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CAMEL Analysis of Commercial Banks In Nepal: An Assessment of Financial Soundness

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Abstract

This research paper seeks to perform a thorough assessment of the financial stability and efficacy of commercial banks in Nepal, utilizing the CAMELS analysis framework. The CAMEL framework, incorporating Capital adequacy, Asset quality, Management quality, Earnings capability, and Liquidity position, acts as a structured method for assessing the comprehensive health and resilience of financial institutions. By employing this framework to the commercial banks in Nepal, this study offers crucial insights into the merits and demerits of the country's banking sector. In this investigation, a quantitative, descriptive, and analytical research design is employed to execute the CAMEL analysis of commercial banks in Nepal. The study relies on secondary data, sourced from published financial reports, annual statements, and regulatory submissions of commercial banks in Nepal. A purposive sampling technique is utilized to choose a representative sample of commercial banks in Nepal. CAMEL analysis of commercial banks in Nepal yielded a favorable evaluation of financial stability. The majority of banks showcased commendable performance in various components of the framework, reflecting a predominantly robust and stable banking sector. Nonetheless, certain areas, particularly for smaller banks, necessitate vigilant observation and specific regulatory actions. The outcomes of this study can aid policymakers, regulators, and industry professionals in making enlightened decisions, addressing potential risks, and enhancing the overall financial robustness of the banking sector in Nepal.

Keywords: Asset Quality; CAMEL Analysis; Capital Adequacy;, Commercial Banks; Earnings Capability;, Financial Soundness; Liquidity; Management Quality

1 Introduction

1.1 Background of the study

In Nepal's national economy, the banking sector plays a pivotal role, facilitating financial intermediation, mobilizing savings, and providing credit across diverse sectors. Commercial banks are the principal entities in this sector, tasked with maintaining financial stability, fostering economic development, and aligning with the developmental objectives of Nepal. Given the crucial role of the commercial banking sector, a meticulous evaluation of the health, stability, and efficacy of these banks is crucial. The CAMEL framework is one of the most esteemed methodologies for analyzing and assessing the financial soundness of banks [1]. It is an acronym representing Capital Adequacy, Asset Quality, Management Quality, Earnings, and Liquidity. This model offers a holistic appraisal of a bank's financial stability,

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enabling regulators, policymakers, and stakeholders to discern the strengths and vulnerabilities of commercial banks and pinpoint areas necessitating enhancement [2–4].

By systematically scrutinizing various performance metrics, the CAMEL analysis facilitates a deeper understanding of the stability of individual banks and the banking system at large, providing invaluable insights for decision-making, policy development, and effective oversight. The CAMEL model is deemed invaluable for performance evaluation of banks in India, sometimes serving as a predictive model for bank failures [5, 6]. It is crucial for both the banking sector and regulators. The CAMEL rating approach is recognized as a potent tool for identifying a bank's financial strengths and areas needing improvement, aiding in the formulation of corrective measures to ameliorate weaknesses and enhance overall bank performance [7].

Nepal's banking sector has undergone substantial evolution and expansion in recent times, marked by the inception of new banks, advancements in banking technology, and a heightened emphasis on financial inclusion [8]. However, this expansion also poses challenges, including the imperative to uphold capital adequacy and preserve asset quality. While there have been prior studies on the banking sector in Nepal [9–13], there is a scarcity of comprehensive CAMEL analyses specifically targeting commercial banks in the country. This study endeavors to fill this void by conducting an exhaustive evaluation of the CAMEL components in commercial banks, aiming to furnish a comprehensive understanding of the strengths and weaknesses inherent in these banks, and to identify areas ripe for improvement. By exploring the capital adequacy, asset quality, management quality, earnings, and liquidity of commercial banks in Nepal, this research aspires to provide valuable insights to regulators, policymakers, investors, and researchers, aiding in the formulation of informed decisions pertaining to regulatory actions, risk management strategies, and strategic planning in the banking sector of Nepal. The ultimate objective is to foster a robust and resilient banking sector capable of effectively supporting the economic development and financial stability of Nepal.

1.2 Focus of the study

This study is anchored in the CAMEL framework, encompassing five pivotal components: Capital Adequacy, Asset Quality, Management Quality, Earnings, and Liquidity. The central aim of this research is to appraise the financial soundness of commercial banks in Nepal by scrutinizing these five components. The endeavor is to augment understanding of the inherent strengths and vulnerabilities of commercial banks in Nepal, offering invaluable insights to stakeholders and bolstering the overall stability, efficacy, and performance of the country's banking sector.

