International Journal of Latest Research in Humanities and Social Science (IJLRHSS)
Volume 09 - Issue 09, 2026
www.ijlrhss.com || PP. 27-32

The Impact of Liquidity Risk and Uncertainty on the Financial Stability of Vietnamese Commercial Banks

Phd. Luong Xuan Minh, Tran Hoang Bao Thy, Tran Thi Ngoc Anh,
Tran Hoang Nhat Vy, Tran Hoang Vu, Nguyen Tien Phat
Ho Chi Minh City University of Banking

Abstract: This paper simultaneously analyzes the impact of liquidity risk and global economic uncertainty on the financial stability of Vietnamese commercial banks. Based on a panel dataset of 25 listed commercial banks from 2014–2024 (275 observations) and a one-step System GMM estimation to address endogeneity, the results indicate that liquidity risk (LDR) is positively correlated with financial stability (lnZ), while global uncertainty (WUI) has a negative impact. Return on assets (ROA) is the strongest and most sustainable driver of stability, while GDP growth is negative – reflecting procyclical behavior. The positive LDR ratio, contrary to popular belief, stems from the strict supervisory mechanism of the State Bank of Vietnam. In this mechanism, the LDR simultaneously reflects both lending capacity and operational quality. Based on that, the article proposes several recommendations for commercial banks, regulators, and investors.
Keywords: liquidity risk, economic uncertainty, financial stability, World Uncertainty Index, System GMM.

1. Introduction

For the banking system, liquidity is a vital factor, so liquidity risk frequently poses a threat to a nation's financial stability. With the global economy constantly fluctuating due to high inflation, political tensions, the prolonged COVID-19 pandemic, and the Russia-Ukraine conflict, the increasing uncertainty has placed a heavy burden on capital flows and the cost of funding for banks. As a highly open economy, Vietnam is vulnerable to external shocks and uncertainties .Exchange rates, trade activity, and capital. According to Bloom (2009) and Baker et al. (2016), increased uncertainty leads to a contraction in economic activity and an increase in capital costs. In fact, the period 2022–2024 – with interest rate shocks, pressure on the corporate bond market, and especially the withdrawal of funds at SCB in October 2022 – has shown that liquidity risk has not been well contained in a volatile environment.

However, most domestic studies approach liquidity risk and uncertainty separately , and to date, no research has simultaneously incorporated LDR and WUI into a single model with the Z-score as the dependent variable. Given this gap, this paper addresses the question of how global liquidity risk and uncertainty influence the financial stability of Vietnamese commercial banks. The objective is to measure the simultaneous impact of these two factors on a sample of 25 listed commercial banks during the period 2014–2024.

This research contributes in four aspects: It is the first to establish a combined analytical framework for the simultaneous use of LDR and WUI in the Vietnamese commercial banking system . The dataset is updated to 2024, encompassing a series of shocks including COVID-19, the Russia-Ukraine conflict, the Fed's interest rate tightening cycle, and the confidence crisis at SCB . Applying the conservative estimation path FE/RE–FGLS–System GMM, using the Durbin–Wu–Hausman (DWH) test as the basis for identifying endogenous variables , it shows that the relationship between LDR and stability is not negative as traditionally understood.

2. Theoretical Foundation and Overview

2.1. Concepts and Measurements

Liquidity is understood as the ability to fully and promptly fulfill financial obligations (Basel Committee, 2008). Liquidity risk arises when a bank is unable to make payments on time or is forced to pay at unusually high rates compared to the market (Tripe, 1999; Circular 27/VBHN-NHNN). The root of this risk is the discrepancy between the source of funding and the use of capital, reflecting the conflict between maintaining liquidity and pursuing profitability. Since the loan-to-deposit ratio (LDR) and the National Savings and Credit Rate (NSFR) are not used consistently throughout the study period, this paper chooses the loan-to-deposit ratio (LDR) as a representative indicator, a common, easily calculated metric that is capped by the State Bank of Vietnam according to Circular 22/2019/TT-NHNN.

Knight (1964) separated risk from uncertainty; building on this view, Baker et al. (2016) introduced the concept of economic policy uncertainty. To measure it, the study uses the World Uncertainty Index (WUI) developed by Ahir, Bloom, and Furceri (2022). This index covers 143 economies, including Vietnam, and is consistent and particularly suitable for deeply integrated countries. Uncertainty spreads to the banking sector

through five interconnected pathways: investment, capital mobilization, asset quality, confidence, and cross-border contagion effects.

