An Analysis of the Determinants of Bank Stability in the Banking Industry of Nepal

Krishna Prasad Gwachha
Khwopa College, Tribhuvan University
kpgwachha@khwopacollege.edu.np

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ABSTRACT

Bank stability refers to the ability of a financial institution to maintain consistent and secure operations, even in the face of economic challenges or shocks. This research study examines the determinants of bank stability in the Nepalese banking industry. The study analyzed data from commercial banks over a wide time range from 2001 to 2023, utilizing the autoregressive distributed lag (ARDL) model technique. The study found that bank size, funding risk, liquidity risk, and GDP growth have a positive and significant impact on bank stability in Nepal. The study also found that credit risk has a negative impact on bank stability. This implies that higher levels of credit risk increase the likelihood of bank instability in Nepal. Banks must give utmost priority to effectively managing and controlling bank size, funding risk, liquidity risk, and fostering GDP growth in order to bolster bank stability and fortify the country's financial system. However, the study also found that credit risk has a negative impact on bank stability. This implies that higher levels of credit risk increase the likelihood of bank instability in Nepal. The implications of the research study for policymakers, regulators, and banks, emphasize the need for effective risk management practices, adequate capitalization, diversified funding sources, and a supportive economic environment to ensure a stable banking sector. The implications of this finding hold great importance for policymakers, as they highlight the crucial role of preserving current bank stability in order to attain even greater stability in the future.

Keywords: Determinants, Bank stability, Commercial banks, Z-score, ARDL model.

1. Introduction

Bank stability is a fundamental aspect of the financial system, ensuring the safekeeping of depositors' funds, promoting economic growth, and maintaining financial stability. The stability of banks plays a crucial role in the overall health and functioning of the financial system of developing countries (Bektas et al., 2022; Pham et al., 2021). Financial institutions need to maintain a stable operational environment in order to safeguard depositors' funds, promote economic growth, and ensure financial stability (Ozili, 2019; Chand et al., 2021). Understanding the internal determinants that contribute to bank stability is therefore of paramount importance. This research aims to provide valuable insights into the internal factors that influence bank stability in the context of the banking sector in Nepal.

The stability of banks is a critical aspect of a country's financial system and plays a pivotal role in promoting economic growth and development (Udhe & Heimeshoff, 2009; Ngaira & Miroga, 2018; Jabra, 2020). A stable banking industry ensures the efficient allocation of financial resources, facilitates savings and investments, and fosters trust and confidence among depositors and investors (Gwachha, 2022; Yensu et al., 2021). The Nepalese banking industry, like many developing countries, has experienced significant transformations over the years (Gwachha, 2022). The sector has undergone liberalization and deregulation, leading to increased competition, financial innovation, and integration with global financial markets (Yensu et al., 2021; Chand et al., 2021). These changes have exposed Nepalese banks to various challenges, making it crucial to assess the factors influencing their stability.

While extensive research has been conducted on bank stability worldwide, it is important to recognize that the determinants of stability can vary across different economic and institutional contexts (Setiawan et al., 2021; Koskei, 2020; Jan & Rongrong, 2019). The majority of research investigating the factors influencing the stability of banks has centered around developed nations. In these contexts, banks tend to hold greater amounts of capital, liquidity, and institutional backing. However, the unique characteristics and challenges faced by banks in developing countries necessitate a closer examination of the factors specific to these contexts (Chai et al., 2022; Ozili, 2019; Adusei, 2015).

This research seeks to fill this gap in the existing literature by exploring the factors that contribute to bank stability within the Nepalese banking industry. The study utilizes a comprehensive dataset spanning the period from 2001 to 2023, covering a significant period of economic and regulatory changes in Nepal. By focusing on a developing country context, the research aims to provide insights that can contribute to a better understanding of bank stability dynamics in similar economies. The research examines a range of factors that have been identified in the literature as potential determinants of bank stability. The factors that pertain to individual banks consist of various elements, including bank size, funding risk, credit risk, and liquidity risk. These factors

have been derived from empirical studies and stability theory, as indicated by Adusei (2015), Bermpei et al. (2018), Gwachha (2019), and Yensu et al. (2021). In addition to these, there are external factors that encompass variables such as the GDP growth rate, inflation rate, and NEPSE index, which have also been studied empirically (Udhe and Heimeshoff, 2009; Ngaira and Miroga,2018; and Ozili, 2019).