1.3 Problem statement

The banking sector in Nepal serves as a pivotal element of the country's economy, and the stability and performance of commercial banks are instrumental in ensuring financial stability and supporting economic development [14]. However, a paucity of exhaustive research exists that specifically analyzes the commercial banks in Nepal using the CAMEL framework. This research paper seeks to bridge this gap by conducting a CAMEL analysis of commercial banks in Nepal. Through the evaluation of the capital adequacy, asset quality, management quality, earnings, and liquidity of these banks, this study endeavors to discern the strengths and weaknesses, potential areas for improvement, and facilitate enlightened decision-making and policy formulation in the Nepalese banking sector. To fulfill the study's objectives, the following research questions will be addressed:

- What is the capital adequacy of selected commercial banks in Nepal, and how does it meet regulatory requirements?
- What is the asset quality of selected commercial banks in Nepal, and what is the level of non-performing loans (NPLs)?
- How is the management quality of selected commercial banks in Nepal?
- What are the earnings and profitability levels of selected commercial banks in Nepal?
- What is the liquidity position of selected commercial banks in Nepal?

1.4 Objectives of the study

This research paper primarily aims to conduct a CAMEL analysis of commercial banks in Nepal. The study seeks to offer a comprehensive assessment of the banks' financial performance and regulatory compliance. Specifically, this study aims to:

- To evaluate the capital adequacy of selected commercial banks in Nepal.
- To examine the asset quality of selected commercial banks in Nepal.
- To assess the management quality of selected commercial banks in Nepal.

- To analyze the earnings of selected commercial banks in Nepal.
- To evaluate the liquidity position of selected commercial banks in Nepal.
- And to present recommendations and implications for policymakers, regulators, and stakeholders.

1.5 Significance of the study

This study, through the execution of a CAMEL analysis on commercial banks in Nepal, aspires to furnish a thorough evaluation of their financial well-being and adherence to regulatory standards. The importance of performing a CAMEL analysis on these banks is underscored by its prospective contributions to a broad spectrum of stakeholders, including policymakers, regulators, investors, researchers, and the entire banking sector, ultimately bolstering the economic progression and financial solidity of Nepal. The insights derived from the CAMEL analysis are invaluable for policymakers and regulators, aiding them in the formulation of pertinent policies and regulations to augment the stability and efficacy of commercial banks. It serves as a cornerstone in establishing regulatory prerequisites and capital adequacy norms, allowing the identification of the strengths and vulnerabilities of commercial banks in Nepal. By scrutinizing elements like asset quality, liquidity, and management efficacy, the analysis acts as a compass for banks in fortifying the overall equilibrium of the banking sector. Investors, in their pursuit of sound investment avenues, lean on meticulous evaluations of banks' financial robustness. The CAMEL analysis offers a holistic appraisal of pivotal performance metrics, empowering investors to make enlightened decisions and reinforcing trust in the banking sector. A profound comprehension of the vitality and performance of commercial banks is pivotal for maintaining the overall harmony of the banking sector. This study can spotlight areas of potential fragility in banks and propose strategies to enhance their robustness, thereby mitigating financial instability risks. It aids commercial banks in discerning their strengths and areas needing improvement, facilitating the creation of effective strategic blueprints. Based on the revelations of the CAMEL analysis, banks can concentrate on refining aspects that necessitate enhancement, optimizing their profitability and operational efficiency. This research paper enriches the existing reservoir of knowledge regarding the banking sector in Nepal, especially in the context of the application of the CAMEL framework. It stands as a significant reference for researchers, academicians, and scholars who wish to delve deeper into the intricacies of the banking landscape in Nepal.

