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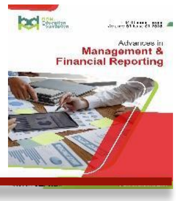

Analysis of Bank Health Levels Using the Camel Method at BUMN Commercial Banks Listed

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The author(s) declares that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

ABSTRACT

Purpose: This study uses the CAMEL method to evaluate the health level of state-owned banks listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022, which includes aspects of capital adequacy, asset quality, management, earnings, and liquidity.

Research Design and Methodology: This study uses secondary data from the annual financial statements of four state-owned banks selected through purposive sampling. The CAMEL method was applied to analyze these banks' financial soundness.

Findings and Discussion: The results show that state-owned banks generally maintained a healthy financial condition during the study period. However, some financial ratios, such as NPM and ROA, fluctuated. This indicates the need to improve operational efficiency and cost management.

Implications: This study guides bank management in improving operational efficiency and risk management to maintain financial stability. Regulators can also use these findings to evaluate and enhance banking policies.

Introduction

Bank health is a critical aspect of the global and local economy, as banks are the backbone of the financial system. Banks provide liquidity, support investment, and facilitate trade through lending (Poelhekke, 2015). Banks operating healthily can meet financial obligations, maintain customer confidence, and catalyze economic growth (Limoa & Weku, 2024). At the global level, healthy banks contribute to the stability of the international financial system, minimizing the risk of a financial crisis that could spread across countries. Economic stability relies heavily on the health of banks. Strong banks can provide credit for expanding businesses, individuals for consumption, and governments for infrastructure projects (Ferri et al., 2020). When banks are healthy, they can weather economic shocks, such as recessions or changes in interest rates, without failing (Shermukhamedov, 2022). Conversely, unhealthy banks can be the source of financial crises, which can trigger economic recessions, unemployment, and declining living standards. Public trust is also closely related to bank health. People tend to keep their money in banks they trust to be safe. When customers feel confident that their banks are sound and secure, they are more likely to make deposits and investments, which support bank liquidity and stability (de Haan et al., 2021). Conversely, when public confidence declines, as it did during the financial crisis, customers may make large withdrawals that worsen the situation. Therefore, maintaining bank soundness is crucial for economic stability and public confidence, which is essential for the functioning of the broader financial system.

Research on bank soundness has attracted the interest of many academics and practitioners, especially in assessing bank stability and performance through various methods. One of the most used approaches is the CAMEL method (Capital Adequacy, Asset Quality, Management, Earnings, and Liquidity). This method has been widely adopted as an international standard for assessing bank health. A study by Maharani (2021) revealed that risk profile, good corporate governance, and capital significantly affect the share price in BPD banks. This finding confirms the importance of solid risk management and transparent governance in maintaining bank stability. Meanwhile, Arrizky (2022) reported no significant difference in the health of Islamic banks before and after COVID-19, suggesting that the Islamic banking model has good resilience to the economic crisis. Purwanti (2021) compared the financial performance of government and private banks, finding that government banks have higher ROA and ROE. This suggests that government banks may be more efficient in managing their assets and equity. Rowland et al. (2021) identified liquidity, profitability, and leverage as significant factors in bank financial distress, highlighting the importance of proper liquidity management and controlled leverage. Nangoy et al. (2022) found that the loan-to-deposit ratio and net interest margin significantly affect the profitability of state-owned banks. These results suggest that interest margin management and the relationship between loans and deposits are critical to sustainable profitability. Meanwhile, Darman et al. (2021) found no difference in health between SOE and BUMS banks, suggesting that these two types of banks have a balanced capacity to face economic challenges. Rifai et al. (2021) and Gaffar (2021) used the CAMEL method to assess the health of specific Islamic banks, with Gaffar finding that PT Bank Mandiri Indonesia was in good health. These results suggest that the CAMEL method is a reliable tool for assessing the health of banks and identifying areas that require improvement.

While these studies provide valuable insights into bank soundness in Indonesia, significant gaps exist in the existing literature. Many of these studies focus on specific periods or types of banks, such as Islamic or state-owned banks. In addition, these studies often need to comprehensively consider all components of the CAMEL method in their analysis. For example, the survey by Maharani (2021) emphasizes risk profile and corporate governance more, while the study by Purwanti (2021) focuses more on comparing financial performance between public and private banks. This gap suggests that there is still a need for more comprehensive research that covers all CAMEL components. Many studies fail to see the big picture: how the five elements of CAMEL interact and influence each other in a broader context. In addition, many studies are limited to specific types of banks or narrow periods, thus not providing a holistic view of the overall health of Indonesian banks. We need to go further. We must understand how capital adequacy, asset quality, management, earnings, and liquidity work together in a complex banking ecosystem. We should involve different types of banks- from Islamic to state and private- and look at data over a broader period to capture long-term dynamics and relevant trends.

