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Does Market Power Influence Financial Stability? Panel Evidence from Kenyan Listed Commercial Banks

Godfrey Omondi Odundo[1*], Peter Kamau Ndichu[2], Simon Oluoch Ondiwa[2]

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ABSTRACT

Kenya's banking sector has become increasingly concentrated through mergers, acquisitions, restructuring and technology-led scale expansion, with a small group of listed institutions controlling more than three-quarters of sector assets. Whether the resulting market power protects franchise value and promotes prudent behaviour or weakens competitive discipline and increases risk remains unresolved. This study examines the effect of market power on the financial stability of Kenyan listed commercial banks, controlling for lagged stability, the cost-to-income ratio, risk-based capital, risk-weighted assets to total assets, inflation and the lagged natural logarithm of GDP. It uses a balanced quarterly panel of eight Nairobi Securities Exchange-listed banks over 2013Q1–2025Q2 (392 bank-quarter observations after lagging) and is anchored on the Structure–Conduct–Performance paradigm. Following a Hausman test (chi-square = 75.7104, $p < 0.001$), the preferred model is a bank fixed-effects Panel EGLS regression with cross-section weights and panel-corrected standard errors. The lagged dependent variable is positive and significant ($\rho = 0.4947$, $p < 0.001$), confirming strong persistence in bank stability. Market power, measured by the banks share of assets, exerts a negative and statistically significant effect on financial stability ($\beta = -0.7669$, $p = 0.0343$), supporting competition–stability. Risk-based capital ($\beta = 1.1625$, $p < 0.001$) and the risk-weighted-assets-to-total-assets ratio ($\beta = 0.2161$, $p = 0.0258$) are both positively and significantly associated with stability, while the cost-to-income ratio ($\beta = -0.2241$, $p < 0.001$) and GDP growth ($\beta = -0.0286$, $p = 0.0220$) are negatively and significantly associated with stability; inflation is negatively signed but statistically insignificant ($\beta = -0.4241$, $p = 0.1013$). The model explains 87.2% of the variation in stability (weighted $R^2 = 0.8720$; $F = 183.4554$, $p < 0.001$), and the results are broadly robust to an alternative two-quarter lag structure. The findings indicate that rising market power among Kenya's listed banks is associated with reduced financial stability, evidence consistent with weakening competitive discipline and implicit too-big-to-fail expectations among dominant institutions. The study recommends that prudential capital regulation be complemented by active competition-policy oversight of concentration and market power, that supervisors monitor risk-weighted asset composition and cost efficiency alongside capital adequacy, and that further consolidation in the sector be evaluated against its implications for scale efficiency as well as competitive discipline.

INTRODUCTION

Financial stability is the capacity of the financial system to absorb shocks and continue performing intermediation, payment and risk-allocation functions without disruptive impairment (Houben *et al.*, 2004; Mishkin, 1997). Its importance arises from the central role commercial banks play in mobilizing savings, allocating credit and transmission of monetary policy. Thus, a lot of efforts has been put cross countries globally with the aim of ensuring a stable banking system, as a prerequisite for sustainable economic growth, efficient financial intermediation, and macroeconomic stability, especially in emerging economies, where shallow capital markets leave households, firms and governments heavily dependent on bank finance. This has led to decades of regulatory adjustments including improvements in capital adequacy, liquidity regulation, and supervision to strengthened banking systems. Nonetheless, financial instability has continued to be a challenge to policymakers in both the developed and emerging economies alike, as the global financial system has continued to face recurrent stress including the European sovereign debt crisis, the Global Financial Crisis (GFC) of 2007, the COVID-19 pandemic, aggressive monetary tightening, geopolitical uncertainty and inflationary pressure.

In Kenya, the banking sector has similarly experienced a number of shocks, particularly in the post-2013 period, arising from interest-rate volatility, climate related risks, institution-specific governance challenges, and elevated credit risk. During this period, asset quality also deteriorated considerably, with the non-performing loans (NPL) ratio rising sharply from 5.2% in December 2013 to 17.6% in June 2025. Over the same period of time, the sector has experienced rapid technological change, financial globalisation, digital banking, and widespread consolidation through mergers and acquisitions that have simultaneously reshaped competitive landscapes, leading to changes in the distribution of market power among the commercial banks. This has drawn considerable attention from scholars and policymakers seeking to establish the extent to which the changing competitive landscape explains the current state of the

[1] PhD Candidate, Department of Accounting and Finance, Maseno University, Maseno Kenya
[2] Lecturer, Department of Accounting and Finance, Maseno University, Kenya
[*] Corresponding author's e-mail: omondi.odundo@yahoo.com

Kenya's banking sector, amid an increasingly fragile operating environment. However, the extent to which the heightened concentration influences the stability of the banks, especially the NSE-listed bank, through competitive conduct still remains inconclusive, both in theory and empirical literature.

The Structure-Conduct-Performance (SCP) paradigm, posits that market structure, through concentration and market power, may influence financial stability outcomes either positively or negatively, depending on how its shapes banks' conduct in terms of pricing, portfolio allocation, and capital management. Thus, from the positive side, greater market power and concentration may enhance bank financial stability by generating sustained rents and higher charter values, thereby increasing the opportunity cost of failure and incentivise prudent behaviour. Conversely, excessive market power may weaken competitive discipline, permit higher lending rates, worsens borrower incentives and default risk and encourage managerial slack or moral hazard, particularly where dominant financial institutions internalise "too-big-to-fail" expectations, thereby heightening the banks' susceptibility to financial distress.

