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The Influence of Central Bank Supervisory Power on Bank Stability

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Abstract

This study examined how different dimensions of central bank oversight relate to the stability of banks in Tanzania. Using the Economic Theory of Regulations as the analytical lens, the research used a cross-sectional survey involving 206 participants from 45 banks. Respondents included officers working in Credit, Finance, Human Resources, Internal Audit, and Risk and Compliance units. Data were processed using Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS ver.4.0. The findings indicated that the central bank's supervisory authority showed the strongest link with perceived bank stability ($\beta = 0.414$, $p < 0.001$). Central bank regulations also play a key role ($\beta = 0.263$, $p < 0.001$), followed by the influence of central bank independence ($\beta = 0.240$, $p < 0.001$). Overall, the results point to a banking sector that becomes more stable when supervision is firm, regulations are well defined, and the central bank operates with a degree of autonomy. The study offers insights that can guide policymakers and regulatory bodies in strengthening oversight practices and improving the resilience of Tanzania's banking system.

Keywords: Central Bank Supervisory Authority, Central Bank independence, Central Bank Regulations, Bank stability.

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Introduction

Bank stability has remained a key issue of concern for financial authorities across the world, especially in the years following the 2007–2009 Global Financial Crisis. A stable banking system is essential because the collapse of banks can hinder economic progress, interrupt the flow of financial services, and weaken the confidence of investors (Ofori-Sasu et al., 2023).In general terms, bank stability refers to the capacity of a financial institution to maintain its operational consistency and financial soundness amid risks and uncertainties (Gurley Holloway, 2023); (Shetty et al., 2024)). The key indicators of bank stability include level of banks capitalization, asset quality, management effectiveness, earnings performance, liquidity, and insolvency risk ((Shetty et al., 2024). Although African banks were largely insulated from direct exposure to sub-prime US mortgages, the 2007–2009 crisis demonstrated spillover effects to countries dependent on foreign parent banks (Shetty et al., 2024; Moles, 2022). In Tanzania, shocks from abroad may filter into the domestic banking system, especially among subsidiaries of the foreign-owned financial institutions, reflecting the interconnected nature of global finance (Moles, 2022). The COVID-19 outbreak added further pressure, with smaller and less capitalized banks feeling the strain. Research indicates that countries with stronger regulatory systems, better institutional setups, and more developed financial sectors were able to lessen the adverse effects on banking stability (Moles, 2022).

The Bank of Tanzania (BoT), together with standards inspired by the Basel Accords, has played an important role in supporting the soundness of the banking sector. The need for robust interventions became clear after the rise in non-performing loans (NPL) and liquidity difficulties in 2018, and again during the pandemic when many borrowers struggled to repay due to widespread disruptions. Compared to other jurisdictions, Tanzanian banks experienced relatively moderate fallout from COVID-19, largely because of the measures introduced by the central bank to cushion the sector (Moles, 2022). Over time, reforms in regulation and supervision such as tightening prudential rules and improving oversight methods have continued to reinforce the sector's capacity to withstand shocks (Moles, 2022). Effective supervision requires banks to maintain sufficient capital, comply with standards, and avoid excessive risk-taking, which collectively supports economic activity and sustains investor trust (Nguyen et al., 2023; Koskei, 2020).

Prior studies show links between central bank independence, supervisory authority, regulatory frameworks, and the stability of banks (Moles, 2022). Yet, much of the existing work relies on officers from a single department, secondary datasets, or cross-country analyses. As a result, there is limited evidence on how supervisory power relates to stability when using input from multiple departments within Tanzanian banks. This study addresses that gap by analysing perceptions from officers across various units in all 45 banks operating in Tanzania. Using Partial Least Squares Structural Equation

Modelling (PLS-SEM), it examines how different dimensions of central bank supervisory power align with the stability of the banking sector. By drawing on institution-level experiences from a range of functional areas, the study provides a more layered understanding of supervisory influence. Its emphasis is on identifying associations rather than establishing causality, offering insights that can help regulators strengthen oversight practices and reinforce the resilience of Tanzania's banking sector as part of broader economic development efforts.

Literature

Theoretical review

Different countries have taken varied paths in shaping their regulatory and supervisory systems. Some have opted for strict frameworks designed to preserve banking stability and safeguard investors, while others have embraced more flexible regimes to encourage innovation and improve market functioning. These differences arise from each country's political priorities, economic conditions, and institutional structures, which makes it difficult to prescribe a single model of financial oversight that suits all contexts (Mirzaei & Samet, 2022). The Theory of Economic Regulation, as advanced by Stigler (2021), explains that regulation is introduced to reduce information gaps and align the behaviour of market participants with public interests. In this perspective, regulation is particularly critical in industries where competition is weak or ineffective, such as banking (Peltzman, 1976). The theory also acknowledges that market actors may seek regulatory protection both from competitors and from possible government actions. This highlights the role of strong central bank oversight in shielding banks and their stakeholders especially depositors from undue risks. Ultimately, banking regulation aims to protect depositors, support the smooth functioning of banks, and uphold overall financial stability (Hirtle & Kovner, 2024).When the banking sector is left without being regulated, it can be prone to the risk of instability and contagion effect that can affect the financial system as a whole (Hirtle & Kovner, 2022).

The main objective of bank regulation is to promote the stability of individual banks and the banking sector as a whole. In this case, regulations achieve this objective principally through influencing the decisions of banks in granting credit exposures and in the decisions of banks to take risks (Thamae & Odhiambo, 2022). Regulations issued to banks are important in making banks to operate effectively, improve corporate governance, internal control and reduce the level of non-performing loans. These factors have a significant impact to the stability of individual bank and banking sector (Borio, Farag, & Tarashev, 2020). Regulation in banking sector plays a central role in aligning the interest of the banks' owners with depositors and other creditors which results in more suspiciously lending, low non-performing loans and bank stability (Almaw, 2020). The current study employed Economic Theory of Regulations to determine the influence of central bank supervision power to the bank stability in Tanzania. The central banks use regulations in the process of supervision of banks and financial institution. Therefore, supervision is one of the processes of enforcing the issued regulations. Economic Theory of Regulations was found to be appropriate in predicting the influence of central bank supervisory power on the bank stability.

