



Financial Health of Indonesian Islamic Banks: A CAMEL-Based Analysis During and After the COVID-19 Pandemic

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ABSTRACT

This study aims to analyze the financial health of Indonesian Islamic commercial banks during and after the COVID-19 pandemic using the CAMEL framework. Data from nine Islamic commercial banks in Indonesia for the 2020–2024 period were examined using a descriptive quantitative approach with CAR, KAP, NPM, ROA, BOPO, and FDR as financial health indicators. Results show that Islamic banks generally maintained strong capital adequacy and controlled asset quality, while profitability, operational efficiency, and liquidity varied across banks. The average CAMEL score improved from the fairly healthy category in 2020–2021 to the healthy category in 2022–2024. Bank Mega Syariah, Bank BTPN Syariah, and Bank NTB Syariah recorded the strongest financial health, whereas Bank Aladin Syariah and KB Bank Syariah still faced challenges in profitability and efficiency. These findings suggest that Islamic bank soundness is bank-specific and component-specific. Management and regulators should prioritize efficiency, earning capacity, and liquidity control beyond capital adequacy. This study is descriptive and does not test causal relationships among financial ratios.

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CAMEL; Islamic banking; bank health

Introduction

Islamic banking has become an increasingly important component of Indonesia’s financial system because it performs the intermediation function while operating under Sharia principles. Its relevance is not limited to mobilizing deposits and distributing financing, but also includes maintaining public trust, supporting financial inclusion, and strengthening ethical financial practices. The COVID-19 pandemic placed additional

pressure on this role because banks had to maintain liquidity, capital resilience, asset quality, and income generation amid economic disruption, changes in customer behavior, and accelerated digital transformation. For Islamic banks, these pressures were particularly important because the business model combines banking intermediation with Sharia-based contracts and compliance requirements.

The development of Islamic banking during 2020–2024 demonstrates that the industry remained resilient despite the pandemic shock and subsequent recovery period. OJK's Snapshot of Indonesian Islamic Banking shows that Islamic banking assets increased from Rp608.89 trillion in 2020 to Rp980.30 trillion in 2024, while assets of Islamic commercial banks increased from Rp397.07 trillion to Rp664.61 trillion during the same period (Otoritas Jasa Keuangan, 2025b). At the end of 2024, the Islamic banking industry recorded total assets of Rp980.30 trillion, financing of Rp643.55 trillion, and third-party funds of Rp753.60 trillion, with year-on-year growth of 9.88%, 9.92%, and 10.09%, respectively (Otoritas Jasa Keuangan, 2025a, 2025b). Its market share in banking assets also reached 7.72% in December 2024, increasing from 7.44% in December 2023 (Otoritas Jasa Keuangan, 2025a). These figures indicate industry expansion, but they do not automatically show whether individual Islamic banks were financially healthy across the same period.

Financial health assessment is necessary because growth in assets, financing, and deposits may be accompanied by different levels of capital adequacy, asset risk, profitability, cost efficiency, and liquidity. In the Islamic banking context, performance cannot be interpreted only as profit achievement. Islamic banks must also ensure that financing quality remains under control, operational activities are efficient, and intermediation is conducted prudently. The CAMEL method is relevant for this purpose because it provides a structured assessment of Capital, Asset Quality, Management, Earning, and Liquidity. Although current supervisory practice increasingly emphasizes risk-based assessment, CAMEL remains widely used in academic studies because it relies on observable financial ratios and allows comparisons across banks and periods.

Previous studies have applied CAMEL or CAMELS indicators to assess banking performance. Ab-Rahim et al. (2018) used CAMEL to examine ASEAN public-listed banks and showed that the approach is useful for cross-bank comparison. Lestari & Hardiyanti (2020) compared Islamic banks in Indonesia and Malaysia using CAMEL ratios. In the Indonesian context, Nasution et al. (2023) examined Bank Syariah Indonesia for 2021–2022, while Minarni et al. (2023) evaluated the relationship between CAMEL-based financial performance and profitability of Islamic commercial banks. Other studies have also emphasized the importance of capital adequacy, asset quality, efficiency, and liquidity in

explaining Islamic bank profitability and stability (Astuti, 2022; Danlami et al., 2022; Rakhmat et al., 2024).

Recent international studies further show that Islamic bank health should be positioned within a broader post-crisis and cross-country context. Danlami et al. (2022) demonstrate that CAMELS indicators do not uniformly support Islamic bank stability and should be interpreted alongside risk-sharing financing and institutional quality. Nguyen et al. (2025), using 78 Islamic banks across 15 countries, find that Islamic bank efficiency during the COVID-19 period was shaped by both bank-level characteristics and country-level conditions. In the MENA region, Ghenimi et al. (2024) show that Islamic banks performed better and were less risky than conventional banks during the pandemic, while Butt & Chamberlain (2025) report that Islamic banks maintained relatively stronger liquidity, asset quality, and capital adequacy during COVID-19. At the Asian level, Iqbal et al. (2026) find that liquidity risk, financing risk, inflation, economic growth, and governance indicators contribute to Islamic bank stability. These studies indicate that Islamic bank soundness is multidimensional and that post-pandemic evaluation should not rely on a single financial ratio.