Empirical evidence supporting both perspectives has been reported across developed and developing economies, suggesting that the relationship between market power and stability is likely to depend on institutional, regulatory, and macroeconomic conditions. Several studies including Uhde and Heimeshoff (2009) for the EU-25, and Ndwiga (2020) for Kenya's post-FinTech banking sector find that greater market power or concentration undermines stability, consistent with the competition–stability view. Others report the opposite, with market power enhancing stability through franchise-value and risk-absorption channels, consistent with the competition–fragility view — including Akins *et al.* (2016) for the United States, Ariss (2010) across 60 developing countries, Sahul Hamid (2017) for ASEAN-5, Nyangu *et al.* (2022) for the East African Community, and Kiemo and Mugo (2021) for Kenya. A third group finds nonlinear or context-conditional effects, including a U-shaped pattern in Zhanbolatova *et al.* (2018) for the UK and Cuestas *et al.* (2020) for the Baltic states. Notably, Atiti *et al.* (2020), one of the few Kenya-focused, quarterly-data studies, finds no statistically significant relationship, underscoring that the direction of the market power–stability relationship in Kenya's listed banking segment remained unresolved.

Three gaps emerge from the literature. First, much of the existing empirical evidence relies on annual, cross-country data, which may obscure short-run adjustments, financial-stability persistence and country-specific institutional dynamics. Second, relatively few studies focus on NSE-listed commercial banks despite their systemic share of Kenya's banking-sector assets and their common regulatory and disclosure environment. Third, prior Kenyan studies have largely examined market competition and capital regulation separately, often using static specifications that may underestimate stability persistence and confound the effect of market power with differences in bank capitalisation, operational efficiency and asset-risk composition. This study addresses these gaps by examining the effect of bank market power on financial stability using quarterly bank-level data and a dynamic fixed-effects framework, while controlling for lagged financial stability, risk-based capital, risk-weighted assets relative to total assets, cost-to-income efficiency, inflation and lagged economic growth. In doing so, the study provides context-specific evidence from a small, highly concentrated emerging banking system; jointly models market power and prudential capital regulation within a single dynamic framework; captures short-run adjustments and financial stability persistence that annual-frequency studies may overlook; and generates policy-relevant evidence for coordinating competition policy and prudential regulation in Kenya and comparable emerging markets.

LITERATURE REVIEW

Theoretical Literature

The Structure–Conduct–Performance (SCP) paradigm, developed by Bain (1951) provides a coherent theoretical lens for analysing the market power–stability nexus. Within this framework, market structure, captured by concentration and market power, may generate both stabilising and destabilising effects on stability outcomes depending on how it shapes banks' conduct in pricing, risk-taking, portfolio allocation and capital management. Thus, on one hand, higher market power and concentration may lead to generation of higher economic rents, and thus, higher charter values, raising the cost of failure and incentivising prudent behaviors such as maintenance of stronger capital buffers and adoption of conservative lending practices, translating into earnings stability and reduced credit risk, thearby, supporting the market structure–stability hypothesis (Keeley, 1990). On the other hand, excessive market power may weaken banks competitive discipline and foster moral hazard behavious, particularly where dominant institutions internalise "too-big-to-fail" expectations and regulatory forbearance. In such a setting, market power may lead to suboptimal conducts such as managerial inefficiencies and investments in opaque, high-risk activities, thus, supporting market structure-financial fragility hypothesis (Boyd & De Nicolo, 2005), thereby heightening the commercial banks' susceptibility to financial distress and systemic risk.

Despite its wide use, the SCP framework has significant limitations with the most prominent one being endogeneity problem. That is, concentration may not cause conduct but may instead be the result of greater efficiency (Demsetz, 1973). Also, the SCP model is static, assuming a one-way causal relationship while neglecting feedback loops where firm performance also reshapes market structure. Also, the SCP theory was developed in the context of manufacturing industries, thus, might not directly account for the unique features of the banking

sector, including regulation and prudential oversight. Nonetheless, this study addressed these limitations in several ways. By employing a dynamic panel specification with fixed effects, it mitigated endogeneity by controlling for unobserved heterogeneity across banks. Further, the analysis integrated efficiency measures (e.g., cost-to-income ratios) to distinguish between efficiency-driven concentration and power-driven concentration. By contextualizing SCP to Kenya, where prudential regulation shapes bank behavior, the study provides a more nuanced assessment of SCP's predictions in determining whether the listed banks, as dominant commercial banks, use their market position to enhance their stability through internalizing risks or whether they exploit it in ways that undermine systemic soundness.

Empirical literature

Evidence supporting competition-stability includes Uhde and Heimeshoff (2009), who find that higher concentration reduces soundness in EU banking, and Akins *et al.* (2016), who show that banks in less competitive US markets undertook greater crisis-era risk. Amidu and Wolfe (2013) find that competition can enhance stability through revenue diversification in emerging and developing economies. These findings are consistent with borrower-risk, managerial-slack and weak-market-discipline mechanisms. Conversely, Ariss (2010) finds that market power improves bank stability and profit efficiency across developing countries. Albaity *et al.* (2019) report lower insolvency and credit risk among less competitive MENA banks. Sahul Hamid (2017) finds that concentration improves stability in ASEAN-5, while Nyangu *et al.* (2022) document a positive concentration-stability association in the East African Community. In a similar vein, Aniemeke (2024) reports that bank concentration is a positive determinant of stability among Nigerian deposit money banks. Together, these results support the charter-value channel but also demonstrate that findings are sensitive to region, bank type and competition measure. A third strand rejects a uniform linear effect. Zhanbolatova *et al.* (2018) identify a U-shaped relationship in the United Kingdom. Cuestas *et al.* (2020) find that moderate competition reduces risk in Baltic banks, but very low competition increases it. Such results imply that institutional quality, regulation, bank size, crisis exposure and the initial level of competition influence the observed relationship.