Schinasi (2005) argues that a financial system is only considered stable when it simultaneously performs well in three areas: rational resource allocation, pricing, risk control, and shock resistance. The level of stability is quantified by the Z-score = (ROA + E/A)/σ(ROA), which combines profitability, the equity- to-total-assets ratio, and the volatility of returns . This paper uses the natural logarithm lnZ to limit the impact of extreme observations (Laeven & Levine, 2009).

2.2. Theoretical basis

The model and expectations regarding the signs of the variables are guided by six theoretical foundations: the financial intermediation theory (Diamond & Dybvig, 1983) which views liquidity risk as an inherent attribute associated with the maturity transformation function of banks; the risk transmission channel theory (Ghenimi et al., 2017) which shows that liquidity risk can transform into credit risk; the leverage and capital buffer theory (Berger & Bouwman, 2009) which emphasizes the shock-absorbing function of capital; the trade-off theory (Kraus & Litzenberger, 1973); the market power theory (Keeley, 1990; Boyd & De Nicoló, 2005) with its two-way relationship between competition, size, and stability; and the theory of efficient structure (Demsetz, 1973; Berger, 1995) – asserting that operational efficiency, expressed through ROA, is the sustainable source of stability.

2.3. Experimental Overview and Gap

In Vietnam, authors such as Vo Xuan Vinh (2018), Nguyen Minh Sang (2023), Pham Thuy Tu and Dao Le Kieu Oanh (2020), and Bui and Nguyen (2022) all found that liquidity risk significantly affects stability , but the direction of impact changes depending on the institutional context: when supervision is tight, a high LDR may be accompanied by a higher Z-score. On the uncertainty side, Phan et al. (2021) with an Asian bank sample and Tran et al. (2023) with a Vietnamese sample both affirmed the inverse impact; while Imbierowicz and Rauch (2014) showed that liquidity risk and credit risk interact with each other, increasing the probability of failure. From this, four gaps are identified: (i) there is no Vietnamese study that simultaneously combines LDR and WUI; (ii) multinational studies obscure Vietnam's unique characteristics (the dominant position of the Big4, the strict supervision of the State Bank of Vietnam, the SCB incident); (iii) lack of research covering the shock-filled period of 2020–2024; (iv) endogenous phenomena have not been adequately addressed.

3. Data and Methods

3.1. Research Model

Following the approach of Phan et al. (2021) and Imbierowicz & Rauch (2014), the study establishes the following dynamic table model:

$$lnZ_{it} = \beta_0 + \beta_1 LDR_{it} + \beta_2 WUI_t + \beta_3 SIZE_{it} + \beta_4 NPL_{it} + \beta_5 CAR_{it} + \beta_6 ROA_{it} + \beta_7 GDP_t + \varepsilon_{it}$$

In this model, lnZ is the dependent variable; the two main explanatory variables are LDR and WUI; the control group of variables includes size (SIZE = ln of total assets), capital adequacy ratio (CAR), non-performing loans (NPL), return on assets (ROA), and economic growth (GDP).

3.2. Research Hypothesis

H1: LDR (+); H2: WUI (−); H3: CAR (+); H4: ROA (+); H5: NPL (−); H6: GDP and SIZE (+/−). H1 is expected to have a positive sign because, under close monitoring, a certain LDR level...It reflects lending capacity rather than mere risk (Ghenimi et al., 2017; Pham Thuy Tu & Dao Le Kieu Oanh, 2020).

3.3. Data and Samples

The study sample includes 25 listed joint-stock commercial banks on HOSE, HNX, and UPCOM, with continuous and complete data for the period 2014–2024, forming a balance sheet with 275 bank-year observations. Bank-level data was collected from FiinPro-X and supplemented by audited consolidated financial statements; macroeconomic data was obtained from the General Statistics Office and the World Bank; and the WUI series was extracted from policyuncertainty.com and converted from quarterly to annual frequency.

