

# THE INFLUENCE OF COMPETITION ON THE STABILITY OF COMMERCIAL BANKS IN VIETNAM

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## ABSTRACT:

This study explored the impact of banking competition on the stability of commercial banks in Vietnam. Using data from 24 commercial banks from 2015 to 2022, the study employed the 2-Step System-Generalized Method of Moments (S-GMM) regression method to find out a positive impact between competition and stability, suggesting that increased competition can heighten commercial banks stability in Vietnam. Based on the study findings, some recommendations are proposed to assist regulatory bodies and commercial banks in Vietnam to ensure the stability of the banking system.

**Keywords:** banking competition, bank stability, SGMM, commercial banks in Vietnam.

## 1. Introduction

The banking sector, crucial for resource allocation and economic growth (Chodorow-Reich & Falato, 2021), also serves as a conduit of instability affecting interbank markets, payment mechanisms, credit supply, and deposits (Berger et al., 2008). This leads to extended adverse effects in the real economy, accompanied by enduring recovery costs from financial crises. In the post-COVID era, Vietnam's rapid global integration facilitated its commercial banking system. Faced with opportunities and challenges, the system must enhance competitiveness by identifying influencing factors and devising a strategic direction.

Competition naturally arises in market economies, displaying only in such economic

conditions. Consequently, one of the notable factors that may present risks to the banking sector is the rivalry among banks. The interplay between competition and stability holds consequences for resource allocation, the range of choices available, and overall economic stability (Zhanbolatova, 2018).

Scholars approach the subject of banking competition with caution, particularly regarding its impact on bank stability. In academic discourse, two prevalent perspectives have surfaced: (i) the belief that competition adversely affects banking system stability (competition-instability), and (ii) the belief that competition positively influences banking system stability (competition-stability). Despite extensive studies across diverse countries and scopes, the findings to date remain highly

contentious. Hence, the study seeks to address the following research inquiries: (1) What is the correlation between bank competition and bank stability in Vietnam? (2) What recommendations should be contemplated for implementation by banks and policymakers in the present scenario?

To achieve our primary objectives, except for the introduction, references, appendices, the research is presented in four main parts as follows: Literature Review; Methodology; Results and Discussion; Conclusions and Implications.

## 2. Literature review

Keeley (1990) posits the competition-fragility hypothesis by showing that banks lose more charter value in competitive environments which makes them more prone to take excessive risks because of fixed-rate deposit insurance. Berger, Klapper, and Turk-Ariss (2008) continue to further develop this hypothesis when they proposed that low competition lowers banks' potential for risk. Furthermore, Allen and Gale (2010) used the Hotelling model of spatial competition, pointing out that financial stability and high market concentration are related in a trade-off.

Boyd and De Nicolì (2005), on the other hand, backed the competition-stability paradigm. According to their study, banks can profit more from loans with higher interest rates if there is less competition. According to study of Schaeck, Iřík, and Wolfe (2009), financial systems that have more competition are also less susceptible to systemic catastrophes. Additionally, Cao (2020) provided evidence that larger banks operating in less competitive situations typically exert a greater influence in the event of rivalry. Vo and Dang (2018) demonstrated that competition has a favorable effect on the profitability and stability of banks regarding Vietnam's banking situation. Banks can produce more consistent profits by becoming more competitive with respect to aspects of their operations such as lending, listing rates, and capital mobilization. Pham and Dao (2021) discovered, in a similar vein, that the financial stability of Vietnamese banks increased

in direct proportion to their greater competitiveness. Son (2022) discovered more proof in favor of this theory.

However, other observations continue to discover a U-shaped relationship between competition and stability. Using Martinez-Miera and Repullo's model and the franchise value paradigm, Jiménez, López, and Saurina (2013) have found a U-shaped correlation between stability and competition in the Spanish banking sector. Notably, Nguyen et. al. (2017) discovered the same pattern between the two elements as well. Stability can be achieved with increased competition, but if it rises above a particular point, instability may result.

## 3. Methodology

**Data collection:** This study utilizes a balanced panel of 24 commercial banks in Vietnam, covering the period from 2015 to 2022, with a total of 192 observations. The data is extracted from the annual consolidated financial statements, annual reports, and public disclosures of commercial banks. Additionally, macroeconomic factors such as GDP growth rates and inflation rates are sourced from the World Bank.