Kenyan studies do not settle the question. Atiti *et al.* (2020), using quarterly data for 23 banks, find a negative but insignificant competition effect on stability. Kiemo and Mugo (2021) conclude that competition has a stabilising effect despite monopolistic competition, whereas Ndwiga (2020) finds that FinTech entry increased market power and that higher market power was associated with risk-taking. Relatedly, Semvua and Mbwambo (2024) show that NSE-listed Kenyan firms' financial performance responded significantly to the COVID-19 market shock, underscoring the sensitivity of Kenya's listed financial institutions to structural and macro-level disturbances. The studies differ in sample periods, stability proxies and competition measures. None provides the same combination of a current quarterly listed-bank panel, asset-share market power, dynamic persistence, bank fixed effects, PCSE inference, and simultaneous controls for capital, risk-weighted asset intensity, costs and macroeconomic conditions.

The above reviewed studies highlight several critical gaps. First, contradictory findings regarding the effect of market power on stability, spanning the competition–fragility, competition–stability, and nonlinear perspectives, indicate the need for further context-specific studies to provide clarity. Second, most studies focus on economies outside Africa, leaving African contexts, particularly Kenya, underexplored, and even within Africa, studies are skewed toward other regions, neglecting East Africa. Third, while listed banks play a pivotal role in Kenya's financial ecosystem, there remains insufficient exploration of their specific dynamics. Fourth, temporal gaps are evident, as many studies rely on annual data, which fails to capture dynamic quarter-to-quarter interactions. Fifth, there is a methodological gap, with limited application of dynamic panel fixed-effects models. Finally, almost none of the reviewed market power studies jointly model market power alongside risk-based capital and asset-risk composition using a single dynamic framework. This study addresses these gaps using quarterly, bank-level, dynamic panel data for Kenyan listed banks over 2013Q1–2025Q2, jointly modelling market power (BSH) alongside risk-based capital (RBC), asset-risk composition (RWA2TAT), cost efficiency (CI), inflation (INFLN), and macroeconomic growth (LNGDP) within a single dynamic fixed-effects framework, thereby enhancing the understanding of how banking market dynamics and prudential capital jointly shape bank stability and resilience in Kenya. The objective is to determine the effect of market power on the financial stability of Kenyan listed commercial banks. The null hypothesis is: H0: market power has no statistically significant effect on financial stability of listed banks in Kenya.

MATERIALS AND METHODS

This section presents the overall research structure, including the population of interest, the approaches for collecting data, and the strategies for data analysis and presentation.

Research Philosophy, Paradigm and Design

This study is anchored in the positivist research philosophy, which assumes that social and economic phenomena are objective, measurable, and amenable to empirical verification through systematic observation and statistical analysis. Positivism is appropriate for this study because the relationship among bank market power, risk-based capital, asset-risk composition and financial stability can be quantified using observable financial-statement indicators and empirically tested to establish

generalisable inferences. Consistent with this orientation, the study adopts a quantitative research paradigm emphasising objective measurement, hypothesis testing and statistical evaluation of relationships among variables. A correlational research design is employed, enabling the study to evaluate the direction, magnitude and statistical significance of relationships among market power, risk-based capital, asset-risk composition and financial stability without manipulating the study environment.

Study Area

The study is situated within Kenya's banking sector, with specific focus on commercial banks listed on the Nairobi Securities Exchange (NSE). All listed banks operate under the regulatory oversight of the Central Bank of Kenya and the Capital Markets Authority, which enhances regulatory uniformity, transparency, comparability, and the availability of consistent financial and prudential information across institutions and over time, conditions that also make the NSE-listed segment, which accounts for more than 75% of sector assets, a suitable setting for examining the market power–stability relationship.

Target Population

The target population refers to the full set of units sharing characteristics relevant to the research objectives and to which the findings may be generalised. The study targets all nine Kenyan-incorporated commercial banks listed on the Nairobi Securities Exchange over the period 2013Q1–2025Q2. For empirical analysis, the study employs a balanced panel framework comprising eight of the listed banks with uninterrupted operations and a complete dataset over the study horizon. Banks that underwent structural changes, such as merger-driven entities including NCBA Group Plc, are excluded to preserve panel balance, avoid structural breaks, and ensure estimation consistency.

Data Collection, Reliability, Validity and Ethical Consideration

The study utilises secondary quantitative data obtained from quarterly financial reports of NSE-listed commercial banks. Bank-level data, including the components of the market-power (BSH), risk-based capital (RBC), asset-risk composition (RWA2TAT) and cost-efficiency (CI) measures, were extracted from audited statements of financial position and comprehensive income. Quarterly inflation and GDP data were sourced from the Kenya National Bureau of Statistics (KNBS) for the period 2013Q1–2025Q2. Validity was ensured through reliance on authoritative, institutionally credible sources prepared in accordance with IFRS and subject to regulatory oversight. Reliability was addressed through use of a balanced quarterly panel, standardised data-extraction protocols, and triangulation of bank-level data against multiple disclosures. Ethical standards were guided by established principles of responsible research conduct; ethical rigour was maintained through adherence to institutional research guidelines, proper acknowledgment of data sources, and protection of confidentiality through anonymised, non-identifiable reporting. Formal ethical approval was obtained from the Maseno University Ethics Review Committee, and a research permit was granted by the National Commission for Science, Technology and Innovation (NACOSTI) prior to data collection.

