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COMPARATIVE ANALYSIS OF FINANCIAL PERFORMANCE AND BUSINESS RESILIENCE OF CONVENTIONAL AND SHARIA COMMERCIAL BANKS: A MULTI-CRITERIA DECISION-MAKING

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ABSTRACT

The purpose of this study is to conduct a comparative analysis of financial performance and business resilience between Conventional Commercial Banks (excluding BPD) and Sharia Commercial Banks in Indonesia during the period 2018–2024, calculated quarterly. The focus of the study is to evaluate the competitive position of banks after the implementation of the Bank Group regulation based on Core Capital (KBMI) using a multi-criteria decision-making approach. This study uses a quantitative approach with three main stages of analysis: (1) Descriptive Statistics; (2) Difference Test (Mann-Whitney U-Test); and (3) Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The TOPSIS method uses justification from 8 experts from the Indonesian banking industry. The results indicate that the scale of core capital is positively correlated with the performance of the national banking industry, and accelerating operational efficiency for Islamic commercial banks is crucial to reduce the BOPO figure. Furthermore, the results indicate that banks in the low KBMI category must consolidate to strengthen their capital structure, so that they can be more competitive at a larger industry scale.

ABSTRAK

Tujuan dari penelitian ini adalah untuk melakukan analisis perbandingan kinerja keuangan dan resiliensi bisnis antara Bank Umum Konvensional (tidak termasuk BPD) dan Bank Umum Syariah (BUS) di Indonesia selama periode 2018–2024, yang dihitung per triwulan. Penelitian ini menggunakan pendekatan kuantitatif dengan tiga tahap: (1) Analisis Statistik Deskriptif; (2) Uji Beda (Mann-Whitney U-Test); dan (3) Metode Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). Metode TOPSIS menggunakan justifikasi dari 8 pakar pelaku industri perbankan di Indonesia. Hasil pemeringkatan TOPSIS menunjukkan bahwa skala modal inti berkorelasi positif dengan kinerja perbankan nasional dan akselerasi efisiensi operasional bagi Bank Umum Syariah sangat penting untuk menekan angka BOPO. Selain itu, hasil menunjukkan bahwa bank di kategori KBMI rendah harus melakukan konsolidasi untuk memperkuat struktur permodalan mereka, sehingga mereka dapat menjadi lebih kompetitif pada skala industri yang lebih besar.

INTRODUCTION

The dynamics of the global financial industry have placed the banking sector in a challenging position, yet it presents significant growth opportunities. The banking sector is currently impacted by various factors, including macroeconomic conditions, technological advancements, regulatory changes, and shifting customer preferences (Murinde et al., 2022). Banks face increasing competition from both conventional and non-conventional financial institutions. They also face challenges such as fluctuating interest rates, increased risk management demands, and changing customer behavior (Omarini, 2022). Banks act as intermediaries, channeling funds from depositors to borrowers with the goal of generating profits.

Furthermore, the banking sector continues to evolve and faces challenges such as increasingly stringent regulations, technological advancements, and increased competition (Palmié et al., 2020). Banks must improve efficiency by reducing costs, digitizing and automating operations, and streamlining procedures (Villar and Khan, 2021). At the same time, banks must also improve their risk management systems and capacity to handle accidents (Settembre-Blundo, 2021). Banks will remain competitive and superior by providing exceptional customer service, pursuing new business opportunities, and investing in advanced technology (Thomas, 2020). Banks can continue to thrive in a dynamic and ever-changing world by balancing efficiency, competitiveness, and resilience.

Over the past ten years, Indonesia's total banking assets have steadily grown, and by 2025, they are projected to reach IDR 13.646,41 trillion. As shown in Figure 1, the national banking industry continues to thrive despite facing various economic cycles. This is due to reforms implemented by Indonesia's financial system authorities, including the Financial Services Authority (OJK), Bank Indonesia, and the Deposit Insurance Corporation (LPS), to improve financial system stability and strengthen the banking sector.

Although these policies have led to a decline in the number of banks, total bank assets have continued to increase, and new banking products and services have emerged. Furthermore, increased competition has led to the development of digital-based banking services and facilitated access to credit for individuals and businesses.