Digital transformation is also relevant to post-pandemic Islamic bank health because digital channels can affect customer access, service efficiency, trust, and operating-cost structures. Riza & Wijayanti (2024) show that digital banking can strengthen the sustainability of the Islamic financial industry during post-pandemic recovery, while Maniam (2024) identifies trust and technology-acceptance factors as central determinants of Islamic fintech adoption. These studies support the view that post-pandemic Islamic bank health should be interpreted not only through financial ratios but also within a changing digital-banking environment.

The research gap addressed in this study is threefold. First, several previous studies focused on one bank or a short period, so they did not fully describe differences in financial health among Islamic commercial banks during the pandemic and post-pandemic recovery phase. Second, many CAMEL-based studies reported average ratios or final health categories without showing complete descriptive statistics, extreme values, medians, standard deviations, and weighted component contributions. Third, prior studies rarely clarified that CAMEL-based descriptive analysis cannot be used to infer causal relationships among financial ratios. These gaps may limit the diagnostic value of CAMEL analysis for bank management and regulators.

This study addresses those gaps by applying a descriptive CAMEL-based analysis to nine Indonesian Islamic commercial banks over the 2020–2024 period. The approach is not

a new CAMEL formula; rather, it strengthens the empirical and analytical use of CAMEL by combining complete ratio descriptives, annual weighted component contributions, bank-level score comparisons, and trend visualization. Therefore, the novelty of this study lies in providing a recent, comparative, and component-based empirical mapping of Islamic bank financial health during and after the COVID-19 pandemic.

The significance of this novelty is that the study identifies which CAMEL components differentiate stronger and weaker bank health conditions. This is important for Islamic banking literature because it extends CAMEL analysis beyond simple ratio reporting and final categorization. It is also practically useful because banks with similar capital adequacy may still differ in profitability, efficiency, asset quality, and liquidity. Based on this background, the research question is: how was the financial health of Indonesian Islamic commercial banks during 2020–2024 when assessed using the CAMEL method? The objective of this study is to analyze the financial health of selected Islamic commercial banks in Indonesia using CAR, KAP, NPM, ROA, BOPO, and FDR as CAMEL indicators.

Literatures Review

Financial Health of Islamic Banks

Bank financial health refers to a bank's ability to maintain stability, manage risks, generate sustainable income, and fulfill obligations to depositors and other stakeholders. In Islamic banking, this concept is more specific because banks must operate according to Sharia principles while still meeting prudential banking requirements. Islamic banks collect funds through contracts such as wadiah and mudharabah and distribute financing through contracts such as murabahah, mudharabah, musyarakah, ijarah, istishna, salam, and qardh. These contracts affect income recognition, risk sharing, and liquidity management, although contract-level effects can only be tested when detailed contract-composition data are available (Antonio, 2001; Ismail, 2016).

Financial ratio analysis is important in bank-health assessment because it helps interpret financial-statement information into measurable indicators of liquidity, solvency, profitability, and operational efficiency. Kasmir (2019) explains that financial ratios can be used to assess the financial condition of an institution by examining the relationship among accounts in financial statements. In this study, this logic supports the use of CAR, KAP, NPM, ROA, BOPO, and FDR as observable indicators for evaluating the financial health of Islamic banks.

The literature shows that Islamic bank performance is influenced by both financial and institutional factors. Miah & Uddin (2017) note that Islamic banks have operational

characteristics different from conventional banks because of their financing mechanisms and risk-sharing principles. (Alhammadi et al., 2020) emphasize that governance and risk management are essential for Islamic bank stability. Shahriar et al. (2023) also highlight that banking stability, performance, and efficiency are interrelated in the broader banking context. These studies suggest that financial health should be evaluated through indicators that capture capital resilience, risk exposure, profitability, efficiency, and liquidity.

The international literature has increasingly moved from single-ratio performance assessment toward multidimensional bank-health analysis. Nguyen et al. (2025) emphasize the role of operational efficiency in explaining Islamic bank performance during COVID-19, while Fakhrunnas et al. (2024) show in a cross-country setting that Islamic bank efficiency has a positive and significant association with banking stability. Similarly, Iqbal et al. (2026) provide evidence from Asian Islamic banks that stability is influenced by internal risks and macro-institutional conditions. These findings support the use of a structured framework such as CAMEL in this study, because capital, asset quality, earning capacity, efficiency, and liquidity jointly provide a more complete diagnostic picture of bank health than isolated ratio analysis.

CAMEL as a Descriptive Bank-Health Framework

The CAMEL framework assesses five basic dimensions of bank soundness: Capital, Asset Quality, Management, Earning, and Liquidity. The capital dimension reflects the adequacy of capital to absorb potential losses. Asset quality indicates the quality of productive assets and exposure to problematic financing. Management reflects the ability to manage income and costs, while earning indicates profitability and efficiency. Liquidity captures the bank's ability to meet short-term obligations and balance fund collection with financing distribution.