The research findings have important implications for various stakeholders in the Nepalese banking industry. Policymakers can benefit from understanding the factors that contribute to bank stability to design effective policies and regulations that promote a robust financial system. Regulators can use the insights to monitor and assess the stability of individual banks and the industry as a whole. Bank managers can gain valuable insights into the specific factors affecting their institutions' stability and use this knowledge to enhance risk management practices. Additionally, the study contributes to the existing body of literature on bank stability by providing empirical evidence from a developing country perspective. This research has the potential to improve our comprehension of both the common and unique factors that influence the stability of banks. Additionally, it can provide insights into the extent to which findings from advanced economies can be applied to developing economies.

The paper is organized as follows: Section 2 offers a comprehensive literature review, Section 3 outlines the methodology, Section 4 presents the results and discussions, and Section 5 concludes the paper and offers recommendations.

2. Literature Review

The ultimate goal of the stability theory of commercial banks is to develop insights and strategies that promote the overall resilience and sustainability of these financial institutions within the larger economic context (Donaldson and Davis, 1991). The agency theory of the firm, proposed by Ali and Puah (2018), offers insights into the relationship between size and stability by suggesting that managers in larger firms may prioritize personal benefits or excessive compensation. The study concludes that there is a negative correlation between bank stability and bank size based on this theory. Another perspective, the stability theory, as explained by Donaldson and Davis (1991) provides an additional explanation for the size-stability relationship. According to this theory, managers in a firm act responsibly and are seen as trustworthy employees who prioritize the proper utilization of the firm's resources. Stability theory (Donaldson and Davis, 1991) emphasizes that corporate managers carry out their duties without expecting additional rewards.

The relationship between bank funding risk and stability has attracted significant attention from researchers (Adusei, 2015; Chai et al., 2022). Bermpei et al. (2018) propose that bank wholesale funding reduces risk by efficiently utilizing bank resources and diversifying capital. Hakimi, Boussaada, and Karmani (2022) argue that although wholesale funding prices may be less stable, they provide timely indications of a bank's risk level due to the ability to adjust prices promptly. On the other hand,

Jabra (2020) contends that customer deposits are more stable, despite the slower process of repricing them. Diaconu and Oanea (2015) suggest that bank instability is primarily associated with a higher proportion of non-deposit funding. Furthermore, Adusei (2015) finds a positive correlation between bank stability and funding risk. Consequently, this study aims to examine the relationship between bank funding risk and bank stability.

Yensu et al. (2021) investigated the factors influencing commercial bank stability in Ghana, which covered the years 2008 to 2017. This study found that while inflation and GDP growth have a noticeable positive influence, credit risk has a negative impact on bank stability. Similarly, Ozili (2019) investigated the variables influencing the stability of the banking sector in Nigeria and discovered that bank efficiency, bank concentration, credit availability, and bank profitability strongly support bank stability. On the other hand, it was shown that both GDP growth and inflation had a considerable detrimental effect. Furthermore, according to Pham et al. (2021), bank stability in one year is favorably influenced by stability in the year before.

In the study on bank stability in Indonesia, Kasri and Azzahra (2020) utilized extensive data from 94 institutions spanning from 2015 to 2019. The study findings indicate that interest rates have a negative effect on bank stability, while variables such as currency rates, financial inclusion, return on assets, and credit/financing growth had a positive impact. Ngaira and Miroga (2018) conducted primary data collection to investigate the factors contributing to financial stability in Kenyan commercial banks as of June 2016. The study discovered that interest rates, bank size, and liquidity significantly and positively influenced the financial stability of commercial banks. Similarly, lower liquidity ratios were found to have a favorable impact on financial stability according to Fu et al. (2014), Wagner (2007), and Phan et al. (2019).