Empirical Review

The empirical literature on central banks supervision and bank stability can be organised around four interrelated themes: (a) Central Bank Independence (CBI) and financial stability, (b) supervisory authority and its outcomes, (c) prudential regulation and bank risk, and (d) measurement approaches, including perceptual versus objective indicators.

Central Bank Independence and Financial Stability

Central bank independence is widely recognized as a critical factor for financial stability. Schilling and Seuring (2023) emphasize that independent central banks are better able to implement effective monetary policies and maintain currency stability. Cukierman, Webb, and Neyapti (1992) argue that in developing economies, operational indicators such as the frequency with which central bank governors are replaced may reflect independence more accurately than formal legal provisions. Aklin and Kern (2021) note that even when legal independence exists, governments may still act in ways that pursue short-term political goals, potentially affecting financial stability. Lepers (2024) further observes that the effectiveness of macroprudential policies can differ depending on whether the central bank or the Ministry of Finance takes the lead, underscoring the value of coordinated structures such as financial stability committees.

Supervisory Authority and Outcomes

Research consistently points to the benefits of strong supervisory authority for the soundness of banks. Abdulkareem and Muhammed (2023) show that supervision consistent with Basel Committee principles promotes compliance and supports stability. Findings by Mateev et al. (2023) and Dutra, Teixeira, and Dias (2023) suggest that broad supervisory powers help curb excessive risk-taking, thereby reducing vulnerabilities within the sector. Fraccaroli et al. (2020) report that regulatory independence is associated with lower levels of non-performing loans without compromising efficiency. Mutarindwa et al. (2020) highlight that adherence to supervisory and governance standards enhances resilience, especially among

local banks. Using survey-based measures, Chernykh, Davydov, and Sihvonen (2023) demonstrate that perceptions of system-wide stability shape how individuals view the strength of their own banks, providing support for the use of perception-based approaches in assessing supervisory impact.

Prudential Regulation and Bank Risk

Capital and liquidity requirements form the backbone of prudential regulation and play a major role in managing bank risk. Stronger requirements are associated with reduced failure risk and a more stable financial environment (Nguyen, 2021; Koskei, 2020). However, evidence is not uniform across different contexts. While Fraccaroli et al. (2020) document positive outcomes linked to higher capital buffers, Binder (2021) argues that political influence can weaken the effectiveness of such measures in developing countries. These mixed results emphasize the importance of evaluating regulatory tools within specific institutional environments rather than assuming they operate uniformly across settings.

Measurement Approaches: Perceptual vs. Objective

A central methodological question concerns the choice between objective indicators such as legal scores or financial ratios and perceptual indicators derived from stakeholders' views. Cukierman et al. (1992) rely on legal and operational metrics, while Chernykh et al. (2023) demonstrate that perception-based indicators, including public confidence measures, capture behavioural and attitudinal responses that complement objective data. Drawing on survey responses from staff in multiple bank departments can therefore yield valuable insights into how supervisory actions are experienced in practice, particularly in settings where institutional robustness varies, such as Tanzania.

Contradictory Findings and Gaps

The literature presents several inconsistencies. Cukierman et al. (1992) question the effectiveness of legal independence in developing economies, whereas Lepers (2024) stresses the significance of institutional design for macroprudential regulation. Binder (2021) highlights the role of political constraints in weakening supervisory authority, a conclusion that contrasts with studies such as Abdulkareem and Muhammed (2023), which find strong links between supervisory compliance and stability. These divergent findings point to a gap: few studies integrate perception-based measures of supervisory power with objective indicators when assessing stability, especially in African settings. The present study addresses this gap by using perceptual data collected from officers in different departments across Tanzanian banks, offering evidence on how supervisory power relates to stability and helping to contextualize the mixed results found in earlier research.

Hypothesis development

Central Bank Independence and Bank Stability

The link between Central Bank Independence (CBI) and the stability of the banking sector has been widely discussed, often with mixed conclusions. Many scholars argue that when a central bank operates without political interference, it is better positioned to maintain price stability, enforce sound supervisory standards, and safeguard the strength of commercial banks. An independent authority can focus on long-term monetary and financial objectives rather than short-term political pressures, particularly those associated with election cycles. Over the years, the level of independence granted to central banks has evolved differently across countries as governments have sought to protect monetary policy from political influence. Measures such as fixed leadership terms, statutory mandates, and legal protections are commonly used to strengthen this autonomy. Despite these efforts, the degree of independence still varies widely, shaped by national histories and institutional traditions.

Existing studies highlight the continuing relevance of CBI in promoting a stable financial environment. Common themes include insulating monetary policy from political bargaining, enabling consistent inflation control, and reinforcing regulatory credibility. However, research also suggests that independence alone does not guarantee stability. In some cases, political actors still exert influence over central bank decisions, diminishing the intended benefits. Empirical evidence is also uneven across countries, leaving gaps in understanding how CBI affects banking stability in different economic settings, including small or emerging economies. In light of this discussion, the study proposes the following hypothesis:

H1: Central Bank Independence positively influences bank stability.