CAMEL is selected in this study for academic and regulatory reasons. Academically, CAMEL provides a transparent and comparable framework for classifying bank health using publicly available financial data. Regulatory references in Indonesia historically used CAMEL-based components in bank soundness assessment, even though more recent formal supervision has shifted toward RGEC and risk-based approaches. RGEC is broader because it includes risk profile, good corporate governance, earnings, and capital. However, several RGEC dimensions require qualitative and supervisory data that are not always consistently disclosed in annual reports. Therefore, CAMEL is more suitable for this descriptive study because it uses ratios that can be verified from public reports.

CAMEL Indicators in Islamic Bank Studies

Capital adequacy is commonly proxied by CAR. A high CAR indicates that a bank has a larger capital buffer relative to risk-weighted assets. Astuti (2022) and Devi (2021) show that CAR is often used together with FDR, NPF, and BOPO to evaluate Islamic bank profitability and soundness. Nevertheless, high capital does not automatically indicate optimal performance because excess capital may coexist with weak income generation or limited intermediation.

Asset quality in Islamic banking is closely related to financing quality. Weak asset quality may increase impairment costs and reduce profitability, while sound asset quality supports income stability. Damayanti et al. (2021) show that NPF, CAR, and FDR are important indicators in analyzing profitability. Rakhmat et al. (2024) also use CAMEL indicators to examine Islamic banks and their relation to credit-risk issues. These studies justify the inclusion of asset quality in the CAMEL assessment.

The management dimension in CAMEL is challenging to measure in studies based on public secondary data because qualitative management assessments are generally not disclosed in audited financial statements. For this reason, several CAMEL-based studies use NPM as a management proxy because NPM reflects the bank's ability to convert operating income into net profit. Aulia & Anwar (2021) show that operating income, operating expenses, third-party funds, and CAR are associated with Islamic bank profitability. In this study, NPM is not interpreted as a complete measure of management quality, but as a financial proxy for managerial effectiveness in generating net income from operating income.

Earning is commonly represented by ROA and BOPO. ROA measures the ability of bank assets to generate profit, while BOPO shows operational efficiency by comparing operating expenses with operating income. Fadhilah & Suprayogi (2019) find that FDR, NPF, and BOPO are associated with ROA in Islamic banking. Sulistyorini et al. (2024) also show that CAR and FDR influence ROA during the pandemic period. Similarly, Zikri et al. (2023) find that CAR, NPF, BOPO, and FDR are associated with ROA in the case of Bank Muamalat Indonesia, indicating that Islamic bank profitability is closely related to capital adequacy, financing quality, operational efficiency, and liquidity. These studies support the use of ROA and BOPO as indicators of earning capacity and operational efficiency.

Liquidity is represented by FDR in this study. FDR measures the extent to which third-party funds are distributed as financing. A low FDR may indicate that funds are not optimally intermediated, while an excessive FDR may signal potential liquidity pressure.

Danlami et al. (2022) provide international evidence that CAMELS indicators, risk-sharing financing, institutional quality, and Islamic bank stability are interrelated. Thus, liquidity remains an important dimension of Islamic bank health.

The relevance of these indicators is also supported by recent comparative crisis-period evidence. Ghenimi et al. (2024) and Butt & Chamberlain (2025) show that capital adequacy, liquidity, profitability, and asset quality are central indicators for comparing the resilience of Islamic and conventional banks during the COVID-19 shock. Therefore, the use of CAR, KAP, NPM, ROA, BOPO, and FDR in this study is consistent with recent international evidence that Islamic bank health should be read through capital strength, asset-risk control, income generation, cost efficiency, and liquidity balance.

Recent studies also show that Islamic bank performance can be evaluated from broader dimensions, including Maqashid Sharia, Islamicity performance, and Sharia conformity. Bahri et al. (2022) use the Maqashid Sharia Index and Comparative Performance Index to measure Islamic commercial bank performance in Indonesia, while Muhammadinah & Pratama (2025) assess Islamic banking performance by considering financial and Sharia-related aspects. These approaches enrich the evaluation of Islamic banks. However, CAMEL remains relevant when the research objective is to provide a financial-ratio-based diagnosis of bank health.

Methods

This study uses a descriptive quantitative approach. The quantitative approach is appropriate because the study processes numerical data from bank financial statements, while the descriptive approach is used because the study classifies and interprets financial health without testing causal relationships. Accordingly, the results should be read as a financial diagnostic map rather than as evidence that one CAMEL component causes changes in another component.

The use of CAMEL is justified because the study relies on public secondary data and aims to compare financial health across banks and years. CAMEL is suitable for this objective because it translates financial statements into comparable indicators of capital, asset quality, management, earning, and liquidity. RGEC is not used as the main framework because formal RGEC assessment requires risk-profile and governance information that is not uniformly available in public reports. Thus, CAMEL is more consistent with the data structure and descriptive objective of this study.