Additionally, Phan et al. (2019) and Ahamed (2017) discovered a positive association between efficiency and financial stability. They found that efficient banks have better control over credit risk, leading to a lower proportion of non-performing loans and increased stability. However, Setiawan et al. (2021) did identify a connection between efficiency and financial fragility. Furthermore, in a competitive market, Wang and Luo (2022) found that lower lending rates reduced borrowing costs and improved entrepreneurial performance, ultimately enhancing bank stability by minimizing exposure to credit risk.

Several research studies findings indicate that external variables play a role in the stability of the banking industry. The studies conducted by Jan and Rongrong (2019), Ngaira and Miroga (2018), Yensu et al. (2021), and Athanasoglou et al. (2008) all establish a relationship between GDP growth and bank stability. However, Ali and Puah (2018) find that GDP has a detrimental effect on bank stability. Lower inflation rates, as suggested by Ali et al. (2020), Setiawan et al. (2021), and Hakimi et al. (2022), are beneficial for bank stability as they result in fewer credit losses and more moderate credit growth. Furthermore, increased market capitalization is associated with higher

financial stability by Adusei (2015) and Yensu et al. (1997). Previous research has largely relied on information from significant and developed financial industries, without considering the Nepalese environment, to provide empirical evidence on the various factors affecting bank stability. Moreover, no study combining the characteristics examined in this study has been conducted. Therefore, this study aims to fill this gap and contribute to the existing body of empirical data.

3. Materials and Methods

3.1. Data

The research primarily relies on secondary data. Information regarding bank-specific and external variables has been collected from publications of Nepal Rastra Bank, such as the quarterly economic bulletin and the database on the Nepalese economy available at www.nrb.org.np/publication. The study employs panel data encompassing all commercial banks in Nepal, spanning 22 years from 2001 to 2022, with a total of 176 observations. Existing literature, drawing from both theoretical and empirical perspectives, has identified various factors that influence the stability of commercial banks in Nepal.

3.2. Dependent variables

Within this study, bank stability serves as the dependent variable. Beck (2008) defined bank stability as the ability of banks to effectively and normally carry out their intermediary functions, which include collecting and channeling public funds and providing financial services. The measurement of bank stability employs the Z-score, a method influenced by empirical studies as found in the existing literature, (Pham et al., 2021; Ozili, 2019; Ali & Puah, 2018; Ahamed and Mallick, 2017). Boyd et al. (2005) explained that banks with a negative Z-score are considered bankrupt, while those with a Z-score near zero are deemed unstable. Conversely, if a bank has a Z-score significantly higher than zero, it is regarded as having good stability. Thus, a Z-score that is much higher than zero indicates a higher level of stability, and conversely, a lower Z-score suggests a lower level of stability.

$$\mathrm{Z-score} = \frac{\mathrm{ROA} + {}^{\mathrm{TE}}/_{\mathrm{TA}}}{\sigma(\mathrm{ROA})} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. (1)$$

Where ROA is the return on assets, which represents profitability. TE and TA are total equity and total assets respectively, which represent the level of capitalization of the bank. σ(ROA) is the standard deviation of return on assets. A higher Z-score number indicates greater bank stability and less bankruptcy risk.

3.3. Independent variables

Based on the reviewed stability theory and literature, this study identifies cer-

tain variables that play a role in determining the stability of commercial banks in Nepal. These variables encompass both internal and macroeconomic factors. The variable of bank funding risk, computed using Z-scores, is considered significant in the banking literature, as highlighted by Adusei (2015), Koskei (2020), Yensu et al. (2021), and Ozili (2019), among others. Previous studies (Pham et al., 2021; Yensu et al., 2021; Koskei, 2020; Ozili, 2019) have reported these variables as significant determinants of bank stability, employing various combinations. Table 1 provides a summary of the selected variables, their measurement, and the expected sign of their impact on commercial bank stability in this study.

