Financial Resilience of Post-Pandemic Indonesia's Largest Banks: Evidence from Camels and RGEC-Based Assessment

Rafrini Amyulianthy[1]*, Yuana Rizky Octaviani Mandagie[2]

Faculty of Economic and Business, Universitas Pancasila

***Corresponding Author**

DOI: https://doi.org/10.47772/IJRISS.2026.100500709

Received: 15 May 2026; Accepted: 20 May 2026; Published: 11 June 2026

ABSTRACT

The COVID-19 pandemic significantly impacted Indonesia's banking sector, particularly increasing credit risk and pressuring financial stability. This study aims to assess the financial resilience of Indonesia's largest banks—specifically those categorized as Core Capital Bank Tier-4 (BCA, Mandiri, BRI, and BNI)—over the 2019–2023 period, covering the pre-pandemic, during-pandemic, and post-pandemic recovery stages. Using a quantitative approach and secondary data from audited financial reports, the study employs two established bank health assessment methods: CAMELS (Capital, Assets, Management, Earnings, Liquidity, and Sensitivity to Market Risk) and RGEC (Risk Profile, Good Corporate Governance, Earnings, and Capital). The results reveal that all four banks demonstrated strong capital adequacy, with BCA recording the highest average Capital Adequacy Ratio (CAR) of 26.1%. Asset quality, measured by Non-Performing Loans (NPL), showed BCA with the lowest average NPL (1.8%), while others remained in the healthy category. The pandemic caused notable declines in key indicators such as Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Loan-to-Deposit Ratio (LDR) in 2020, followed by a consistent recovery from 2021 to 2023. The RGEC method consistently rated all banks as "Very Healthy" throughout the period, whereas the CAMELS method showed more variation—initially rating BCA as "Healthy" and others as "Fairly Healthy" in 2019–2020, before all banks improved to "Healthy" by 2021–2023. The study concludes that Indonesia's Core Capital Bank Tier-4 banks possess strong financial resilience, adequate governance, and robust adaptability to economic shocks. Recommendations include strengthening credit risk management, enhancing operational efficiency, and expanding future research to include macroeconomic variables and broader bank classifications.

Keywords: Financial resilience, Bank health assessment, CAMELS method, RGEC method, Post-pandemic recovery

INTRODUCTION

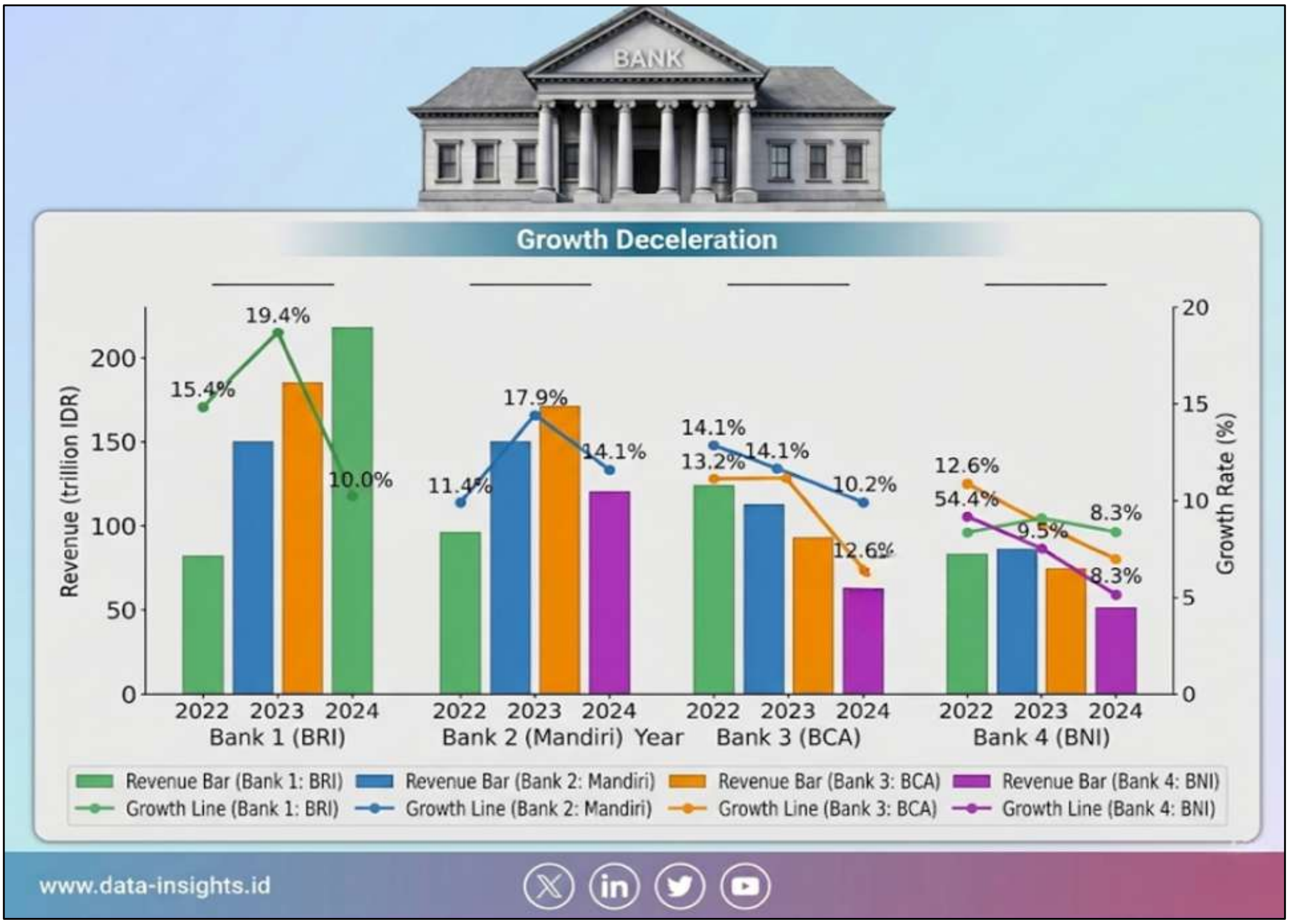
The COVID-19 pandemic that hit the world in early 2020 had a widespread impact, affecting not only the health sector but also significantly the economic sector, particularly the banking industry (Patel et al., 2021). The impact of the COVID-19 pandemic was particularly felt in the banking sector, particularly in credit activity, a key component of the banking industry, and it is now facing the risk of a slowdown. This decline was caused by weakening economic performance, rising unemployment, and disruptions across various businesses, leading to bad debts. This phenomenon created serious challenges for the banking sector in maintaining financial stability and managing the increasing credit risk amid the COVID-19 pandemic (Gündüz, 2022). As financial institutions, banks play a crucial role in maintaining the country's economic stability. Apart from that, banks also have other functions that aim to advance the economy and serve the community in the financial sector.

To improve stability and efficiency and facilitate regulation and supervision, the Financial Services Authority (OJK) classifies banks based on their core capital. Based on Financial Services Authority Circular Letter No. 27/SEOJK.03/2016: Commercial Banks are grouped by Core Capital; hereinafter, referred to as Commercial Banks based on Business Activities. The grouping of Commercial Banks based on Business Activities (BUKU) consists of 4 levels. The higher the bank's core capital, the higher its BUKU and the broader the scope of business activities it can undertake.