Central Bank Supervisory Authority and Bank Stability

The literature on financial sector oversight underscores several conditions necessary for effective supervision. Supervisory bodies must have unrestricted access to information, clear authority to intervene when banks breach regulations, and the capacity to act promptly when financial weaknesses emerge. The strength of supervisory actions often depends on the extent to which courts can amend or overturn regulatory decisions. In some jurisdictions, judicial intervention is limited; in others, courts frequently reverse supervisory measures, which can weaken oversight. Supervisory authority generally covers a wide range of actions, including imposing penalties for non-compliance, requiring additional provisioning for

loan losses, evaluating senior bank appointments, instructing internal restructuring, initiating legal proceedings against negligent management, declaring insolvency, and replacing executives where necessary. Effective supervision therefore hinges on three key elements: the ability to deal decisively with falling solvency, the freedom to enforce regulations without excessive judicial obstruction, and institutional support from the judiciary when corrective measures are taken. Although previous studies highlight the importance of regulatory authority, they also show inconsistencies in how much power supervisors truly have and the extent to which judicial bodies influence their decisions. These differences make it difficult to determine how supervisory power translates into actual banking stability across distinct regulatory systems. This gap calls for further examination of the relationship between supervisory capacity and bank stability. From this perspective, the study formulates the following hypothesis:

H2: The Central Bank's official supervisory authority positively influences bank stability.

Central Bank Regulations and Bank Stability

The role of regulation in maintaining stable banks is multifaceted. Capital requirements, for example, compel banks to maintain minimum capital ratios, which serve as a buffer against potential losses. While necessary for safety, these rules can sometimes lead banks to adjust their behavior in undesirable ways. Some studies point out that when capital regulations become too stringent, banks may scale back lending due to higher compliance costs, potentially affecting credit availability. Others argue that strict capital rules discourage excessive risk-taking and strengthen the overall resilience of the banking system. Research also shows that regulatory frameworks differ widely across countries, even though their goals are similar reducing systemic risks, discouraging fraud, and ensuring strong consumer protection. Regulations often limit unfair practices, strengthen risk-management standards, enforce transparency, and ensure that customers receive essential information about their rights. Supervisors may also impose limits on interest charges or certain fees to safeguard consumers and encourage fair competition. Despite these shared objectives, the literature reveals contrasting findings. While some authors contend that stringent capital rules suppress lending and reduce banks' willingness to take risks, others argue that these rules are essential to reinforcing the sector's stability and efficiency. Similarly, while some studies suggest capital requirements lower risk, others note that higher costs may push banks to adopt new, sometimes riskier strategies to preserve returns. Given these mixed perspectives, the study proposes the following hypothesis:

H3: Central bank regulations positively influence bank stability.

Methodology

Research Design and Procedures

This study adopted a cross-sectional research design, which enabled collection of information from respondents at a single point in time. Data were gathered through a semi-structured questionnaire administered to selected officers from all 45 banks operating in Tanzania. A cross-sectional approach was considered appropriate because it allows efficient data collection within a limited timeframe while capturing variations across institutions. Respondents were drawn from key functional areas:- Finance, Human Resources, Internal Audit, Credit/Loan Management, and Risk Management. These roles were targeted because staff in these departments interact most closely with regulatory issues, supervisory processes, and internal control mechanisms that relate to the study variables. The study assessed several constructs using multiple indicators, including Central Bank Independence (CBI), Central Bank Supervisory Authority (CBSA), Central Bank Regulations (CBR), and Bank Stability (BS). This allowed for a structured evaluation of how central bank oversight relates to the stability of the banking sector.

Population and Sample Size

The research focused on officers from all 45 banks listed by the Bank of Tanzania. Five officers were purposively selected from each bank, drawn from departments directly involved in compliance, financial oversight, risk control, and human capital functions. These individuals were expected to provide informed perspectives aligned with the study's objectives. Selecting several officers from each institution provided a broader representation of operational realities across departments. Because respondents were clustered within banks, individual responses were later aggregated at institutional level to ensure that the unit of analysis reflected the bank rather than the individual. This was necessary to avoid statistical violations arising from correlated responses within the same institution. The combination of purposive sampling and aggregation strengthened the representativeness of the sample and captured both functional diversity and institutional characteristics across Tanzania's banking sector. Since all licensed banks were included, the final sample fully represented the population of banks in Tanzania, strengthening the external validity of the findings.

Data Collection Instrument and Validation

Quantitative data were collected using a semi-structured questionnaire developed to examine the links between central bank independence, supervisory authority, regulatory practices, and bank stability. The

instrument followed the recommended systematic development process and used a seven-point Likert scale to capture perceptions related to regulatory effectiveness and institutional performance. Respondents were drawn from finance, credit, internal audit, human resources, and risk or compliance units. The constructs were measured using well-defined indicators. For instance, Central Bank Regulations covered aspects such as capital adequacy requirements and compliance behaviour. Supervisory Authority included items assessing enforcement capacity and responsiveness to performance concerns. Central Bank Independence focused on autonomy in policy and operational decisions, reflected in the governing legal framework. A pilot test involving 20 participants (10% of the intended sample) was conducted to assess clarity and content validity. Content validity indices were 0.600 for CBI, 0.595 for CBR, and 0.609 for CBSA. Reliability coefficients were 0.784, 0.886, and 0.785, respectively. Items that created confusion or overlapped conceptually were refined or removed before the main data collection. Because the study relies on cross-sectional perceptual data, the possibility of endogeneity such as reverse associations or simultaneity was acknowledged. For example, banks that are more stable might hold more favourable views of regulatory actions. To address this, the analysis avoids strong causal wording and interprets findings as associations rather than strict cause-and-effect outcomes. The study also recognizes that subjective assessments of bank stability have limitations. Objective indicators such as NPL ratios, CAR, ROA or Z-scores would enrich the analysis where available. In cases where such data could not be accessed, perceptions were used cautiously, and the need for future studies to combine subjective and objective metrics has been noted.