Literature Review

The assessment of the financial soundness of commercial banks has become crucial, especially after the global financial crisis of 2008 [15]. Research by Demirguc-Kunt and Huizinga [16], This study adopts a quantitative, descriptive, and analytical research design for executing the CAMEL analysis of commercial banks in Nepal. Research on the application of the CAMELS framework in emerging economies is extensive. A study by Farhana Afroj [17] on banks of Bangladesh concluded that the CAMELS approach adeptly identified risks and vulnerabilities, aiding policymakers in devising suitable regulatory strategies. Ahsan [18] evaluated the financial performance of selected Islamic banks in Bangladesh using the CAMEL rating analysis approach, concluding that these banks were robust in every aspect of their composite rating systems. Sah et al [19] explored the financial soundness of commercial banks in Nepal using the CAMEL analysis framework, focusing on key indicators related to Capital Adequacy, Asset Quality, Management Quality, Earnings Quality, and Liquidity. Their findings underscored the importance of CAMEL analysis in pinpointing strengths and weaknesses in the banking sector, thus fostering financial stability. Similarly, Keshar Baral [20] emphasized the significance of capital adequacy and asset quality in maintaining banking sector stability through their research using the CAMELS framework. The implementation of CAMELS analysis has profoundly influenced regulatory policies in Nepal's banking sector.Samuel Nkosinathi Dlamini [21] examined the repercussions of applying the CAMELS framework, noting its role in modifying regulatory measures, identifying frail banks, and enforcing corrective actions. Jha & Hui [12] studied the correlation between CAMEL variables and the profitability of commercial banks in Nepal, revealing that Capital Adequacy, Asset Quality, and Management Quality significantly influence bank profitability. Thapa et al. [22] performed a comparative analysis of CAMEL parameters across different commercial banks in Nepal, identifying variations in performance and suggesting areas for enhancement to bolster the overall financial soundness of the banking sector. Acharya et al. [23] explored the nexus between regulatory compliance and financial soundness, emphasizing the importance of adherence to regulatory guidelines for maintaining financial stability in Nepalese banks. The literature suggests that CAMEL analysis is instrumental for evaluating the financial soundness and stability of commercial banks globally and in emerging economies. In Nepal, where the banking sector is integral to economic development, employing the CAMEL framework is vital for risk identification, regulatory measure formulation, and maintenance of the banking system's overall health. However, there exists a research gap in understanding the comprehensive health, performance, and risk profile of commercial banks in Nepal, necessitating further exploration in this domain.

2 Methodology

2.1 Research design

This study employs a quantitative, descriptive and analytical research design to execute the CAMEL analysis of commercial banks in Nepal. The methodology encompasses the gathering and examination of numerical data derived from diverse sources, such as financial statements and regulatory reports of the banks, and facilitates a systematic and objective appraisal of the financial soundness of commercial banks, utilizing established criteria within the CAMEL framework.

2.2 Types of data

This research relies on secondary data, gathered from published financial reports, annual statements and regulatory filings of commercial banks in Nepal. These documents supply data on crucial financial indicators including capital adequacy, asset quality, earnings, and liquidity. Annual reports spanning five years from selected banks have been utilized, covering the fiscal years of 2017/18 to 2021/22.

2.3 Population and sample

Commercial banks, classified as Class "A" banks by the Nepal Rastra Bank, number 20 as of 24 February 2023. These banks constitute the population for this study. Out of these, five commercial banks have been chosen as the sample: Nepal Bank Limited (NBL), Everest Bank Limited (EBL), Nepal SBI Bank Limited (NSBIBL), NIC Asia Bank Limited (NICABL), and Kumari Bank Limited (KBL). A purposive sampling method has been employed to select a representative sample of commercial banks in Nepal, ensuring a diverse representation of both large and small entities within the banking sector.

2.4 Data analysis tools

Descriptive statistics [24] are utilized to summarize and illustrate the key financial indicators of the selected banks, offering a snapshot of the banks' financial performance and stability. Comparative analysis is conducted to evaluate the financial soundness of different banks within the sample, identifying trends, patterns, and disparities in the performance of commercial banks in Nepal. Various financial and statistical tools are employed throughout the research and study process.