However, banks in Indonesia are no longer classified based on Commercial Bank Business Activities 1, 2, 3, and 4 since October 2021. The Financial Services Authority (OJK) now uses the Bank Group classification based on Core Capital Bank Group. This provision is stipulated in Financial Services Authority Regulation No. 12/POJK.03/2021 concerning Commercial Banks. Bank Groups based on Core Capital are divided into four types: Core Capital Bank Tier-1, Core Capital Bank Tier-2, Core Capital Bank Tier-3, and Core Capital Bank Tier-4.

The new policy has changed the classification of banks and the minimum core capital requirements. This change occurred in the Core Capital Bank Tier-4, which initially comprised 9 banks but now has only 4 remaining: Mandiri Bank, BRI Bank, BNI Bank, and BCA Bank. The Core Capital Bank Tier-4 is the highest-ranking group of banks with capital exceeding IDR 70 trillion.

The increase in total revenue recorded by banks in the Core Capital Bank Tier-4indicates positive growth and considerable stability in the Indonesian banking sector, particularly for banks with the largest core capital. However, to gain a more comprehensive picture of these banks' health, asset growth alone is insufficient. Furthermore, various other factors must be considered when assessing a bank's financial health. Bank health plays a crucial role in fostering public trust. Bank health can be assessed through various aspects (Amyulianthy et al., 2022). This assessment aims to determine whether the bank is very healthy, healthy, fairly healthy, less healthy, or very unhealthy.



Source: Data-Insight.id (2024)

Figure 1. Revenue Growth of Core Capital Bank Tier-4 in Indonesia, 2022–2024

Bank health assessments can be conducted using various methods, including CAMELS and RGEC analysis. These two methods have different approaches to assessing bank performance and health, making a thorough understanding of both methods crucial for bank managers, investors, and regulators(Ch & Jola, 2017).

The CAMELS method is a development of the CAMEL method, differing in that it adds a Sensitivity to Market Risk assessment aspect (Varga & Bánkuti, 2021). Meanwhile, the RGEC method provides a more modern and comprehensive approach to assessing bank health (Petrina et al., 2024). According to Bank Indonesia Circular Letter No. 13/24/DPNP of 2011, RGEC has four components: Risk Profile, Good Corporate Governance, Earnings, and Capital. The RGEC approach is more holistic because it encompasses aspects of corporate governance, which are increasingly considered crucial in maintaining bank stability and reputation in the public eye.

According to Danlami et al. (2022) and Kumar et al. (2023), the complementary differences between these two methods have motivated researchers to examine bank health using both CAMELS and RGEC. By adopting appropriate assessment methods such as CAMELS and RGEC, researchers aim to provide an overview of the financial condition of Core Capital Bank Group Tier-4 for the period 2019-2023. This period was chosen because it encompasses three important stages: before the COVID-19 pandemic, during the pandemic, and the post-COVID-19 recovery period, allowing for an in-depth analysis of the pandemic's impact on bank financial stability.

LITERATURE REVIEW

Bank Health Level

In the Indonesian banking system, bank classification based on core capital is crucial for determining a bank's operational capacity and financial stability. Furthermore, this classification aims to create precise clusters that will facilitate authorities' oversight of each class within the core capital group category. (Riyanti et al., 2025)This classification applies to Indonesian corporate banks, commercial banks operating under Sharia principles, Sharia bank business units, and foreign bank branches. For Islamic bank business units, core capital requirements are based on their parent bank's core capital.

Bank Indonesia Regulation No. 13/1/PBI/2011 Art. 2 Par. 1 states that banks are required to maintain and/or improve their Bank Soundness Level by applying prudential principles and risk management in carrying out their business activities. Simply put, a bank's soundness level is an indicator of its overall condition and performance. Bank soundness serves as an important oversight tool for various stakeholders (Agoraki & Kouretas, 2021). In this context, the assessment of a bank's soundness level encompasses various aspects of its performance and condition, such as capital, management, asset quality, earnings, ability to withstand future market risks (sensitivity to market risk), risk profile, and good corporate governance. Bank soundness can also be defined as a bank's ability to conduct banking operations normally and effectively and fulfill all its obligations in accordance with applicable banking regulations.

Bank Indonesia, through Bank Indonesia Circular Letter No. 6/23/ The DPNP has classified banks based on their health, which are: (1) The "Very Healthy" Level predicate is equated with Composite Rating 1 (PK-1); (2) The "Healthy" Level predicate is equated with Composite Rating 2 (PK-2); (3) The "Fairly Healthy" Level predicate is equated with Composite Rating 3 (PK-3); (4) The "Less Healthy" Level predicate is equated with Composite Rating 4 (PK-4); (5) The "Unhealthy" Level predicate is equated with Composite Rating 5 (PK-5)..

Camels Method

CAMELS is a method for measuring a bank's health level, based on Bank Indonesia Circular Letter No. 6/23/DPNP of 2004. According to Danlami et al (2022), this method consists of aspects of Capital (proxy by Capital Adequacy Ratio), Assets Quality (proxy by Non-Performing Loan), Management (proxy by Net Profit Margin), Earnings (proxy by Return on Assets and Operating Expenses to Operating Income Ratio), Liquidity (proxy by Loan to Deposit Ratio), and Sensitivity to Market Risk.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

RGEC Method

According to Bank Indonesia Regulation 13/1/PBI/2011 concerning the health assessment of commercial banks, banks are required to assess their bank health using a risk-based approach (Risk-Based Bank Rating). RGEC is one of the bank health assessment methods used by banks in Indonesia. The components of the RGEC method include: (1) Risk Profile, which includes an assessment of various types of risks faced by the bank, including non-performing loans and the loan-to-deposit ratio;(2) Good Corporate Governance, which is a set of rules, policies, and practices designed to direct and control the company. This concept encompasses mechanisms that ensure that the company is managed transparently, responsibly, and efficiently for the benefit of all stakeholders. The following criteria are assessed: transparency, accountability, responsibility, independence, and fairness;(3) Earnings, which is the ratio of net profit to the capital or assets that generate the profit. In assessing profitability, many indicators can be used. In this study, the indicators used are: Return on Equity (ROE) and Net Interest Margin (NIM);(4) Capital, which refers to a bank's ability to provide sufficient capital to support operations and cover the risk of loss One indicator that can be used is the Capital Adequacy Ratio (CAR),(Irene et al., 2014; Madugu et al., 2020).

METHODS

This study uses secondary data in the form of audited bank financial reports for the 2019-2023 period obtained from bank websites, or accessed through the Indonesia Stock Exchange, and other data on bank health stipulated by Bank Indonesia, the Financial Services Authority, and regulations of the Indonesian Ministry of Finance.

