclusions were that currency risk should be managed carefully and that foreign exchange restrictions have an effect on profitability. The current study only looked at the Kenyan banks at Tier III by the use of panel regression.

Emmanuel, Margaret, and Evans (2022) examined the impact of exchange rate variations on Kenyan industrial businesses' finances. The study was carried out in two ways: using a list of eight manufacturing businesses and a descriptive correlational analysis based on panel data spanning six years, from 2015 to 2020. The output was adversely affected by the exchange rate. Company performance was uncovered as negatively impacted by an increase in exchange rate. A descriptive correlational research approach was used to analyze Kenyan manufacturing companies. However, a panel regression model and Kenyan tier iii banks was centered in the current examination.

Osho and Fagbamila (2022) studied changes in foreign exchange rates affect the financial operations of several multinational corporations in Nigeria. Purposive sampling was used to choose eight (8) oil and gas businesses to take part in the study between 2006 and 2020. Both descriptive and inferential (regression & correlation) techniques were used.

Outcome demonstrated that there is a statistically significant ROE's negative correlation with changes in foreign exchange rate. Economic factors pertaining to fluctuations in exchange rates were revealed to significantly correlate with fiscal outcomes of Nigerian listed oil and gas businesses. The multiple regression approach was employed in the study of Nigeria's multinational corporations. However, latest review embraced panel regression approach to analyze Kenyan commercial banks.

Conceptual Framework

The theoretical framework explains the relationship between the independent, moderating, and dependent variables of the study. Prudential laws, such as those pertaining to credit, foreign exchange, capital, and liquidity, are the independent variable in this study.