Data Analysis and Presentation

Data analysis was conducted using EViews 12. The analysis commenced with descriptive statistics and pairwise correlations, followed by econometric estimation and diagnostic testing. Hypotheses were tested using the t-statistic, with findings presented through tables and graphical illustrations.

Model Specification

This study employs a panel regression framework using quarterly data for Kenyan listed banks over the period 2013Q1–2025Q2 to examine the effect of bank market power (BSH) on financial stability (FS), controlling for risk-based capital (RBC), the risk-weighted-assets-to-total-assets ratio (RWA2TAT), the cost-to-income ratio (CI), inflation (INFLN), and the natural logarithm of gross domestic product (LNGDP). The model adopts a one-quarter lag as the baseline specification for all explanatory variables, motivated by the expectation that changes in bank-specific market structure, capitalisation, and macroeconomic conditions are unlikely to affect stability instantaneously. From an econometric perspective, lagging the explanatory variables mitigates potential simultaneity and reverse-causality bias, strengthening the causal interpretation of the estimated relationships. To assess robustness, an alternative specification incorporating a two-quarter lag for all explanatory variables was also estimated.

The model further includes the lagged dependent variable, FS(-1), to capture the dynamic persistence of financial stability over time, since banks' market position, capital, asset quality, risk exposures and earnings evolve gradually rather than changing abruptly from one quarter to the next. Including the lagged dependent variable accounts for inertia in financial stability and mitigates omitted-variable bias arising from unobserved historical factors. Accordingly, the model is specified as follows:

$$FSit = \alpha i + \varrho FSi,t\text{-}1 + \beta 1BSHi,t\text{-}1 + \beta 2RBCi,t\text{-}1 + \beta 3RWA2TATi,t\text{-}1 + \beta 4CIi,t\text{-}1 + \beta 5LNGDPt\text{-}1 + \beta 6INFLNt\text{-}1 + \mu i + \varepsilon it$$

In this specification, FSit denotes financial stability of bank i at time t; FSi,t-1 is lagged financial stability; BSHi,t-1 is lagged bank market power; RBCi,t-1 is lagged risk-based capital; RWA2TATi,t-1 is the lagged ratio of risk-weighted assets to total assets, proxying the riskiness of a bank's asset portfolio; CIi,t-1 is the lagged cost-to-income ratio; LNGDPt-1 is the lagged logarithm of GDP; INFLNt-1 is lagged inflation; α is the common intercept; ϱ is the persistence parameter; $\beta 1 \ldots \beta 6$ are slope coefficients; μi represents unobserved

bank-specific effects; and εit is the idiosyncratic error term. Financial stability is operationalised as a composite index combining profitability and capital adequacy relative to earnings volatility, in the spirit of established financial soundness indicators and refined Z-score-based insolvency-risk measures (Lepetit & Strobel, 2015). Bank market power (BSH) is operationalised structurally as each bank's share of total banking-sector assets, in the spirit of the SCP paradigm. A detailed description of all variables is provided in Table 1.

Table 1: Description of Variables

No	Variable	Notation	Description
1	Financial Stability	FS	FS = Ln[(RoPAT + CAR) / SDROA]
2	Bank Market Power	BSH	Bank's share of total banking-sector assets
3	Risk-Based Capital	RBC	Total bank capital to risk-weighted assets
4	Asset Risk Composition	RWA2TAT	Risk-weighted assets to total assets
5	Cost Efficiency	CI	Operating expenses to total income
6	Macroeconomic Growth	LNGDP	Natural log of GDP at market prices
7	Inflation	INFLN	Quarterly rate of consumer price inflation

Estimation Procedure

The adoption of the panel regression framework renders pooled OLS inappropriate, as it assumes homogeneity across banks and ignores unobserved time-invariant bank-specific effects, potentially yielding biased and inconsistent estimates (Wooldridge, 2010). Consequently, the study employs panel-data estimators-the Fixed Effects Model (FEM) and the Random Effects Model (REM)-which explicitly account for such unobserved heterogeneity, with the choice between them determined through the Hausman specification test. Given the study's small-N, long-T panel structure (N = 8; T ≈ 49–50), dynamic panel estimators such as the Generalized Method of Moments are generally less suited to this structure, since they are designed for large-N, small-T panels and are prone to instrument proliferation in long panels (Baltagi, 2008). The FEM and REM, estimated via Panel EGLS with cross-section weights and panel-corrected standard errors, are therefore the more appropriate and efficient estimators for the present small-N, long-T setting.

Diagnostic Tests

A set of pre- and post-estimation diagnostic tests was undertaken to ensure that the data and model specification satisfy the underlying assumptions of the Classical Linear Regression Model within a panel data framework, since violations of these assumptions may render coefficient estimates biased, inefficient or inconsistent (Wooldridge, 2010).

Unit Root Tests

The study employed the Levin, Lin and Chu (LLC) unit root test, suited to balanced panels with relatively large time dimensions. The null hypothesis of a unit root is rejected for all study variables, confirming that all series are stationary in levels and suitable for panel regression analysis.