3.4. Estimation Methods

The analysis process goes through seven steps: statistical description; consideration of the correlation matrix and variance inflation factor (VIF); using the F-test to choose between Pooled OLS and FEM; using the Hausman test to choose between FEM and REM; running the DWH endogeneity test; handling heteroskedasticity using FGLS; and finally one-step System GMM estimation (Arellano & Bover, 1995;

Blundell & Bond, 1998) with Hansen J, AR(1) and AR(2) tests. This sequence plays a key role: it is the discovery of DWH – that WUI, LDR and SIZE are endogenous variables – that is the reason to switch from static models to System GMM, because static estimates do not eliminate endogeneity and therefore give a coefficient of error.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1: Descriptive statistics of variables (N = 275)

Variable	TB	Std	Min	Max
lnZ	2.4435	0.9089	-0.033	5.8197
HUI	5.2526	0.3010	4.6818	5.7253
LDL	0.9247	0.1544	0.3633	1.4282
NPL	0.0192	0.0097	0.0000	0.0691
CAR	0.1263	0.0322	0.0839	0.2800
SIZE	14,281	0.5018	13,199	15,441
ROA	0.0151	0.0172	0.0000	0.2124
GDP	0.0611	0.0181	0.0255	0.0854

The average lnZ value is 2.44 with a standard deviation of 0.91 – a fairly wide range among banks, although overall the system maintained stability during the survey period. Notably, the lowest lnZ value is approximately 0, implying that some banks had approached insolvency in recent years, while the highest value of 5.82 shows a very large safety margin among the leading group – thus demonstrating a clear differentiation in stability. The average LDR of 0.92 shows real differences in how banks balance loans with deposits; the average WUI of 5.25 indicates that global uncertainty, while fluctuating, did not result in any overly negative year . The average CAR of 12.63% is higher than the 8% floor of Basel II; the average NPL of 1.92% with a narrow range indicates that credit quality is kept under control. ROA ranges from 0 to 0.21 with a few outliers corresponding to years of exceptionally high profits. Taking the logarithm Z-score and applying GMM helps to mitigate the impact of these extreme values; furthermore, the sample is fairly uniform in size (standard deviation SIZE is only 0.50).

4.2. Correlation and Multicollinearity Analysis

The correlation matrix shows that all pairwise correlation coefficients are below the absolute threshold of 0.8; two pairs are slightly higher, WUI–LDR (0.459) and SIZE–CAR (−0.473), but still not enough to create serious multicollinearity. The VIF coefficients of all variables are below 10, thus confirming that the model is not multicollinear; therefore, explanatory variables can be included together without distorting coefficient estimates.

4.3. Model Selection and Endogenous Testing

The F-test definitively rejected Pooled OLS ($p = 0.000$), indicating the existence of bank-specific effects. The Hausman test did not reject H_0 ($p \approx 1$), leaning towards REM. However, the DWH found three endogenous variables, WUI, LDR, and SIZE, at the 5% level. Although FGLS addresses heteroskedasticity, it causes many coefficients (LDR, ROA, NPL, SIZE) to reverse sign compared to expectations and compared to GMM, because it does not handle endogeneity. Therefore, the one-step System GMM is chosen as the main model because it simultaneously eliminates endogeneity and heteroskedasticity and captures the dynamics of financial stability.

Selection Choosing a model cannot be based solely on tests for static models (F, Hausman); it requires incorporating endogeneity tests. If we stop at REM, the study will likely draw incorrect conclusions regarding both the sign and magnitude of the most crucial variables, especially LDR, ROA, and CAR , as their coefficients change significantly when moving to the GMM framework. This is also why previous studies that haven't fully addressed endogeneity may have reached conflicting conclusions about the role of liquidity risk.

4.4. System GMM Estimation Results

The GMM model is consistent across all test criteria: Hansen J statistic ($p = 0.3296$) confirms the validity of the instrument set and that it is not endogenous, AR(1) rejects H_0 ($p = 0.0421$) as expected for the difference estimate, and AR(2) does not reject H_0 ($p = 0.7712$) indicating the absence of second-order autocorrelation. The number of instruments is 19, smaller than the number of individuals 25, and the model adheres to Roodman's (2009) restriction principle of avoiding "instrument proliferation" in GMM . The paper uses one-step estimation

with robust standard errors to infer that it remains reliable even with heteroskedasticity. The lagged coefficient L1.lnZ = +0.910 ($p < 0.001$) reflects that banks with strong foundations tend to maintain stability over many years, while weak banks need a long time to recover. This both justifies the use of dynamic table models and suggests important monitoring implications.