Data Analysis Techniques

Data were first prepared in SPSS Version 27, where thorough checks were performed for completeness, coding accuracy, and outliers. Missing data were minimal (less than 5%) and were addressed using linear interpolation, which is a technique suitable for small gaps and recommended in similar analytical contexts. Although interpolation may slightly reduce variability, its impact in this case was minimal. Box-plot inspection indicated that extreme values were not widespread, confirming the suitability of the dataset for further modelling. Subsequent analysis employed Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4. Bootstrapping with 5,000 resamples, applying the bias-corrected and accelerated method, was used to generate stable estimates and confidence intervals. Convergent validity was evaluated through factor loadings, AVE, and rho_A. One indicator loaded at 0.696, slightly short of the ideal 0.70 benchmark. It was retained due to its theoretical relevance and because the overall AVE met the acceptable threshold of 0.50. Several control variables were incorporated at bank level, size, ownership category (local private, state-owned, foreign-owned), and age. Including these controls helped ensure that relationships between the independent constructs and bank stability were not distorted by institutional differences. Model explanatory power was assessed using the coefficient of determination (R^2), which indicates the proportion of variance in bank stability explained by central bank regulations, independence, and supervisory authority. The combined use of PLS-SEM, rigorous bootstrapping, and relevant controls provided a solid analytical foundation for examining the study's relationships.

Empirical Results

Response Rate and Descriptive Statistics

The study set out to gather information from 225 bank officers, and 206 completed questionnaires were returned and used in the analysis. This represents a response rate of 91.6%, which is sufficiently strong to lessen though not entirely remove concerns about non-response bias. The small portion of non-responses was likely due to officers being unavailable because of demanding work schedules, hesitation to discuss supervisory matters, or incomplete submissions that could not be incorporated. Although it was not possible to compare respondents with non-respondents directly since demographic information for the latter was unavailable the high level of participation indicates that the final sample reasonably reflects the intended population of officers who engage with central bank oversight processes. Descriptive information for the 206 respondents is summarized in Tables 1 and 2. The sample consisted of 55% men and 45% women. In terms of education, more than seven out of ten respondents held at least a bachelor's degree. The age profile was spread across four brackets: 21–29 years (17%), 30–39 years (33%), 40–49 years (35%), and above 50 years (15%). Work experience was also substantial, with roughly 80% having served in the banking sector for more than ten years particularly in roles that frequently interact with the central bank during supervisory reviews. These demographic features show that the participants had significant exposure and practical understanding, enabling them to provide reliable insights into how central bank supervisory authority relates to the stability of banks.

Table 1: Demographic profile of the respondents

SN	Type	Profile	Frequency	Percentage
1	Sex	Male	113	55%
		Female	93	45%
2	Age	21-29 years	34	17%
		30-39 years	67	33%
		40-49 years	72	35%
		50 years and above	30	15%
3	Education			
		(a) Diploma	19	9%
		(b) Bachelor's degree	103	50%
		(c) Master's Degree	72	35%
		(d) Phd	4	2%
		(e) Others (please specify below)	8	4%
4	Experience	3 to 5 yrs	6	3%
		6 to 15 yrs	37	18%
		16-25 yrs	101	49%
		26 to 35 yrs	54	26%
		36 and above	8	4%
5	Area of Operations	Credit	47	23%
		Audit	40	19%
		Risk and compliance	42	20%
		Finance	41	20%
		Human resources	36	17%

The findings also shed light on different facets of bank stability and the effectiveness of supervision. Several indicators recorded relatively high mean values, reflecting a generally positive assessment of financial soundness. Respondents viewed their institutions as well-capitalized, with a mean score of 5.684, and noted that banks continue to operate profitably, reflected by a mean of 5.189. In contrast, scores relating to regulatory and supervisory adequacy were noticeably lower. Views on whether minimum capital requirements are sufficient averaged 4.471, and the perceived relevance of existing regulations reached a mean of 4.655. These comparatively modest ratings point to areas where regulatory measures may not be fully aligned with practical needs, even though overall bank conditions remain stable.

Table 2: Descriptive statistics for central banks supervision effectiveness

Indicator	Description	Mean	Median	Observed min	Observed max	Standard deviation
	Bank Stability (BS)					
BS1	The bank has high quality of loan portfolio measured by NPLs;	5.684	6	1	7	1.289
BS2	The bank management is performing its mandates adequately;	5.388	6	1	7	1.159
BS3	The bank is operating profitably as expected;	5.189	5	2	7	1.222
BS4	The bank has adequate liquidity to take up arising business opportunities	5.684	6	2	7	1.208
BS6	The bank has adequate market risk management practices	5.316	5	2	7	1.24
	Central Bank Regulations (CBR)					
CBR1	Minimum required capital level for banks is adequate;	4.471	4	1	7	1.353
CBR2	Assets quality measurements for banks are adequate	4.728	5	1	7	1.331
CBR3	Regulations issued are relevant to bank business;	4.655	5	1	7	1.212
CBR4	Regulations are reviewed frequently to accommodate changes	4.568	5	1	7	1.387
CBR5	Minim. Capital requirement is stringent	4.869	5	1	7	1.21
CBR6	Regulation covers most of the bank operations	4.791	5	1	7	1.358
CBR7	Regulations covers banks risks exposures adequately	4.845	5	1	7	1.209
	Central Bank Independence (CBI)					
CBI1	Supervisors are independent from the banks	5.015	5	1	7	1.201
CBI2	Supervisors independent from banks staff	4.728	5	1	7	1.103
CBI5	Supervisors have sufficient expertise	4.883	5	1	7	1.245
CBI6	Targeted examinations conducted without prior notices;	4.976	5	1	7	1.327
	Central Bank Supervisory Authority (CBSA)					
CBSA1	Make vetting of commercial banks senior management	4.743	5	1	7	1.5
CBSA4	Penalizes for non – compliance	4.68	5	1	7	1.275
CBSA5	Grants waiver for non-compliance where necessary	4.728	5	1	7	1.248
CBSA6	Directs additional provision for loan losses	4.791	5	2	7	1.207
CBSA7	Suspend Directors and Senior management and staff who performed malpractices	4.782	5	2	7	1.253