Based on the gap analysis in the existing literature, the research question posed in this study is: What is the health level of state-owned commercial banks listed on the Indonesia Stock Exchange from 2018 to 2022 based on the CAMEL method? This research aims to provide a comprehensive assessment of the five main components of the CAMEL method: capital adequacy, asset quality, management, earnings, and liquidity. It aims to evaluate credit risk and potential losses from the banks' asset portfolios, the effectiveness of management policies and practices in managing day-to-day operations, the banks' ability to generate consistent and sustainable profits, and their capacity to meet short-term obligations without experiencing significant financial stress. The novelty of this research lies in its holistic and comprehensive approach that covers all components of the CAMEL method rather than focusing on specific periods or types of banks. This study includes various types of banks, from Islamic to state and private banks, and examines data over a broader period to capture long-term dynamics and relevant trends. The research also integrates the analysis of interactions between CAMEL components within the complex banking ecosystem in Indonesia, which has yet to be explored in previous studies. With this approach, the study aims to uncover previously unseen patterns and offer more effective and sustainable solutions to improve banking health in Indonesia. The findings from this research will provide more profound and more meaningful insights into the health of the banking sector in Indonesia and offer invaluable information for regulators, bank management, investors, and the public to understand and address challenges while capitalizing on opportunities within Indonesia's banking sector.

Literature Review

CAMEL Method

The CAMEL method is a widely recognized approach for assessing the health and performance of banks. CAMEL stands for Capital Adequacy, Asset Quality, Management, Earnings, and Liquidity, a crucial component in evaluating financial institutions (Andriasari & Munawaroh, 2020). This method was introduced in the early 1970s when regulators in the United States needed a more reliable tool to assess the health of banks. In 1979, the Federal Financial Institutions Examination Council (FFIEC) introduced CAMEL as a framework for bank assessment. Over time, the method was updated by adding Sensitivity to Market Risk in 1997, becoming CAMELS. However, the focus here is on the initial five components. Capital Adequacy measures how well a bank's capital can absorb losses, which is essential for buffering financial risk. Asset Quality assesses the quality of a bank's asset portfolio, reflecting credit risk. Management evaluates the management team's effectiveness in handling day-to-day operations and risks. Earnings assess the bank's profitability, indicating its ability to generate profits that support operations and growth (Anshar, 2023). Liquidity measures the bank's ability to meet short-term obligations, essential for maintaining customer confidence and financial stability. This comprehensive framework makes the CAMEL method a crucial international standard in bank soundness assessment (Machmud et al., 2023). The CAMEL method has been widely adopted globally because it provides a consistent and comprehensive framework for regulators and financial institutions to evaluate bank risk and performance. This standardization allows for better comparisons between banks in different countries and enhances the transparency and stability of the global financial system (Bashir et al., 2021). Despite some limitations, the CAMEL method remains invaluable in maintaining the stability of financial institutions worldwide.

The CAMEL method has been adopted internationally as a standard for assessing bank soundness. Its importance lies in providing a consistent and comprehensive framework for regulators and financial institutions to evaluate bank risk and performance. This standardization allows for better comparisons between banks in different countries and enhances the transparency and stability of the global economic system. Numerous studies using the CAMEL method have been conducted to assess bank health. Most studies have found the CAMEL method effective in providing a comprehensive picture of a bank's financial condition. For instance, a survey by Prodanov et al. (2022) demonstrated that the CAMEL method could identify banks at risk of financial problems. Another study by (Murni et al., 2017) found that CAMEL assessment could accurately predict bank failure. Despite its strengths, the CAMEL method has limitations. One of the main strengths of the CAMEL method is its ability to provide a comprehensive evaluation framework and widely accepted standards. Studies show that CAMEL ratings correlate well with banks' health and performance, making it a valuable tool for regulators. However, the weaknesses of these studies include an over-reliance on historical data, which may not accurately reflect future conditions. CAMEL method may only partially capture the risks of new financial innovations or significant changes in the global economic environment.