Table 1: Summaries of explanatory variables and their expected sign

Variables	Notation	Proxies/Description	Expected Sign
Bank Stability	BSTAB	Z-score = (ROA+TE/TA)/σ(ROA)	
Bank Size	BSIZE	Nature log of Total asset	±
Funding Risk	FRISK	Z-score = ([TD+TE]/TA)/(σ[TD/TA])	±
Credit Risk	CRISK	(Total Credit & Loans)/(Total Deposit)	±
Liquidity Risk	NIM	(Total Liquid asset)/(Total Deposit)	+
GDP growth rate	GDP	$[(GDP_{t+1} - GDP)_t/(GDP_t)]$	±
Inflation	INF	Consumer Price Index (CPI)	-
NEPSE Index	NEPSE	Annual Points (July 1st each year)	+

Source: From the bank stability theory and the literature review

3.4. Empirical model

Drawing upon previous empirical research, this study constructs panel data models to investigate how internal and external variables influence the stability of commercial banks. The following econometric model has been developed for this purpose:

$$BSTAB\ (Z - score_{it}) = \alpha_0 + \sum_{i=0}^{q} \delta_1 \Delta Z - score_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta BSIZE_{t-i} + \sum_{i=0}^{q} \delta_3 \Delta FRISK_{t-i} + \sum_{i=0}^{q} \delta_4 \Delta CRISK_{t-i} + \sum_{i=0}^{q} \delta_5 \Delta LRISK_{t-i} + \sum_{i=0}^{q} \delta_6 \Delta GDP_{t-i} + \sum_{i=0}^{q} \delta_7 \Delta INF_{t-i} + \sum_{i=0}^{q} \delta_8 \Delta NEPSE_{t-i} + \delta_9 ECT_{vt} \dots\dots\dots (2)$$

4. Data Analysis and Interpretation

4.1. Descriptive statistics

The Z-score-based measurement of bank stability, as presented in Table 2, indicates an average value of 10.692. This suggests that, on average, banks in Nepal

displayed stability throughout the investigation, given that the value is significantly higher than zero (Boyd et al., 2005). The Z-score exhibits a wide standard deviation of 3.313, ranging from a minimum of 5.104 to a maximum of 15.109, indicating a considerable variation in bank stability ratings among the banks during the study. Moreover, the average bank size and financing risk, with standard deviations of 0.441 and 1.616 respectively, are 12.029 and 19.75. A total of 176 observations were collected for all research variables, and additional descriptive data can be found in Table 2 for the remaining variables.

Table 2: Descriptive Statistics for the variables, 2001 - 2022

	Z_ SCORE	BSIZE	FRISK	CRISK	LRISK	GDP_G	INF	NEPSE
Mean	10.692	12.029	19.759	80.394	15.810	11.616	6.702	902.104
Median	11.992	11.977	20.343	79.572	16.369	11.421	6.570	716.500
Maximum	15.109	12.775	21.406	95.960	20.108	21.162	11.090	2883.400
Minimum	5.104	11.433	16.124	70.573	7.688	0.772	2.690	204.860
Std. Dev.	3.313	0.441	1.616	6.770	3.281	4.956	2.620	691.721
Skewness	-0.413	0.237	-0.880	0.643	-0.954	0.019	-0.019	1.212
Kurtosis	2.861	2.729	2.678	2.724	3.217	3.051	2.727	4.101
Jarque-Bera	1.814	1.686	2.937	1.585	3.381	0.004	1.487	6.498
Probability	0.404	0.431	0.230	0.453	0.184	0.998	0.475	0.039

Source: Based on Authors' computations from EViews 12 output.

4.2. The stationarity tests

To determine the integration order of the variables, unit root testing was performed in this study. The PP and ADF tests were employed for this purpose. The results of these tests, conducted at both the level and first difference, are presented in Table 3. Based on the findings, all variables are stationary in the first difference at a significance level of 1% except the GDP growth rate. This indicates that each variable has an integration order of either I(0) or I(1).