**Research model:** Following Moudud-Ul-Huq, S. (2021), Nyangu et al. (2022), the research utilizes a linear dynamic panel model to capture the time persistence of bank stability. Hence, the research model is defined as follow:

$$ZSCORE_{it} = \alpha_i + \delta ZSCORE_{it-1} + \beta_1 LERNER_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

In which:

-  $ZSCORE_{it}$  is bank  $i$  financial stability in the year  $t$  and  $ZSCORE_{it-1}$  is one-year lagged bank  $i$  financial stability.

Bank stability reflects a sustained and secure development over time, ensuring equilibrium and security in various economic conditions without requiring external resources (Saksonova, 2012). The Z-SCORE, widely used for assessing bank stability (Pham et al., 2020, Nyangu et al., 2022), is calculated as follow:

$$Zscore_{it} = \frac{ROA_{it} + EQTA_{it}}{ROA_{ip}}$$

Where  $Zscore_{it}$  is banks financial stability of bank  $i$  in year  $t$ ;  $ROA_{it}$  is the return on total assets of the bank  $i$  in year  $t$ ;  $EQTA_{it}$  is the ratio of equity to total assets of bank  $i$  in year  $t$ ;  $ROA_{ip}$  is the standard deviation of bank is  $ROA$  in the study period  $p$ .

-  $LERNER_{it}$  is bank  $i$  competition level measured by Lerner Index in year  $t$ .

A commercial bank's competition is synonymous with its market power-the ability to influence supply, demand, and prices in the market. The Lerner index, a dynamic indicator for competition at the firm level, serves as a reliable proxy for measuring bank competition (Moudud-Ul-Huq, S., 2021, Nguyen et al., 2023). Ranging from 0 to 1, the Lerner Index values closer to 1 signify higher market power and less competitive market conditions for a bank. The Lerner index is calculated using the following formula:

$$LERNER_{it} = \frac{Price_{it} - MC_{it}}{Price_{it}}$$

Where  $Price_{it}$  is the output price of the bank  $i$  at the time  $t$ ;  $MC_{it}$  is the marginal cost of the bank  $i$  at the time  $t$

Following previous research (Fu et al., 2014; Leroy and Lucotte, 2017), marginal cost is derived from taking the first derivative of the translog total cost function which is estimated by a stochastic frontier model with prices normalized by dividing total costs and the first 2 input prices by third input price to maintain homogeneity of degree one.

$$\begin{aligned} \ln\left(\frac{TC}{w_3}\right) &= \alpha_0 + \alpha_1 \ln Y + \frac{1}{2} \alpha_2 (\ln Y)^2 \\ &+ \alpha_3 \ln\left(\frac{w_1}{w_3}\right) + \alpha_4 \ln\left(\frac{w_2}{w_3}\right) + \alpha_5 \ln\left(\frac{w_2}{w_3}\right) \ln\left(\frac{w_2}{w_3}\right) \\ &+ \frac{1}{2} \alpha_6 \left(\ln\left(\frac{w_1}{w_3}\right)\right)^2 + \frac{1}{2} \alpha_7 \left(\ln\left(\frac{w_1}{w_3}\right)\right)^2 \\ &+ \frac{1}{2} \alpha_8 \ln Y \ln\left(\frac{w_1}{w_3}\right) + 1 \alpha_9 \ln Y \ln\left(\frac{w_2}{w_3}\right) \end{aligned}$$

Where  $TC$  is the total cost, calculated as the sum of non-interest cost and interest cost,  $Y$  is the total output, calculated as the total assets,  $w_1$  is the price of labor, calculated by dividing personnel expense by total assets,  $w_2$  is the price of borrowed funds, calculated by dividing interest expense by total

deposits,  $w_3$  is the price of fixed assets, calculated by dividing other operating expenses by fixed assets.

-  $X_{it}$  is a matrix of control variables, selected based on previous research, including bank size (SIZE); capitalization (EQTA); cost-to-income ratio (CIR); the number of directors on the Board of Directors (BOARD); inflation rate (INF\_CPI); GDP growth rate (DEVELOPMENT).