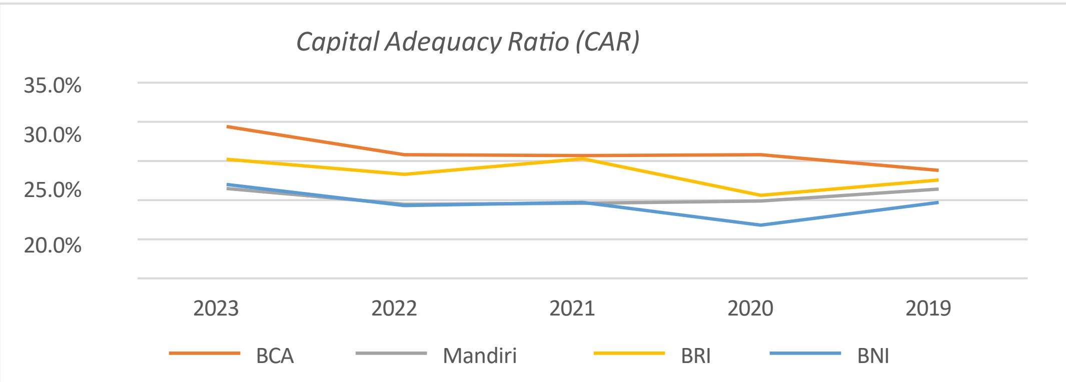
RESULTS

CAMELS – Capital. The following data relates to the Capital Adequacy Ratio (CAR) of the Core Capital Bank Tier-4 that are the object of this research:

Table 1. Capital Adequacy Ratio (CAR)

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	29.4	25.8	25.7	25.8	23.8	**23.8**	**26.1**	**29.4**
Mandiri	21.5	19.5	19.6	19.9	21.4	**19.5**	**20.4**	**21.5**
BRI	25.2	23.3	25.3	20.6	22.6	**20.6**	**23.4**	**25.3**
BNI	22.0	19.3	19.7	16.8	19.7	**16.8**	**19.5**	**22.0**
Avg	**24.5**	**22.0**	**22.6**	**20.8**	**21.9**			

Source: Table by Author



Source: Figure by Author

Figure 2. Capital Adequacy Ratio (CAR)

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

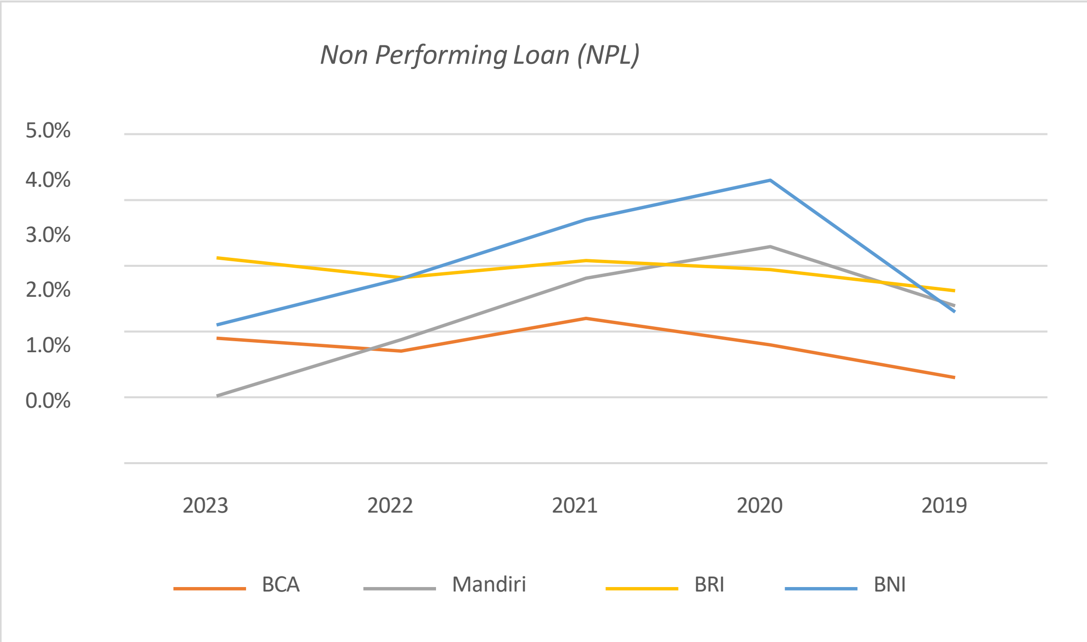
The table and figure show the trend in the Capital Adequacy Ratio (CAR) for four banks over the 2019–2023 period. In 2020, the COVID-19 pandemic put pressure on bank capital, primarily due to increased credit risk and provisioning requirements. The largest decline occurred at BNI, from 19.7 in 2019 to 16.8 in 2020. Mandiri and BRI also experienced declines, while BCA was relatively able to maintain a high CAR. After 2020, all banks' CARs showed a recovery trend. In 2023, BCA recorded the highest CAR at 29.4, followed by BRI, BNI, and Mandiri. Overall, this trend indicates that major Indonesian banks have strengthened their capital structures despite pandemic-related pressures.

CAMELS – Assets Quality. The following data relates to the Non-Performing Loan (NPL) of the Core Capital Bank Tier-4 that are the object of this research:

Table 2. Non-Performing Loan (NPL)

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	1.9%	1.7%	2.2%	1.8%	1.3%	**1.3%**	**1.8%**	**2.2%**
Mandiri	1.0%	1.9%	2.8%	3.3%	2.4%	**1.0%**	**2.3%**	**3.3%**
BRI	3.1%	2.8%	3.1%	2.9%	2.6%	**2.6%**	**2.9%**	**3.1%**
BNI	2.1%	2.8%	3.7%	4.3%	2.3%	**2.1%**	**3.0%**	**4.3%**
Avg	**2.0%**	**2.3%**	**2.9%**	**3.1%**	**2.2%**			

Source: Table by Author



Source: Table by Author

Figure 3. Non-Performing Loan (NPL)

The table and graph show the trend in the Non-Performing Loan (NPL) ratio of four banks during the 2019–2023 period. In 2020, NPLs increased sharply due to the pressure of the COVID-19 pandemic, which weakened borrowers' ability to meet credit obligations. This increase reflected a decline in bank asset quality, particularly at BNI and Mandiri, which recorded higher NPL fluctuations. From 2021 to 2023, NPLs gradually declined, indicating improvements in credit quality and a post-pandemic economic recovery. Compared to other banks, BCA had a relatively lower NPL ratio, reflecting better credit risk management and asset quality. Overall, this trend indicates that the pandemic increased credit risk, but banking conditions began to improve during the recovery period.