Capital Adequacy

Capital adequacy is crucial for assessing a bank's soundness and stability, referring to its ability to absorb losses without posing significant risks to depositors and the overall financial system. The Capital Adequacy Ratio (CAR), comparing a bank's capital to its risk-weighted assets, is commonly used for this purpose. Adequate capital protects against potential losses and instills confidence in depositors and investors that the bank can manage risks and continue operations despite significant losses (Permata, 2023). Banks with robust capital adequacy are better equipped to withstand financial crises, maintaining financial system stability. Studies highlight the impact of capital adequacy on bank stability and performance. Assaf et al. (2019) found that banks with higher capital are more stable and better able to survive financial crises. Jin et al. (2019) showed that banks with higher capital perform better in profitability and growth, as it allows for greater risk-taking in loan portfolios, potentially increasing earnings. In Indonesia, capital adequacy is particularly relevant for state-owned commercial banks, which play a crucial role in the national economy by serving millions of customers and supporting various development projects. Maintaining adequate capital adequacy ensures these banks can operate stably and support economic growth. The Financial Services Authority (OJK) has established regulations to ensure banks have sufficient capital to absorb losses and manage risks effectively, meeting minimum capital adequacy ratios (Yustianti, 2017).

Adequate capital adequacy enables state-owned banks to support government programs in economic development (Kim, 2019). They can finance infrastructure projects and other strategic sectors without compromising financial stability. Such projects often require large investments and carry significant risks, so sufficient capital helps manage these risks better and ensure project sustainability. Adequate capital allows state-owned banks to innovate and expand services (Purnamasari et al., 2022). In the digital age, banks must continuously innovate to remain competitive, investing in new technologies, developing new products, and expanding into new markets. These activities require significant capital, and adequate capital adequacy supports these endeavors while maintaining financial stability. At the same time, capital adequacy is crucial but not the sole determinant of bank health and performance. Other components, such as asset quality, management, earnings, and liquidity, are also critical. Therefore, a comprehensive bank soundness assessment should consider all these components holistically. Recent research, such as Nguyen (2021), emphasizes the importance of capital adequacy for bank performance and stability, particularly in developing economies. Thus, state-owned banks in Indonesia must ensure robust capital adequacy to support economic development, manage risks effectively, and innovate and grow sustainably.

Asset Quality

Asset quality is crucial in assessing a bank's soundness and performance, reflecting how healthy assets, particularly loan portfolios, retain value and generate income without significant risks (Arora et al., 2023). High asset quality indicates a low probability of default among borrowers, while low asset quality signifies high credit risk, negatively impacting financial performance. Various studies highlight this relationship; (Ma et al., 2021) found that poor asset quality leads to increased operating costs and reduced profitability due to the need to reserve funds for potential loan losses. Katuka et al. (2023) showed that relaxed lending standards during economic expansions could lead to increased non-performing loans (NPLs) during downturns, affecting bank stability. Analyzing asset quality in state-owned commercial banks listed on the Indonesia Stock Exchange (IDX) reveals significant patterns. These banks, among Indonesia's largest financial institutions, play a crucial role in the national economy. Generally, they maintain low NPL ratios, indicating manageable credit risk. However, challenges persist, particularly in volatile sectors like plantations, mining, and construction. State-owned banks must continue monitoring and managing exposure to these sectors to maintain asset quality. Economic uncertainty, commodity price fluctuations, and changes in government policies also impact asset quality, necessitating robust strategies to manage credit risk amid changing economic dynamics (Wirawan, 2023).

To improve asset quality, state-owned banks implement various credit risk management strategies, including advanced analytical technology to assess creditworthiness, loan portfolio diversification to reduce risk concentration, and strict credit policies (Junarsin et al., 2023). Proactive credit recovery efforts and cooperation with troubled borrowers are also critical to their strategies. In recent years, Indonesia's state-owned banks have increased their focus on sustainable and responsible lending, directing financing to sectors that support sustainable development, such as renewable energy, green infrastructure, and micro, small, and medium enterprises (MSMEs). This approach improves asset quality and contributes to inclusive and sustainable economic growth. Recent research continues to underscore the importance of asset quality in bank performance. For instance, a study by Ofoegbu & Adegbie (2022) highlights that better asset quality significantly enhances a bank's financial stability and performance. This research supports the view that maintaining high asset quality is crucial for economic resilience and growth.

Management

Effective management is a critical pillar of healthy and successful bank operations. Good management skills in banking include financial management, risk management, business strategy development, and compliance with regulations and industry standards. Effective management ensures financial stability, operational efficiency, and stakeholder trust (Liem, 2018). Studies show that competent management improves financial and operational performance. Amijaya & Alaika (2023) found that banks managed by skilled and experienced executives have better financial performance and lower risk. Effective management involves making strategic decisions, efficiently managing resources, and quickly responding to market changes. De Haan & Kakes (2020) demonstrated that well-managed banks were better at surviving financial crises, showing more minor losses and a faster recovery. In Indonesia's state-owned commercial banks, management faces operational complexity and high expectations from the government and the public. These banks must operate efficiently and generate profits while supporting national economic development policies and providing financial services to the broader community. A key challenge is risk management, which requires identifying, measuring, and managing credit, market, operational, and liquidity risks. Effective risk management demands understanding market dynamics, regulatory changes, and economic conditions. Adequate systems and procedures are essential for managing these risks (Purwanti, 2023).