Measurement

Confirmatory Factor Analysis (CFA) was conducted to evaluate the alignment between the proposed measurement model and the collected data. The assessment focused on both the consistency of individual items and the validity of their respective constructs. Results revealed a well-fitting model, with most factor loadings surpassing the recommended threshold of 0.7 (Bajjou & Chafi, 2023; Hair, Ringle, & Sarstedt, 2013). Additionally, construct reliability was examined using composite reliability (CR), where values exceeding 0.7 indicated satisfactory internal consistency (Hair et al., 2013; Shrestha, 2021). Cronbach's alpha coefficients were also examined, and all constructs recorded values greater than 0.7, confirming a high level of reliability (Hair & Alamer, 2022). Convergent validity was evaluated using the Average Variance Extracted (AVE), with all constructs achieving values equal to or greater than 0.5, indicating satisfactory convergence (Hair & Alamer, 2022). Discriminant validity was then examined by

comparing the square root of each construct's AVE with the inter-construct correlations. As presented in Table 1, the results demonstrated that each construct was sufficiently distinct from the others, thereby supporting adequate discriminant validity (Fornell & Larcker, 1981; Hair et al., 2021) .

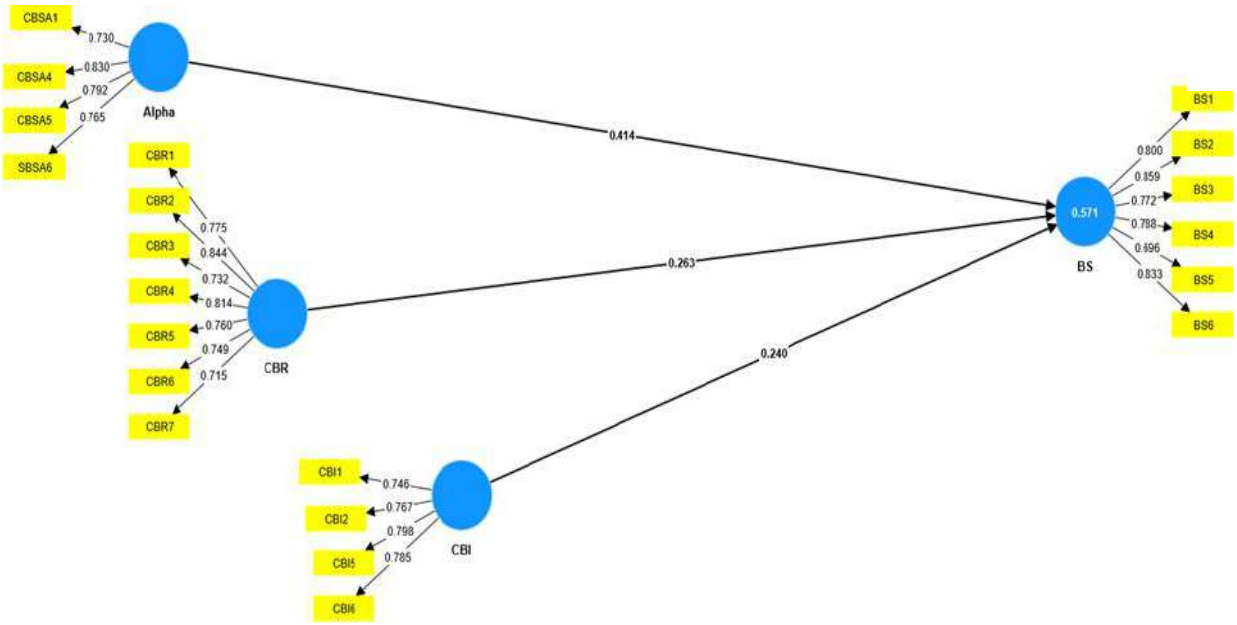


Figure 1: Structural model

Table 3: Factor loading for constructs, VIF, composite reliability, construct reliability and validity

Indicator	Loading	VIF	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
BS			0.881	0.884	0.91	0.629
BS1	0.800	2.174				
BS2	0.859	2.682				
BS3	0.772	1.903				
BS4	0.788	2.332				
BS5	0.696	1.588				
BS6	0.833	2.399				
CBI			0.784	0.799	0.857	0.6
CBI1	0.746	1.729				
CBI2	0.767	1.330				
CBI5	0.798	1.516				
CBI6	0.785	1.839				
CBR			0.886	0.889	0.911	0.595
CBR1	0.775	2.086				
CBR2	0.844	2.689				
CBR3	0.732	1.677				
CBR4	0.814	2.223				
CBR5	0.76	1.921				
CBR6	0.749	1.817				
CBR7	0.715	1.830				
CBSA			0.785	0.787	0.861	0.609
CBSA1	0.73	1.506				
CBSA4	0.83	1.900				
CBSA5	0.792	1.762				
SBSA6	0.765	1.555				

Table 4: Discriminant validity-HTMT, R-square, Q-square and f-square

Indicator	HTMT			R^2	Q^2	f^2
	BS	CBR	CBI			
BS						
CBR	0.652					0.11
CBI	0.688	0.614				0.082
CBSA	0.795	0.548	0.688	0.571	0.351	0.267

To interpret the results presented in Table 3, the Variance Inflation Factor (VIF) values of the independent variables:-Central Bank Regulation (CBR), Central Bank Supervisory Authority (CBSA), and Central Bank Independence (CBI) were examined in relation to the dependent variable, Bank Stability (BS). VIF values are used to identify potential multicollinearity among predictors. The results indicate that the VIF values for CBR, CBSA, and CBI fall within acceptable limits, suggesting that the variables are not highly correlated. This implies that the independent variables contribute uniquely to explaining variations in bank stability without overlapping excessively in their explanatory power. In Table 4, the R^2 values reveal the extent to which the model explains the variance in the dependent variable, thereby indicating its predictive capacity. In the Structural Equation Modelling (SEM) framework, the cross-validated redundancy and commonality measure (Q^2) was examined to assess predictive relevance. A Q^2 value above zero indicates that the model can meaningfully predict a reflective endogenous latent construct. According to Hair et al. (2014), Q^2 values of 0.02, 0.15, and 0.35 correspond to weak, moderate, and strong predictive relevance, respectively. By analyzing these values, the study evaluates how accurately the model predicts variations in the reflective endogenous constructs, reflecting its explanatory power.