The population consists of Islamic commercial banks operating under OJK supervision during the observation period. OJK reported 14 Islamic commercial banks in 2024 (Otoritas Jasa Keuangan, 2025b). The sample was selected using purposive sampling based on data availability and comparability. Banks were included when they were registered as Islamic commercial banks, had comparable public annual financial reports for 2020–2024, and provided the financial data required to calculate CAR, KAP, NPM, ROA, BOPO, and FDR. Banks were excluded when full-period data were not comparable because of merger, conversion, entity change, or incomplete CAMEL-ratio inputs. For example, Bank Syariah Indonesia was not included because it was formed in 2021 through the merger of several Islamic banks, so its 2020 data were not comparable under the same legal entity. Therefore, the sample represents banks with complete and comparable CAMEL data in the research database, not all Islamic commercial banks in Indonesia.

Table 1. Sample Selection Procedure

No.	Sample-selection step	Number of banks
1.	Islamic commercial banks operating under OJK supervision in 2024	14
2.	Less: banks with non-comparable full-period data or incomplete CAMEL-ratio inputs for 2020–2024	(5)
3.	Final sample used in this study	9

(Source: Data processed based on OJK bank population and sample criteria, 2025)

This study applies four operational criteria adapted from the research database: (1) the bank was listed as an Islamic commercial bank under OJK during 2020–2024; (2) the bank was consistently within the comparable core-capital sampling frame used in this study; (3) the bank had operated as the same Islamic commercial bank entity since 2020 and was not a merger, conversion, or new entity during the observation period; and (4) the bank published complete audited financial statements and CAMEL-ratio inputs for 2020–2024. The bank-by-bank screening result is presented in Table 2.

Table 2. Bank-by-Bank Sample Screening Detail

No.	Bank	Final status	Screening rationale
1.	Bank BCA Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
2.	KB Bank Syariah (Bukopin)	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
3.	Bank Muamalat Indonesia	Excluded	Not consistently within the comparable core-capital sampling frame used in this study, although entity continuity and financial reports are available.
4.	Bank Syariah	Excluded	Formed in 2021 through merger; therefore, 2020

No.	Bank	Final status	Screening rationale
	Indonesia (BSI)		data are not comparable under the same legal entity and the full-period CAMEL inputs are not equivalent.
5.	Bank Riau Kepri Syariah	Excluded	The bank did not operate as the same comparable Islamic commercial bank entity throughout 2020–2024 and full-period audited CAMEL inputs are not comparable.
6.	Bank Mega Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
7.	Bank Nano Syariah	Excluded	The bank was not comparable as a full-period Islamic commercial bank entity for 2020–2024 and complete audited CAMEL inputs were not consistently available.
8.	Bank Panin Dubai Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
9.	Bank Aladin Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
10.	Bank Victoria Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
11.	Bank BJB Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
12.	Bank Aceh Syariah	Excluded	Not consistently within the comparable core-capital sampling frame used in this study, although entity continuity and financial reports are available.
13.	Bank BTPN Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.
14.	Bank NTB Syariah	Included	Meets all four criteria and has comparable audited CAMEL inputs for 2020–2024.

(Source: Sampling criteria based on OJK bank population and audited reports, 2025)

Based on these criteria, the final sample consists of Bank BCA Syariah, KB Bank Syariah, Bank Mega Syariah, Bank Panin Dubai Syariah, Bank Aladin Syariah, Bank Victoria Syariah, Bank BJB Syariah, Bank BTPN Syariah, and Bank NTB Syariah. The financial data were collected from audited annual reports and the compiled Excel database used in this study. The Islamic Banking Statistics for December 2024 were also used to verify the population of Islamic commercial banks and to support the industry-level statistical context of the study (Otoritas Jasa Keuangan, 2025c). The data were verified through three procedures: matching ratio inputs with annual financial statements, checking the consistency of formulas across banks and years, and comparing final CAMEL scores with recalculated weighted component values.

The operational variables consist of six ratios representing five CAMEL aspects. CAR represents Capital, KAP represents Asset Quality, NPM represents Management, ROA and BOPO represent Earning, and FDR represents Liquidity. NPM is used as a financial proxy for

management because qualitative management ratings are not publicly available in annual reports. This proxy has limitations, but it is consistent with the logic of CAMEL-based secondary-data studies that require measurable indicators from financial statements.

Table 3. Operational Variables and CAMEL Weighting

CAMEL aspect	Ratio	Formula	Weight	Interpretation
Capital	CAR	Capital / Risk-weighted assets × 100%	25%	Capacity of capital to absorb potential losses.
Asset Quality	KAP	Classified productive assets / Total productive assets × 100%	30%	Quality of productive assets and control of problematic financing.
Management	NPM	Net profit / Operating income × 100%	25%	Financial proxy for management effectiveness in converting operating income into net profit.
Earning	ROA	Profit before tax / Total assets × 100%	5%	Asset productivity in generating earnings.
Earning	BOPO	Operating expenses / Operating income × 100%	5%	Operational efficiency in managing costs relative to income.
Liquidity	FDR	Total financing / Third-party funds × 100%	10%	Balance between financing distribution and funds collected.