Management practices in state-owned commercial banks emphasize good corporate governance, ensuring transparency, accountability, and integrity. Indonesia's state-owned banks have strengthened their boards, improved internal controls, and complied with strict banking regulations, enhancing investor and depositor confidence and ensuring sustainable operations (Rissy, 2018). Human resource development is another focus area, with effective management ensuring a well-trained and motivated workforce through employee training, development programs, and proper incentives. Digital transformation is crucial in the digital era. State-owned banks have invested in information and communication technology to improve operational efficiency, expand access to financial services, and enhance the customer experience (Jameaba, 2020). Effective management must ensure a smooth digital transformation, adding value to the bank and its customers. Despite challenges, there are many opportunities for state-owned commercial banks. As Indonesia's largest financial institutions, they play a crucial role in national economic development. Effective management can develop new products and services, expand market share, and support financial inclusion. Effective management is critical to ensuring bank health and sustainability. Studies show that management quality significantly influences financial performance and stability. Competent and experienced management is crucial for meeting operational challenges, managing risks, and supporting national economic development goals (Lytvyn et al., 2023). With a focus on good corporate governance, human capital development, and digital transformation, state-owned banks can continue to thrive and contribute positively to the Indonesian economy.

Earnings

Earnings are a crucial indicator of a bank's health and performance, reflecting its ability to generate profits from operations such as interest income from loans, non-interest income from financial services, and investment returns. Stable and sustainable earnings allow banks to cover operating costs, raise capital, and provide returns to shareholders (Dou et al., 2016). Strong earnings enable banks to absorb unexpected losses, invest in technology and infrastructure, and support long-term growth. Banks with consistent earnings demonstrate an effective business model and adaptability to market conditions while fluctuating or declining revenues can signal financial instability. Strong earnings are essential for maintaining depositor and investor confidence and supporting overall economic stability. Research has extensively evaluated bank profitability and its influencing factors. Owusu and Alhassan (2021) identified that internal factors such as asset and liability management, operational efficiency, and cost structure significantly impact bank profitability. External factors like macroeconomic conditions, monetary policy, and banking sector competition also play crucial roles. Their study found that banks managing internal factors well tend to be more profitable, while favorable external conditions enhance financial performance. Boungou (2019) emphasized that strong economic growth, stable inflation rates, and favorable interest rates positively influence bank profitability. Additionally, banks in more competitive markets often have lower profit margins due to increased competition.

State-owned commercial banks listed on the Indonesia Stock Exchange (IDX), including Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), and Bank Tabungan Negara (BTN), have maintained solid financial performance despite economic challenges. Recent financial statements demonstrate that these banks consistently generate increasing revenues, with interest income as their primary funding source. Non-interest income from fund management, electronic banking, and forex transactions contributes significantly to total income. Effective management strategies, product and service innovation, and digital technology adoption bolster revenue performance (Blichfeldt & Faullant, 2021). Competent management optimizes asset portfolios, manages risks, and ensures operational efficiency. Innovation meets diverse customer needs and increases revenue, while digital technology enhances efficiency and the customer experience. However, challenges remain. High reliance on interest income poses risks amid changes in monetary policy or economic conditions (Kokores, 2023). Intensifying competition and increased credit risk from uncertain economic conditions necessitate continuous innovation and efficiency improvements. To address these challenges, state-owned banks must strengthen risk management, invest in technology, and diversify income sources. Effective risk management ensures resilience in various economic scenarios. Technology investments help banks stay competitive and efficient, while income diversification enhances financial stability (Githaiga et al., 2019).