Table 2: Unit Root Test Results (Levin, Lin & Chu)

Variable	LLC Statistic	p-value
FS	-2.3105	0.0104*
BSH	-2.1954	0.0141*
RBC	-1.9786	0.0239*
RWA2TAT	-4.9486	0.0000**
CI	-2.8899	0.0019**
LNGDP	-7.9988	0.0000**
INFLN	-3.5565	0.0002**

*** significant at 1% (p < 0.01); * significant at 5% (p < 0.05). Source: Author's computation from panel data (2013Q1–2025Q2).*

Model Specification Test: Hausman Test

The Hausman specification test (Hausman, 1978) was conducted to determine the appropriate estimator. The results, reported in Table 2, lead to rejection of the null hypothesis of no systematic difference between the fixed- and random-effects estimates, confirming the presence of correlation between bank-specific effects and the regressors. Consistent with this, the random-effects estimation returns a cross-section random-effects variance of zero, reinforcing the preference for the fixed-effects specification. Accordingly, the Fixed Effects (FE) estimator is selected as the preferred model specification, and all subsequent estimations, diagnostic tests and statistical inferences are based on the FE specification.

Table 3: Hausman Test Results

Test Statistic (χ^2)	Degrees of Freedom (df)	p-value	Decision
75.7104	7	0.0000**	Reject Ho (Prefer Fixed Effects)

Multicollinearity Test

The Variance Inflation Factor (VIF) was calculated to assess multicollinearity among the regressors. As reported in Table 4, the centred VIF values ranged from 1.055 to 2.581, well within the conventionally acceptable threshold of 10, confirming that multicollinearity is not a concern.

Table 4: Variance Inflation Factor (VIF) Results

Variable	Centered VIF
FS(-1)	2.5814
BSH(-1)	1.4132
CI(-1)	1.1898
RBC(-1)	1.8478
RWA2TAT(-1)	1.9432
LNGDP(-1)	1.4364
INFLN(-1)	1.0551

Test of Normality of Residuals

The Jarque-Bera (JB) test was applied to assess the normality of residuals. The residuals are normally distributed, with the JB test yielding a statistic of 3.0027 and a probability value of 0.2228 ($p > 0.05$). Accordingly, the null hypothesis of normality cannot be rejected, confirming the reliability of the estimated coefficients and associated statistical inferences.

Heteroskedasticity Test

Likelihood Ratio (LR) tests were conducted for both cross-sectional and period-specific heteroskedasticity. The results, reported in Table 4, indicate evidence of heteroskedasticity in both cases ($p < 0.01$). To address this, Generalized Least Squares (GLS) estimation with cross-section weights, supplemented by panel-corrected standard errors (PCSE), was employed to ensure efficiency of the coefficients and validity of subsequent hypothesis tests.

Table 5: Heteroskedasticity Test Results

Test Type	LR Test Statistic	Df	p-value
Cross-Section	29.4924	8	0.0003**
Period	209.0502	8	0.0000**

Test for Autocorrelation

The Durbin-Watson (DW) statistic was applied within the panel EGLS specification. In the baseline (one-quarter lag) model, the DW statistic of 1.9953 (weighted) approximates 2.00, consistent with the absence of serial correlation, confirming that the standard errors of the estimated coefficients are reliable and that inference based on t- and F-tests remains valid.

RESULTS AND DISCUSSIONS

This section presents the results of the descriptive analysis, correlation analysis and regression analysis in line with the study objectives.

Descriptive Statistics

Table 6 presents the descriptive measures for financial stability (FS), bank market power (BSH), risk-based capital (RBC), the risk-weighted-assets-to-total-assets ratio (RWA2TAT), the cost-to-income ratio (CI), economic growth (LNGDP), and inflation (INFLN). Financial stability (FS) exhibited a mean of 2.8853, suggesting moderate stability among banks during the study period, with a standard deviation of 0.2223, indicating minimal variation. Bank market power (BSH) averaged 0.1250, close to the 0.125 equal-share benchmark implied by eight listed banks, but with a standard deviation of 0.0491 and a maximum of 0.2780, indicating meaningful dispersion in market power across banks, consistent with a moderately concentrated segment containing both dominant and smaller listed banks. Risk-based capital (RBC) averaged 0.1568 (15.68%), consistent with regulatory capital requirements above the Central Bank of Kenya's minimum thresholds. The risk-weighted-assets-to-total-assets ratio (RWA2TAT) averaged 0.8418, indicating that, on average, more than 84% of listed banks' total assets are risk-weighted. The cost-to-income ratio (CI) averaged 0.5443, indicative of moderate operational efficiency; economic growth (LNGDP) had a mean of 28.4875; and inflation (INFLN) averaged 6.14% over the period. Skewness and kurtosis values indicate mild deviations from perfect normality, with BSH exhibiting the most pronounced positive skew (0.9355) and leptokurtosis among the study variables, consistent with a market power distribution weighted toward a small number of larger banks.

Table 6: Summary of Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	Min	Max	Skewness	Kurtosis
FS	400	2.8853	2.9183	0.2223	2.2285	3.4075	-0.4003	2.8949
BSH	400	0.1250	0.1083	0.0491	0.0634	0.2780	0.9355	2.9064
RBC	400	0.1568	0.1552	0.0178	0.1079	0.2199	0.5266	3.9854
RWA2TAT	400	0.8418	0.8423	0.0747	0.6366	1.0404	-0.1036	2.4392
CI	400	0.5443	0.5432	0.0834	0.3255	0.8177	0.2081	3.4121
LNGDP	400	28.4875	28.5513	0.4001	27.7900	29.1377	-0.1654	1.8719
INFLN	400	0.0614	0.0600	0.0164	0.0299	0.1028	0.3625	2.7958