Table 3: Panel unit root test

Variables	P-value level		P-value at first difference		Order of integration
	Augmented Dickey-Fuller	Philips-Person	Augmented Dickey-Fuller	Philips-Person	
BSTAB	0.9807	0.9807	0.0208*	0.0208*	I(1)
BSIZE	0.1779	0.0619	0.0127*	0.0010**	I(1)
FRISK	0.9899	0.9835	0.0009**	0.0002**	I(1)
CRISK	0.6289	0.6271	0.0000**	0.0000**	I(1)
LRSIK	0.8720	0.9337	0.0001**	0.0001**	I(1)
GDP(G)	0.0267*	0.0316*	0.0018**	0.0001**	I(0)
INF	0.1182	0.1396	0.0000**	0.0000**	I(1)
NEPSE	0.1055	0.1052	0.0002**	0.0002**	I(1)

Source: Based on Authors' computations from EViews 12 output.

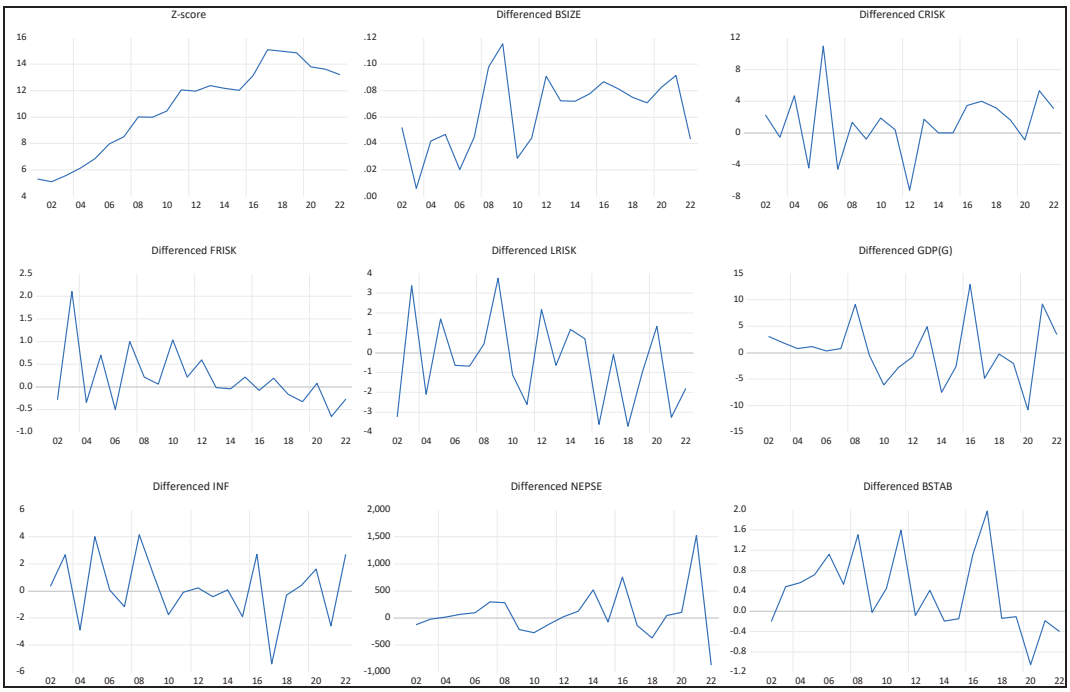


Fig.1: Panel unit root test of research variables at first difference

4.3. Lags selection and determinations

Table 5 demonstrates the utilization of AIC, HQ, and SBC to ascertain the ideal lag length. The study presented to identify the lag length that yields the lowest critical value for each criterion. Table 5 reveals that lag 1 exhibits the lowest AIC, HQ, and

BIC values for the independent variables. Therefore, the study validates whether the variables are co-integrated, and it is possible to employ bound tests for co-integration.