2.5 Variables and measurements

In this study, the dependent variable is the "Financial Soundness" of commercial banks in Nepal, representing the main outcome the research intends to measure and assess. The independent variables are the five key components of the CAMEL framework, used to evaluate the financial soundness of commercial banks. These independent variables include [25–30]:

Capital adequacy (CA)

Capital Adequacy, the initial component of the CAMEL analysis, quantifies a bank's capability to absorb losses and sustain financial stability. The capital adequacy ratio (CAR) is a standard metric for assessing capital adequacy, calculated as the ratio of a bank's total capital (Tier 1 and Tier 2) to its risk-weighted assets (RWA) and gmathematically given by Eq. 1.

$$\text{CAR} = \frac{\text{Total Capital}}{\text{Risk-Weighted Assets}} \tag{1}$$

Asset quality (AQ)

Asset Quality, the second component of CAMEL analysis, evaluates the quality and stability of a bank's assets. The non-performing loan (NPL) ratio, representing the proportion of loans not being repaid as agreed, is a standard measure for asset quality and mathematically given by Eq. 2. A lower NPL ratio signifies superior asset quality.

$$\text{NPL Ratio} = \frac{\text{Non-Performing Loans}}{\text{Total Loans}} \tag{2}$$

Management quality (MQ)

Management Quality, the third component, assesses the efficacy of a bank's management in decision-making and strategy implementation. The efficiency ratio is a common metric for management efficiency, calculated by dividing a bank's operating expenses by its total assets, as shown mathematically by Eq. 3. A lower efficiency ratio signifies superior management efficiency.

$$\text{Efficiency Ratio} = \frac{\text{Operating Expenses}}{\text{Total Assets}} \tag{3}$$

Earnings capability (EC)

Earnings Capability, the fourth component, evaluates a bank's ability to generate profits and maintain profitability. Return on Assets (ROA), calculated by dividing a bank's net income by its total assets, is a common measure of earnings. Mathematially, it is expressed as per Eq. 4.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \tag{4}$$

Liquidity (LQ)

Liquidity, the fifth component of CAMEL analysis, assesses a bank's ability to meet short-term obligations and manage cash flow. The Cash Reserve Ratio (CRR) is a standard liquidity measure, indicating a bank's ability to cover deposits with immediate funds. A higher ratio indicates a superior liquidity position. The CRR can be determined using Eq. 5.

$$\text{CRR} = \frac{\text{Cash and Cash Equivalent}}{\text{Total Deposits}} \tag{5}$$

This research scrutinizes each of the discussed independent variables to comprehend their impact on the financial soundness of commercial banks in Nepal. By analyzing these components, the study aims to offer a comprehensive assessment of the overall financial health and stability of the banking sector in the country.

2.6 Research framework

A research framework serves as a diagrammatic representation, illustrating the relationship between independent and dependent variables [31]. In this context, Financial Soundness is conceptualized as the dependent variable, while Capital Adequacy, Asset Quality, Management Quality, Earnings Capability, and Liquidity are considered as the independent variables and is diagramatically represented by Figure 1.

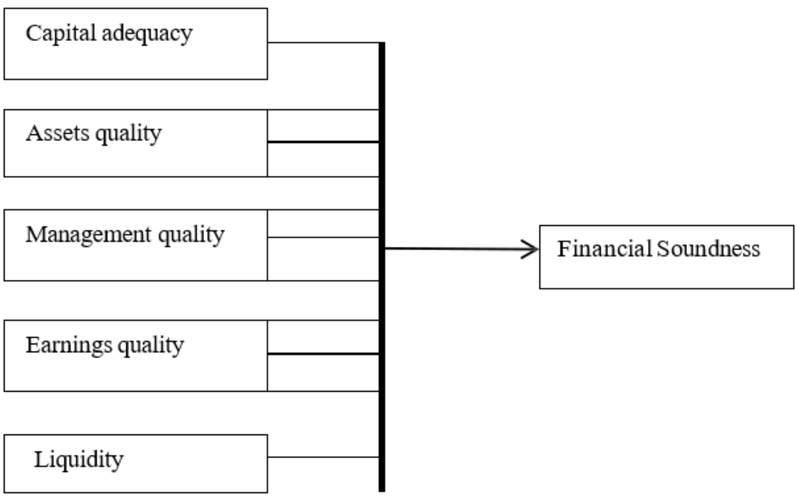

Figure 1: Research framework for the current context.

3 Results

3.1 Capital adequacy assessment

The capital adequacy ratio quantifies a bank's capital, represented as a percentage of its risk-weighted credit exposures. Table 1 delineates the capital adequacy ratios of five selected commercial banks in Nepal from the fiscal year 2017/18 to 2021/22. Referring to Table 1, Nepal Bank Limited (NBL) exhibited a capital adequacy ratio fluctuating between 15.05% and 17.01% over the five fiscal years from 2017 to 2022, averaging 15.39%. Everest Bank Limited (EBL) demonstrated a ratio oscillating between 11.89% and 14.20%, with a mean of 13.14%. Nepal SBI Bank Limited (NSBIBL) had ratios ranging from 13.86% to 15.55%, averaging 14.71%. NIC Asia Bank Limited (NICABL) showcased ratios between 12.24% and 13.50%, with a mean of 12.98%. Lastly, Kumari Bank Limited (KBL) had ratios varying from 11.75% to 15.35%, with a mean of 13.36%.