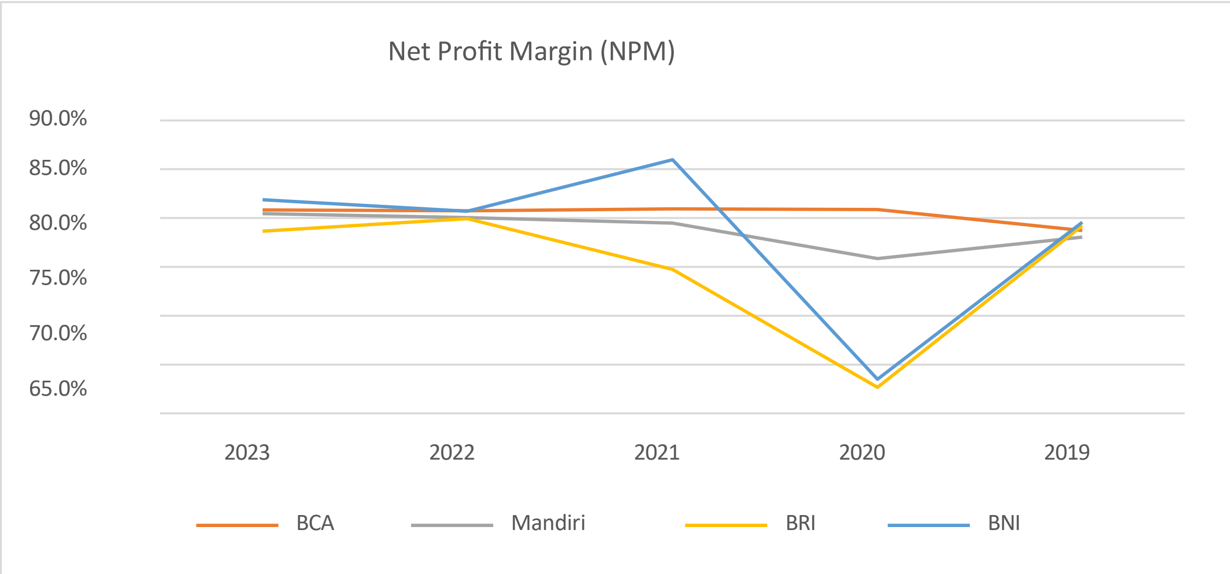
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

Camels – Management. The following data relates to the Net Profit Margin (NPM) of the Core Capital Bank Tier-4 that are the object of this research:

Table 3. Net Profit Margin (NPM)

		2022	2021	2020	2019	lowest	Avg	highest
BCA	80.9%	80.8%	80.9%	80.9%	78.7%	**78.7%**	**80.4%**	**80.9%**
Mandiri	80.5%	80.0%	79.5%	75.9%	78.1%	**75.9%**	**78.8%**	**80.5%**
BRI	78.6%	79.9%	74.8%	62.7%	79.2%	**62.7%**	**75.0%**	**79.9%**
BNI	81.9%	80.7%	86.0%	63.5%	79.6%	**63.5%**	**78.3%**	**86.0%**
Avg	**80.5%**	**80.4%**	**80.3%**	**70.7%**	**78.9%**			

Source: Table by Author



Source: Table by Author

Figure 4. Net Profit Margin (NPM)

The table and graph show the Net Profit Margin (NPM) trend for four banks during the 2019–2022/2023 period. Overall, NPM increased from 2019 to 2022, reflecting the recovery of banks' intermediation function following the pressures of the COVID-19 pandemic. In 2019, the average NPM was 70.7%, then increased to around 80% in subsequent years.

Compared to other banks, BCA showed a relatively stable NPM at around 80%, reflecting consistent liquidity management. BRI and BNI experienced greater fluctuations, particularly in 2020, indicating pressure on lending and fundraising during the pandemic. Overall, this trend indicates that major Indonesian banks were able to maintain their intermediation function and liquidity during the economic recovery period..

CAMELS – Earnings:

(1) The following data relates to the Return on Asset (ROA) of the Core Capital Bank Tier-4 that are the object of this research:

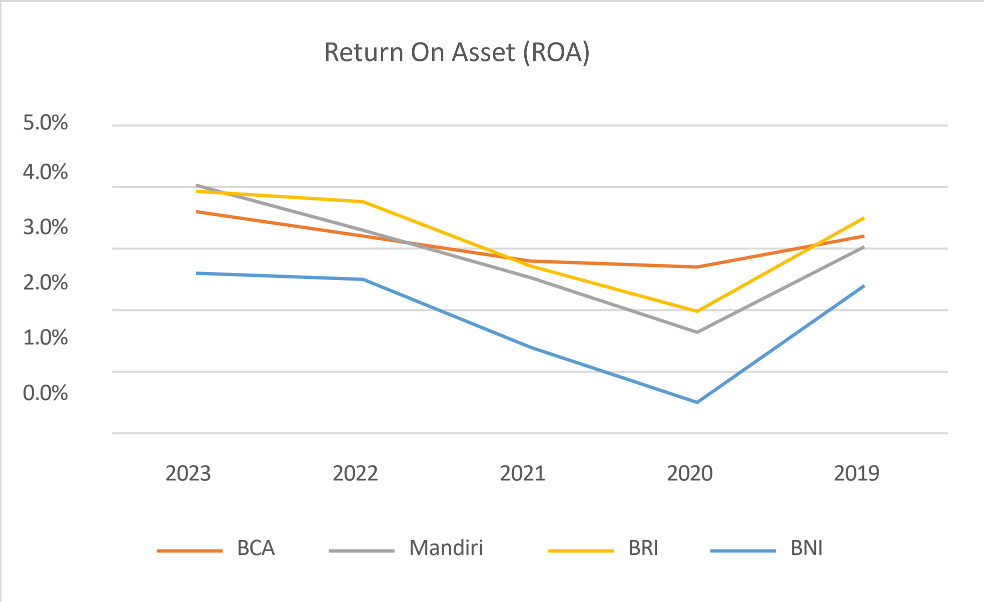
Table 4. Return On Asset (ROA)

Bank	2023	2022	2021	2020	2019	Lowest	Average	Highest
BCA	3.6%	3.2%	2.8%	2.7%	3.2%	2.7%	3.1%	3.6%
Mandiri	4.0%	3.3%	2.5%	1.6%	3.0%	1.6%	2.9%	4.0%

INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS)
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

BRI	3.9%	3.8%	2.7%	2.0%	3.5%	2.0%	3.2%	3.9%
BNI	2.6%	2.5%	1.4%	0.5%	2.4%	0.5%	1.9%	2.6%
Average	**3.5%**	**3.2%**	**2.4%**	**1.7%**	**3.0%**	**1.7%**	**2.8%**	**3.5%**

Source: Table by Author



Source: Table by Author

Figure 5. Return on Asset (ROA)

The table and graph show the Return on Assets (ROA) trends of four banks during the 2019–2023 period. Overall, ROA declined sharply in 2020 due to the pressure of the COVID-19 pandemic, which weakened economic activity, increased credit risk, and reduced banks' ability to generate profits from their assets. After 2020, the ROA of the four banks showed a consistent recovery trend. BCA, Mandiri, and BRI again recorded strong ROA levels, while BNI improved significantly from 0.5% in 2020 to 2.6% in 2023. Overall, this trend indicates that although the pandemic depressed bank profitability, major Indonesian banks adapted and recovered their financial performance in the post-pandemic period.

