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Measuring Factors Impact on Bank Stability in Vietnam: The Role of National Governance Indicators

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Abstract: ***This study investigates the determinants of commercial bank stability in Vietnam with emphasis on national governance quality. Using panel data from 26 listed banks from 2006 to 2024, the analysis applies pooled OLS, fixed effects, and random effects estimations. Results indicate that control of corruption significantly enhances bank stability, while government efficiency exhibits a short-term negative association. Other governance dimensions show no robust statistical effects. Capital adequacy and macroeconomic instability emerge as key drivers of stability variation. The findings highlight the institutional transmission channels through which governance reforms influence financial resilience and provide policy implications for banking supervision and institutional quality improvement in emerging economies.***

Keywords: Bank stability, national governance indicator, commercial banks, Z-score, Vietnam

1. Introduction

The banking system plays a crucial role in allocating financial resources within the economy and increasing the efficiency of capital flow among economic actors. It significantly supports stable, sustainable, and large-scale financing for economic activities, thereby boosting economic growth. Particularly in developing economies, including Vietnam, where the financial system is heavily reliant on the banking sector, the sustainable development of the banking system is vital for optimizing financing and the economy's growth potential.

The stability of the banking system is a fundamental pillar of economic development, especially in emerging economies like Vietnam, where banks primarily serve as financial intermediaries. In recent years, Vietnam has demonstrated strong economic resilience, with GDP growth was projected at around 8.02% by 2025 (General Statistics Office, 2026). However, this rapid economic expansion is accompanied by rising financial vulnerabilities, raising concerns about the sustainability of banking sector stability. One of the most notable characteristics of Vietnam's financial system is its high reliance on credit. Credit to the private sector is approximately over 140% of GDP (State Bank of Vietnam, 2026). The banking system faces high credit risk and the risk of deterioration in asset quality. By the end of 2025, the average non-performing loan ratio/outstanding credit ratio across the entire system is expected to increase slightly from the end of 2024, driven by strong credit growth.

Furthermore, the world is witnessing an increase in uncertainties. National governance indicators, such as governance quality, rule of law, government efficiency, and corruption control, can also significantly influence risk-taking behavior, supervisory effectiveness, and the overall resilience of the banking system (Kaufmann et al., 2011). In emerging markets, weak governance structures can exacerbate financial instability by undermining regulatory enforcement and increasing systemic risk.

In Vietnam, ongoing institutional reforms and banking sector restructuring underscore the importance of governance in maintaining financial stability. The government has implemented numerous measures to strengthen the legal framework and improve transparency; however, challenges related to institutional quality remain (World Bank, 2023). Nevertheless, empirical studies on Vietnam's banking stability have primarily focused on macroeconomic and banking-specific factors, such as profitability, credit growth, and inflation. In contrast, governance-related factors have received relatively limited attention.

This study aims to examine the factors influencing the stability of the banking system in Vietnam, with particular emphasis on the role of national governance indicators. The article is structured into five parts: Part 1 is an introduction; Part 2 is a literature review; Part 3 is methodology; Part 4 presents the research results and discussion; and Part 5 is the conclusion.

2. Literature Review

Banking system stability is understood as the absence of crises within the banking system (Brunnermeier et al., 2019). Furthermore, banking system stability refers to the stability of banks within the system in their direct relationships with each other through the interbank market, or through syndicated loans, or through indirect relationships such as ordinary loans in the market, or transactions of assets in the course of banking business (Segoviano & Goodhart, 2009). Many previous studies have used the Z-score (the risk of bankruptcy coefficient) to measure bank market stability, such as Shahriar

et al. (2023), Pham et al. (2021), and Albert et al. (2019). The stability of the banking system is an indispensable part of a country's future sustainable growth and development (Jokipii et al., 2013), because in developing countries (like Vietnam), the banking system remains a crucial source of finance and liquidity to support economic activities. Therefore, instability in the banking system negatively impacts long-term economic growth by creating financial shortages for the government, businesses, and individuals.