4.5. Discuss the results

Liquidity risk (LDR, +2,460**) supports H1. In the context of Vietnam 2014–2024, under the LDR ceiling stipulated in Circular 22/2019, banks maintaining high LDRs are generally well-performing banks that have exceeded safety thresholds and possess stable interest income sources, thereby reducing the volatility of profit σ(ROA) in the denominator of the Z-score and increasing stability. Banks maintaining high LDRs in Vietnam are usually those with good operational capacity and the ability to efficiently utilize mobilized capital, thereby creating a stable interest income stream – a factor that directly raises the numerator of the Z-score. The results are consistent with the efficient structure theory (Demsetz, 1973; Berger, 1995) and Ghenimi et al. (2017); However, it implies a positive relationship dependent on the presence of a regulating ceiling and can reverse if the monitoring framework is loosened.

Global uncertainty (WUI, −0.480*) supports H2. For every unit increase in WUI, lnZ decreases by approximately 0.48 – a significantly economic impact when scaled to the Z-score. The contagion mechanism operates through five channels, with the international and exchange rate channels being particularly prominent in an open economy like Vietnam: global uncertainty causes capital flows to reverse, putting pressure on exchange rates and increasing funding costs. The WUI series has recorded the US-China trade war (2018–2019), COVID-19 (2020–2021), the Russia–Ukraine conflict (2022), and the Fed's interest rate hike cycle (2022–2023). This finding is consistent with Phan et al. (2021) and Tran et al. (2023), and shows that external uncertainty is a systemic risk that individual banks find difficult to mitigate.

Profitability (ROA, +6,845**) This result is consistent and strongly supports hypothesis H3 regarding the positive role of profitability in bank financial stability . A high ROA directly increases the numerator of the Z-score and indirectly keeps profits from fluctuating too much over time. In the FGLS model, the ROA coefficient is inverted (−5.933**) – further evidence of the serious bias when ignoring endogeneity, thus further highlighting the value of the GMM approach.

Non-performing loans (NPL, +6.022*). This result supports hypothesis H5, suggesting that in the specific context of Vietnam during the 2014-2024 period, high NPL is associated with higher financial stability. This finding can be explained by the aggressive handling of non-performing loans through VAMC and Resolution 42/2017/QH14. Capital adequacy ratio (CAR, −0.861*) is the opposite of H3 and reverses sign compared to FE/RE (capital has a positive sign). When GMM eliminates endogeneity, the net impact of CAR may change sign due to the dominant capital utilization effect. To clarify this issue, further studies could examine the non-linear relationship between CAR and Z-score.

The size (SIZE, −0.287, not statistically significant) is consistent with H6. An additional practical factor is the relatively narrow dispersion of SIZE in the sample: the logarithm of average total assets is 14.28, with a standard deviation of only 0.50 (ranging from 13.20 to 15.44). The size differences between banks in the sample are not large enough to create a clear impact on the Z-score in the dynamic model with endogenous controls. Furthermore, during the study period, the entire Vietnamese commercial banking system was subject to uniform supervision by the State Bank of Vietnam under Basel II and Circular 41/2016/TT-NHNN, limiting the economies of scale of large banks due to uniform legal constraints.

Table 3: Summary of hypothesis testing

Hypothesis	Expected	GMM results	Conclude
H1 (LDR)	+	+2,460**	Donate
H2 (WUI)	−	-0.480*	Donate
H3 (CAR)	+	-0.861*	Opposite sign
H4 (ROA)	+	+6,845**	Donate
H5 (NPL)	−	+6,022*	Opposite sign
H6a (GDP)	+/−	-2,731*	Consistency
H6b (SIZE)	+/−	-0.287	Consistency

Taken together, the results show that global uncertainty is a systemic risk factor that banks find difficult to mitigate, while operational efficiency is the most solid foundation of stability. Meanwhile , the roles of LDR

and CAR are highly dependent on the institutional context and need to be interpreted cautiously rather than mechanically applying traditional expectation indicators.

5. Conclusion and Implications

Based on panel data from 25 Vietnamese commercial banks from 2014–2024, the study draws two main conclusions: Global uncertainty drags down bank stability, while operational efficiency (ROA) boosts stability. The role of LDR is more complex than the classical understanding – under tight supervision, LDR becomes a dual indicator reflecting both lending capacity and governance quality – but this does not mean liquidity risk is no longer important; the supervisory framework must be maintained so that this positive relationship does not reverse when new shocks occur.

For commercial banks: establish an early warning mechanism pegged to a WUI threshold of approximately 5.55 (corresponding to one standard deviation above the average). When this threshold is exceeded, temporarily increase liquidity reserves, tighten lending standards for segments highly sensitive to external shocks (exports, international tourism, real estate), and consider derivative contracts to hedge against exchange rate risks, maintaining LDR at a level appropriate to management capacity.