(Source: Bank Indonesia CAMEL scoring approach based on Surat Edaran Bank Indonesia No. 6/23/DPNP, adapted and processed by the authors, 2025)

The credit-score conversion formulas are used as an academic adaptation of the historical Bank Indonesia CAMEL bank-soundness assessment framework, particularly the CAMEL component weights and classification logic referred to in Surat Edaran Bank Indonesia No. 6/23/DPNP Tentang Sistem Penilaian Tingkat Kesehatan Bank Umum (2004). Because formal bank supervision in Indonesia has moved toward risk-based assessment, these formulas are not presented as a current supervisory rating model, but as a transparent descriptive scoring procedure that can be replicated from publicly available financial statements.

Table 4. CAMEL Credit-Score Conversion Formula

Ratio	Credit-score conversion formula
CAR	CS = min(100, 1 + CAR / 0.1)
KAP	CS = max(0, min(100, 1 + (15.5 - KAP) / 0.15))
NPM	CS = max(0, min(100, NPM))
ROA	CS = max(0, min(100, ROA / 0.015))
BOPO	CS = max(0, min(100, (100 - BOPO) / 0.08))
FDR	CS = max(0, min(100, 1 + (115 - FDR) × 4))

(Source: Bank Indonesia CAMEL scoring approach based on Surat Edaran Bank

Indonesia No. 6/23/DPNP, adapted and processed by the authors, 2025)

Each ratio is converted into a standardized credit score ranging from 0 to 100 before being multiplied by its CAMEL weight. Ratio values in the conversion formulas are entered as percentage points, not decimals. For example, CAR of 8% is entered as 8, not 0.08. The functions $\min(100, \dots)$ and $\max(0, \dots)$ keep every credit score within the standardized 0–100 range. The total CAMEL score is calculated as follows:

$$\text{Total CAMEL Score} = \sum (\text{Credit Score of each ratio} \times \text{Weight of each ratio} / 100).$$

Table 5. Bank Soundness Classification Based on CAMEL Score

CAMEL score	Soundness category
81–100	Healthy
66–<81	Fairly healthy
51–<66	Less healthy
0–<51	Unhealthy

(Source: Bank Indonesia classification, adapted in this study)

Results

This section presents the descriptive results of the CAMEL-based assessment for nine Islamic commercial banks from 2020 to 2024. Following the structure of a diagnostic financial analysis, the results are presented in five steps: descriptive statistics of CAMEL ratios, weighted component contributions, annual CAMEL-score trends, bank-level score comparisons, and soundness categories. Each table is followed by interpretation so that the numerical findings do not stand alone.

Table 6. Descriptive Statistics of CAMEL Ratios, 2020–2024

Ratio	N	Mean	Median	Minimum	Maximum	Std. deviation
CAR	45	55.06	29.60	18.70	390.50	74.30
KAP	42	1.81	1.12	0.00	6.72	1.62
NPM	45	58.43	68.72	0.00	100.00	39.92
ROA	45	0.81	1.10	-10.85	11.36	4.13
BOPO	45	106.21	86.30	56.16	428.40	70.06
FDR	45	87.12	87.72	0.00	196.73	30.38

(Source: Data processed from the CAMEL ratio database, 2025)

Table 6 shows substantial variation across CAMEL ratios. CAR has a mean of 55.06% and a median of 29.60%, with a maximum of 390.50%. The distance between the mean and median indicates that the average CAR is influenced by very high values in a small number of observations. In descriptive terms, this suggests that some banks held exceptionally large capital buffers, but these extreme values should not be interpreted as automatically

indicating superior overall health because CAMEL scores also depend on asset quality, profitability, efficiency, and liquidity.

The BOPO ratio also shows wide dispersion, with a mean of 106.21%, a median of 86.30%, and a maximum of 428.40%. Extreme BOPO values indicate that operating expenses exceeded operating income in some bank-year observations. Because this study does not estimate causal models, these values are interpreted as descriptive signals of operational-efficiency pressure rather than evidence that BOPO caused changes in other ratios. ROA also varies substantially, from -10.85% to 11.36%, indicating that profitability differed sharply across banks and years.

The KAP ratio is generally low, with a mean of 1.81% and a median of 1.12%, but the maximum value of 6.72% shows that asset-quality pressure existed in certain bank-year observations. FDR has a mean of 87.12% and a median of 87.72%, but ranges from 0.00% to 196.73%. This range indicates that some banks had very limited intermediation in particular years, while others distributed financing at a level that may create liquidity pressure under the CAMEL scoring rule.

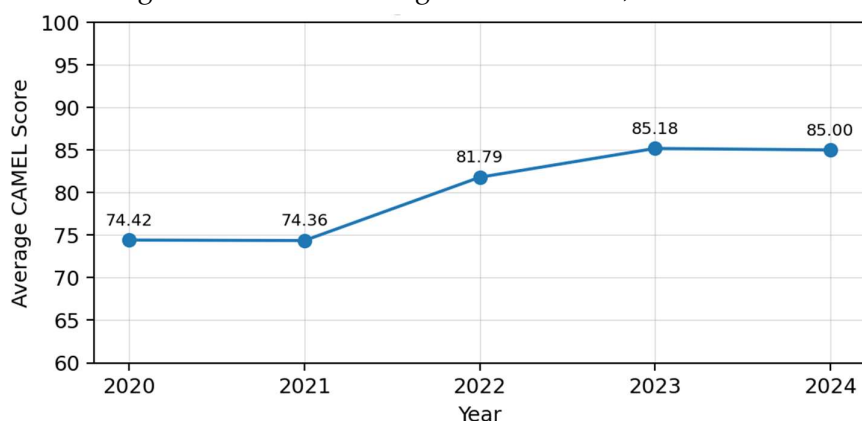
Table 7. Average Weighted Contribution of CAMEL Components by Year