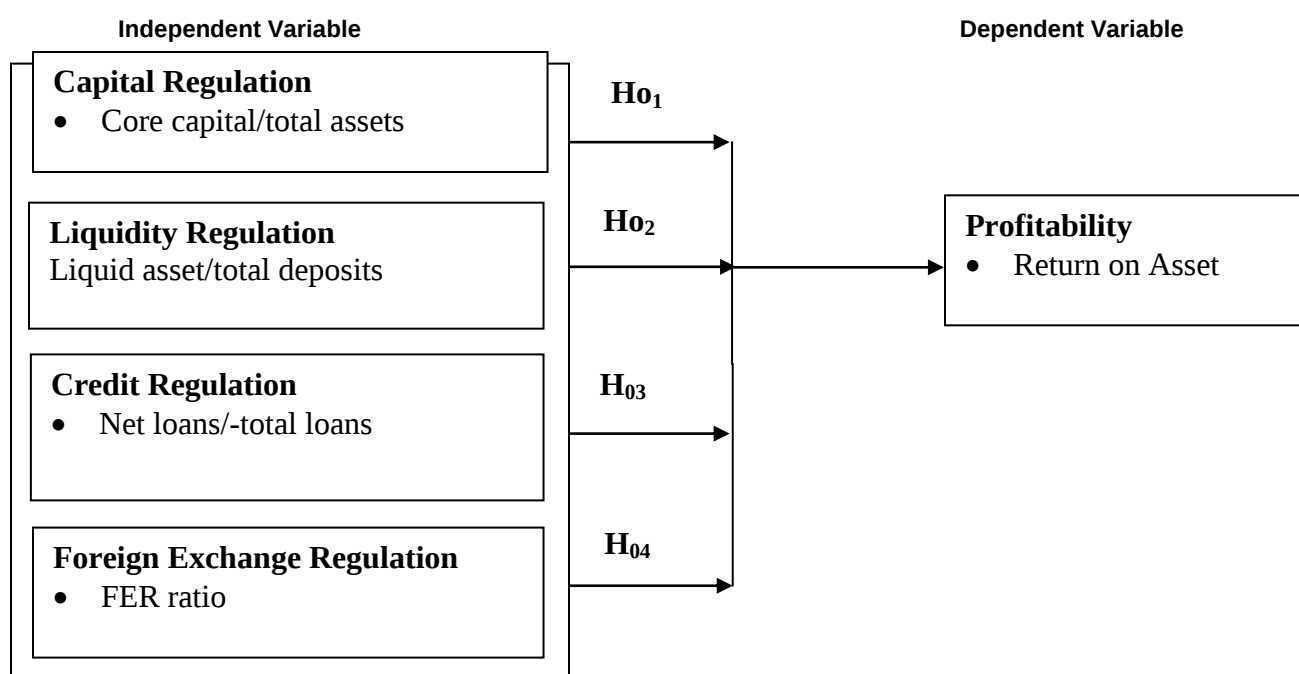


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Research Design

Upagade and Shende (2012) define this as the overarching plan that logically and coherently connects all various components of a study to enable a seamless investigation of interest subject. Research design outlines the approach to be used when planning the study, including how it will be carried out (Cooper & Schindler, 2009). Specifically, an explanatory research design is employed to address research concerns with little to no preceding study in

an effort to determine the underlying reasons and explain the link between variables (Cooper and Schindler, 2009). Rooted on the study's objective, which is to determine how prudential laws affect the profitability of tier III commercial banks in Kenya, an explanatory research methodology was employed.

Empirical Model

The empirical model of the study will be anchored on mathematical relationship approach in the study variables. Consistent with the suggestion of McLand (2004), the panel regression models are especially appropriate in cases of financial data, where cross-sectional (between firms or banks) and time-series (between years) aspects are both involved. The model was chosen because it does not just focus on the heterogeneity of the people within the Tier III commercial banks, it also controls against other unobserved variables that could have influenced the findings in the case of a pure cross-sectional model or time-series model. In addition, panel regression is more efficient as it offers greater variability, reduced collinearity amongst variables, and greater numbers of degrees of freedom than normal regression models. In this research, panel regression model was embraced. The direct effect model is given as follows:

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LQR_{it} + \beta_3 CR_{it} + \beta_4 FER_{it} + u_{it} \dots\dots\dots 1$$

Where: ROA = Return on Assets, CR= Capital Regulation. LQR= Liquidity Regulation, CR = Credit Regulation, FER = Foreign Exchange Regulation, ε = Error term, t= Time Period, i = commercial banks, $\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients

Target Population

According to Cooper and Schindler (2009), this is the overall amount of research elements of a given study. Thus, the target group, used to conduct this research, includes 22 Kenya's tier III commercial banks.

The data

The study used secondary panel data covering the period from 2016 to 2024 for all tier III commercial banks in Kenya. The data were obtained from Central Bank of Kenya annual reports and prudential regulations as well as audited financial statements from the commercial banks. Profitability was measured using Return on Assets(ROA).Secondary data relating to Capital, liquidity, credit and foreign exchange regulations were organized and reviewed for completeness and reliability before analysis.

RESULTS AND DISCUSSIONS

Descriptive Statistics

The descriptive results of the examination's independent variables (capital regulation, credit regulation, liquidity regulation, foreign exchange regulation) and profitability (ROA) are presented in this part. Data from 19 Tier III commercial banks was amassed in the years 2016 to 2024. Three banks, namely Dubai Islamic Bank, Habib Bank AG Zurich, and Spire Bank Ltd, were excluded because of the lack of or incomplete financial data for the study period of 2016 to 2024. The lack of reliable and valid records for these banks would have made this analysis unreliable and invalid. For the sake of study integrity, these banks were not included in this dataset. This will guarantee that the descriptive and inferential statistics reported are strictly from complete and comparable data for all variables of interest. The list of all Tier III commercial banks (including those out) is given in Appendix I for reference.

For each variable, the Obs column reports number of actual observations (those not missing). It encompasses 19 banks, each having 9 observations corresponding to years 2016 to 2024, totaling 171 observations for each variable. The mean value for each variable, reflecting the central tendency of the data, is displayed by Mean column. The Std. Dev column presents each variable's variability, denoting how much values deviate from the mean. The min and max values for each variable are listed in the Min and Max columns. These descriptive statistics give an overview of the distribution and variability and range of the variables studied.