-  $\varepsilon_{it}$  is error term.

The study begins with F-tests to assess whether a pooled OLS or a panel data regression model is more appropriate. If the latter is favored, a Hausman test follows to conducted to select the appropriate regression model, either Random-effects model (REM) or Fixed-effects model (FEM). Additional assessments, including Wald, Wooldridge, and Durbin-Wu-Hausman tests, are conducted afterwards to detect heteroskedasticity, autocorrelation, and endogeneity. Should issues arise, Feasible Generalized Least Squares (FGLS) or System Generalized Method-of-Moments (S-GMM) estimators are utilized for accurate results.

#### 4. Results and discussions

After having confirmed the absence of substantial multicollinearity with the Correlation analysis (no correlation values exceed the absolute value of 0.5) and Multicollinearity analysis (all VIF values are less than 5), the authors conduct different tests to select the appropriate regression estimator.

With the results being significant at 1% in the F-test and Hausman test, the FEM regression model is proven to be more suitable to adopt than REM and Pooled OLS. However, the model exhibits issues with heteroskedasticity, autocorrelation, and endogenous variables, as indicated by 1% significant results from the Wald test, Wooldridge Test, and a 5% significant result from the Durbin-Wu-Hausman Test.

Consequently, a two-step System GMM estimator was employed as the regression estimator to address these concerns (Phan et al., 2019, Moudud-Ul-Huq, S., 2021). This estimation

is proven to be reliable with the p-value of the AR1 test being less than 5% and that of the AR2 test being greater than 5% significant level. The validity of instrument variables is also confirmed with the p-value of the Hansen-J test is also insignificant (Table 1). Hence, the results from the model are reliable to proceed to further interpretation.

In general, all proposed factors influence bank stability with a significant level of at least 1%. While LERNER, CIR, BOARD, and INF\_CPI have negative impacts on Z-SCORE, LSCORE, SIZE, EQTA, and DEVELOPMENT are proven otherwise.

As shown in Table 1, the negative impact of LERNER (inverse measurement of competition) on Z-SCORE at a 1% significance level implies a positive association between bank competition and stability. At the same significance level, prior-period bank stability and bank size positively influence stability, while the inflation rate has an opposite effect. Bank capitalization and GDP growth rate positively impact stability, and the cost-

income ratio with board size have negative influence, all significant at 5%.

The study aligns with the competition-stability paradigm proposed by Boyd and De Nicolo (2005), affirming the positive influence of bank competition on stability in the context of Vietnamese commercial banks. This has been proven in the current situation of commercial banks in Vietnam. From 2015 to 2022, there has been a significant surge in merger and acquisition (M&A) activities among domestic commercial banks, in line with the requirements set by the State Bank of Vietnam. Although the trend appears to have resulted in reduced competition among commercial banks due to increased concentration levels, the simultaneous heightened international integration of Vietnam has offset this effect by facilitating the entry of foreign competitors into the Vietnamese financial industry. Instead of diminishing, M&A activities have served to strengthen weaker banks through integration with larger players, enhancing their competitiveness and stability. Thus, effective control of M&A and international integration by the

**Table 1. Regression results**

| ZSCORE             | Coef.   | St.Err. | t-value | p-value | [95% Conf | Interval] | Sig |
|--------------------|---------|---------|---------|---------|-----------|-----------|-----|
| LZSCORE            | 0.878   | 0.030   | 29.21   | 0.000   | 0.819     | 0.937     | *** |
| LERNER             | -20.924 | 4.627   | -4.52   | 0.000   | -29.994   | -11.855   | *** |
| SIZE               | 0.886   | 0.142   | 6.23    | 0.000   | 0.607     | 1.165     | *** |
| EQTA               | 89.428  | 43.868  | 2.04    | 0.041   | 3.448     | 175.409   | **  |
| CIR                | -20.061 | 10.178  | -1.97   | 0.049   | -40.010   | -0.113    | **  |
| BOARD              | -0.261  | 0.102   | -2.56   | 0.010   | -0.461    | -0.061    | **  |
| INF_CPI            | -1.123  | 0.322   | -3.49   | 0.000   | -1.754    | -0.493    | *** |
| DEVELOPMENT        | 20.036  | 8.859   | 2.26    | 0.024   | 2.673     | 37.399    | **  |
| Observations       | 144     |         |         |         |           |           |     |
| No. of instruments | 21      |         |         |         |           |           |     |
| AR1 (p-value)      | 0.0269  |         |         |         |           |           |     |
| AR2 (p-value)      | 0.858   |         |         |         |           |           |     |
| Hansen-J (p-value) | 0.277   |         |         |         |           |           |     |