Table 4: Optimal lag length test

Lag length	Akaike Information Criteria (AIC)	Schwarz Bayesian Criterion (SBC)	Hannan-Quinn information criterion (HQ)
0	38.34145	38.73936	38.42780
1	30.42360*	34.00482*	31.20081*
2	32.87152	37.77054	32.90045

Source: Based on Authors' computations from EViews 12 output.

4.4. Bound testing for co-integration analysis

To ensure the stability of banks, it is important to consider relevant explanatory indicators. These indicators can be developed by conducting a dynamic causality test after establishing the co-integration relationship between the variables. The ARDL method is well-suited for examining causation between variables with integrated properties at I(0) and I(1). In this study, the analysis demonstrates a consistent link between the variables based on the co-integration test and an F-statistics value of 7.005. For small sample sizes ($n \leq 30$), this value exceeds the upper bound critical values provided by Uhde and Heimeshoff's table (2009) at significance levels of 10%, 5%, and 1%, which are 3.515, 3.148, and 5.691, respectively. Thus, the study's findings confirm the co-integration of the independent variables with bank stability. To investigate the causal direction between the research variables and bank stability, the study employed the ARDL model or the bound testing methodologies developed by Pesaran et al. (1999, 2001). These approaches enabled the study to determine how changes in the explanatory variables impact bank stability.

ARDL Long Run Form

In order to assess the lasting impacts of independent variables on bank stability, the study initially confirmed the co-integration of the variables and then computed the long-run coefficients using the ARDL model. Table 5 utilizes the ARDL technique to demonstrate the long-term relationship between internal and external factors and their influence on bank stability. The statistically significant coefficient of the lagged dependent variable indicates that the previous level of bank stability affects the current level of bank stability. An effective indicator for determining bank stability is the past value of bank stability, which positively influences the current state of bank stability. This finding aligns with study expectations, as it is widely recognized that banks strive to maintain higher levels of stability over time.

Table 5: Estimated Long- run coefficients by using the ARDL model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BSIZE(-1)	0.293188	0.116487	2.516919	0.0305
FRISK(-1)	0.252979	0.082966	3.049181	0.0138
CRISK(-1)	-0.545020	0.291222	-1.871491	0.0908
LRISK(-1)	0.063060	0.028447	2.216754	0.0774
GDP(-1)	0.104686	0.044872	2.332991	0.0364
INF(-1)	-1.780609	1.875670	-0.949319	0.3648
NEPSE(-1)	0.142840	0.098312	1.452920	0.1769
C	5.743113	1.751864	3.278287	0.0060
Adjusted R-squared	0.652644	Durbin-Watson stat	1.995825	
F-Statistic	67.15071	Prob. (F-statistic)	0.00000	

Source: Based on the Authors' computations from EViews 12 output

Table 5 estimates the long-run coefficient of explanatory variables on bank profitability by using the ARDL model. BSIZE (bank size) has a positive and significant impact on bank stability. It implies that larger banks often benefit from economies of scale, which can lead to cost efficiencies and improved profitability. This increased profitability can contribute to overall stability as banks have more resources to weather potential financial challenges. This finding aligns with the research conducted by Adusei (2015), and Chai et al. (2022), and supports the propositions put forth by the steward theory, which suggests a positive relationship between bank size and stability. In contrast, Koskei (2020) and Alshubiri (2017) found evidence of a negative impact of bank size on stability. Additionally, FRISK (funding risk) has a positive and significant impact on bank stability. This implies that banks in Nepal effectively mobilize customer deposits to achieve higher levels of stability. These findings are supported by previous studies (Yensu et al., 2021; Koskei, 2020; Adusei, 2015). Bank authorities should pay close attention to implementing robust strategies to mitigate funding risks, such as diversifying funding sources and ensuring adequate liquidity buffers, so banks can enhance their stability and resilience.

Similarly, there is a positive and significant relationship between LRSIK (liquidity risk) and bank stability, which implies that adequate liquidity management is crucial for banks to meet their obligations and maintain their financial soundness. Therefore, bank authorities can implement robust liquidity risk management frameworks, including regular monitoring of liquidity positions, stress testing, and contingency planning. However, CRISK (credit risk) has a negative but insignificant impact on bank stability. Adusei (2015) argued that bank credit risk should have an adverse impact on bank stability due to subpar lending practices. Furthermore, the study reveals that GDP growth has a positive and significant impact on bank stability. It implies that a growing economy provides a favorable environment for banks to thrive.