The stability of the banking system is affected by many factors. Previous studies, such as those by Sufian and Habibullah (2012), Kohler (2014), and Bourkhis and Nabi (2013), have investigated the impact of macroeconomic factors as explanatory variables on the stability of the banking system. Specifically, Sufian and Habibullah (2012) examined the impact of bank characteristics and macroeconomic factors on bank performance, including variables such as gross domestic product (GDP) and inflation. Bourkhis and Nabi (2013) used the Z-score to assess the stability of the banking system, with macroeconomic variables such as the GDP growth rate, inflation, and the exchange rate as explanatory variables.

National Governance Indicator

According to the World Bank (WB), the national governance index measures areas such as electoral systems, corruption, human rights, the provision of public services, civil society, and gender equality. In fact, the WB has developed a set of national governance indices, including six issues: (i) Freedom of speech and accountability; (ii) Political stability and violence control; (iii) State performance; (iv) Quality of regulations; (v) Rule of law; and (vi) Combating corruption. Delis and Staikouras (2011) and Bhattacharya et al. (2020) argue that strict regulations governing the banking system's supervisory mechanism will reduce systemic risks, allowing more time to find solutions during periods of banking system instability. Beltratti and Stulz (2012), in their study of bank performance during the 2007-2008 crisis, found that highly efficient banks typically had low financial leverage ratios and low profits before the crisis; however, the authors did not find a correlation between the relevant legal system and the performance of banks in the studied countries during the financial crisis. Anastasiou et al. (2019) studied the relationship between non-performing loans, factors of the national governance index, and the liquidity of the banking system in Greece during the period 1996-2016. The research results showed that the components of the national governance index had a significant impact on the banking system in this country; specifically, a strong national governance index helps reduce the non-performing loan ratio, increase the banking system's liquidity, and thus stabilize the national economy. Similarly, Ahiase et al. (2024), when studying the stability of the banking system in 53 African countries, with data collected during the research period 2005-2021, found that among the constituent factors of the national governance index, the quality of regulations and legal rules has an impact on inflation, and also strongly impacts the non-performing loan ratio of the banking system in these countries.

3. Methodology

This study uses micro and macro data to examine factors affecting the stability of Vietnam's banking system, including the National Governance Index. Data were collected from 26 commercial banks listed on the Vietnamese stock market and other macro variables, using panel data from 2006 to 2024.

Dependent Variables

To measure the stability of the banking system, this study uses two dependent variables: the Z-Score and the non-performing loan ratio. First, the Z-score indicates a bank's financial stability. The Z-score measures the distance from the insolvency threshold, based on profitability, capitalization level, and profit volatility. In this study, the Z-score is calculated using the formula:

$$ZSCORE_{i,t} = \frac{ROA_{i,t} + \frac{Equity_{i,t}}{Assets_{i,t}}}{\sigma(ROA_i)}$$

Where $ROA_{i,t}$ is the return on total assets of bank i at time t, $\frac{Equity_{i,t}}{Assets_{i,t}}$ is the ratio of equity to total assets, and $\sigma(ROA_i)$ is the standard deviation of ROA of bank i throughout the entire study period. A higher Z-score reflects a lower probability of bankruptcy and greater bank stability. The use of the Z-score in this study is appropriate for the Vietnamese context, where market data is incomplete and inconsistent across the entire banking system. In contrast, accounting data is more readily available and consistent.

To calculate the Z-score, the research team collected data from the banks' financial statements. This data was collected from the audited financial statements of Vietnamese commercial banks, including balance sheets and income statements. Variables at the bank level, such as profitability, size, net interest margin, and capital adequacy ratio, are calculated directly from these reports, as is customary in empirical studies of bank stability.