Liquidity

Liquidity is the ability of a bank to meet short-term financial obligations without selling assets at a discount or seeking high-interest loans. This includes providing cash for withdrawals, paying debts, and meeting operational needs. Good liquidity allows banks to operate stably and maintain customer confidence, preventing panic and mass withdrawals that could damage their reputation and destabilize the financial system. Effective liquidity management is crucial for risk management and overall financial health. Studies highlight liquidity management's importance. Chen et al. (2022) found that banks with solid liquidity strategies are more stable and better able to handle financial crises. Mishra et al. (2020) found that during the 2008 financial crisis, banks with higher liquidity reserves survived better than those with low liquidity. In Indonesia, state-owned commercial banks listed on the Indonesia Stock Exchange (IDX), such as Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), and Bank Tabungan Negara (BTN), generally have robust liquidity strategies. These banks maintain healthy liquidity ratios, reflecting their ability to meet short-term obligations. They implement methods like diversifying funding sources, effective asset and liability management, and maintaining good relationships with Bank Indonesia and other financial institutions for emergency lending facilities (Soleh & Fitriano, 2019). They also adopt conservative liquidity policies, maintaining sufficient cash reserves and investing in easily liquid assets.

Diversifying funding sources reduces dependence on a single source and ensures adequate liquidity in various market conditions (Ryu et al., 2022). Effective asset and liability management ensures sufficient liquidity to meet short-term obligations. Advanced technology allows real-time monitoring of liquidity positions and timely decision-making. Good relationships with Bank Indonesia provide an additional safety net during crises, ensuring access to emergency liquidity (Berger & Bouwman, 2017). The success of these strategies is evident in the healthy liquidity ratios maintained by these banks, even amid economic challenges. This reflects effective liquidity risk management and a commitment to prudent financial practices. Liquidity plays a critical role in the stability of bank operations. Effective liquidity management is vital to maintaining financial health and meeting short-term obligations. Studies show that banks with good liquidity management are more stable and better able to weather crises. Indonesia's state-owned commercial banks have demonstrated strong liquidity management capabilities through various effective strategies. By strengthening liquidity management, these banks can ensure operational stability and positively contribute to the national economy.

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Research Design and Methodology

This research uses quantitative research with descriptive methods, where quantitative descriptive research aims to describe systematically, factually, and accurately the facts and nature of specific populations or explain phenomena in detail. This research defines and describes the results of calculating the company's financial data in the form of financial statements. The research population is state-owned commercial banks listed on the Indonesia Stock Exchange (IDX), and the research sample was taken using a purposive sampling technique consisting of Bank Rakyat Indonesia (Persero) Tbk, Bank Negara Indonesia (Persero) Tbk, Bank Mandiri (Persero) Tbk, and Bank Tabungan Negara (Persero) Tbk. This study uses secondary data from balance sheet reports and income statements from annual financial reports accessed through the official IDX website. This study aims to determine the level of bank health using the CAMEL method in banking companies listed on the IDX using financial reports for five years, namely the period 2018 to 2022. The aspects used include Capital, Asset Quality, Management, Earnings (Rentability), and Liquidity, with each element assessed using specific ratios such as CAR, NPL, NPM, ROA, and LDR by the criteria set by BI DIR Decree Number: 30/21/KEP/DIR.

Findings and Discussion

Findings

The financial ratios of state-owned commercial banks on the Indonesia Stock Exchange in 2018-2022.

Table 1. Financial Ratios of State-Owned Commercial Banks 2018-2022

Tahun	Bank	CAR	NPL	NPM	ROA	LDR
2018		21.20%	2.28%	77.7%	3.33%	88.06%
2019		22.51%	2.80%	79.0%	3.19%	87.03%
2020	BRI	20.61%	2.99%	70.0%	1.84%	81.69%
2021		25.28%	3.00%	81.6%	2.49%	82.71%
2022		23.30%	2.67%	80.8%	3.39%	71.99%
2018		18.50%	1.96%	42.58%	2.45%	92.87%
2019		19.73%	2.33%	42.37%	2.29%	95.58%
2020	BNI	16.78%	4.20%	8.94%	0.57%	90.52%
2021		19.74%	3.70%	28.7%	1.30%	79.88%
2022		19.27%	2.81%	80.7%	2.20%	84.00%
2018		20.96%	2.71%	47.33%	2.92%	93.86%
2019		21.39%	2.38%	47.87%	2.79%	90.97%
2020	Mandiri	19.90%	3.26%	31.23%	1.65%	76.73%
2021		19.60%	2.79%	41.82%	2.35%	74.25%
2022		19.46%	1.87%	32.41%	3.03%	71.99%
2018		18.21%	2.56%	27.83%	1.27%	102.22%
2019		17.32%	4.50%	2.34%	0.13%	112.23%
2020	BTN	19.34%	4.13%	17.95%	0.67%	90.70%
2021		19.14%	3.64%	18.29%	0.82%	90.52%
2022		20.17%	3.38%	24.15%	1.02%	90.12%