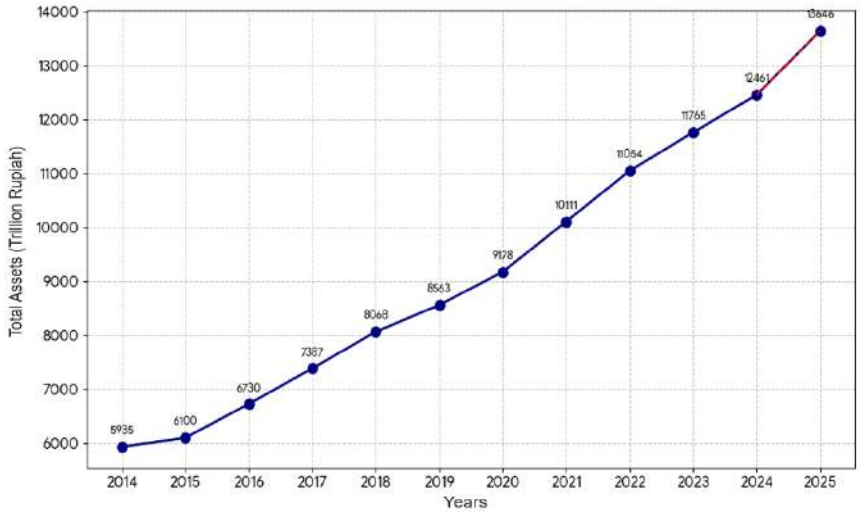


Figure 1. Trend in total assets of Indonesian banks over the past decade and projections for 2025

The number of banks has increased from 119 banks in 2014 to 115 banks in 2018, and decreased to 105 banks in December 2025. 88 banks (83,81%) are included in the Bank group based on Core Capital (KBMI): KBMI 1 and KBMI 2, and 17 banks (16,19%) are included in the Bank group

KBMI 3 and KBMI 4. In 2021, the Financial Services Authority (OJK) revoked the POJK on BUKU and issued POJK Number 6/POJK.03/2016 concerning Business Activities and Office Networks Based on Bank Core Capital and Financial Services Authority Regulation (POJK) Number 17/POJK.03/2018 concerning Amendments to POJK Number 6/POJK.03/2016 concerning Business Activities and Office Networks Based on Bank Core Capital.

Article 1, number (20) of OJK Regulation Number 12/POJK.03/2021 concerning Commercial Banks stipulates that banks are classified based on their Core Capital (KBMI). This classification of banks based on Core Capital applies to Bank BHI (Banks with Indonesian Legal Entities, namely banks that conduct banking business activities as Indonesian legal entities in accordance with statutory provisions, including Intermediary Banks), KCBLN (Branch Offices of Banks Domiciled Abroad, hereinafter referred to as KCBLN, namely banks that are branches of banks with legal entities and head offices abroad), and commercial banks conducting sharia business, as well as Bank BHI's sharia business units. The KBMI for bank sharia business units is based on the bank's core capital.

To support economic growth and national stability, the OJK issued POJK Number 12/POJK.03/2021 concerning commercial banks. According to the Financial Services Authority (OJK), strong and competitive banks must be able to anticipate business growth trends and information technology innovation. Based on the BUKU regulations in Bank Indonesia Regulation (PBI) Number 14/26/PBI/2012, the product and business activities of small banks, particularly BUKU 1 banks, are more limited compared to banks in other BUKU groups. Based on POJK Number 12/POJK.03/2021, banks are required to implement effective risk management in their operations. Therefore, the breadth of a bank's products and business activities is determined not only by its core capital but also by effective risk management.

How well a company or organization manages its financial resources to achieve its goals and increase value for its shareholders or owners is called financial performance. How well a bank maintains liquidity, manages risk, and achieves healthy growth is called financial performance. This includes managing the company's finances over a specific period, as well as collecting and disbursing funds (Azmi & Takarini, 2022). Consider key variables such as profit growth, credit risk, financial ratios, and others. Financial performance indicates how well a company utilizes its resources, its liquidity, solvency, and financial stability in the face of competition.

Conventional analysis methods sometimes fail to consider all financial elements, such as liquidity levels, solvency ratios, and asset quality. Consequently, this can lead to errors in decision-making and assessments of a business's financial performance. Such methodologies often overlook other important elements, such as operational risk, management stability, and governance quality. However, there has been little research on the use of new analytical techniques such as the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) in the Indonesian banking industry. This method can address the shortcomings of existing analytical techniques by enabling a more systematic and objective assessment of bank financial performance. TOPSIS offers the advantage of determining the solution closest to the ideal solution and furthest from the negative ideal solution based on Euclidean distance, thus providing an objective and comprehensive ranking.

Multi-Criteria Decision-Making Methods (MCDM) have become effective tools for addressing complex decision-making environments consisting of multiple conflicting criteria (Taherdoost & Madanchian, 2023). The Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), which ranks alternatives based on their geometric proximity to the ideal solution, is one of the most commonly used methods (Fahami et al., 2019). In financial evaluation, TOPSIS is highly effective (Abd Rahim et al., 2020). Despite this progress, few studies have comprehensively evaluated the financial performance of 30 conventional and Islamic banks in Indonesia using a robust, data-driven MCDM approach. This study addresses this gap by using the TOPSIS method to assess their financial

performance using data from the Financial Services Authority (OJK) from 2018 to 2024. The goal is to develop a financial performance index, rank banks using TOPSIS, and provide insights for strategic investment and policy planning (Chen & Shimerda, 1981).