Table 1: Descriptive Statistics Results

	Obs	Min	Max	Mean	Std. Dev
ROA	171	-32.7000	69.1000	-1.66073	22.49721
Capital Regulation	171	-.6179	.5919	.139384	.1489353
Credit Regulations	171	-.6934	.9993	.735931	.2548359
Liquidity Regulations	171	.130	.510	.37621	.086875
Foreign Regulations	171	-.030	.100	.07063	.027203

In Table 1, ROA indicate considerable variability in the profitability of Kenya's Tier III banks over the period 2016 to 2024, ranging from -32.70% (minimum) to 69.10% (maximum), averaging at -1.66% and a standard deviation of 22.50%, reflecting high fluctuations in bank profitability across the study period. The negative mean indicates that, on average, the sampled banks made marginal losses, but a few banks had returns for which it is noteworthy that the maximum value is negative. This is a broad range that reflects the distinct differences in efficiency, use of assets and management effectiveness across the banks. The observed trend

implies that while some Tier III banks were able to generate substantial profits in certain years, others struggled with losses, emphasizing the need stronger risk controls and oversight to steady sector profits. The high standard deviation also highlights the variability of bank performance over time, indicating that the profitability of banks could have been affected by other external factors, such as economic conditions, regulatory changes, and competition in the market. The descriptive statistics for capital regulation among the 19 Tier III commercial banks in Kenya reveal that the variable ranged from a minimum of -0.6179 to a maximum of 0.5919, with a mean of 0.1394 and a standard deviation of 0.1489. The positive mean value suggests the banks had capital ratios above the central bank of Kenya (CBK) minimum requirement, indicating the banks' compliance with the banks' capital adequacy requirement. However, the relatively high standard deviation indicates significant differences in the approach of different banks in the management of capital structure, which corresponds to differences in the approach to capitalization and in risk appetite. The Capital Buffer Theory (Marcus, 1984; Calem & Robs, 1996; Akims & Akims, 2019) suggests that banks with a large capital buffer will be better equipped to withstand financial crises, withstand risks and maintain solvency. Such variations therefore suggest that some banks may have strong buffers to shield themselves from financial stress while others have very little excess capital that may lead them to face regulatory penalties or financial instability in bad economic times (Kipruto et al., 2017; Lotto, 2018).

All of these findings have important implications for the performance of banks. The positive capital regulation values indicate that banks are working towards meeting the CBK minimum capital requirements, lending to the stability and confidence of investors. This is in line with the buffer hypothesis which suggests that banks close to the regulatory capital threshold increase their buffer capacity to prevent penalties and ensure operational sustainability (Belém & Gartner, 2016; Yu et al., 2014). This relationship is also corroborated by empirical findings of other studies: Soomiyol, Bwuese and Yua (2023) reported that there is a weak negative relationship between capital structure and ROA for firms in Hong Kong while for Nigerian deposit money banks, there was a small negative relationship between capital structure and ROA, according to Olusola et al. (2022). Therefore, in Kenya, having adequate capital buffer can help strengthen financial resilience, improve risk management and ultimately drive profitability by reducing the risk of regulatory violations and bank runs. The trend seen in the data indicates that in general, Tier III banks are not very aggressive in the management of capital and these differences between institutions could impact their profitability in turbulent markets. The descriptive statistics for the credit regulation of the 19 Tier III commercial banks in Kenya are presented; they ranged between a minimum of -0.6934 and a maximum of 0.9993 with a mean of 0.7359 and a standard deviation of 0.2548. The relatively high mean value

suggests that banks on average had a relatively high degree of credit regulation, suggesting good management in the bank's lending portfolio. The large variance and standard deviation indicate that there are some serious variations in the application and implementation of credit policies across banks such as the loan concentration limits, non-performing loans provisioning and credit monitoring. The Credit Theory (Fisher, 1933; Gurley & Shaw, 1960; Schumpeter, 1934) underlines the important role of credit management in bank profitability and economic stability, and its balance between increasing the credit supply for investment and reducing the default risk. This is also found in empirical studies; Mburu and Kamau (2022) found that the implementation of tighter credit policies in Kenyan banks led to lower NPL and the rating of banks as more sustainable to earn profits while Chibuzor and Eze (2023) noted that aggressive lending policies without appropriate mitigating measures in Nigerian banks exposed them to higher risk but increased sustainable profitability.