As shown in Table 4, all Q^2 values exceeded zero, confirming that the model demonstrates predictive relevance for the targeted endogenous constructs. For the effect sizes (f^2), CBSA exhibited a relatively strong influence on the explained variance (R^2) in BS, with an effect size of 0.267. In comparison, CBI (0.082) and CBR (0.11) showed smaller yet meaningful contributions to the model. Table 5 summarizes the structural model outcomes used to evaluate the study's hypotheses. It details the relationships among constructs and their statistical significance. A path is considered significant when the t-statistic surpasses the critical threshold corresponding to a p-value below 0.001. A path was considered significant in the hypothesized direction if the t-statistic exceeded the critical threshold for a one-tailed test: t-values above 2.33 correspond to $p < 0.01$, and values above 1.65 indicate $p < 0.05$ (Sergey & Tienan, 2013). The three hypotheses were tested using Partial Least Squares (PLS) Bootstrapping, a non-parametric method suitable for small samples and non-normal data distributions. Interpreting the t-values and associated p-values in Table 5 allowed the study to assess both the strength and significance of each hypothesized relationship. These results provide empirical support for the theoretical propositions and offer practical insights for improving bank stability, regulatory oversight, and institutional independence. The findings indicate that hypotheses H1 (CBI → BS), H2 (CBSA → BS), and H3 (CBR → BS) are supported, suggesting a significant relationship between Central Bank Independence, Central Bank Supervisory Authority, Central Bank Regulations, and Bank Stability.

Table 5: Structural model for testing hypothesis at 95% Confidence interval (CI)

Hypothesis	Standardized beta (β)	Sample Mean	Std. Dev	t Values	P values	95% CI Lower	95% CI Upper	f^2	Decision
CBR → BS	0.263	0.268	0.073	3.605	0.000	0.121	0.405	0.110	Accept
CBI → BS	0.240	0.246	0.065	3.677	0.000	0.118	0.382	0.082	Accept
CBSA→BS	0.414	0.403	0.07	5.894	0.000	0.276	0.552	0.267	Accept

Source: Field data (2023)

Discussion

The main aim of this study was to explore the relationships between Central Bank Independence, Central Bank Supervisory Authority, Central Bank Regulations, and Bank Stability. The results summarized in Table 5 provide clear insights into these dynamics. The analysis shows that Central Bank Independence (CBI) has a significant positive effect on Bank Stability (BS), supporting Hypothesis 1 (H1). Specifically, a beta coefficient of 0.240 indicates that increases in central bank independence are associated with improvements in bank stability. The statistical significance of this relationship confirms its reliability. This outcome aligns with Binder (2021), who highlighted the critical role of central bank independence in promoting financial stability. Similarly, Central Bank Supervisory Authority (CBSA) exhibits a positive and significant influence on Bank Stability, providing strong support for Hypothesis 2 (H2). The beta coefficient of 0.414 suggests that as the supervisory authority of the central bank expands or becomes

more comprehensive, bank stability tends to improve. The relationship is statistically robust, with a t-value of 5.894 exceeding the critical threshold of 1.963 and a p-value below 0.001, indicating that the effect is highly unlikely to be due to chance. Finally, Central Bank Regulations (CBR) also show a significant positive impact on Bank Stability, confirming Hypothesis 3 (H3). A beta coefficient of 0.263 indicates that stricter or more effective central bank regulations are associated with enhanced bank stability. The statistical significance of this finding underscores the reliability of the observed relationship. Overall, these results highlight the importance of institutional factors independence, supervisory authority, and regulatory framework—in strengthening the stability of the banking sector. This finding aligns with previous research by Asterioua (2021), who emphasized on the importance of central bank regulations in enhancing banks stability.

Conclusion and Implications

Theoretical Implication

The Theory of Economic Regulation emphasizes that regulations are public good acquired by the industry, designed and operated primarily for its benefits. The study has shown that the Theory of Economic Regulation is deemed necessary to address market failures and safeguard the interests of diverse stakeholders, for example, depositors have placed their money in banks but they don't have adequate information on the status of the banks in which they have deposited their money because of the information asymmetry. Therefore, regulations are there to make sure that all necessary information is available to make depositors and other bank stakeholders informed about the bank's status and make informed investment decisions. The theory, therefore, emphasizes on the importance of regulations; to protect the less favoured group through directing appropriate disclosures by banks to ensure that investors are protected and they can invest in the more stable banks based on the disclosed information.

Methodological Implications:

This study adopted a quantitative research approach to test the proposed hypotheses. Econometric modeling techniques were employed to analyze the data and examine the relationship between Central Bank Supervisory Authority and Bank Stability. A cross-sectional design was applied, utilizing previously validated questionnaires to collect reliable data. Ensuring data quality and consistency was essential for the robustness of the findings. Key concepts, including Central Bank Independence, Supervisory Authority, Central Bank Regulations, and Bank Stability, were operationalized into measurable variables. Appropriate indicators and representations were carefully selected to accurately reflect the theoretical constructs under investigation.