Table 1: Capital Adequacy Ratio of Selected Commercial Banks (In Percentage)

Fiscal Year	NBL	EBL	NSBIBL	NICABL	KBL
2017/18	11.27	14.20	15.15	12.24	13.36
2018/19	16.80	13.74	14.12	13.32	11.75
2019/20	17.01	13.38	14.89	13.50	15.35
2020/21	16.80	12.48	15.55	12.47	13.72
2021/22	15.05	11.89	13.86	13.38	12.63
Mean	15.39	13.14	14.71	12.98	13.36
S.D.	2.43	0.94	0.71	0.58	1.34

Notes: Data derived from the annual reports of the selected commercial banks

Summarizing the findings of capital adequacy assessment, the data indicates that all the selected commercial banks in Nepal have sustained their capital adequacy ratios above the regulatory minimum of 11.5% over the last five fiscal years, albeit with some year-to-year fluctuations. Typically, NBL maintained the highest ratios, while NICABL's ratios were the lowest on average.

3.2 Asset quality evaluation

The non-performing loan ratio quantifies the amount of loans that are in default or close to being in default; hence, a lower ratio is preferable. Table 2 presents data on the non-performing loan ratios of five selected commercial banks in Nepal from the fiscal year 2017/18 to 2021/22.

Table 2: Non-Performing Loans Ratio of Selected Commercial Banks (In Percentage)

Fiscal Year	NBL	EBL	NSBIBL	NICABL	KBL
2017/18	3.37	0.20	0.20	0.01	1.05
2018/19	2.64	0.16	0.20	0.23	1.01
2019/20	2.47	0.22	0.23	0.27	1.39
2020/21	2.05	0.12	0.23	0.24	0.96
2021/22	1.83	0.12	0.15	0.07	1.11
Mean	2.47	0.16	0.20	0.16	1.10
S.D.	0.60	0.05	0.03	0.12	0.17

Notes: Data derived from the annual reports of the selected commercial banks.

Nepal Bank Limited (NBL) experienced a decrease in the non-performing loan ratio from 3.37% in 2017/18 to 1.83% in 2021/22. Everest Bank Limited (EBL) maintained a relatively stable ratio, fluctuating between 0.12% and 0.22% during the period. Nepal SBI Bank Limited (NSBIBL) also exhibited stability in the ratio, ranging from 0.15% to 0.23%. NIC Asia Bank Limited (NICABL) began with the lowest ratio at 0.01% in 2017/18 but experienced fluctuations, reaching up to 0.27% in subsequent years. Kumari Bank Limited (KBL) displayed the most variation, with ratios ranging from 0.96% to 1.39%. On average, NBL recorded the highest non-performing loan ratio at 2.47%, while EBL had the lowest at 0.16%.

3.3 Management quality analysis

The efficiency ratio quantifies a bank's cost in relation to its total assets; thus, a lower ratio is preferable. Table 3 presents data on the efficiency ratios of five selected commercial banks in Nepal from the fiscal year 2017/18 to 2021/22. According

Table 3: Efficiency Ratio of Selected Commercial Banks (In Percentage)

Fiscal Year	NBL	EBL	NSBIBL	NICABL	KBL
2017/18	4.25	5.16	6.73	1.83	0.56
2018/19	4.35	5.86	7.57	2.02	1.57
2019/20	5.17	6.14	7.65	2.05	1.49
2020/21	4.21	4.85	6.32	1.54	1.68
2021/22	5.48	5.98	7.12	1.95	1.67
Mean	4.69	5.60	7.08	1.89	1.39
S.D.	0.59	0.56	0.56	0.21	0.47

Notes: Data derived from the annual reports of the selected commercial banks.