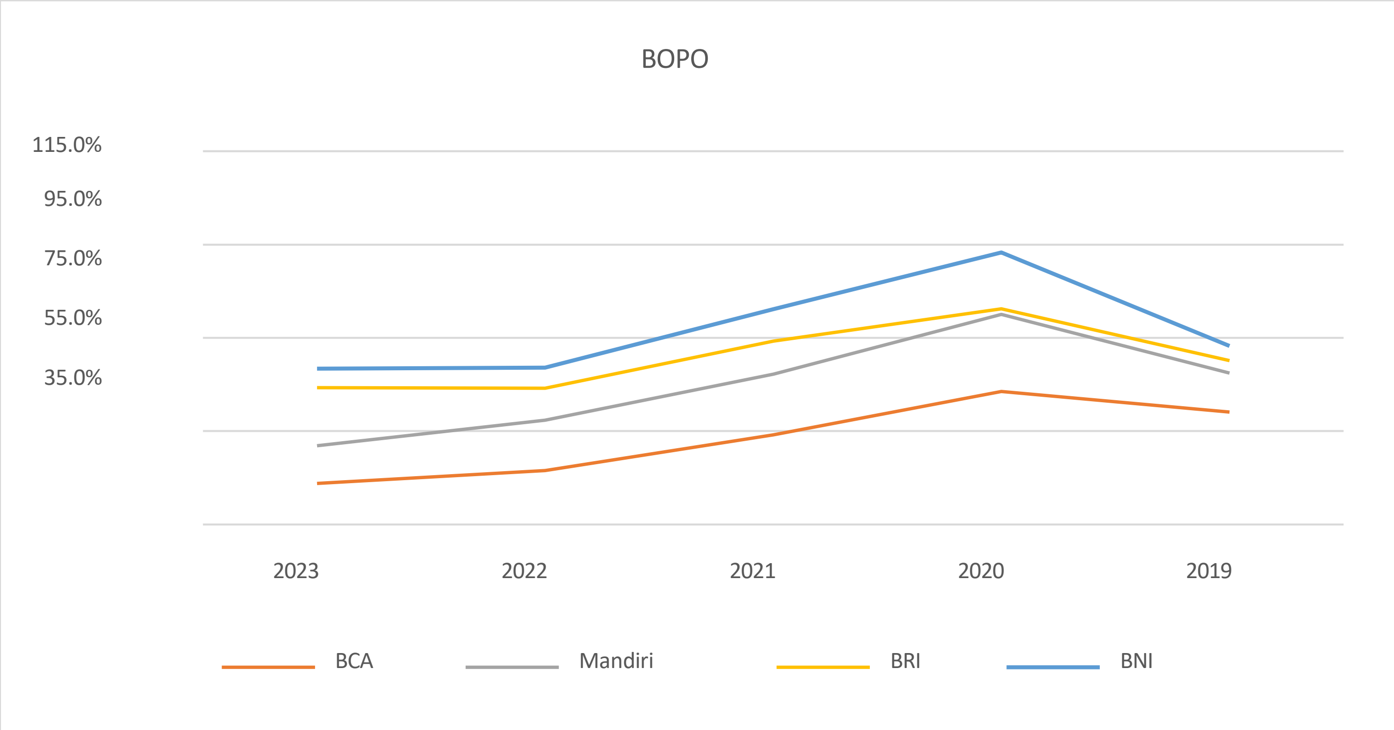
(2). The following data relates to the Operating Expenses to Operating Income of the Core Capital Bank Tier-4 that are the object of this research:

Table 5. Operating Expenses to Operating Income

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	43.8%	46.5%	54.2%	63.5%	59.1%	**43.8%**	**53.4%**	**63.5%**
Mandiri	51.9%	57.4%	67.3%	80.0%	67.4%	**51.9%**	**64.8%**	**80.0%**
BRI	64.4%	64.2%	74.3%	81.2%	70.1%	**64.2%**	**70.8%**	**81.2%**
BNI	68.4%	68.6%	81.2%	93.3%	73.2%	**68.4%**	**76.9%**	**93.3%**
Avg	**57.1%**	**59.2%**	**69.2%**	**79.5%**	**67.5%**			

Source: Table by Author

INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS)
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026



Source: Table by Author

Figure 6. Operating Expenses to Operating Income

The table and graph show the trend in Operating Expenses to Operating Income for four banks during the 2019–2023 period. Overall, the ratio increased significantly in 2020 due to the pressure of the COVID-19 pandemic, which reduced operating income and increased banks' operating expenses. The largest increase occurred at BNI, reaching 93.3% in 2020, followed by BRI at 81.2% and Mandiri at 80.0%. This indicates that these three banks experienced significant operational efficiency pressures during the pandemic. Meanwhile, BCA was relatively stable, with a 63.5% value in 2020, reflecting better operational efficiency than other banks.

After 2020, the ratios for all four banks declined until 2023. This decline reflects improved operational efficiency and the banks' ability to manage costs following the pandemic's pressures. Overall, the Ratio trend indicates that, while the pandemic increased banks' operational pressures, major Indonesian banks improved their efficiency during the recovery period.

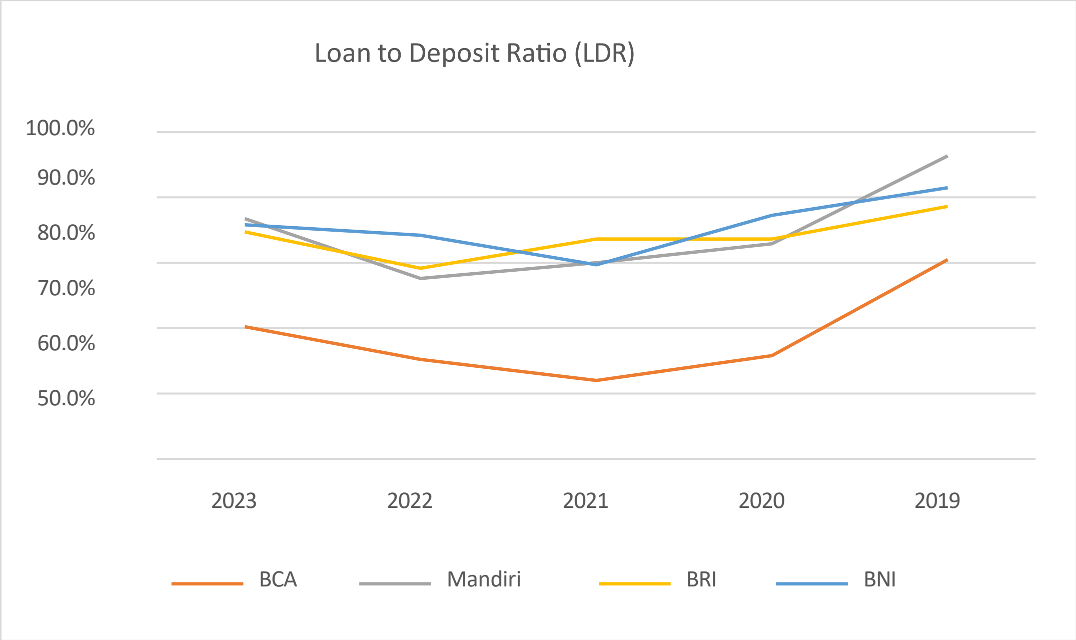
CAMELS – Liquidity. The following data relates to the Loan to Deposit Ratio (LDR) of the Core Capital Bank Tier-4 that are the object of this research:

Table 6. Loan to Deposit Ratio (LDR)