Correlation Analysis

Correlation analysis was conducted to examine the strength and direction of relationships among the study variables, using 392 quarterly observations from 2013Q2 to 2025Q2. Table 7, presents the correlation matrix. Financial Stability (FS) is strongly and positively correlated with its lagged value FS(-1) ($r = 0.9064$, $t = 42.37$, $p < 0.001$), confirming persistence in stability over time. Bank market power (BSH(-1)) is negatively and significantly correlated with FS ($r = -0.4894$, $t = -11.08$, $p < 0.001$), providing early support for the competition–stability view that greater market power is associated with reduced, not enhanced, stability. Risk-Based Capital (RBC(-1)) shows a strong positive correlation with FS ($r = 0.4677$, $t = 10.45$, $p < 0.001$), highlighting the stabilising effect of adequate capital buffers. The risk-weighted-assets-to-total-assets ratio (RWA2TAT(-1)) is positively but weakly and non-significantly correlated with FS ($r = 0.0574$, $t = 1.14$, $p = 0.2570$). Cost inefficiency (CI(-1)) exhibits a negative and significant correlation with FS ($r = -0.1772$, $t = -3.56$, $p = 0.0004$), while GDP growth (LNGDP(-1)) is negatively and significantly correlated with FS ($r = -0.2265$, $t = -4.59$, $p < 0.001$). Inflation (INFLN(-1)) is negatively but not significantly correlated with FS ($r = -0.0347$, $t = -0.68$, $p = 0.4939$). Among the regressors, BSH(-1) is moderately negatively correlated with RBC(-1) ($r = -0.3285$) and essentially uncorrelated with LNGDP(-1) and INFLN(-1), while none of the pairwise correlations among explanatory variables approach levels that would suggest problematic multicollinearity, consistent with the VIF results reported in Table 3.5.1.2.3.

Table 7: Correlation Matrix of Study Variables

Variable	FS	FS(-1)	BSH(-1)	CI(-1)	RBC(-1)	RWA2 TAT(-1)	LNGDP (-1)	INFLN(-1)
FS	1.0000							
FS(-1)	0.9064**	1.0000						
BSH(-1)	-0.4894**	-0.4949**	1.0000					
CI(-1)	-0.1772**	-0.1753**	0.0704	1.0000				
RBC(-1)	0.4677**	0.4963**	-0.3285**	-0.1177*	1.0000			
RWA2TAT(-1)	0.0574	0.0955	0.0986*	-0.1002*	-0.3170**	1.0000		
LNGDP(-1)	-0.2265**	-0.2565**	0.0000	0.2389**	-0.0663	-0.2135**	1.0000	
INFLN(-1)	-0.0347	-0.0254	0.0000	-0.0662	-0.1313**	0.1377**	-0.0941	1.0000

*** significant at 1%; * significant at 5%. Source: Author's computation from panel data (2013Q2–2025Q2), N = 392.*

Regression Results

Table 8, presents the results of the panel Fixed Effects regression estimated via Panel EGLS with cross-section weights and panel-corrected standard errors (PCSE), consistent with the Hausman test result favouring the fixed-effects specification and the evidence of heteroskedasticity established in Section 3.5.1.2.5. The weighted R-squared value is 0.8720, implying that 87.20% of the variation in financial stability is explained by the model, indicating high explanatory power. The adjusted R-squared of 0.8673 confirms that the model retains strong explanatory power after adjusting for the number of predictors. The F-statistic is 183.4554 with a probability value of 0.0000, confirming that the explanatory variables jointly have a statistically significant effect on bank financial stability at the 1% level. The Durbin-Watson statistic of 1.9953 (weighted) indicates no evidence of serial correlation in the residuals.

From the results, the estimated model is specified as follows:

$$FSit = 2.1534 + 0.4947\ FS(-1)it - 0.7669\ BSH(-1)it + 1.1625\ RBC(-1)it + 0.2161\ RWA2TAT(-1)it - 0.2241\ CI(-1)it - 0.0286\ LNGDP(-1)t - 0.4241\ INFLN(-1)t + \mu i + \varepsilon it$$

Effect of Market Power on Financial Stability

The regression results indicate that bank market power, measured by the lagged market-share index (BSH(-

Table 8: Panel Fixed-Effects (EGLS) Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.153391	0.447386	4.813271	0.0000**
FS(-1)	0.494709	0.054927	9.006693	0.0000**
BSH(-1)	-0.766893	0.361031	-2.124174	0.0343*
RBC(-1)	1.162456	0.357362	3.252881	0.0012**
RWA2TAT(-1)	0.216114	0.096566	2.237996	0.0258*
CI(-1)	-0.224108	0.058970	-3.800361	0.0002**
LNGDP(-1)	-0.028638	0.012449	-2.300395	0.0220*
INFLN(-1)	-0.424128	0.258242	-1.642365	0.1013

*Weighted R^2 = 0.8720; Adjusted R^2 = 0.8673; F-statistic = 183.4554 (p = 0.0000); Durbin-Watson = 1.9953 (weighted). Unweighted R^2 = 0.8538; Unweighted Durbin-Watson = 2.0047. Cross-section fixed (dummy variables). ** significant at 1%; * significant at 5%. Source: Author's computation from panel data (2013Q2–2025Q2), N = 392.*