to Table 3, Nepal Bank Limited (NBL) exhibited an efficiency ratio fluctuating between 4.21% and 5.48% over the five fiscal years from 2017/18 to 2021/22, averaging 4.69%. Everest Bank Limited (EBL) demonstrated a ratio oscillating between 4.85% and 6.14%, with a mean of 5.60%. Nepal SBI Bank Limited (NSBIBL) had ratios ranging from 6.32% to 7.65%, averaging 7.08%. NIC Asia Bank Limited (NICABL) showcased ratios between 1.54% and 2.05%, with a mean of 1.89%. Lastly, Kumari Bank Limited (KBL) displayed the most variation, with ratios ranging from 0.56% to 1.68%, with a mean of 1.39%. Summarizing the finding, the data indicates that Kumari Bank Limited was the most efficient bank during this period, while Everest Bank Limited and Nepal SBI Bank Limited recorded the highest efficiency ratios, suggesting potential areas for improvement in managing their costs relative to total assets employed.

3.4 Earnings capability examination

Return on Assets (ROA) is a prevalent metric for measuring earnings, representing the ratio of a bank's net income to its total assets. Table 4 provides data on the return on assets ratio of five selected commercial banks in Nepal from the fiscal year 2017/18 to 2021/22.

Table 4: Return on Assets Ratio of Selected Commercial Banks (In Percentage)

Fiscal Year	NBL	EBL	NSBIBL	NICABL	KBL
2017/18	2.41	1.97	1.97	0.97	1.26
2018/19	1.51	1.94	1.94	1.56	1.17
2019/20	1.22	1.42	1.17	1.32	0.76
2020/21	1.33	0.89	0.70	1.09	1.04
2021/22	1.12	1.13	1.07	1.20	1.22
Mean	1.52	1.47	1.37	1.23	1.09
S.D.	0.52	0.50	0.56	0.23	0.20

Notes: Data derived from the annual reports of the selected commercial banks.

Table 4 reveals that Nepal Bank Limited (NBL) had the highest mean return on assets ratio of 1.52% during the period, followed by Everest Bank Limited (EBL) at 1.47%. Nepal SBI Bank Limited (NSBIBL) recorded a mean return of 1.37%. NIC Asia Bank Limited (NICABL) had a mean return of 1.23%, and Kumari Bank Limited (KBL) exhibited the lowest mean return on assets ratio of 1.09%. Examining individual years, NBL achieved the highest return on assets ratio of 2.41% in the fiscal year 2017/18. Both EBL and NSBIBL reached their peak ratios of 1.97% in the fiscal year 2017/18. NICABL attained its highest ratio of 1.56% in the fiscal year 2018/19, and KBL reached its peak ratio of 1.26% in the fiscal year 2017/18. Summaring the findings of earnings capability examination, the data suggests that while NBL secured the highest average return on assets ratio during the period, its performance exhibited more fluctuations, and its ratios declined over the years. Conversely, EBL maintained relatively stable performance, with higher ratios in the recent years.

3.5 Liquidity position assessment

The cash reserve ratio reflects the proportion of funds that banks are required to hold in reserve relative to their total deposits. A higher ratio implies enhanced safety and stability for the bank. Table 5 provides data on the cash reserve ratio of five selected commercial banks in Nepal from the fiscal year 2017/18 to 2021/22. Nepal Bank Limited (NBL)

Table 5: Cash Reserve Ratio of Selected Commercial Banks (In Percentage)

Fiscal Year	NBL	EBL	NSBIBL	NICABL	KBL
2017/18	9.05	17.75	7.18	24.45	6.85
2018/19	4.06	18.56	6.65	26.05	4.59
2019/20	4.53	14.43	8.89	27.09	3.78
2020/21	4.19	18.15	3.22	20.65	3.72
2021/22	3.49	6.50	3.05	20.30	3.78
Mean	5.06	15.08	5.80	23.71	4.54
S.D.	2.26	5.07	2.57	3.10	1.34

Notes: Data derived from the annual reports of the selected commercial banks.

exhibited a cash reserve ratio ranging from 3.49% to 9.05%, with a mean of 5.06% and a standard deviation of 2.26%. Everest Bank Limited (EBL) displayed ratios between 6.50% and 18.56%, averaging 15.08% with a standard deviation of 5.07%. Nepal SBI Bank Limited (NSBIBL) maintained ratios between 3.05% and 8.89%, with a mean of 5.80% and a standard deviation of 2.57%. NIC Asia Bank Limited (NICABL) sustained the highest ratios among the banks, ranging from 20.30% to 27.09%, with a mean of 23.71% and a standard deviation of 3.10%. Kumari Bank Limited (KBL) recorded ratios between 3.72% and 6.85%, with a mean of 4.54% and a standard deviation of 1.34%. Thus, the result data of liquidity position assessment suggests that Everest Bank Limited and NIC Asia Bank generally maintained higher cash reserve ratios compared to the other banks, signaling superior liquidity and stability.