Practical Implications:

The findings provide actionable guidance for policymakers in Tanzania to strengthen bank stability through enhanced central bank interventions. Specifically, the study recommends: (a) enhance the central bank's legal authority to conduct more frequent and comprehensive supervisory inspections of commercial banks; (b) streamlining managerial vetting and approval processes to ensure that bank leadership demonstrates competence and integrity; (c) increasing transparency by publishing supervisory actions and enforcement decisions to reinforce market discipline; and (d) adopting or aligning with internationally recognized Basel Committee standards and macroprudential tools, such as capital adequacy ratios, liquidity coverage ratios, and countercyclical capital buffers, to systematically monitor and manage systemic risks. Implementing these measures could improve regulatory effectiveness, strengthen individual bank resilience, and enhance the overall stability of Tanzania's banking sector.

Contextual Implications:

The study's conclusions are grounded in the specific context of Tanzania's financial system, taking into account its regulatory framework, banking sector structure, and current economic conditions. The results shed light on the effectiveness of existing supervisory and regulatory mechanisms and identify areas where targeted reforms could enhance bank stability. Policymakers should consider potential trade-offs when implementing stricter regulations; for example, tighter liquidity and capital requirements can improve resilience but may limit banks' lending capacity, potentially slowing economic growth (Bridges et al., 2014). To maintain a balance between stability and financial intermediation, strategies such as countercyclical capital buffers, targeted liquidity facilities, or phased compliance approaches may help preserve lending capacity while strengthening resilience. Although the study focuses on Tanzania, the insights are applicable to other developing economies facing comparable challenges in maintaining banking stability. To build on this research, further studies could explore on: (a) panel analyses using bank financial statements to assess associations between supervisory interventions and bank stability; (b) qualitative interviews with central bank supervisors and judicial authorities to understand enforcement challenges and constraints; and (c) cross-country comparisons within East Africa to identify best practices and contextual differences in regulatory effectiveness.

References

Abdelsalam, O., Elnahass, M., Ahmed, H., & Williams, J. (2022). Asset securitizations and bank stability: Evidence from different banking systems. *Global Finance Journal, 51, 100551.* https://doi.org/ 10.1016/j.gfj.2020.100551

Admati, A. R. (2016). The missed opportunity and challenge of capital regulation. *National Institute Economic Review*, 235(1), R4–R14. https://doi.org/ 10.1177/002795011623500111

Adrian, T., Moretti, M., Carvalho, A., Chon, H., Seal, K., Melo, F., & Surti, J. (2023). Good supervision: Lessons from the field. International Monetary Fund.

Almaw, S. (2020). The effect of bank regulation on banks' performance: A literature review approach. GSJ, 8(7).

Avignone, G., Altunbas, Y., Polizzi, S., & Reghezza, A. (2021). Centralised or decentralised banking supervision? Evidence from European banks. *Journal of International Money and Finance, 110,* 102264. https://doi.org/ 10.1016/j.jimonfin.2020.102264

Bajjou, M. S., & Chafi, A. (2023). Developing and validating a new conceptual model for successful implementation of lean construction: SEM analysis. *Engineering, Construction and Architectural Management.* https:// doi.org/10.1108/ECAM-09-2022-0821

Barth, J. R., & Caprio Jr., G. (2018). Regulation and supervision in financial development. In Handbook of finance and development (pp. 393–418). Edward Elgar Publishing.

Binder, C. C. (2021). Political pressure on central banks. *Journal of Money, Credit and Banking*, *53*(4), 715–744. https://doi.org/10.1111/jmcb.12759

Boamah, N. A., Opoku, E., & Boakye-Dankwa, A. (2023). Capital regulation, liquidity risk, efficiency and banks' performance in emerging economies. *Journal of Financial Regulation and Compliance, 31*(1), 126–145. https:// doi.org/10.1108/JFRC-04-2022-0051

Bocchio, C., Crook, J., & Andreeva, G. (2023). The impact of macroeconomic scenarios on recurrent delinquency: A stress testing framework of multi-state models for mortgages. *International Journal of Forecasting, 39*(4), 1655–1677. https://doi.org/10.1016/j.ijforecast.2022.08.005

Borio, C. E., Farag, M., & Tarashev, N. A. (2020). Post-crisis international financial regulatory reforms: A primer. Bank for International Settlements.

Bridges, J., Gregory, D., Nielsen, M., Pezzini, S., Radia, A., & Spaltro, M. (2014). The impact of capital requirements on bank lending. Bank of England.

Chiba, A. (2020). The effects of stringent capital requirements on large financial institutions. *Journal of Regulatory Economics, 57*(3), 231–257. https:// doi.org/10.1007/s11149-020-09408-7

Chowdhury, A., & Sundaram, J. K. (2023). Inflation and development: Central bank stabilization policies revisited. *Development, 66*(1), 3–14. https://doi.org/10.1057/s41301-022-00348-2

Cukierman, A., Webb, S. B., & Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. *The World Bank Economic Review, 6*(3), 353–398. https://doi.org/10.1093/wber/6.3.353

Dabrowski, M. (2023). Two major economic crises in the early twenty-first century and their impact on central bank independence. *Accounting, Economics, and Law: A Convivium, 13*(2), 169–215. https://doi.org/ 10.1515/ael-2022-0037

Delle Foglie, A., Boukrami, E., Vento, G., & Panetta, I. C. (2023). The regulators' dilemma and global banking regulation: The case of dual financial systems. *Journal of Banking Regulation, 24*(3), 249–263. https://doi.org/10.1057/ s41261-022-00192-1

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(3), 382–388. https://doi.org/ 10.2307/3150980

Granja, J., & Leuz, C. (2024). The death of a regulator: Strict supervision, bank lending, and business activity. *Journal of Financial Economics, 158*, 103871. https://doi.org/10.1016/j.jfineco.2024.103871

Gurley Holloway, D. V. (2023). Bank executives' strategies for operational resilience amidst crisis (SSRN Working Paper No. 4604643).