Source: *Data Processing Results (2022)*

There are several significant findings based on the financial ratio tables of the four central banks in Indonesia (BRI, BNI, Mandiri, and BTN) during the 2018–2022 period. The CAR (Capital Adequacy Ratio) ratio shows that all banks maintain a pretty good level of capital adequacy, with BRI peaking in 2021 at 25.28%. The NPL (non-performing loan) ratio shows varying credit quality. BNI experienced a significant increase in 2020 with an NPL of 4.20% but managed to reduce it in the following years. The Net Profit Margin (NPM) ratio shows the profitability of bank operations. BRI consistently has a high NPM, with the highest value in 2021 at 81.6%, while BNI shows large fluctuations, especially in 2020, with a drastic drop to 8.94%. The ROA (Return on Assets) ratio shows the efficiency of banks in generating profits from their assets. BRI and Mandiri show stability with relatively high ROA values, although there was a drop in 2020 due to the impact of the pandemic. The loan-to-ratio (LDR) indicates the bank's liquidity. BTN consistently has a high LDR, exceeding 100% in some years, indicating aggressiveness in lending compared to deposits. Overall, this data shows that Indonesia's central banks could maintain financial stability despite some challenges successfully being overcome, especially in the face of volatile economic conditions during the pandemic.

The CAR ratio value of PT Bank Tabungan Negara from 2018 - 2022 exceeds the minimum capital provision requirement value above 12%. The highest value ratio occurred in 2022, which amounted to 20.17%. From the calculation of the CAR ratio value, it can be determined that the calculation of the CAR credit value from 2018 - 2022 has increased and decreased in credit value. However, the calculation results still exceed the maximum value, even though the credit value exceeds 100% and the credit value is limited to a maximum of 100%. So, the credit value is recognized at 100%. The NPL of PT Bank Rakyat Indonesia, PT Bank Negara Indonesia, PT Bank Mandiri, and PT Bank Tabungan Negara experienced fluctuations from 2018-2022. PT Bank Rakyat Indonesia remains healthy, with a ratio of >10.35%. PT Bank Negara Indonesia recorded a sharp increase in 2020 (4.20%) but remains healthy with a ratio of <10.35%. PT Bank Mandiri is healthy, with a ratio of 1.87%–3.26%, not exceeding 10.35%. According to the NPL ratio set by Bank Indonesia, all banks are healthy, with none exceeding the 10.35% limit. The NPM ratios of PT Bank Rakyat Indonesia, PT Bank Negara Indonesia, PT Bank Mandiri, and PT Bank Tabungan Negara experienced fluctuations from 2018-2022. PT Bank Rakyat Indonesia has a reasonably healthy NPM ratio (>66%–>81%), with a significant decline in 2020. PT Bank Negara Indonesia is healthy in 2021 with a ratio of >81% but less healthy in 2020. PT Bank Mandiri and PT Bank Tabungan Negara are in the unhealthy category, with NPM ratios <51% due to high costs and inefficient operations. According to Bank Indonesia regulations, banks must improve their financial performance to achieve better health.

Bank Negara Indonesia's ROA ratio resulted in an unhealthy predicate only in 2020 and healthy in 2018, 2019, 2021, and 2022, showing a positive influence. Bank Mandiri experienced fluctuations, with a drastic decrease in 2020 (1.65%) and an increase in 2022 (3.03%), remaining healthy. Bank Tabungan Negara experienced a drastic decline in 2019 (0.13%), with an unhealthy category in 2019-2020, less healthy in 2021, and moderately healthy in 2022. 2018 was the only year with a healthy category (>1.22%). These banks demonstrate the need to improve performance to achieve better financial health. Bank Rakyat Indonesia's LDR ratio for 2018–2022 shows the highest ratio in 2018 (88.06%) and the lowest in 2022 (78.59%). This ratio shows healthy bank liquidity because it is below the BI standard of <94.75%. Bank Negara Indonesia experienced fluctuations with a reasonably healthy ratio in 2019 (>94.75%) and healthy in 2018, 2020-2022. Bank Mandiri also shows fluctuations but remains healthy throughout 2018–2022. Bank Tabungan Negara experienced a decrease in the ratio every year, with unhealthy ratios in 2018 (102.22%) and 2019 (112.23%) but healthy in 2020-2022 because the ratio was ≤ 94.75%. Despite fluctuations, PT Bank Rakyat Indonesia, Bank Negara Indonesia, Bank Mandiri, and Bank Tabungan Negara are mainly healthy according to the LDR ratio set by Bank Indonesia.