Independent Variable

The Working Group Index (WGI) is used to represent the quality of national governance and the institutional environment in Vietnam. The WGI is a composite index developed and periodically published by the World Bank that reflects many core aspects of public governance and state administration efficiency. Specifically, the WGI comprises six components: Voice and Accountability (VOA), Political Stability and Absence of Violence (PSA), Government Efficiency (GE), Quality of Regulation and Governance (RQ), Rule of Law (RoL), and Control of Corruption (CoC). These components reflect the level of transparency, effectiveness of policy implementation, quality of the legal framework, and the level of institutional risk control in the economy. A higher WGI value implies better national governance quality, as demonstrated by higher administrative efficiency, a clearer regulatory framework, and more effective law enforcement. Given Vietnam's tight regulatory framework for its financial and banking system, changes in the World Governance Index (WGI) are expected to significantly affect banking stability through supervisory channels, market discipline, and credit allocation. Data on the components of the national governance index are collected from the World Bank and currently cover over 200 countries

for the period 1996-2024. As of February 2026, WGI data for 2025 is still under review and not yet published; therefore, this study uses Vietnamese data within the general research timeframe of 2006-2024.

Control Variables

The control variables in this study include characteristics of commercial banks and macroeconomic variables. The research variables include the Global Economic Policy Uncertainty Index (GEPU), Vietnam's Macroeconomic Uncertainty Index (MII), Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Market Concentration and Competition Index (HHI), Return on Equity (ROE), Inflation (INF), and GDP growth rate. The research data for the control variables, including bank characteristics, were obtained from the financial reports of the banks in this study; the macroeconomic variables were collected from the General Statistics Office of Vietnam.

Research Methodology

This study compares three estimation methods: Pooled OLS, Fixed Effects Model (FEM), and Random Effects Model (REM) to select the most appropriate specification for the data characteristics. Model selection tests were conducted to choose the most suitable model for evaluating the impact of factors on the stability of the banking system.

To minimize the endogeneity between institutional variables and banking stability, WGI components were included in the model with a one-year lag. This approach reflects the fact that improvements in governance quality often require a time lag before being reflected in bank performance, while also avoiding a reverse causal relationship from banking stability back to institutional variables.

$$ZSCORE_{i,t} = \beta_0 + \beta_1 MII_{i,t} + \beta_2 GEPU_{i,t} + \beta_3 COC_{i,t-1} + \beta_4 GE_{i,t-1} + \beta_5 PSA_{i,t-1} + \beta_5 RQ_{i,t-1} + \beta_6 ROL_{i,t-1} + \beta_7 VOA_{i,t-1} + \beta_8 HHI_{i,t} + \beta_9 CAR_{i,t} + \beta_{10} NIM_{i,t} + \beta_{11} ROE_{i,t} + \beta_{12} GDP_{i,t} + \beta_{13} INF_{i,t} + \varepsilon_{i,t}$$

The research team developed the first research hypothesis:
H1: The national governance indicator influences the stability of the banking system.

4. Empirical Results and Discussion

Table 1 presents descriptive statistics for the variables used in the model, summarizing distribution characteristics and variation for each variable in the study sample of 300 observations.

Table 1: Descriptive statistics of the variables used in the model

	Số quan sát	Mean	Std. Dev.	Min	Max
ZSCORE	300	13.551	6.7044	1.569	62.3975
MII	300	0.451	0.1365	0.2264	0.7626
GEPU	300	183.9056	59.1708	63.5965	311.2925
COC	300	40.6593	1.2793	36.0888	42.8757
GE	300	49.5054	3.4408	42.9876	53.2787
PSA	300	67.5446	1.1506	64.9676	71.0216
RQ	300	48.9481	1.9153	44.8688	51.1431
ROL	300	50.0964	2.1928	45.9551	52.4798
VOA	300	37.2495	1.3097	3,47,475	39.2259
HHI	300	0.0871	0.0199	0.06	0.1351
ROE	300	0.1952	0.1471	-0.4572	0.6692
NIM	300	0.0307	0.0128	-0.019	0.0926
CAR	300	2.5263	40.1106	0.038	667.6887
GDP	300	0.0607	0.0155	0.0255	0.0812
INF	300	0.0541	0.0505	0.0631	0.2312

Source: Analysis by the authors

The average Z-score is 13.55 with a standard deviation of 6.70, ranging from a low of 1.57 to a high of 62.40. Some banks maintain a very large safety margin from the insolvency threshold, while others have much thinner buffers. This characteristic reflects the heterogeneity in capital, asset quality, and profitability across the Vietnamese banking system.