This increased economic activity can contribute to the stability of banks by boosting their profitability, asset quality, and overall financial performance. These results are similar to previous studies conducted by Yensu et al. (2021), Wang, and Luo. (2022), and Ngaira and Miroga (2018). However, these findings contradict the results of Ozili (2019), Ali, and Puah (2018).

Additionally, the Durbin-Watson (D/W) value of 1.9958 indicates the absence of autocorrelation in the model. The adjusted R2 value of 0.6526 and the F-statistics value of 67.1507 (with a p-value of 0.0000) presented in Table 4 suggest that the model used in this study is highly appropriate, considering a significance level of 1%. Therefore, the study concludes that the overall bank stability model employed is the most suitable fit. Lastly, the dynamic causality analysis of the ARDL model demonstrates a significant relationship between bank stability and independent variables, including BSIZE, FRISK, CRISK, LRISK, and GDP growth. These findings indicate that these variables possess substantial explanatory power in comprehending the stability of banks in Nepal.

ARDL Error Correction Regression

The findings of the short-term causality analysis, as presented in Table 6, show that the error correction model (ECM) for time t-1 is -0.4384, which is statistically significant at a 1% level. This suggests that any deviation from long-run bank stability is corrected at a rate of 43.84% per year in the short term. The independent variables included in the analysis account for 49.79% of the previous year's deviation from long-run stability. The difference observed between short-term and long-term bank stability in Nepal can help explain the fragility of the financial system, which is attributed to the inefficiency of information flow within the financial system in the short term.

Furthermore, the study reveals that BSIZE (bank size), FRISK (funding risk), and LRISK (liquidity risk) have a significant negative impact on bank stability in the short term. However, CRISK (credit risk), GDP growth, and NEPSE (Nepal Stock Exchange) show insignificant effects on bank stability in the short term.

Table 6: Estimated short-run coefficients by using the ARDL Model

ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BSIZE)	9.700757	1.773575	5.469607	0.0028
D(FRISK)	1.425945	0.205440	6.940926	0.0010
D(CRISK)	-0.063060	0.028447	-1.216754	0.0774
D(LRISK)	0.403468	0.083893	4.809300	0.0048
D(GDP)	0.076839	0.041993	1.829801	0.0972
D(INF)	-0.046819	0.050056	-0.935336	0.3926
D(NEPSE)	0.000469	0.000243	1.927544	0.1118
ECM(-1)	-0.438476	0.069809	-6.281046	0.0015

Source: Based on the Authors' computations from EViews 12 output

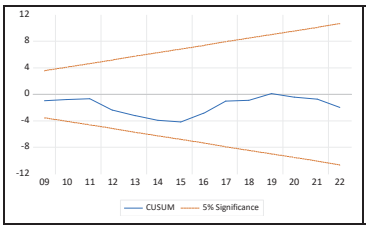
4.5. Diagnostic tests for the ARDL model

In this study, several diagnostic tests were utilized to assess the reliability of the estimated ARDL approach. The tests focused on examining serial correlation, heteroscedasticity, normality, and model stability. Specifically, the study employed the BG (Breusch-Godfrey) serial correlation LM test, BPG (Breusch-Pagan-Godfrey) heteroscedasticity test, Jarque-Bera normality test, and recursive CUSUM test. The outcomes of the heteroscedasticity and serial correlation tests can be found in Table 7, while Figures 2 and 3 display the results of the CUSUM test for model stability and normality, respectively. These tests were conducted to ensure that the ARDL model used in the study was statistically sound and dependable.