1)), has a negative and statistically significant effect on financial stability. The estimated coefficient is -0.7669 (t = -2.1242, p = 0.0343), suggesting that a one-unit increase in the lagged market power index is associated with a 0.7669-unit decrease in financial stability, holding other factors constant. This finding indicates that, among Kenyan listed banks, greater market power is associated with reduced financial stability, providing empirical support for the competition–stability hypothesis and the market-power-fragility channel articulated by Boyd and De Nicoló (2005), rather than the charter-value prediction of Keeley (1990). Economically, the result is consistent with dominant Kenyan listed banks exploiting reduced competitive pressure through more aggressive lending or pricing, and with implicit too-big-to-fail expectations weakening market discipline as the sector has consolidated — NSE-listed banks' share of sector assets has risen from roughly 52.4% in 2013 to more than 75% by 2025 (Central Bank of Kenya, 2013, 2025). The finding aligns with Uhde and Heimeshoff (2009) and Ndwiga (2020), who similarly find that rising concentration or market power undermines stability, but contrasts with Akins *et al.* (2016), Ariss (2010), Sahul Hamid (2017), Nyangu *et al.* (2022), and Kiemo and Mugo (2021), who find a stabilising, charter-value effect of market power in their respective settings. It also resolves, for the listed segment, the statistically insignificant relationship reported by Atiti *et al.* (2020) for Kenya's wider banking sector, suggesting that the destabilising effect of market power is more clearly identified once capital adequacy, asset-risk composition, cost efficiency, inflation and growth are jointly controlled for within a dynamic panel framework.

Effect of Risk-Based Capital on Financial Stability

Risk-based capital (RBC(-1)) has a positive and highly significant effect on financial stability. The estimated coefficient is 1.1625 (t = 3.2529, p = 0.0012), suggesting that a one-unit increase in the lagged risk-based capital ratio is associated with a 1.1625-unit increase in financial stability, holding other factors constant. This finding implies that banks with stronger capital buffers are better positioned to absorb shocks and withstand periods of financial stress, strongly supporting the Buffer Theory of Capital and reinforcing the Central Bank of Kenya's emphasis on capital adequacy as a cornerstone of financial stability policy. Notably, this stabilising capital effect holds even after controlling for market power, indicating that capital regulation and competition policy operate as distinct channels of resilience. That is, adequate capitalisation continues to protect stability even where market power is destabilising.

Effect of Risk-Weighted Assets to Total Assets on Financial Stability

The risk-weighted-assets-to-total-assets ratio (RWA2TAT(-1)) exerts a positive and statistically significant effect on financial stability, with a coefficient of 0.2161 (t = 2.2380, p = 0.0258). This result indicates that, among Kenyan listed banks, a higher proportion of risk-weighted assets in the balance sheet is associated with greater, not lesser, financial stability, provided capital buffers are maintained above regulatory minima — consistent with the Basel-aligned logic of linking capital requirements to the riskiness of a bank's asset portfolio, and read alongside the strong stabilising effect of risk-based capital.

Effect of Cost-to-Income Ratio on Financial Stability

The cost-to-income ratio (CI(-1)) has a significant negative effect on financial stability, with a coefficient of -0.2241 (t = -3.8004, p = 0.0002). This result suggests that higher operational inefficiency, reflected in elevated operating costs relative to income, undermines bank stability, as inefficient banks are likely to experience reduced profitability, which erodes their capacity to absorb shocks and build capital buffers. This finding is consistent with efficiency–stability arguments in the wider banking literature.

Effect of Macroeconomic Growth and Inflation on Financial Stability

Economic growth, proxied by the natural log of GDP (LNGDP(-1)), is negative and statistically significant, with a coefficient of -0.0286 (t = -2.3004, p = 0.0220). Unlike

a purely counter-cyclical reading, this result is consistent with a procyclical risk-taking channel, whereby periods of economic expansion coincide with more aggressive credit growth, relaxed lending standards, or accelerated balance-sheet expansion among listed banks, which can temporarily depress the study's stability index even as headline growth remains positive. Inflation (INFLN(-1)) is negatively signed but not statistically significant at the 5% level, with a coefficient of -0.4241 (t = -1.6424, p = 0.1013), suggesting that, over the 2013Q1–2025Q2 period, inflationary pressure has not been a decisive, independent driver of financial stability among Kenyan listed banks once market power, capital adequacy, asset-risk composition and cost efficiency are accounted for, though its negative sign is consistent with the erosion of real incomes and asset quality typically associated with elevated inflation.

Effect of Lagged Financial Stability

The lagged value of financial stability (FS(-1)) exhibits a positive and significant effect on current financialstability, with a coefficient of 0.4947 (t = 9.0067, p < 0.001), indicating strong persistence: banks that were stable in the previous period are more likely to remain stable in the current period. This result underscores the dynamic nature of bank stability and justifies the inclusion of a lagged dependent variable in the empirical specification.

Robustness Test Using an Alternative Lag Structure

Consistent with the robustness strategy outlined in section Three, the study re-estimated the baseline model using a two-quarter lag for all explanatory variables while maintaining the same estimation technique and control variables. The robustness results, presented in Table 9, indicate that the principal empirical relationships remain qualitatively unchanged and, for market power, become more pronounced. Market power continues to exert a negative and significant effect on financial stability, with a larger coefficient under the two-quarter lag (β = -1.2140, p = 0.0066). Risk-based capital continues to exhibit a positive and highly significant effect (β = 2.3917, p < 0.001), the risk-weighted-assets-to-total-assets ratio remains positive and significant (β = 0.3321, p = 0.0040), and the cost-to-income ratio retains its negative and significant effect (β = -0.4092, p < 0.001). Economic growth remains negatively signed and significant (β = -0.0435, p = 0.0032), and inflation becomes negatively significant under the two-quarter lag (β = -0.6461, p = 0.0355), suggesting that its adverse effect on stability becomes more evident over a longer transmission period. The lagged dependent variable weakens to marginal significance at the 10% level (β = 0.1087, p = 0.0919), consistent with persistence attenuating over a longer horizon.