Note: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.010$

Source: Authors compilation from analysis data with Stata 14.

State Bank of Vietnam to enhance competition improves commercial banks' stability.

### **5. Conclusions and implications**

As demonstrated, financial stability is positively impacted by bank competition. Increased competition has led to increased stability among Vietnam's commercial banks. Regarding other elements, bank stability is positively impacted by the GDP growth rate, bank size, equity-to-asset ratio, and previous period's bank stability; nevertheless, bank stability is negatively impacted by the cost-income ratio, board size, and inflation rate.

From our researchs results, suitable implications are proposed to policy makers and commercial banks in Vietnam. Firstly, from our finding of a positive impact of competition on commercial banks stability, government bodies are suggested to continue pursuing their policies for opening the financial market. A free banking environment encourages competition because banks are free to enter the market and establish a variety of branches and banks. This is continue heightened by the increasing penetration of the foreign financial institution in Vietnam, following Vietnam's open market policies. Secondly, the discovery of a negative influence of the inflation rate on bank stability raises a cautionary note regarding government inflation rate adjustments, particularly in the context of the State Bank of Vietnam's monetary policy. As Vietnam is

experiencing a well-managed interest rate that is still on the rise, policymakers should closely monitor the industry's health to preempt any potential downturn.

As for the recommendation for banks, it is advisable for them to concentrate more on managing their revenue and costs, particularly on minimizing and stopping non-performing loan operations. This process involves assessing the working capital turns and the collateral to avert future insolvency. This strategy's justification stems from the inverse relationship between the cost-to-income ratio (CIR) and banking stability. Bank managers should also consider additional strategies including concentrating on controlling revenue streams, integrating contemporary technology into banking systems and client interactions, and adopting a green business model to reduce waste and expenses and diversifying revenue through new channels of access for various clientele groups. Additionally, it is essential for banks to have a well-structured Board of Directors (BoD) setup. Since our study shows a negative correlation between the effectiveness of decision-making and the number of members on the BoD, the recommendation is that banks should keep a relatively small but enough members of the BoD in order to ensure realistic implementation. This strategy reduces disarray in the decision-making process, creating an environment that is favorable for reaching the bank's goals ■

### **REFERENCES:**

1. Nguyễn Đức Trường, Hà Tú Anh & Nguyễn Thị Thanh Bình (2019). Cạnh tranh và ổn định hệ thống ngân hàng tại Việt Nam. Truy cập tại <https://tapchinganhang.gov.vn/canh-tranh-va-on-dinh-he-thong-ngan-hang-tai-viet-nam.htm>
2. Phạm Thủy Tú & Đào Lê Kiều Oanh (2021). Tác động của năng lực cạnh tranh đến mức độ ổn định tài chính của các Ngân hàng thương mại Việt Nam trước bối cảnh tham gia Hiệp định CPTPP. Tạp chí Nghiên cứu Tài chính - Marketing, 64(4), 1-14.
3. Tô Vĩnh Sơn (2022). Tác động của cạnh tranh đến rủi ro của các Ngân hàng Thương Mại Việt Nam, Tạp chí Nghiên cứu Tài chính - Marketing, 69, 53-65.
4. Võ Xuân Vinh và Đặng Bửu Kiếm (2018). Năng lực cạnh tranh, lợi nhuận và sự ổn định của các ngân hàng Việt Nam. Tạp chí Phát triển kinh tế, 12, 25-44.