For regulatory authorities: integrate uncertainty indicators into a prudent macroeconomic monitoring framework, continue to maintain and update the liquidity regulation framework (LCR, NSFR) according to international standards, flexibly apply counter-cyclical credit policies when credit growth outpaces GDP, and improve the legal framework for handling non-performing loans to ensure transparency in NPL reporting.

For investors and customers: exercise caution with bank stocks whenever global uncertainty increases; prioritize banks with high and stable ROA over many years, abundant CAR, and good governance; depositors should diversify their deposits to mitigate risk.

The study still has some limitations: the sample size of 275 observations is not large and does not include unlisted banks or banks with 100% foreign capital; it only goes one step into GMM due to constraints of the pydynpd library; liquidity risk is only measured by one indicator, LDR; and the main model does not integrate the interaction variable LDR×WUI to avoid instrument explosion. Further directions for expansion include: adding interaction and non-linear variables (LDR^2, WUI^2), analyzing by bank groups (Big4, large private commercial banks, small banks), combining LCR/NSFR with GEPU/VIX to test robustness, and designing the study around major shock events.

References

[1]. Ahir, H., Bloom, N. & Furceri, D. (2022). The World Uncertainty Index. NBER Working Paper No. 29763.
[2]. Arellano, M. & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. Journal of Econometrics, 68(1), 29–51.
[3]. Baker, S.R., Bloom, N. & Davis, S.J. (2016). Measuring economic policy uncertainty. The Quarterly Journal of Economics, 131(4), 1593–1636.
[4]. Basel Committee on Banking Supervision (2008). Principles for Sound Liquidity Risk Management and Supervision. BIS, Basel.
[5]. Berger, AN & Bouwman, CHS (2009). Bank liquidity creation. The Review of Financial Studies, 22(9), 3779–3837.
[6]. Bloom, N. (2009). The impact of uncertainty shocks. Econometrica, 77(3), 623–685.
[7]. Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics, 87(1), 115–143.
[8]. Borio, C. & Zhu, H. (2012). Capital regulation, risk-taking and monetary policy. Journal of Financial Stability, 8(4), 236–251.
[9]. Boyd, J. H. & De Nicoló, G. (2005). The theory of bank risk taking and competition revisited. The Journal of Finance, 60(3), 1329–1343.
[10]. Diamond, D.W. & Dybvig, P.H. (1983). Bank runs, deposit insurance, and liquidity. Journal of Political Economy, 91(3), 401–419.
[11]. Ghenimi, A., Chaibi, H. & Omri, MAB (2017). The effects of liquidity risk and credit risk on bank stability: evidence from the MENA region. Borsa Istanbul Review, 17(4), 238–248.
[12]. Imbierowicz, B. & Rauch, C. (2014). The relationship between liquidity risk and credit risk in banks. Journal of Banking and Finance, 40, 242–256.
[13]. Keeley, MC (1990). Deposit insurance, risk, and market power in banking. The American Economic Review, 80(5), 1183–1200.

[14]. Laeven, L. & Levine, R. (2009). Bank governance, regulation and risk taking. Journal of Financial Economics, 93(2), 259–275.
[15]. Nguyen Minh Sang (2023). The impact of liquidity risk on the financial stability of Vietnamese commercial banks. Banking Journal, (5), 25–34.
[16]. Pham Thuy Tu & Dao Le Kieu Oanh (2020). Liquidity risk and financial stability of Vietnamese commercial banks. Journal of Economic Development, 31(4), 67–82.
[17]. Phan, DHB, Iyke, BN, Sharma, SS & Affandi, Y. (2021). Economic policy uncertainty and bank stability. Pacific-Basin Finance Journal.
[18]. Roodman, D. (2009). A note on the theme of too many instruments. Oxford Bulletin of Economics and Statistics, 71(1), 135–158.
[19]. Schinasi, G.J. (2005). Preserving financial stability. IMF Economic Issues No. 36.
[20]. Tran, TTT et al. (2023). Does economic policy uncertainty affect bank risk-taking behavior in an emerging economy? Evidence from Vietnam. Cogent Economics & Finance.
[21]. Vo Xuan Vinh (2018). Liquidity risk and bank stability: empirical evidence in Vietnam. Journal of Economics and Development, (254), 42–52.