The composite WGI has an average of 294.00 and a range of 277.80 to 303.44, indicating that the quality of national governance in Vietnam has gradually improved during the study period. Among the specific components, political stability (PSA) has the highest average score (67.54 percentile), reflecting Vietnam's advantage in this area compared to many other developing economies. Rule of Law (ROL) and Government Efficiency (GE) are around the 50th percentile. Regulatory Quality (RQ) is approximately at the 49th percentile, suggesting that the legal framework and regulatory capacity still need further improvement. Control of Corruption (COC) is at the 40.66th percentile, despite significant improvements towards the end of the study period linked to the intensified anti-corruption campaign since 2016. Voice and Accountability (VOA) has the lowest score (37.25 percentile) and a narrow range, reflecting the specific characteristics of Vietnam's political system.

The Pearson correlation matrix for the model's variables shows that all correlation coefficients are less than 0.8, indicating no cross-correlation among the variables.

To determine the most appropriate specification for the data, the study conducted three sequential tests following standard procedures in panel data analysis. The first step, the F-test, assessed whether a bank-specific fixed effect exists, thereby determining whether FEM is necessary relative to Pooled OLS. The second step, the Breusch–Pagan Lagrange Multiplier (BP-LM) test, assessed whether the variance of the specific effect is non-zero, thereby determining whether REM is more appropriate than Pooled OLS. The third step, the Hausman test, directly compared FEM and REM to select the final model. If H_0 (i.e., the specific effect correlated with the explanatory variable) is rejected, FEM is preferred;

conversely, REM is more effective. The results of the three tests are presented in the tables below.

Table 2: Model selection test, with ZSCORE dependent variable

Test	Statistic	p-value	Results
F Test (OLS vs FEM)	F = 16,52	0,0000	Reject H_0 (FEM is more suitable than OLS)
BP-LM Test (OLS vs REM)	LM = 66,13	0,0000	Reject H_0 (REM is more suitable than OLS)
Hausman Test (FEM vs REM)	χ^2 =42,08	0,001	Reject H_0

Source: Analysis by the authors

The Hausman test was used to choose between FEM and REM; the test results for both equations support FEM as the more appropriate model, reflecting the fact that Vietnamese banking data contains unobservable differences between banks (such as ownership structure, mission, policy, and capitalization history) that are likely to correlate with the explanatory variables. Table 3 presents the results of estimating the relationship between explanatory variables and the Z-score using three methods: OLS, FEM, and REM.

Table 3: Results of OLS, FEM, and REM estimation with Z-score dependent variable

	OLS	FEM	REM
MMI	-0.222** (0.1191)	-0.3245*** (0.1069)	-0.3213** (0.1272)
GEPU	0.0260 (0.1108)	0.0270 (0.0920)	0.0253 (0.1695)
COC	0.1626** (0.0641)	0.1538*** (0.0503)	0.1597** (0.0656)
GE	-0.003568	-0.0868** (0.0405)	-0.0829** (0.0384)
PSA	-0.0511 (0.0836)	-0.0430 (0.0862)	-0.0471 (0.0769)
RQ	0,1056 (0,0836)	0.1324 (0.0909)	0.1190 (0.0848)
ROL	-0.0448 (0.0763)	–0.0704 (0.0827)	-0.0545 (0.0786)
VOA	-0.0183 (0.0815)	-0.0164 (0.0697)	-0.0200 (0.0997)
HHI	-0.0254 (0.1074)	-0.0166 (0.0913)	-0.0220 (0.1221)
CAR	0.3332*** (0.0842)	0.2126** (0.1057)	0.2886** (0.1141)
NIM	0.1732** (0.0827)	0.1819 (0.1189)	0.1801** (0.0744)
ROE	0.0765 (0.0947)	0.0676 (0.1019)	0.0679 (0.1104)
GDP	0.0474 (0.0970)	0.0439 (0.0952)	0.0446 (0.1020)
INF	-0.1314 (0.1350)	-0.0288 (0.0991)	-0.0907 (0.1194)
Number of observation	259	259	259
R^2	0.2924	0.2863	0.2836
Fixed effect	No	Yes	No
Hausman p-value	1		