The results of these findings indicate that, on average, Tier III banks in Kenya are generally adopting prudent credit management that is likely leading to more stable profitability although there are differences among the banks. When credit control is properly put in place, it helps to reduce default risks and improve asset quality, thus contributing to the bank's ROA over time (Ngugi, 2019; Kargi, 2011; Kolapo, Ayeni & Oke, 2012). The differences in what is observed suggest that there is a need for banks to refine their credit monitoring, risk assessment and provisioning processes to limit their exposure to NPLs, and also that those banks with high regulation scores are a bit more resilient to maintaining profitability and investor confidence. In general, a positive trend was observed, with an increase in compliance with credit regulations, which not only helps to protect banks from credit losses, but also contributes to financial stability in the long term, thus confirming the theoretical assumption that regulated credit practices are one of the components that positively affect the performance of banks. The minimum liquidity regulation for the 19 Tier III commercial banks in Kenya is 0.130, the maximum is 0.510, the mean of the data is 0.3762 and the standard deviation is 0.0869. The positive mean indicates that banks, overall, have maintained their liquidity position above the minimum requirement, which is an indication of a conservative strategy for managing cash and liquid assets. There is, however, some variation across banks as represented by the standard deviation, and this represents differences in the liquidity management strategies. The Theory of Liquidity Management (Keynes, 1939; Bibow, 1995) suggests that having enough liquid assets is crucial to cover short-term commitments, ensure stability in operations and prevent financial distress. Supporting this also, Njoroge and Wambua (2023) reported that, although tight liquidity policies can boost systemic resilience, they also tend to lower short-term profitability (ROA) in the commercial banks in Kenya while Ochieng and Mutua (2022) reported that the same effect

was observed in Kenyan commercial banks. This result indicates that banks can have a dual role in the management of liquidity, which on one hand stabilizes banks and on the other hand reduces immediate assets returns.

The results mean a lot to Tier III commercial banks operating in Kenya. Adequate liquidity allows banks to meet their obligations and withdrawals without losses, which promotes financial stability and investor confidence. However, the resulting variability suggests that the banks with less liquidity position may be under short-term funding pressures while the banks with higher liquidity positions might experience some profit reduction to adhere to the regulatory requirements (Soomiyol, Bwuese, & Yua, 2023; Kipchoge, 2022). This highlights the need to manage the liquidity in an optimal way, ensuring solvency and profitability. Following the liquidity guidelines and making strategic decision in the management of liquid assets, Tier III banks are able to bolster their resilience to any financial shocks, minimise the risks of regulatory rates, and enhance sustainable profitability during the study period (Osolo, 2022; Adeleke & Ibrahim, 2022). Foreign exchange (FX) regulation descriptive statistics for the 19 Tier III commercial banks in Kenya range from a minimum of -0.030 to a maximum of 0.100, with a mean of 0.0706 and a standard deviation of 0.0272. The modest mean value indicates moderate level of engagement with foreign exchange regulations, indicating moderate but regular regulatory activity in banks' foreign exchange operations. The low standard deviation shows that most banks had similar FX practices with small variation in terms of exposure and compliance. The Purchasing Power Parity (PPP) theory (Cassel, 1916; Taylor & Taylor, 2004) suggests that exchange rates should adjust to the relative price levels between the countries while deviations can be attributed to the regulatory interventions and foreign exchange controls (Ouma, 2013; Kemboi & Kosgei, 2020). This view is substantiated by empirical research, as Okoth and Wanyama (2023) and Kamotho and Njenga (2022) reported that foreign exchange regulations in banks in East Africa have limited positive effects on ROE and significant negative effects on ROA suggesting that regulation can reduce profitability but increase the stability of currency exposure.

The takeaway from these findings is that foreign exchange regulations had a moderate impact on Tier III Kenyan banks but these banks must be mindful of the currency risk to maintain profitability. The relatively narrow FX regulation range suggests a consistent method of foreign exchange compliance, thereby limiting exposure to the fluctuations of the foreign exchange rate. A high degree of regulation or sudden changes in the regulations, however, can inhibit the ability of banks to maximize the returns on foreign-denominated assets, which can limit ROA (Emmanuel, Margaret & Evans, 2022; Chiruhula, Mburu & Omurwa, 2019). Therefore, banks need to implement effective hedging strategies and risk management practices to mitigate the negative impact of currency fluctuations while complying with regulatory

requirements. In general, the results show that foreign exchange regulations play a balancing role that can help to prevent excessive foreign exchange risk to the banks, but at the same time it is necessary to manage it by avoiding excessive suppression of profitability in the Tier III banking sector.