Discussion

The study results show that PT Bank Rakyat Indonesia (BRI), PT Bank Negara Indonesia (BNI), PT Bank Mandiri, and PT Bank Tabungan Negara (BTN) have generally maintained healthy financial conditions from 2018 to 2022, despite fluctuations in several financial ratios. This indicates stable financial health but highlights the need for improved operational efficiency and performance. Fluctuations in operational efficiency ratios suggest that BRI needs to optimize resource use to reduce costs and enhance profitability. Additionally, fluctuations in profitability ratios present opportunities for better product and service innovation and more effective risk management. The study supports the hypothesis that state-owned commercial banks in Indonesia can maintain financial health despite challenges. Safe levels of the capital adequacy ratio (CAR) and non-performing loan (NPL) ratios show solid financial foundations and effective credit risk management. However, fluctuations in the Net Profit Margin (NPM) ratio suggest areas for improvement in operational efficiency and cost management. The findings align with financial management theory, emphasizing effective cost management and resource utilization (Shi, 2021). Previous research by Al-Khouri and Arouri (2019) also underscores the importance of addressing emerging risks from financial innovations. These insights suggest that state-owned banks in Indonesia should focus on improving operational efficiency and integrating advanced risk management techniques to navigate modern financial complexities, maintain stability, and enhance profitability and competitiveness.

The practical implications of these findings are extensive. For bank management, focusing on operational efficiency and cost management is crucial for improving profitability. Measures such as digitalizing banking services, optimizing internal processes, and enforcing stricter cost management can help reduce operational costs and increase profit margins. For instance, BRI is expected to implement strategies to enhance operational efficiency, including digitalizing services, tighter cost management, and improving customer service quality. Banks need to improve financial performance through product diversification, better credit risk management, and exploring new market opportunities. Although BRI has demonstrated healthy performance, ongoing challenges require continuous innovation and adaptation to achieve better results in the future. Special attention to improving operational efficiency and financial performance is essential for ensuring BRI's sustainability and growth. By embracing these strategies, banks can navigate economic challenges more effectively, maintain competitiveness, and provide long-term profitability and stability. The findings highlight banks' need to innovate continually and adapt to changing market dynamics to thrive in the evolving financial landscape. This proactive approach will help banks like BRI maintain their current performance levels and position them for future growth and success. Ensuring sustainability and development in the future involves a commitment to operational excellence and financial innovation, essential components for navigating the complexities of the modern banking environment.

The study results show that PT Bank Negara Indonesia (BNI) maintained a healthy financial condition during 2018-2022, despite specific financial ratios fluctuations. This finding indicates that while BNI has generally maintained financial stability, particular aspects require further attention, particularly in optimizing the Net Profit Margin (NPM) in specific years and more effective risk management. Fluctuations in financial ratios, such as NPM, indicate variability in the bank's profitability from year to year. This is due to various factors, including macroeconomic conditions, regulatory changes, and market dynamics affecting BNI's revenue and operating expenses. Therefore, the bank needs to conduct an in-depth analysis to identify the primary causes of these fluctuations and develop appropriate strategies to mitigate the negative impact. Optimizing NPM is a crucial step BNI must take to ensure that the net profit generated is proportional to the total revenue earned. This can be achieved through improved operational efficiency, better cost management, and diversification of products and services offered to customers. Effective risk management is also essential to maintain the bank's financial stability. BNI must continue strengthening its risk management framework, including credit, operational, and market risks, to anticipate and address potential threats that could disrupt financial performance. Although BNI demonstrates a healthy economic condition, exceptional attention to NPM optimization and effective risk management is needed. With these measures, BNI can continue strengthening its position in the banking industry and achieve better financial performance.

The study results indicate that PT Bank Mandiri maintained a healthy financial condition during 2018-2022. This is reflected in the vital capital adequacy ratio (CAR), the non-performing loans (NPL) level maintained below the regulatory limit, and the loan-to-deposit ratio (LDR) remaining in the healthy category. These findings indicate that Bank Mandiri has maintained financial stability and resilience in various economic challenges. However, while critical indicators such as CAR, NPL, and LDR showed positive performance, the Net Profit Margin (NPM) ratio experienced significant fluctuations. These fluctuations reflect the variability in the bank's ability to generate net profit from its total revenue. This condition indicates the need for more attention to operational efficiency and cost management to improve NPM and reach a healthier level. High operational efficiency can be achieved through various strategies, including optimizing internal processes, reducing inefficient costs, and improving productivity. Effective cost management also plays an essential role in maintaining the bank's profitability. Bank Mandiri needs to focus on tight operational cost management, ensuring that every expenditure adds value and supports the bank's strategic objectives. Although Bank Mandiri demonstrates a generally healthy financial condition, optimizing NPM through improved operational efficiency and cost management is necessary. These measures will ensure the bank maintains economic stability and improves its profitability and competitiveness in the banking industry. Implementing these strategies will help Bank Mandiri continue to grow and deliver more value to its shareholders and customers in the future.