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	70.2%	65.2%	62.0%	65.8%	80.5%	**62.0%**	**68.7%**	**80.5%**
Mandiri	86.8%	77.6%	80.0%	83.0%	96.4%	**77.6%**	**84.7%**	**96.4%**
BRI	84.7%	79.2%	83.7%	83.7%	88.6%	**79.2%**	**84.0%**	**88.6%**
BNI	85.8%	84.2%	79.7%	87.3%	91.5%	**79.7%**	**85.7%**	**91.5%**
Avg	**81.9%**	**76.5%**	**76.4%**	**79.9%**	**89.3%**			

Source: Table by Author

INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS)
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026



Source: Table by Author

Figure 7. Loan to Deposit Ratio (LDR)

The table and graph show the trend in the Loan-to-Deposit Ratio (LDR) of four banks during the 2019–2023 period. Overall, all banks experienced a decline in LDR in 2020 compared to 2019. This decline reflects the impact of the COVID-19 pandemic, which suppressed credit demand, slowed business activity, and encouraged banks to be more cautious in disbursing financing. At the same time, people tended to increase their savings as a precaution against economic uncertainty. This condition led to an increase in third-party funds, while credit distribution slowed, resulting in a decline in the LDR ratio. Overall, the decline in LDR in 2020 demonstrates banks' strategies to maintain liquidity and mitigate credit risk during the pandemic.

RGEC – Risk Profile. In the risk profile analysis, researchers focused on two main ratios: Non-Performing Loans (NPL) and the Loan-to-Deposit Ratio (LDR). The NPL ratio provides an overview of potential losses and indicates problems in credit risk management. Meanwhile, the LDR ratio measures the proportion of loans disbursed relative to the bank's total deposits. Regarding the risk profile, the researchers did not explain the interpretation of NPL and LDR to avoid repetition, as they had previously been discussed in the CAMELS method indicators, namely the asset quality and liquidity aspects.

RGEC – Good Corporate Governance. In the aspect of corporate governance (Good Corporate Governance), researchers focus on composite value analysis. This analysis provides a comprehensive overview of the Company's performance in implementing the principles of good corporate governance. Through the research results table below, researchers will describe data related to the composite value of the Core Capital Bank Tier-4 that are the object of this research:

Table 7. Good Corporate Governance Index

Year	**Period**	**Mandiri**	**BNI**	**BCA**	**BRI**
2023	Semester 1	NK 1	NK 2	NK 1	NK 2
	Semester 2	NK 1	NK 2	NK 1	NK 2
2022	Semester 1	NK 1	NK 2	NK 1	NK 2
	Semester 2	NK 1	NK 2	NK 1	NK 2
2021	Semester 1	NK 1	NK 2	NK 1	NK 2

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

	Semester 2	NK 1	NK 2	NK 1	NK 2
2020	Semester 1	NK 1	NK 2	NK 2	NK 2
	Semester 2	NK 1	NK 2	NK 1	NK 2
2019	Semester 1	NK 1	NK 2	NK 2	NK 2
	Semester 2	NK 1	NK 2	NK 2	NK 2

Source: Table by Author

Based on the Good Corporate Governance (GCG) data for the 2019–2023 period mentioned above, Mandiri and BCA consistently achieved a "NK 1" rating, reflecting excellent implementation of GCG principles and adherence to transparency, accountability, and responsibility. Meanwhile, BNI and BRI achieved an "NK 2" rating during the same period, indicating that their corporate governance is considered good but still requires improvement to reach the excellent levels of Mandiri and BCA. This difference reflects variations in the effectiveness of risk management, internal supervision, and the implementation of GCG principles across banks. Improving GCG ratings is crucial for maintaining operational stability.

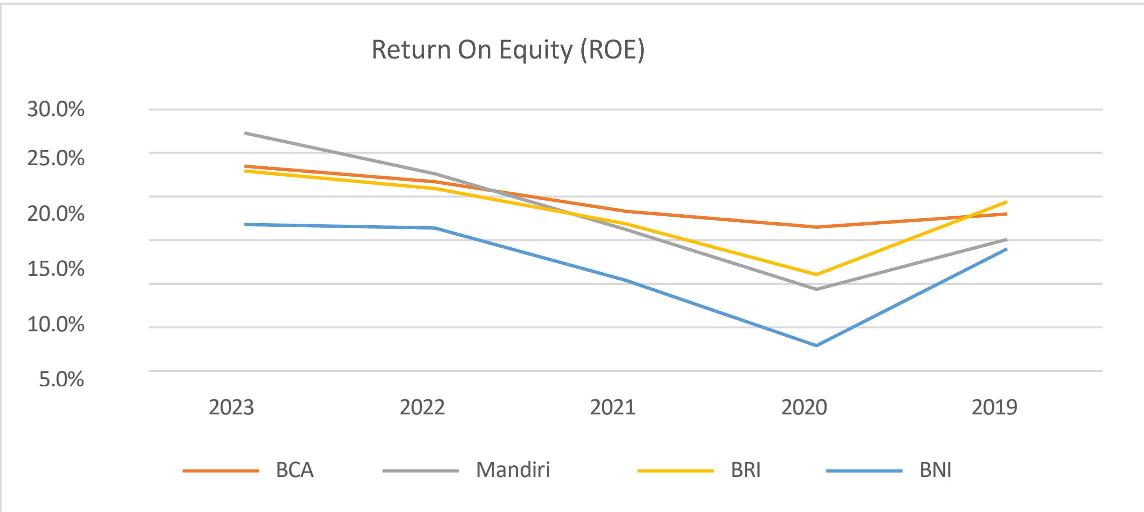
RGEC – Earnings.

(1). The following data relates to the Return On Equity (ROE) of the Core Capital Bank Tier-4 that are the object of this research:

Table 8. Return On Equity (ROE)

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	23.5%	21.7%	18.3%	16.5%	18.0%	**16.5%**	**19.6%**	**23.5%**
Mandiri	27.3%	22.6%	16.2%	9.4%	15.1%	**9.4%**	**18.1%**	**27.3%**
BRI	22.9%	20.9%	16.9%	11.1%	19.4%	**11.1%**	**18.2%**	**22.9%**
BNI	16.8%	16.4%	10.4%	2.9%	14.0%	**2.9%**	**12.1%**	**16.8%**
Avg	**22.6%**	**20.4%**	**15.5%**	**10.0%**	**16.6%**			

Source: Table by Author



Source: Table by Author

Figure 8. Return On Equity (ROE)

INTERNATIONAL JOURNAL OF RESEARCH AND INNOVATION IN SOCIAL SCIENCE (IJRISS)
ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