Comparison of the two specifications shows that the one-quarter lag model provides superior explanatory power and diagnostic performance. The baseline model records a weighted R-squared of 0.8720 and adjusted R-squared of 0.8673, compared with 0.8149 and 0.8079, respectively, under the two-quarter lag model. The F-statistic declines from 183.46 to 116.02 under the alternative specification. The Durbin-Watson statistic also decreases from 1.9953 under the baseline model to 1.2435 under the two-quarter lag specification, indicating comparatively weaker residual properties - the two-quarter lag DW value falls below the conventional 1.5–2.5 acceptable range, signalling some residual positive autocorrelation. Overall, the analysis confirms that the substantive findings, and in particular the destabilising effect of market power, are stable across reasonable alternative lag structures, but the one-quarter lag model is retained as the preferred specification on the basis of superior explanatory power, overall model performance and diagnostic properties.

Table 9: Panel Fixed-Effects (EGLS) Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.153391	0.447386	4.813271	0.0000**
FS(-1)	0.494709	0.054927	9.006693	0.0000**
BSH(-1)	-0.766893	0.361031	-2.124174	0.0343*
RBC(-1)	1.162456	0.357362	3.252881	0.0012**
RWA2TAT(-1)	0.216114	0.096566	2.237996	0.0258*
CI(-1)	-0.224108	0.058970	-3.800361	0.0002**
LNGDP(-1)	-0.028638	0.012449	-2.300395	0.0220*
INFLN(-1)	-0.424128	0.258242	-1.642365	0.1013

*Weighted R^2 = 0.8720; Adjusted R^2 = 0.8673; F-statistic = 183.4554 (p = 0.0000); Durbin-Watson = 1.9953 (weighted). Unweighted R^2 = 0.8538; Unweighted Durbin-Watson = 2.0047. Cross-section fixed (dummy variables). ** significant at 1%; * significant at 5%. Source: Author's computation from panel data (2013Q2–2025Q2), N = 392.*

Table 10: Summary of Robustness Comparison

Criterion	Lag 1 (Baseline)	Lag 2 (Robustness)	Assessment
R^2 (weighted)	0.8720	0.8149	Lag 1 superior
Adjusted R^2 (weighted)	0.8673	0.8079	Lag 1 superior
F-statistic	183.4554	116.0195	Lag 1 superior
Durbin-Watson (weighted)	1.9953	1.2435	Lag 1 superior
Sign of BSH coefficient	Negative**	Negative**	Consistent
Sign of RBC coefficient	Positive**	Positive**	Consistent
Sign of RWA2TAT coefficient	Positive*	Positive**	Consistent
Sign of CI coefficient	Negative**	Negative**	Consistent

Summary of Regression Findings

Table 11 summarises the regression results on the determinants of financial stability among Kenyan listed banks. Market power exerts a negative and significant effect on stability, supporting the competition–stability hypothesis. Risk-based capital and the risk-weighted-assets-to-total-assets ratio both exert positive and significant effects, supporting the Buffer Theory of Capital. The cost-to-income ratio and GDP growth exert negative and significant effects, while inflation is negatively signed but statistically insignificant.

Table 11: Summary of Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FS(-1)	0.4947	0.0549	9.0067	0.0000**
BSH(-1)	-0.7669	0.3610	-2.1242	0.0343*
RBC(-1)	1.1625	0.3574	3.2529	0.0012**
RWA2TAT(-1)	0.2161	0.0966	2.2380	0.0258*
CI(-1)	-0.2241	0.0590	-3.8004	0.0002**
LNGDP(-1)	-0.0286	0.0124	-2.3004	0.0220*
INFLN(-1)	-0.4241	0.2582	-1.6424	0.1013

*** significant at 1% ($p < 0.01$); * significant at 5% ($p < 0.05$). Source: Author's computation from panel data (2013Q2–2025Q2).*

CONCLUSION

This study examined the effect of market power on the financial stability of Kenya's NSE-listed commercial banks using a quarterly panel (2013Q1–2025Q2) and a dynamic fixed-effects Panel EGLS estimator with panel-corrected standard errors. Financial stability proved highly persistent, and rising market power was associated with reduced stability, supporting the competition–stability view over the charter-value hypothesis: as listed banks' share of sector assets grew from about 52% in 2013 to over 75% by 2025, competitive discipline weakened rather than strengthened. Risk-based capital and a higher risk-weighted-assets-to-total-assets ratio were positively associated with stability, while the cost-to-income ratio and GDP growth were negatively associated with it; inflation was insignificant. The model explained 87.2% of the variation in stability, and results were robust to an alternative two-quarter lag. The study recommends that the Central Bank of Kenya and the Competition Authority of Kenya jointly scrutinise bank consolidation, that capital regulation remain the cornerstone of stability policy, and that supervisors monitor asset-risk composition and cost efficiency alongside capital adequacy. The study is limited to listed banks and accounting-based stability measures and operationalises market power structurally rather than behaviourally; future research could extend to unlisted banks and behavioural competition measures such as the Lerner index.

Declarations

Funding: The author received no specific funding for this research.

Conflict of interest: The author declares no conflict of interest.

Data availability: The study uses secondary data drawn from published bank financial statements, Central Bank of Kenya reports and official macroeconomic statistics. The compiled analytical dataset can be made available by the author subject to source terms.

Ethics approval: Ethical approval was obtained from the Maseno University Ethics Review Committee, and a research licence was granted by the National Commission for Science, Technology and Innovation (NACOSTI).

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