Year	CAR	KAP	NPM	ROA	BOPO	FDR	Average score
2020	25.00	24.10	11.76	2.99	3.74	6.82	74.42
2021	25.00	23.62	11.96	2.69	3.33	7.76	74.36
2022	25.00	24.86	16.68	3.29	3.72	8.24	81.79
2023	25.00	28.29	16.36	3.24	3.87	8.43	85.18
2024	25.00	27.71	16.28	3.05	4.04	8.92	85.00

(Source: Data processed from the CAMEL scoring database, 2025)

Table 7 clarifies how each component contributed to the average CAMEL score. The capital component consistently contributed the maximum average value of 25.00 because the CAR scores of all banks reached the maximum credit score under the conversion formula. Asset quality also contributed strongly, especially in 2023 and 2024. The largest improvement after 2021 came from the management component, represented by NPM, which increased from 11.96 in 2021 to 16.68 in 2022. In contrast, ROA and BOPO contributions remained relatively small, indicating that earning capacity and efficiency continued to be the main areas requiring attention.

Figure 1. Trend of Average CAMEL Score, 2020–2024



(Source: Data processed from the CAMEL scoring database, 2025)

Figure 1 shows that the average CAMEL score was relatively stable in 2020 and 2021, at 74.42 and 74.36, respectively. The score then increased to 81.79 in 2022, 85.18 in 2023, and 85.00 in 2024. This trend indicates an improvement in average financial health after the most disruptive pandemic period. However, the slight decline from 2023 to 2024 also shows that improvement was not strictly linear. The trend is therefore interpreted as a descriptive recovery pattern, not as proof of a causal effect of the pandemic or post-pandemic recovery on bank health.

Table 8. Recapitulation of CAMEL Scores by Bank, 2020–2024

Bank	2020	2021	2022	2023	2024	Average
BCA Syariah	90.55	91.18	93.32	95.40	95.69	93.23
KB Bank Syariah	45.25	51.77	57.65	58.64	66.32	55.93
Mega Syariah	90.10	99.00	99.12	99.34	99.48	97.41
Panin Dubai Syariah	51.62	57.66	93.47	95.10	80.61	75.69
Aladin Syariah	60.00	25.00	25.00	62.98	65.00	47.60
Victoria Syariah	63.67	74.48	82.48	78.39	81.73	76.15
BJB Syariah	76.01	80.08	89.48	82.02	79.03	81.32
BTPN Syariah	98.67	96.50	95.99	96.59	97.54	97.06
NTB Syariah	93.90	93.56	99.62	98.18	99.62	96.98

(Source: Data processed from the CAMEL scoring database, 2025)

Table 9. Average Weighted CAMEL Component Contribution by Bank

Bank	CAR	KAP	NPM	ROA	BOPO	FDR	Average score
BCA Syariah	25.00	29.72	19.17	4.33	5.00	10.00	93.23
KB Bank Syariah	25.00	21.22	1.68	0.16	0.70	7.17	55.93
Mega Syariah	25.00	28.97	23.44	5.00	5.00	10.00	97.41
Panin Dubai Syariah	25.00	26.50	12.85	2.47	3.07	5.80	75.69
Aladin Syariah	25.00	0.00	10.44	0.00	0.00	12.16	47.60

Bank	CAR	KAP	NPM	ROA	BOPO	FDR	Average score
Victoria Syariah	25.00	27.22	15.05	1.49	3.18	4.21	76.15
BJB Syariah	25.00	27.87	15.50	2.89	3.69	6.37	81.32
BTPN Syariah	25.00	28.59	23.47	5.00	5.00	10.00	97.06
NTB Syariah	25.00	28.65	22.35	5.00	5.00	10.00	96.98

(Source: Data processed from the CAMEL scoring database, 2025)

Tables 8 and 9 show that Mega Syariah, BTPN Syariah, and NTB Syariah recorded the strongest average CAMEL scores, with averages of 97.41, 97.06, and 96.98, respectively. Their strong scores were supported not only by maximum capital contributions, but also by high asset-quality, management, earning, efficiency, and liquidity contributions. BCA Syariah also showed a consistently healthy score, supported by stable contributions across CAMEL components.

By contrast, Aladin Syariah recorded the lowest average score of 47.60. Its average capital contribution was strong, but the asset-quality, ROA, and BOPO contributions were low in the compiled scoring results. KB Bank Syariah also recorded a relatively low average score of 55.93, mainly because the management, ROA, and BOPO contributions were small compared with stronger banks. These findings show that capital adequacy alone is not sufficient to produce a high CAMEL score when profitability, efficiency, and asset-quality indicators remain weak.