The study results indicate that PT Bank Tabungan Negara (BTN) maintained a healthy financial condition during 2018-2022. This is evident from the substantial capital adequacy ratio (CAR) and the non-performing loan ratio (NPL), which remains within healthy limits. These indicators reflect BTN's ability to maintain financial stability and resilience to credit risk, providing confidence in the bank's ability to manage capital and maintain asset quality. However, while the CAR and NPL indicators show positive performance, the Net Profit Margin (NPM) ratio is unhealthy and has experienced significant fluctuations. This suggests that the bank needs to pay more attention to operational efficiency and cost management. Better operational efficiency can be achieved through optimizing internal processes, improving technology, and reducing inefficient costs. Effective cost management is also essential to ensure that every expenditure contributes maximally to the bank's profitability. The improvement in the loan-to-deposit ratio (LDR) indicates that BTN has successfully improved its liquidity stability. This good liquidity stability reflects the bank's ability to meet its short-term obligations and demonstrates effective liquidity management. Therefore, although BTN shows a generally healthy financial condition, improving NPM through operational efficiency and better cost management is necessary to enhance the bank's profitability and competitiveness. These findings highlight the importance of management strategies focusing more on efficiency and cost-effectiveness. With these measures, BTN can continue to strengthen its position in the banking industry, maintain financial stability, and achieve better economic performance in the future. This research underscores the need for a holistic and sustainable approach to bank management to ensure that every aspect of operations and finance runs efficiently and effectively.

Connecting these findings with existing literature, previous studies by Li et al. (2018) highlight the importance of risk management and operational efficiency in maintaining a bank's financial health. The strong Capital Adequacy Ratios (CAR) and well-managed Non-Performing Loans (NPL) of Indonesia's state-owned banks align with the Basel Committee's study, emphasizing capital adequacy and sound credit management for financial stability. However, fluctuations in Net Profit Margin (NPM) suggest room for improvement in cost management and operational efficiency, as emphasized (Ferdian et al., 2018). The CAMEL method remains relevant for assessing bank health but needs adjustments to capture emerging risks from financial innovations and changing market dynamics (Al-Khouri & Arouri, 2019). These insights suggest that state-owned banks in Indonesia must improve operational efficiency and integrate advanced risk management techniques. The practical implications are extensive. For bank management, focusing on operational efficiency and cost management is crucial for profitability. Digitalizing services, optimizing processes, and stricter cost management can help reduce costs and increase profit margins. Regulators should strictly oversee key financial ratios like CAR, NPL, and NPM and update risk assessment methods to incorporate financial innovations. For investors, these findings provide a clear picture of the financial health of Indonesia's state-owned banks, helping them make informed investment decisions by identifying banks with stable performance and growth potential.

Conclusion

This study uses the CAMEL method to assess the financial health of state-owned commercial banks listed on the Indonesia Stock Exchange (IDX) in the 2018–2022 period. This study includes an analysis of five main aspects, namely capital adequacy (CAR), asset quality (NPL), management (NPM), earnings (ROA), and liquidity (LDR). The data used is secondary data taken from the annual financial statements of Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI), Bank Mandiri, and Bank Tabungan Negara (BTN). Based on the analysis conducted, this study provides a comprehensive overview of the financial performance of the four banks over five years, showing variations in several financial ratios and indicating areas that require further attention.

This study significantly contributes to the financial literature and banking practice in Indonesia. Using the CAMEL method, this study not only adopts an evaluation framework that has proven effective internationally but also applies it specifically to the context of state-owned commercial banks in Indonesia. The originality of this study lies in its in-depth focus on the period 2018-2022, which allows it to capture relevant trends and dynamics in the national banking industry. Regulators can use the results of this study to evaluate and improve banking policies and bank management, identify weaknesses, and develop performance improvement strategies. The study's findings also provide valuable insights for investors and other stakeholders in understanding the financial health of these banks.

However, this study has some limitations that need to be recognized. First, the study is limited to secondary data from annual financial reports, which may only cover factors affecting bank performance, such as macroeconomic conditions, regulatory changes, or technological innovations. Secondly, the research sample only includes four state-owned commercial banks, so the results may only fully represent Indonesia's entire banking sector. Third, the quantitative method used in this study provides a broad overview but may need a more in-depth understanding of management and operational practices in the field.

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