*Note: *** p<0.01, ** p<0.05, * p<0.10.*
Source: Analysis by the authors

Among the six national governance components, the control of corruption (COC) shows a positive coefficient and is statistically significant at the 1% level in the FEM (β = 0.1538; $p < 0.01$). It is the only WGI component with consistent statistical significance across all three models (OLS: 0.1626, $p < 0.05$; REM: 0.1597, $p < 0.05$), indicating that improved control of corruption contributes significantly and sustainably to enhanced banking stability. The coefficient of 0.1538 implies that a one-standard-deviation improvement in control of corruption (after one year) increases the standardized Z-score by approximately 0.15 standard deviations- a clearly significant economic impact, albeit smaller than that of MII.

The impact observed after one year reflects the necessary institutional lag, as changes in corruption control, such as handling major corruption cases, increasing transparency in bidding and public asset management, and improving internal oversight mechanisms, require time to translate into substantive changes in lending behavior and credit quality. Economically, corruption distorts the credit allocation process in several ways, such as facilitating "backdoor" loans not based on objective risk assessments, reducing oversight effectiveness when bank or regulatory officials are bribed, and increasing moral hazard when borrowers believe they can avoid the consequences of breaching credit agreements through personal connections. As corruption control improves, these distortions lessen, credit assessment becomes more objective, market discipline improves, and systemic risk decreases.

Government efficiency (GE) had a negative coefficient and was significant at the 5% level in the FEM (β = -0.0868; $p < 0.05$), consistent across all three specifications (OLS: -0.0800, $p < 0.10$; REM: -0.0829, $p < 0.05$). The results contradicted the initial expectation that higher government efficiency would support banking stability.

The remaining WGI components, including political stability (PSA), regulatory quality (RQ), rule of law (ROL), and voice and accountability (VOA), were not statistically significant in the Z-score equation in any specification. However, the results also suggest that, in the specific context of Vietnam during the period 2006–2024, not all aspects of national governance directly and measurably impacted banking stability over the two-year timeframe. Only corruption control (the component most directly linked to institutional discipline, transparency, and the quality of credit allocation) showed a clear and lasting impact.

Regarding the control variables, the capital adequacy ratio (CAR) had a positive and significant coefficient at the 5% level in the FEM (β = 0.2126; $p < 0.05$), consistent across all three specifications (OLS: 0.3332, $p < 0.01$; REM: 0.2886, $p < 0.05$). This was the only statistically significant control variable in the Z-score equation using the FEM, confirming the crucial role of capital capacity in absorbing risk and maintaining stability. The coefficient of 0.2126 implies that banks with a standardized CAR one standard deviation higher have a Z-score approximately 0.21 standard deviation higher, reflecting a thicker capital buffer that provides better resilience against adverse shocks. This result aligns with Vietnam's direction of raising capital adequacy standards under Basel II through Circular 41/2016/TT-NHNN and is consistent with international empirical evidence on the

protective role of capital in bank stability (Yitayaw et al., 2023; Pham et al., 2021).

The macroeconomic instability variable (MII) has a negative estimated coefficient and is statistically significant at the 1% level in the FEM model ($\beta = -0.3245$; $p < 0.01$), strongly supporting the hypothesis H_1 that macroeconomic instability undermines bank stability. This is the most robust finding in the entire model: the negative coefficient appears consistently across all models with very stable magnitudes (OLS: -0.3222; FEM: -0.3245; REM: -0.3213) and strong statistical significance (at least 5% in REM, 1% in OLS and FEM). This consistency is particularly noteworthy because it shows that the negative impact of macroeconomic instability on bank stability does not depend on the estimation method or how the bank-specific effect is treated.