Panin Dubai Syariah and Victoria Syariah show moderate and fluctuating patterns. Panin Dubai Syariah improved sharply in 2022 and 2023 but declined in 2024, while Victoria Syariah moved from less healthy in 2020 to healthy in 2022 and 2024, with a slight decline in 2023. BJB Syariah recorded an average score above the healthy threshold but did not maintain a fully stable score across all years. These patterns suggest that post-pandemic improvement was not uniform across banks.

Table 10. Bank Soundness Category Based on Average CAMEL Score

Year	Average CAMEL score	Category
2020	74.42	Fairly healthy
2021	74.36	Fairly healthy
2022	81.79	Healthy
2023	85.18	Healthy
2024	85.00	Healthy

(Source: Data processed from the CAMEL scoring database, 2025)

Table 10 confirms that the average soundness level of the sample improved from fairly healthy in 2020 and 2021 to healthy in 2022, 2023, and 2024. The change in category is mainly related to higher NPM contributions, stronger asset-quality scores, and gradual improvement in efficiency and liquidity contributions. Nevertheless, the average category

should not obscure bank-level differences. Some banks remained below the healthy threshold, which means that policy attention should be directed not only to industry-level resilience but also to institution-specific weaknesses.

Discussion

The results answer the research question by showing that the financial health of Indonesian Islamic commercial banks in the sample generally improved during 2020–2024, but the improvement was uneven across banks and CAMEL components. The discussion therefore focuses on the meaning of the findings rather than repeating numerical results.

Capital Strength and the Limits of High CAR

The strongest common feature across the sampled banks is capital adequacy. The capital component reached the maximum average weighted contribution in every year, indicating that the sampled Islamic banks had CAR values above the threshold used in the CAMEL conversion. This finding is consistent with Astuti (2022) and Devi (2021), who position CAR as a central indicator of Islamic bank health and resilience. However, the findings also show that high CAR should be interpreted cautiously. Some banks with strong capital did not achieve high final CAMEL scores because management, earning, efficiency, or liquidity components remained weak.

This pattern has an important analytical implication: capital adequacy is a necessary buffer, but it is not a complete indicator of bank health. A bank may hold high capital because it is prudent, but it may also hold high capital because financing expansion is limited or earning assets are not yet optimized. Because this study is descriptive, it does not determine which explanation applies to each bank. Nevertheless, the results show that stronger bank health requires capital to be accompanied by productive financing, manageable asset quality, efficient operations, and sustainable earnings.

Profitability and Efficiency as Key Differentiators

The largest differences among banks appear in management, profitability, and efficiency components. Mega Syariah, BTPN Syariah, NTB Syariah, and BCA Syariah obtained stronger CAMEL scores because their NPM, ROA, and BOPO contributions were more stable. In contrast, Aladin Syariah and KB Bank Syariah recorded lower scores because profitability and efficiency contributions were weak. This finding supports Aulia & Anwar (2021), who connect operating income, operating expenses, third-party funds, and CAR with Islamic bank profitability, and Fadhilah & Suprayogi (2019), who identify BOPO as an important ratio associated with ROA.

The practical interpretation is that efficiency is central to post-pandemic bank health. Banks may be well capitalized, but high operating costs can reduce the ability to translate operating income into net profit. In the context of Islamic banking, efficiency is also related to the capacity to manage branch networks, digital channels, financing processes, human resources, and compliance requirements. Thus, a weaker BOPO contribution should be read as a signal for management to examine cost structure and revenue quality, not simply as an accounting ratio.

Asset Quality and Liquidity as Prudential Signals

Asset quality was generally manageable, but the descriptive statistics show that not all banks had the same level of asset-quality strength. This finding is in line with Damayanti et al. (2021), who emphasize the importance of financing quality in Islamic bank profitability, and Rakhmat et al. (2024), who use CAMEL indicators to understand Islamic bank health and credit-risk implications. In Islamic banking, asset quality is closely connected with financing appraisal, customer monitoring, collateral management, and restructuring practices. A weaker KAP contribution indicates that management should strengthen financing-risk controls.

Liquidity also differentiates banks. Most banks showed relatively controlled FDR contributions, but some observations had very low or very high FDR values. Low FDR may indicate underutilized funds and weak intermediation, whereas very high FDR may indicate liquidity pressure. Danlami et al. (2022) show that CAMELS indicators and financing structures are connected with Islamic bank stability in OIC countries. In this study, FDR is interpreted as a descriptive signal: banks with more balanced intermediation tend to receive stronger liquidity scores under the CAMEL formula, but the analysis does not test causal relationships.

Position of the Findings in Islamic Banking Literature

This study extends previous Indonesian Islamic banking studies by covering a wider sample and a more recent observation period. Nasution et al. (2023) focused on Bank Syariah Indonesia for 2021–2022, while Minarni et al. (2023) analyzed CAMEL-based performance and profitability. This study complements those works by providing a comparative descriptive map across nine banks and by showing how weighted CAMEL components contribute to final soundness categories. The findings are also consistent with broader CAMEL and CAMELS studies that compare banking performance across banks and countries (Ab-Rahim et al., 2018; Lestari & Hardiyanti, 2020).