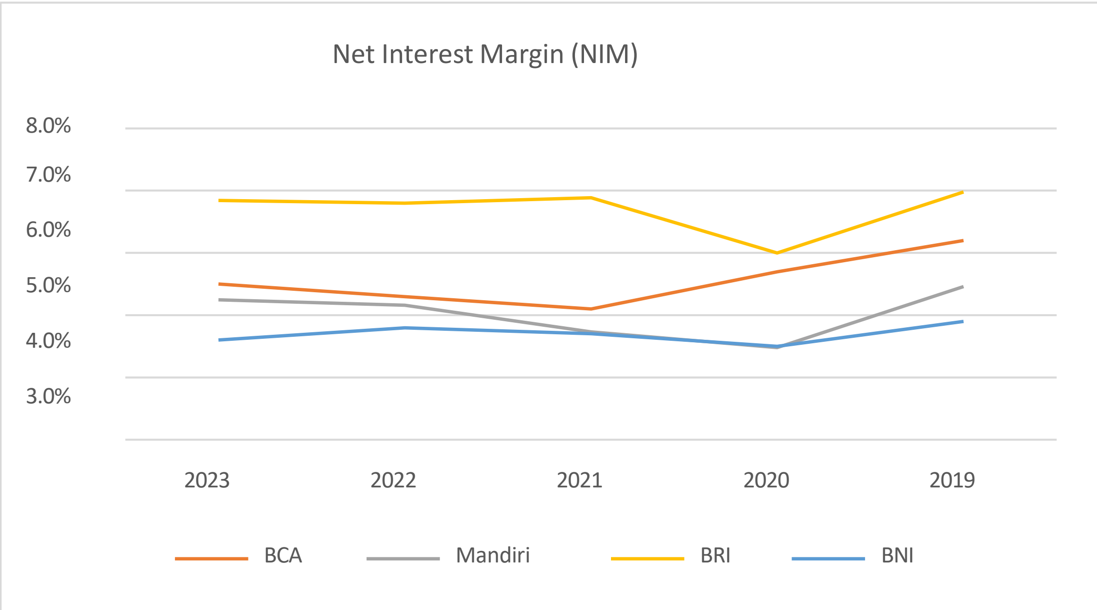
Based on the ROE chart for the 2019–2023 period, all banks experienced a significant decline in 2020 compared to 2019, driven by economic pressures during the COVID-19 pandemic. This decline was influenced by slowing business activity, credit restructuring, declining interest income, and increasing provisions for credit losses. BNI recorded the sharpest decline, from 14% in 2019 to 2.9% in 2020. However, from 2021 to 2023, the ROE of most banks showed a steady recovery trend.

(2). The following data relates to the Net Interest Margin (NIM) of the Core Capital Bank Tier-4 that are the object of this research:

Table 8. Net Interest Margin (NIM)

	2023	**2022**	**2021**	**2020**	**2019**	**lowest**	**Avg**	**highest**
BCA	5.5%	5.3%	5.1%	5.7%	6.2%	**5.1%**	**5.6%**	**6.2%**
Mandiri	5.3%	5.2%	4.7%	4.5%	5.5%	**4.5%**	**5.0%**	**5.5%**
BRI	6.8%	6.8%	6.9%	6.0%	7.0%	**6.0%**	**6.7%**	**7.0%**
BNI	4.6%	4.8%	4.7%	4.5%	4.9%	**4.5%**	**4.7%**	**4.9%**
Avg	**5.5%**	**5.5%**	**5.4%**	**5.2%**	**5.9%**			

Source: Table by Author



Source: Table by Author

Figure 8. Net Interest Margin (NIM)

Based on the 2019–2023 NIM chart, all banks experienced a decline in 2020 compared to 2019 due to the economic slowdown during the COVID-19 pandemic. This decline was influenced by lower benchmark interest rates, credit restructuring, and increased bank prudence in lending. BRI continued to record the highest NIM, although it fell from 7.0% in 2019 to 6.0% in 2020. After 2020, the NIM of most banks showed a recovery trend, particularly BRI, which returned to 6.8% in 2023, followed by increases at BCA and Mandiri.

RGEC – Capital. The capital aspect of the RGEC method is not presented because it has been comprehensively discussed in the CAMELS analysis. In the CAMELS analysis, the capital aspect already includes an assessment of the Capital Adequacy Ratio (CAR) as an indicator of bank health, so the discussion of the capital aspect is

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume X Issue V May 2026

considered sufficient within that framework. Therefore, to avoid repetition and provide a more in-depth focus, the explanation of the capital aspect is not repeated. This aims to maintain clarity in the analysis and direct attention to key elements that are more relevant to evaluating bank health using both methods.

Recapitulations of Bank Health Level

After knowing the ratio value of each aspect in the CAMELS and RGEC methods, as well as the credit value of each ratio, the health level of Bank Category based Core Capital Bank Tier-4, which are the object of this research, is shown in the table below:

Table 9. Recapitulations of Bank Health Level

Year	Method	BCA	Mandiri	BRI	BNI
2019	RGEC	93.33%	90.00%	86.67%	86.67%
	CAMELS	88.00%	80.00%	80.00%	80.00%
2020	RGEC	96.67%	93.33%	90.00%	86.67%
	CAMELS	90.00%	82.00%	77.00%	72.00%
2021	RGEC	96.67%	93.33%	90.00%	90.00%
	CAMELS	84.00%	82.00%	82.00%	86.00%
2022	RGEC	100.00%	96.67%	90.00%	90.00%
	CAMELS	90.00%	88.00%	82.00%	82.00%
2023	RGEC	100.00%	93.33%	90.00%	86.67%
	CAMELS	90.00%	86.00%	82.00%	85.00%

Source: Table by Author

Table 9 shows a recapitulation of the Health level of banks in the Bank Category based on Core Capital Tier-IV, namely BCA, Mandiri, BRI, and BNI banks, in composite values based on two assessment methods, namely RGEC and CAMELS, for the period 2019 to 2023. The following is a description of the results of the bank health level assessment based on the composite predicate for the period 2019 to 2023.

Table 10. Composite Rating Based on RGEC and CAMELS Methods, 2019–2023

Year	Method	BCA	Mandiri	BRI	BNI
2019	RGEC	Very Healthy	Very Healthy	Very Healthy	Very Healthy
	CAMELS	Healthy	Cukup Sehat	Fairly Healthy	Fairly Healthy
2020	RGEC	Very Healthy	Very Healthy	Very Healthy	Very Healthy
	CAMELS	Healthy	Healthy	Fairly Healthy	Fairly Healthy
2021	RGEC	Very Healthy	Very Healthy	Very Healthy	Very Healthy
	CAMELS	Healthy	Healthy	Healthy	Healthy
2022	RGEC	Very Healthy	Very Healthy	Very Healthy	Very Healthy
	CAMELS	Healthy	Healthy	Healthy	Healthy
2023	RGEC	Very Healthy	Very Healthy	Very Healthy	Very Healthy
	CAMELS	Healthy	Healthy	Healthy	Healthy

Source: Table by Author

Tables 9 and 10 present a summary of bank health levels, expressed as composite scores and ratings, based on the RGEC and CAMELS methods for the period 2019 to 2023. Based on the RGEC method, all banks—BCA, Mandiri, BRI, and BNI—consistently earned the “Very Healthy” rating each year. This indicates that the four banks have sound risk management, effective corporate governance, adequate profitability, and adequate capital in accordance with banking standards. However, different results were seen using the CAMELS method, especially at the beginning of the observation period. In 2019 and 2020, BCA and Mandiri continued to demonstrate strong performance, earning a “Healthy” rating, while BRI and BNI earned only a “Fairly Healthy” rating. This indicates challenges for both banks. Nevertheless, from 2021 to 2023, BRI and BNI improved their ratings to “Healthy,” tying with BCA and Mandiri.