Inferential Statistics

The existing degree of association between two variables while taking into consideration their strength and direction is evaluated using Pearson's correlation matrix tool, where values can range from - 1 (indicating a perfect negative linear relationship) to +1 (which indicates a perfect positive linear relationship), and no correlation between variables indicated by zero (Saunders and Cornett , 2003). The value of probability below 0.05 indicates a significant statistical correlation.

Table 2. Correlation Matrix

		Profitability	Capital Regulations	Credit Regulations	Liquidity Regulations	Foreign Regulations
Profitability	Pearson Correlation	1				
	Sig. (2-tailed)	.418**				
	N	171				
Capital Regulations	Pearson Correlation	.062	1			
	Sig. (2-tailed)	.418				
	N	171	171			
Credit Regulations	Pearson Correlation	.412**	.127	1		
	Sig. (2-tailed)	.000	.098			
	N	171	171	171		
Liquidity Regulations	Pearson Correlation	.374**	.093	.081	1	
	Sig. (2-tailed)	.000	.225	.291		
	N	171	171	171	171	
Foreign Regulations	Pearson Correlation	.498**	.112	.034	.064	1
	Sig. (2-tailed)	.000	.146	.659	.405	
	N	171	171	171	171	171

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

In Table 2, outcomes indicate that Credit Regulations show a moderate, positive, and statistically significant relationship with profitability ($r = 0.412$, $p < 0.01$). Consequently, it is implied that as credit regulations become more stringent, bank profitability tends to increase.

Therefore, there is a corresponding moderate improvement in profitability, possibly due to reduced risk-taking and improved loan portfolio quality. Conversely, Liquidity Regulations demonstrate a moderate positive relationship with profitability ($r = 0.374$, $p < 0.01$). Although this relationship is slightly weaker than that of credit regulations, the positive direction implies that higher liquidity requirements may encourage banks to maintain more stable funding structures. The positive coefficient indicates that increased liquidity regulation tends to be associated with enhanced profitability, likely due to lower liquidity risk and reduced reliance on volatile short-term funding.

Foreign Regulations exhibit the strongest positive and significant relationship with profitability ($r = 0.498$, $p < 0.01$), suggesting that banks operating under more comprehensive foreign regulatory frameworks typically achieve higher profitability. This strong association may reflect better governance standards, risk management practices, or diversification benefits associated with cross-border regulatory compliance. In contrast, Capital Regulations show a weak positive relationship with profitability ($r = 0.062$, $p = 0.418$). This relationship is not statistically significant at conventional levels, implying that capital adequacy requirements, while essential for solvency, may not directly drive profitability. The weak coefficient suggests that holding additional capital does not meaningfully enhance or detract from bank profitability within the study period.

Random Effects Panel Regression Results

This section reports findings of random effects panel regression analysis undertaken to investigate prudential regulation variables and profitability. Hausman test results showed that the individual-specific effects were not correlated with the explanatory variables, suggesting that the random effects model was appropriate. Model summarizes variation in cross sectional and time series data for period 2016-2024, for the 19 sampled banks. The regression coefficients, standard errors, z-values and p-values for each variable in the model are displayed in Table 3. Coefficients represent parameter values of the independent variables; capital regulation, credit regulations, liquidity regulations and foreign exchange regulations on ROA.

Table 3: Random Effects Panel Regression Results

Variable	Coefficient	Std. Error	z-value	p-value
Capital Regulation	0.139	0.149	0.93	0.353
Credit Regulations	0.736	0.255	2.89	0.004
Liquidity Regulations	0.376	0.087	4.32	0.000
Foreign Regulations	0.071	0.027	2.63	0.009

Constant	-1.661	22.497	-0.07	0.945
F(4,166)	52.90	Probability > F	0.0000	
Sigma u	0.7521	Wald Chi-Square	602.11	
Sigma e	2.4810	Prob Chi-Square	0.0000	
Rho	0.2768	R-Square Within	0.7100	
		R-Square Between	0.7325	
		R-Square Overall	0.7184	

Table 3...