The pattern found in this study is broadly consistent with recent international studies, although the present article does not test causal relationships. The importance of efficiency in differentiating stronger and weaker CAMEL scores is in line with Nguyen et al. (2025) and Fakhrunnas et al. (2024), who emphasize efficiency as an important dimension of Islamic bank performance and stability. The role of liquidity and asset quality as prudential signals also corresponds with Iqbal et al. (2026), who identify liquidity risk and financing risk as important factors in Islamic bank stability across Asia. Furthermore, the relatively strong capital position of the sampled Indonesian Islamic banks is consistent with crisis-period evidence from Ghenimi et al. (2024) and Butt & Chamberlain (2025), which suggests that capital adequacy and liquidity buffers are important in explaining Islamic bank resilience during the COVID-19 period.

The study also clarifies the boundary of CAMEL analysis. CAMEL is useful for organizing financial ratios, but it cannot fully capture governance quality, risk-management processes, digital transformation capacity, Sharia compliance quality, customer behavior, macroeconomic shocks, or contract-level financing risk. This limitation is important because Islamic banks operate in an environment where financial performance, governance, and Sharia objectives interact. Studies such as Bahri et al. (2022) and Muhammadinah & Pratama (2025) show that Islamic bank performance may also be assessed using Maqashid Sharia and Sharia-conformity perspectives. Therefore, CAMEL should be viewed as a financial diagnostic tool rather than a complete assessment of Islamic banking value creation.

Accordingly, the findings on BOPO and profitability should also be read in relation to banks' capacity to use digital service channels to reduce avoidable operating costs and maintain service quality. This study does not measure digital transformation directly; however, recent Islamic banking literature suggests that digital banking and Islamic fintech adoption may shape customer behavior, cost efficiency, and sustainability in Islamic finance (Maniam, 2024; Riza & Wijayanti, 2024).

This study also avoids unsupported claims regarding specific financing-contract strategies. Sharia contracts such as murabahah, mudharabah, musyarakah, ijarah, and qardh are conceptually relevant to Islamic bank income profiles and risk structures (Antonio, 2001; Ismail, 2016). However, the current dataset does not include detailed contract-composition data by bank and year. Therefore, the discussion does not claim that a particular contract portfolio explains the CAMEL score of a specific bank. Future studies

should include contract-level financing data if they aim to examine how Sharia contracts relate to profitability, risk, and liquidity.

From a practical standpoint, banks with weak profitability and high BOPO should strengthen cost discipline, improve operating-income quality, review branch and digital-channel efficiency, and optimize fee-based and financing income without increasing risk excessively. Banks with high capital but low intermediation should improve capital utilization through prudent financing expansion, stronger customer segmentation, and better risk-based pricing. Banks with weak asset quality need tighter financing appraisal, early-warning systems, collection strategies, and restructuring policies that remain consistent with Sharia principles.

For regulators, CAMEL-based descriptive mapping can serve as an early diagnostic input to identify banks requiring more intensive supervisory attention. However, because CAMEL does not capture all risk-profile and governance dimensions, formal supervision should continue to rely on risk-based tools such as RGEC. The value of CAMEL in this study lies in its ability to communicate financial health patterns clearly and comparably across banks and years.

Conclusion

This study aimed to analyze the financial health of Indonesian Islamic commercial banks during 2020–2024 using the CAMEL method. The descriptive findings show that capital adequacy was the strongest and most consistent component across the sample, while asset quality was generally manageable. The average CAMEL score improved from the fairly healthy category in 2020–2021 to the healthy category in 2022–2024. Mega Syariah, BTPN Syariah, NTB Syariah, and BCA Syariah recorded stronger scores, whereas Aladin Syariah and KB Bank Syariah showed weaker results, especially in management, profitability, efficiency, and liquidity contributions.

Islamic banks with profitability and efficiency problems should focus on improving operating-income quality, reducing avoidable costs, optimizing digital service channels, strengthening cost-to-income monitoring, and increasing productive financing without weakening asset quality. Banks with high CAR but low CAMEL scores should not rely only on capital adequacy; they need to convert capital into prudent earning assets and stable income. Banks with weaker KAP or unstable FDR should strengthen financing appraisal, customer monitoring, early-warning systems, and liquidity planning. For regulators, the results suggest that CAMEL remains useful as a descriptive early-warning tool, but it should be complemented by RGEC, governance assessment, and risk-profile analysis.

This study is limited to nine Islamic commercial banks and uses a descriptive design; therefore, it does not examine causal relationships among CAMEL ratios. The study also does not include detailed contract-composition data, governance quality, risk-profile indicators, bank size, cost of funds, digital banking variables, or macroeconomic factors. Future research may extend the observation period, include additional banks when comparable data become available, compare CAMEL with RGEC, and apply panel-data or causal models to examine the determinants of Islamic bank health. Contract-level financing data should also be incorporated to explain how murabahah, mudharabah, musyarakah, and other Sharia contracts relate to profitability, liquidity, and asset quality.

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