4 Discussion

4.1 Major findings

The major findings of this study are as follows:

- Regarding capital adequacy, all selected commercial banks in Nepal have maintained capital adequacy ratios above the regulatory minimum of 11.5% over the last 5 years. Nepal Bank Limited (NBL) exhibited the highest average ratio at 15.39%, while NIC Asia Bank had the lowest at 12.98%.
- Concerning asset quality, NBL had the highest non-performing loan ratio, signaling lower asset quality compared to other banks. Everest Bank Limited (EBL) consistently had the lowest ratios, indicating superior asset quality.
- In assessing management quality, the efficiency ratio was utilized to compare costs relative to assets. Kumari Bank Limited (KBL) demonstrated the lowest ratio at 1.39%, indicating optimal efficiency, while Nepal SBI Bank Limited (NSBIBL) had the highest ratio at 7.08%.
- Regarding earnings capability, NBL had the highest mean return on assets ratio at 1.52%, while KBL had the lowest at 1.09%. EBL maintained relatively stable performance with higher ratios in recent years.
- In terms of liquidity, NIC Asia Bank maintained the highest mean cash reserve ratio at 23.71%, indicating superior liquidity and stability, while KBL had the lowest at 4.54%.

4.2 Limitations of the study

The study is subject to the following limitations:

- The accuracy and comprehensiveness of the study may be constrained by the availability of data from published financial reports.
- The generalizability of the study may be limited due to the sample size and selection process. The exclusion of certain banks or the limited size of the sample could affect the overall conclusions.
- Time constraints might limit the depth of the analysis of multiple banks over a specific timeframe.
- The financial soundness of commercial banks can be influenced by external economic factors not accounted for in the CAMEL framework, such as changes in government policies or global economic conditions.
- The study primarily relies on quantitative data, and qualitative aspects like the banks' business strategies or customer relationships may not be fully captured.

- The findings may be specific to the Nepalese banking sector and may not be directly applicable to other regions with different regulatory frameworks and economic conditions.

Conclusion

This research conducted a comprehensive CAMEL analysis of commercial banks in Nepal to assess their financial soundness, focusing on Capital Adequacy, Asset Quality, Management Quality, Earnings, and Liquidity. The findings reveal that the majority of commercial banks in Nepal have maintained satisfactory levels of financial soundness, adhering to the regulatory requirements set by the central bank and demonstrating resilience in challenging economic conditions.

The analysis indicates that most banks have sufficient capital to absorb potential losses, maintaining stability during economic downturns. However, concerns regarding asset quality were noted, particularly for Nepal Bank Limited, emphasizing the need for prudent credit risk management practices to ensure long-term stability. The management quality of the banks was found to be satisfactory, with effective leadership making strategic decisions and implementing sound policies. While most banks have sustained positive earnings, some smaller banks face challenges due to higher operating costs and lower revenue generation. Enhancing operational efficiency and diversifying income sources are crucial for improving overall financial performance. Additionally, most banks have maintained adequate liquidity levels, but some smaller banks show signs of liquidity stress, highlighting the need for improved liquidity management and contingency planning. In conclusion, the CAMEL analysis provides valuable insights into the financial soundness of commercial banks in Nepal, revealing a generally healthy and stable banking sector with specific areas requiring attention. Addressing these areas will contribute to a more robust and stable financial system, supporting Nepal's long-term economic growth and development. Policymakers should leverage these findings to implement measures fostering a competitive and stable banking sector. Continued research and monitoring are essential to ensure the sustained financial soundness of commercial banks in Nepal's dynamic economic landscape.

Declaration of Competing Interests

The authors declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author Contribution

Binod Shah: Conceptualization, methodology, software, data curation, writing—original draft preparation, visualization and investigation, and supervision; **Uday Kishor Tiwari**: Writing, reviewing, and editing.

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