Table 7: Diagnostic tests for the ARDL approach

	F-version		BP Godfrey LM-version	
	Statistics	P-Value	Statistics	P-Value.
A: Serial Correlation	F (1,13) = 1.23949	0.6377	χ^2 (1) = 1.61039	0.4346
B: Heteroscedasticity	F (8,12) = 2.50357	0.1089	χ^2 (8) = 10.82749	0.1477
C: Normality	Jarque-Bera	0.552532	0.7586	

Source: Authors' computations from EViews 10 output



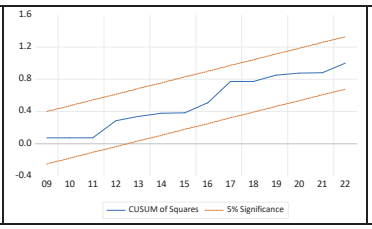


Fig. 2: CUSUM & CUSUM square stability test

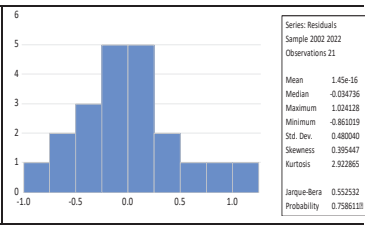


Fig. 3: Normality test

The results presented in Table 7 indicate that the ARDL approach used in the study is not affected by serial correlation and heteroscedasticity, as evidenced by the F-statistics and Chi-Square p-values being greater than 0.05. The normality of the residual terms was assessed using the Jarque-Bera statistics, and the result displayed in Table 7 and Figure 3 shows a JB test statistic of 0.55253 (with a p-value of 0.7586>0.05), indicating that the residual series obtained from the model follows a normal distribution. Based on these findings, it can be concluded that the ARDL approach employed in the analysis is statistically sound and reliable.

To validate the long-term stability of the model, the study utilized the CUSUM test and CUSUM square stability test. Figure 2 presents the results of these tests, illustrating the plots of the CUSUM and CUSUM of the square tests along with the critical boundary line at a 5% significance level. Both plots fall within the critical boundaries, as depicted in Figure 2. Therefore, the stability of the model has been confirmed

throughout the study period, allowing it to be utilized for assessing causality and long-term relationships.

5. Conclusion

This study analyzes the determinants of bank stability in the Nepalese banking industry using ARDL Model estimation. The study reveals that bank size (BSIZE) has a statistically significant and positive effect on bank stability. This implies that larger banks tend to exhibit higher levels of stability in the Nepalese banking industry. This finding suggests that economies of scale and increased market presence associated with larger banks may contribute to their enhanced stability. Similarly, the study also reveals that funding risk (FRISK) and liquidity risk (LRISK) have a statistically significant and positive impact on bank stability. This suggests that effectively mobilizing customer deposits and managing liquidity can contribute to greater stability in the banking sector. Banks should focus on implementing robust funding strategies and maintaining adequate liquidity levels to enhance their stability.

Similarly, the study reveals that the GDP growth rate has a statistically significant and positive effect on bank stability. This implies that a thriving economy with higher GDP growth can positively influence the stability of banks. Economic growth provides banks with opportunities for business expansion and improved profitability, contributing to their overall stability. However, the study identifies credit risk (CRISK) as a factor with a statistically significant and negative effect on bank stability. This implies that higher levels of credit risk pose a threat to the stability of banks in Nepal. It highlights the importance of effective risk management practices, stringent credit assessment procedures, and monitoring mechanisms to mitigate credit risk and maintain stability in the banking sector. Banks should focus on prudent lending policies, rigorous credit analysis, and adequate provisioning to minimize the adverse impact of credit risk on their stability.

The research result emphasizes the importance of prioritizing funding management, liquidity risk management, and prudent credit risk assessment for bank authorities to enhance stability. Policymakers, regulators, and bank authorities should take into account the impact of bank size, funding risk, liquidity risk, GDP growth, and credit risk on bank stability. Furthermore, promoting the growth of larger banks while ensuring effective risk management practices can contribute to enhancing stability. Additionally, policymakers and regulators should consider the implications of credit risk on stability when formulating policies and implementing regulatory frameworks in the banking sector.

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