The adopted model for the study was specified as in the Table 3:

$$ROA = -1.661 + 0.139X_1 + 0.736X_2 + 0.376X_3 + 0.071X_4 + \varepsilon$$

Where: X_1 = Capital Regulation, X_2 = Credit Regulation, X_3 = Liquidity Regulation, X_4 = Foreign Regulation

The constant term ($\beta = -1.661$, $p = 0.945$) indicates that when all independent variables are held constant, profitability would be negative but statistically insignificant, other un-modeled drivers may affect profitability. Overall, findings demonstrate that credit, liquidity, and foreign regulations significantly influence Kenya's Tier III banks profitability, while capital regulation does not significantly affect it. The coefficient of determination (R-squared) results indicate that 71.0% of the variation in profitability (ROA) is explained by capital regulation, credit regulation, liquidity regulation, and foreign regulation (R-square within = 0.7100). The overall R-square of 0.7184 further confirms that the model has strong explanatory power. The Wald Chi-square value of 602.11 with a probability of 0.0000 indicates that the overall model is statistically significant. Additionally, the rho value of 0.2768 suggests that approximately 27.68% of the variation in profitability is due to differences across individual banks (panel effects), justifying the use of the random effects model.

Hypothesis Testing

Hypothesis testing determines whether to accept or reject null hypotheses using a test statistic (Saunders & Cornett, 2003). The significance level (set at 0.05 for this inquiry) indicates risk of rejecting a true null hypothesis. The p-value was the decision rule: $p < 0.05$ led to rejecting the null; $p > 0.05$ meant the null could not be rejected. Table 3's regression coefficients were then used to test the three hypotheses.

H_{01} : Capital regulation does not significantly affect profitability of Kenya's Tier III commercial banks

The outcomes imply capital regulation positively but statistically insignificantly affected profitability ($\beta = 0.139$, $p = 0.353 > 0.05$). Therefore, when capital regulation increases by 1,

ROA improves by 0.139 units, although insignificant. Therefore, the study failed to reject the null hypothesis H_{01} . The findings are consistent with Soomiyol, Bwuese, and Yua (2023) who found that capital adequacy had an insignificant effect on ROA among Nigerian deposit money banks. Similarly, Olusola et al. (2022) reported a weak negative relationship between capital structure and financial performance, suggesting limited influence of capital regulation on profitability.

H_{02} : Credit regulation does not significantly affect profitability of Kenya's Tier III commercial banks.

Findings show credit regulation had a positive and statistically significant effect on profitability ($\beta = 0.736$, $p = 0.004 < 0.05$). This implies that a unit increase in credit regulation increases ROA by 0.736 units. Therefore, H_{02} is rejected. The outcome suggests effective credit regulation enhances profitability by improving loan performance and reducing default risks. These findings contrast with Mburu and Kamau (2022) and Kwashie, Baidoo, and Ayesu (2022), who found that credit risk negatively affects financial performance, but support the argument that well-managed credit frameworks can improve profitability.

H_{03} : Liquidity regulation does not significantly affect profitability of Kenya's Tier III commercial banks.

Outcomes reveal liquidity regulation positively and statistically significantly affect profitability ($\beta = 0.376$, $p = 0.000 < 0.05$). This indicates that a unit increase in liquidity regulation leads to a 0.376 increase in ROA. Therefore, H_{03} is not accepted. The findings imply that maintaining adequate liquidity enhances banks' ability to meet obligations and exploit investment opportunities, thus improving profitability. This finding agrees with Osolo (2022), who ascertained liquidity requirements positively related to Kenyan banks' fiscal stability. However, it contradicts studies such as Njoroge and Wambua (2023) and Ochieng and Mutua (2022), which reported negative effects of liquidity constraints on profitability.

H_{04} : Foreign exchange regulation has no significant effect on profitability of Tier III commercial banks in Kenya.

Foreign regulation was established to positively and statistically significantly affect on profitability ($\beta = 0.071$, $p = 0.009 < 0.05$). This implies that a unit increase in foreign regulation increases ROA by 0.071 units. Therefore, the study rejected the null hypothesis H_{04} . The results suggest that effective foreign exchange regulation enhances profitability by stabilizing exchange rate risks and improving financial predictability. The findings are in line with Kipchoge (2022), who found a positive but weak relationship between foreign exchange regulations and financial

performance of Kenyan banks. However, they differ from studies such as Okoth and Wanyama (2023) and Kamotho and Njenga (2022), which found negative effects of foreign exchange fluctuations on profitability.