5. Allen, F. and Gale, D.M. (2008). Competition and Financial Stability. *Journal of Money, Credit and Banking*, 36(3, 2), 453-480.
6. Berger, A.N., Klapper, L.F. and Turk-Ariss, R. (2008). Bank competition and Financial Stability. *Journal of Financial Services Research*, 35(2), 99-118.
7. Boyd, J.H. and De Nicolī, G. (2005). The theory of Bank Risk-taking and Competition Revisited. *The Journal of Finance*, 60(3), 1329-1343.
8. Keeley, Michael C. (1990). Deposit Insurance, Risk, and Market Power in Banking, *The American Economic Review*, 80(5), 1183-1200.
9. Cao, Y. et al. (2020). Bank Competition and Financial Stability: Evidence from the U.S. Banking Deregulation. *The Journal of Financial and Quantitative Analysis*, 51(1), 1-28.
10. Chodorow-Reich, G. and Falato, A. (2021). The Loan Covenant Channel: How Bank Health transmits to the real economy. *The Journal of Finance*, 77(1), 85-128.
11. Fu, X. (Maggie), Lin, Y. (Rebecca) and Molyneux, P. (2014). Bank competition and Financial Stability in Asia Pacific. *Journal of Banking & Finance*, 38, 64-77.
12. Jiménez, G., Lopez, J.A. and Saurina, J. (2013). How does competition affect bank risk-taking? *Journal of Financial Stability*, 9(2), 185-195.
13. Leroy, A. and Lucotte, Y. (2017). Is there a competition-stability trade-off in European banking? *Journal of International Financial Markets, Institutions and Money*, 46, 199-215.
14. Moudud-Ul-Huq, S. (2021). Does bank competition matter for performance and risk-taking? empirical evidence from BRICS countries, *International Journal of Emerging Markets*, 16(3), 409-447.
15. Nguyen, N.T. et al. (2023). The impact of Bank competition on bank stability in Vietnam: The moderating role of Shadow Banking. *Cogent Business & Management*, 10(2), 1-25.
16. Nguyen, T.L., Le, A.H. and Tran, D.M. (2017). Bank competition and Financial Stability: Empirical Evidence in Vietnam. In book: *Econometrics for Financial Applications*, (pp. 584-596).USA: Springer.
17. Nguyen, T.N. et al. (2022). Corporate Governance and Financial Stability: The case of commercial banks in Vietnam. *Journal of Risk and Financial Management*, 15(11), p. 514.
18. Nyangu, M. et al. (2022). Bank concentration, competition and financial stability nexus in the East African community: Is there a trade-off? *Cogent Economics & Finance*, 10(1), 1-25.
19. Pham, H.T.X. and Nguyen, N.T. (2020). Factors affecting the stability of commercial banks in Vietnam. *International Conference On CIFBA*, 2020, 545-555.
20. Phan, Hien Thu et al. (2019). Competition, efficiency and stability: An empirical study of East Asian Commercial Banks. *The North American Journal of Economics and Finance*, 50, 100990.
21. Nguyen Kim, Q.T. (2022). Board of Directors Characteristics Affect Commercial Banks performance - evidence in Vietnam. *Cogent Business & Management*, 9(1), 1-33.
22. Saksonova, S. and Solovjova, I. (2012). Some quantitative aspects of stability management strategy in a bank. *Procedia - Social and Behavioral Sciences*, 58, 569-577.
23. Schaeck, K., Cihak, M. and Wolfe, S. (2009). Are competitive banking systems more stable? *Journal of Money, Credit and Banking*, 41(4), 711-734.
24. Pham, T.T., Dao, L.K. and Nguyen, V.C. (2021). The determinants of Banks stability: A system GMM panel analysis. *Cogent Business & Management*, 8(1), 1-18.
25. Zhanbolatova, A. et al. (2018). Relationship between bank competition and stability: The case of the UK. *Banks and Bank Systems*, 13(1), 98-114.

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## **TÁC ĐỘNG CỦA CẠNH TRANH ĐẾN TÍNH ỔN ĐỊNH CỦA CÁC NGÂN HÀNG THƯƠNG MẠI TẠI VIỆT NAM**

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**Từ khoá:** cạnh tranh ngân hàng, ổn định ngân hàng, SGMM, ngân hàng thương mại tại Việt Nam.