Overall, this table shows that all banks observed improved or maintained their financial health, as assessed by the RGEC and CAMELS methods. The stable trends at BCA and Mandiri demonstrate their success in maintaining high-quality performance, while the improvements made by BRI and BNI under the CAMELS method reflect their commitment to addressing challenges and strengthening competitiveness in the banking sector.

CONCLUSION

Based on the results of a study of the health levels of Bank Category based Core Capital Bank Tier-4 (Indonesian Financial Reporting Standards and Standardization) for the 2019–2023 period using the CAMEL and RGEC methods, it can be concluded that the four banks: BCA, Mandiri, BRI, and BNI, are generally in good health. In terms of capitalization, all banks have strong CAR ratios and are rated "Very Healthy," with BCA recording the highest average CAR at 26.1%. In terms of asset quality, BCA also performed best, with the lowest average NPL of 1.8%, while Mandiri, BRI, and BNI remained in the healthy category. In terms of management, profitability, and liquidity, the four banks demonstrated a strong ability to manage risk, maintain operational efficiency, maintain profits, and disburse credit prudently. BCA consistently demonstrated superior performance across most indicators, particularly NPL, ROA, BOPO, LDR, and GCG, while Mandiri, BRI, and BNI maintained stable performance despite variations in some ratios.

Overall, the COVID-19 pandemic put significant pressure on banking performance, particularly in 2020, as evidenced by fluctuations in several ratios, including ROE, NIM, LDR, and profitability. However, the four banks demonstrated a consistent recovery trend from 2021 to 2023. The RGEC assessment showed more stable results, with all banks ranked "Very Healthy" throughout the study period. Meanwhile, the CAMEL assessment showed more varied results, particularly in 2019 and 2020, when BCA was ranked "Healthy," and the other three banks were ranked "Fairly Healthy." Entering the 2021–2023 period, all banks demonstrated improvement and consistently ranked "Healthy." Therefore, Bank Category-based Core Capital Bank Tier-4 can be assessed as having good resilience, adequate governance, and strong adaptability in dealing with economic pressures and maintaining sustainable performance post-pandemic.

RECOMMENDATIONS

Based on the research findings, Bank Category based Core Capital Bank Tier-4 need to continue strengthening their financial resilience through credit risk management, increasing operational efficiency, and strengthening corporate governance. Although BCA, Mandiri, BRI, and BNI generally demonstrated healthy to very healthy conditions, the pressures experienced in 2020 demonstrated that external conditions such as the pandemic can impact banks' profitability, liquidity, and asset quality. Therefore, banks need to maintain capital adequacy, strengthen early warning systems for non-performing loans, improve the quality of risk reserves, and optimize digital banking to maintain stable financial performance in the face of the economic crisis.

For future research, it is recommended that the research object be expanded beyond Bank Category based Core Capital Bank to compare bank health levels based on different capital scales. Furthermore, the research period could be extended to more recent years to allow for a more comprehensive analysis of post-pandemic recovery trends. Future research could also include macroeconomic variables such as inflation, benchmark interest rates, economic growth, and exchange rates, as these factors have the potential to influence banking performance. In terms of methods, quantitative approaches such as panel regression or comparative statistical analysis can also be used to ensure that research results are not merely descriptive but also provide a more in-depth explanation of the relationships between variables. This suggestion aligns with the focus of this paper, which assesses the health of Indonesia's largest banks for the 2019–2023 period using CAMELS and RGEC.

REFERENCES

1. Agoraki, M.-E. K., & Kouretas, G. P. (2021). Loan growth, ownership, and regulation in the European Banking Sector: Old versus new banking landscape. Journal of International Financial Markets, Institutions and Money, 75. https://doi.org/10.1016/j.intfin.2021.101450
2. Amyulianthy, R., Muda, R., Said, J., & Setyaningrum, D. (2022). Measuring Good Public Governance in the Local Governments of Indonesia: A Multidimensional Index. Asia-Pacific Management Accounting Journal, 17(2), 201–227. https://doi.org/10.24191/apmaj.v17i2-07
3. Ch, F. N., & Jola, S. P. (2017). Bank health level analysis using rbbr in financial services sector - case in Indonesia stock exchange. International Journal of Economic Research, 14(17), 181–192.
4. Danlami, M. R., Abduh, M., & Abdul Razak, L. (2022). CAMELS, risk-sharing financing, institutional quality and stability of Islamic banks: evidence from 6 OIC countries. Journal of Islamic Accounting and Business Research, 13(8), 1155–1175. https://doi.org/10.1108/JIABR-08-2021-0227
5. Gündüz, V. (2022). Performance Analysis of the Northern and Southern Banking Sectors on Cyprus Island Under the Covid-19 Era. Springer Proceedings in Business and Economics, 101–119. https://doi.org/10.1007/978-3-030-93725-6_6
6. Irene, P. F., Pilar, C. F., & Lious, N. A. T. (2014). Financial performance after the spanish banking reforms: A comparative study of 19 commercial banks. Risk Governance and Control: Financial Markets and Institutions, 4(2), 70–82. https://doi.org/10.22495/rgcv4i2art6
7. Kumar, P., Verma, P., Bhatnagar, M., Taneja, S., Seychel, S., Todorović, I., & Grim, S. (2023). The Financial Performance and Solvency Status of the Indian Public Sector Banks: A CAMELS Rating and Z Index Approach. International Journal of Sustainable Development and Planning, 18(2), 367–376. https://doi.org/10.18280/ijsdp.180204
8. Madugu, A. H., Ibrahim, M., & Amoah, J. O. (2020). Differential effects of credit risk and capital adequacy ratio on profitability of the domestic banking sector in Ghana. Transnational Corporations Review, 12(1), 37–52. https://doi.org/10.1080/19186444.2019.1704582
9. Patel, A., Debnath, N. C., Mishra, A. K., & Jain, S. (2021). Covid19-IBO: A Covid-19 Impact on Indian Banking Ontology Along with an Efficient Schema Matching Approach. New Generation Computing, 39(3–4), 647–676. https://doi.org/10.1007/s00354-021-00136-0
10. Petrina, O., Stadolin, M., Kozhina, V., Kurtynov, I., Nikolskaya, E., & Orlova, E. (2024). Bank Financial Risk Assessment in the Digital Background. International Journal of Safety and Security Engineering, 14(3), 765–771. https://doi.org/10.18280/ijsse.140309
11. Riyanti, R. S., Wulandari, P., Prijadi, R., & Tortosa-Ausina, E. (2025). Green loans: Navigating the path to sustainable profitability in banking. Economic Analysis and Policy, 85, 1613–1624. https://doi.org/10.1016/j.eap.2025.01.028
12. Varga, J., & Bánkuti, G. (2021). Ranking methodology for Islamic banking sectors - Modification of the conventional CAMELS method. Banks and Bank Systems, 16(1), 36–51. https://doi.org/10.21511/BBS.16(1).2021.04