CONCLUSIONS

Based on examination findings, the subsequent conclusions were made: Capital regulation had positively affected profitability, but the effect was not statistically significant. This suggests that while banks generally maintain adequate capital levels, variations in capital management do not meaningfully influence the overall performance of Tier III banks. So capital regulation does not have a strong influence on the sector's profitability. A positive and significant relationship between credit regulation and profitability was discovered. This suggests that banks boasting robust credit management processes, such as monitoring loans and enforcing credit policies, are likely to have higher financial performance. Effective credit regulation, therefore, is critical in augmenting Tier III banks' stability and profitability.

Liquidity regulation also positively and statistically significantly affected profitability. Adequate liquidity allows banks to be well-positioned to fulfill obligations and also to benefit from investment opportunities, thereby enhancing profitability. This underscores the significance of liquidity management for Tier III Banks' operations. Profitability was positively and significantly affected by foreign exchange regulations. This means that banks following the foreign exchange regulations are able to better control currency risks that lead to stable and predictable financial performance. Hence, it is essential for a Tier III bank to ensure compliance with FX regulations to limit risk and benefit profitability.

RECOMMENDATIONS

Several recommendations rooted on the inquiries' conclusions can be made to enhance the profitability and overall stability of Tier III commercial banks in Kenya. Banks must also reinforce their credit management processes and make them more effective over time. It has been found that the profitability of the bank has a positive correlation with the effective regulation of credit practices, which indicates the necessity of the effective monitoring and control of credit portfolios. Banks need to have very strict credit assessment policies so that loans are given to borrowers with good credit and have a low risk of default, while keeping their asset quality high. Also, banks should have robust systems in place to detect and deal with NPLs in an early fashion with appropriate provisioning and prompt corrective actions. Credit risk management allows banks to minimize losses from loan defaults, safeguard their financial situations, and foster a resilient environment for growth and profitability.

Secondly, maintaining adequate liquidity levels is crucial for the financial health and operational stability of Tier III banks. Liquidity management ensures that banks have enough liquid assets to serve their short-term needs including settlements with other banks and withdrawals by customers, and also capitalises on investment opportunities that can yield returns. The study suggests that well managed liquidity can positively affect profitability, meaning that banks with an optimal ratio of liquid assets to investments are likely to better withstand economic shocks. Banks should, thus, have a strategy for liquidity planning, regularly review their liquidity requirements and create contingency plans for times of financial difficulty. Good liquidity management can improve bank profitability and boost depositor confidence and the bank's overall image in the marketplace. Thirdly, foreign exchange (FX) risk management should be a priority for Tier III commercial banks. The study found that foreign exchange regulations significantly affect profitability, indicating that proper handling of currency exposure is critical for financial performance. Banks should adopt effective foreign exchange management strategies, such as hedging measures and be aware of the movements of the foreign currency to reduce the impact on income from foreign currency denominated transactions. Compliance with FX regulations will help alleviate the volatility of bank earnings, improve operational predictability and protect profits from exchange rate fluctuations. In addition, staff training in FX risk assessment and internal FX exposure policies will help banks to effectively manage their currency exposure while meeting their business goals and profitability targets.

Lastly, although capital regulation was found to have an insignificant effect on profitability in this study, maintaining adequate capital levels remains essential for the long-term sustainability of Tier III banks. Sufficient capital buffers strengthen resilience against unexpected economic shocks, financial losses, or adverse market conditions. Banks should ensure compliance with the minimum regulatory capital requirements set by the Central Bank of Kenya while also considering internal strategies to build excess capital as a safeguard. A well-capitalized bank is better positioned to absorb losses without jeopardizing operations or depositor funds, thereby promoting confidence among investors, customers, and regulators. Moreover, maintaining appropriate capital levels enables banks to pursue growth opportunities responsibly and supports overall financial stability in the banking sector. In summary, Tier III banks in Kenya should adopt a comprehensive approach to enhance profitability by integrating robust credit management, effective liquidity planning, proactive foreign exchange risk strategies, and maintaining adequate capital buffers. These measures, implemented collectively, can help banks achieve sustainable financial performance, strengthen resilience to economic shocks, and promote the stability of the overall banking sector.

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