Net Interest Margin (NIM) showed positive coefficients in all three metrics, but was significant only in OLS ($\beta = 0.1732$; $p < 0.05$) and REM ($\beta = 0.1801$; $p < 0.05$), and not significant in FEM ($\beta = 0.1819$; $p > 0.10$). This difference suggests that the majority of NIM's impact on the Z-score may reflect differences between banks rather than fluctuations within the same bank over time. This means that banks with higher NIM tend to be more stable, but changes in NIM over time within a given bank do not significantly explain Z-score variability.

ROE, GDP, and INF were all not statistically significant in FEM, indicating that these control variables do not directly explain Z-score variability after controlling for fixed effects, macroeconomic instability, and national governance. The market concentration index (HHI) was also not significant, implying that the competitive market structure was not a direct determinant of bank stability in the study sample.

5. Conclusion

Regarding hypothesis H1 on the impact of national governance quality, the results provide evidence that some WGI components affect bank stability. Corruption Control (COC) emerges as the most consistently significant and reliable governance component. COC is the only statistically significant WGI variable across both equations and all model specifications, with a 1% significance level in the FEM for the Z-score.

The positive coefficient in the Z-score equation confirms that stronger corruption control enhances banks' true stability by improving credit allocation quality, reducing moral hazard, and strengthening market discipline.

The findings regarding the COC have profound policy implications in the context of Vietnam's aggressive anti-corruption campaign since 2016, with many major cases in the financial and banking sector brought to trial, sending a strong signal about institutional discipline. The estimation results show that these efforts are not only valuable for public governance but also have a positive, measurable impact on the stability of the financial system. The findings are also consistent with international evidence, including Athari et al. (2024), who studied a multinational sample with different income and risk levels, and Malik et al. (2022), who concluded that corruption control is the most influential governance component affecting financial stability in Asian countries. International experience from Singapore also shows that a transparent, efficient institutional environment with a high level of corruption control significantly reduces systemic risk in the financial sector, even under external shocks.

The remaining governance components are largely statistically insignificant, except for government efficiency (GE), which negatively affects the Z-score. Several explanations exist for this negative coefficient. Firstly, in the Vietnamese banking system, where the state plays a dominant regulatory role, improvements in government efficiency may be accompanied by stricter supervisory requirements, more stringent debt classification standards, and restructuring pressures. These factors, in the short to medium term, increase compliance costs, reduce profitability, and increase income volatility, thereby temporarily negatively impacting the Z-score. This is the "reform pain" effect, as observed in studies of bank restructuring in transitional economies. Secondly, high multicollinearity between GE and other WGI components (especially RQ, with $r = 0.73$, and ROL, with $r = 0.82$) can destabilize the estimated coefficients and reverse the expected signs. When highly correlated variables are included in the model simultaneously, the individual coefficients reflect marginal effects after controlling for the remaining variables, and may differ significantly from the overall effect. Thirdly, the effects may reflect non-linear relationships at low to medium levels of government efficiency (typical of Vietnam during the study period), with initial improvements focusing on increased oversight and stricter discipline, putting short-term pressure on stability, while positive effects only materialize when government efficiency exceeds a certain threshold. A similar phenomenon has been observed in China's experience, where the period of increased supervision from 2016 onwards under the initial MPA framework put pressure on some smaller banks but, in the long term, contributed to strengthening system stability. However, due to high multicollinearity between GE and other WGI components (VIF = 8.04), this coefficient should be interpreted cautiously.

In conclusion, the empirical results demonstrate that corruption control is the most robust governance determinant of bank stability in Vietnam, while government efficiency shows a short-term negative association likely reflecting transitional supervisory tightening. Capital adequacy and macroeconomic instability remain significant structural drivers of stability variation. These findings underscore the differentiated institutional transmission mechanisms influencing financial resilience and support targeted governance reforms to enhance systemic stability.

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