Hair, J. F., & Alamer, A. (2022). Partial least squares structural equation modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics, 1*(3), 100027. https://doi.org/10.1016/j.rmal.2022.100027

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. *Springer Nature.* https://doi.org/10.1007/978-3-030-80519-7

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning, 46*(1–2), 1–12. https://doi.org/10.1016/ j.lrp.2012.09.008

Hirtle, B., & Kovner, A. (2022). Bank supervision. *Annual Review of Financial Economics, 14*, 39–56. https://doi.org/10.1146/annurev-financial-110921-061248

Hirtle, B., & Kovner, A. (2024). Can I speak to your supervisor? The importance of bank supervision. Liberty Street Economics.Ibrocevic, E. (2024). The scientization of central banks. Universität zu Köln.

Koskei, L. (2020). Determinants of banks' financial stability in Kenyan commercial banks. *Asian Journal of Economics, Business and Accounting, 18*(2), 48–57.

Le, T. N. L., Nasir, M. A., & Huynh, T. L. D. (2023). Capital requirements and banks' performance under Basel III: A comparative analysis of Australian and British banks. *The Quarterly Review of Economics and Finance, 87*, 146–157. https://doi.org/10.1016/j.qref.2022.09.005

Mirzaei, A., & Samet, A. (2022). Effectiveness of macroprudential policies: Do stringent bank regulation and supervision matter? *International Review of Economics & Finance, 80,* 342–360. https://doi.org/10.1016/ j.iref. 2022.03.006

Mishin, A. (2023). Dynamic bank capital regulation in the presence of shadow banks. *Review of Economic Dynamics, 51*, 965–990. https://doi.org/ 10.1016/j.red.2023.01.002

Moles, H. L. (2022). Finance-dominated capitalism after shadow banking: Analytical, financial instability and macroeconomic implications (Doctoral dissertation). Université Paris-Nord–Paris XIII.

Muduli, S., & Behera, H. (2023). Bank capital and monetary policy transmission in India Macroeconomics and Finance in Emerging Market Economies, 16(1), 32–56. https://doi.org/10.1080/ 17520843.2022.2030155

Nguyen, N. T., Nguyen, A. T., Le, T. T. H., & To, H. T. N. (2023). The impact of bank competition on bank stability in Vietnam: The moderating role of shadow banking. *Cogent Business & Management, 10*(2), 2241208. https:// doi.org/10.1080/23311975.2023.2241208

Nyangu, M. N., Marwa, N., Fanta, A. B., & Minja, E. J. (2022). Bank concentration, competition and financial stability nexus in the East African Community: Is there a trade-off? *Cogent Economics & Finance, 10*(1), Article 2082026. https://doi.org/10.1080/23322039.2022.2082026

Ofori-Sasu, D., Mekpor, B., Adu-Darko, E., & Sarpong-Kumankoma, E. (2023). Bank risk exposures and bank stability in Africa: The role of regulations in a non-linear model. *Journal of Financial Regulation and Compliance, 31*(5), 546–567. https://doi.org/10.1108/JFRC-12-2022-0171

Paul, P. O., & Iyelolu, T. V. (2024). Anti-money laundering compliance and financial inclusion: A technical analysis of Sub-Saharan Africa. *GSC Advanced Research and Reviews, 19*(3), 336–343. https://doi.org/ 10. 30574/gscarr.2024.19.3.0121

Peltzman, S. (1976). Toward a more general theory of regulation. *The Journal of Law and Economics, 19*(2), 211–240. https://doi.org/10.1086/466865

Sergey, K., & Tienan, W. (2013). Technological business intelligence capabilities and business intelligence system flexibility: The underlying relationship. *In Proceedings of the Eighth International Conference on Digital Information Management.*

Shetty, U., Gupta, A., Prabhakaran, J., Kumar, R., & Sisodia, D. (2024). Analyzing the role of financial innovation in enhancing banking sector resilience. *Journal of Information and Education Research, 42*.

Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics, 9*(1), 4–11. https://doi.org/ 10.12691/ajams-9-1-2

Siddique, A., Khan, M. A., & Khan, Z. (2022). The effect of credit risk management and bank-specific factors on the financial performance of South Asian commercial banks. *Asian Journal of Accounting Research, 7*(2), 182–194. https://doi.org/10.1108/AJAR-05-2021-0070

Stigler, G. J. (2021). The theory of economic regulation. In The political economy: Readings in the politics and economics of American public policy (pp. 67–81). Routledge.

Strecker, I. (2024). Asymmetric information and regulation: An economic analysis of the effects on the banking sector (Doctoral dissertation). Universität Freiburg.

Strong, C. O. (2021). Political influence, central bank independence and inflation in Africa: A comparative analysis. *European Journal of Political Economy, 69*, 102004. https://doi.org/ 10.1016/ j.ejpoleco.2021.102004

Tanriverdi, I., Jabiyev, F., Bilan, Y., Azizov, M., & Ibadov, E. (2024). The relationship between monetary stability and central bank independence: The case of Azerbaijan. *Journal of Central Banking Theory and Practice.*

Thamae, R. I., & Odhiambo, N. M. (2022). The impact of bank regulation on bank lending: A review of international literature. *Journal of Banking Regulation, 23*(4), 405–418. https://doi.org/ 10.1057/s41261-022-00169-0

Van't Klooster, J. (2020). The ethics of delegating monetary policy. *The Journal of Politics, 82*(2), 587–599. https://doi.org/10.1086/706764

Yang, Z., Gan, C., & Li, Z. (2019). Role of bank regulation on bank performance: Evidence from Asia-Pacific commercial banks. *Journal of Risk and Financial Management, 12*(3), 131. https://doi.org/10.3390/jrfm12030131