From 2002 to 2010, the determinants of commercial bank cost efficiency in Indonesia consisted of the following variables: LNTA, ROA, CAR, LDR, and NPL (Anwar, 2019). These factors specifically impact bank efficiency in Indonesia. However, macroeconomic indicators, inflation, gross domestic product growth, unemployment, and the US dollar exchange rate were also important determinants of cost efficiency in Indonesia during the study period. This study demonstrates to regulators and policymakers the importance of regular oversight of commercial bank management, particularly regarding capital, size, profitability, liquidity, and risk management. Furthermore, the authorities must establish laws and regulations related to these factors. Furthermore, the authorities must establish rules and regulations related to these factors. Furthermore, the Indonesian government must maintain a healthy macroeconomic environment so that bank management can effectively manage their banks in a supportive economic environment.

Mubarok et al. (2023) examined how COVID-19 impacted Islamic banking productivity. Using panel data regression analysis techniques, this study found that Islamic banking appeared unaffected by the economic recession. This demonstrated efficiency variables such as actual book value, ROI, ROE, total assets, Islamic banking activity, deposit growth, leverage, the effectiveness of the COVID-19 dummy, and book value. In their study, Hidayah et al. (2021) presented empirical evidence on how COVID-19 affected banking resilience indicators in Indonesia and determined the differences between two groups of resilience indicators. The results showed that COVID-19 affected all bank financial performance metrics, but not significantly for all bank risk metrics.

This study used the TOPSIS method to analyze the financial performance of banking companies registered with the Financial Services Authority (OJK). The primary objective of this study is to rank the performance of each bank based on key financial indicators and to provide an accurate picture of their competitive position in the market. This analysis is expected to provide scientific evidence and practical suggestions to help policymakers and capital market players improve the performance and competitiveness of the national banking system. By considering various aspects simultaneously, this study can help stakeholders, such as owners, investors, and regulators, objectively monitor and measure the financial performance of banking organizations.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

To remain competitive amidst the development of digitalization and the global business environment, the banking industry worldwide must reinvent itself. Based on their efficiency and total assets, these banks are highly competitive in at least three of the six countries (Chotigeat et al., 2004). Most banks continued to operate well despite the global financial crisis, according to a study by Erasmus (2014). The success of established financial institutions can be attributed to their ability to survive the crisis. If banks with low credit levels build up reserves, capital will decline (Berger & DeYoung, 1997). This is because banks pay for monitoring and collecting NPLs, which increases costs or reduces efficiency. Internal factors such as liquidity, capital adequacy, and management fees, and external factors such as ownership, business size, and economic conditions are two key factors that determine the profitability of the banking industry. Effective cost management is one way to achieve high bank profitability (Naceur, 2003). Bank profitability is influenced by economic conditions, as indicated by macroeconomic indicators such as inflation; high interest rates reduce bank profitability.

Foreign banks have higher profitability levels than domestic banks. Bank restructuring reduces fiscal costs because foreign investors bring in capital (Tang et al., 2000); second, foreign banks have better experience in risk management and corporate governance, making them more

efficient (Bonin et al., 2005); and third, there is increased competition, which encourages domestic banks to increase costs and improve their operations (Bonin et al., 2005).

The ability of banks to withstand challenges and risks is key to their success. Therefore, banks must continually focus on increasing their resilience by developing effective strategies, consistently strengthening their security systems, and complying with applicable laws and regulations (Starr et al., 2003). To evaluate a bank's strength, Feyen and Mare (2021) use stress tests to measure credit risk levels. In contrast, Ruza et al. (2019) show that resilience-stability indicators for the group of countries analyzed exhibit quite different patterns after the financial crisis. Ruza et al. (2019) attempted to group the components influencing resilience and stability into three groups. First, the balance sheet consists of leverage, international financing, asset size, asset composition, and international exposure. Second, market structure consists of ownership variation and market concentration. Finally, regulations, monetary policy, and fiscal policy are responsible. According to the study, enhancing the strength of the financial system and reducing the systemic risk that spreads through it are the primary objectives of macroprudential policy. The results showed that the patterns shown by resilience-stability indicators for the analyzed country groups differed significantly after the financial crisis.

Financial statement analysis is the examination of the components of financial statements, as explained by Prihadi (2019). Its primary purpose is to provide information on financial performance and position and compare them with those of comparable companies. The following are some types of commonly used financial ratios: 1) Liquidity ratio: This measures a company's ability to meet short-term obligations; 2) Solvency ratio: This measures a company's ability to meet long-term obligations; 3) Activity ratio: This measures a company's efficiency in using its resources; 4) Profitability ratio: This measures a company's ability to generate profits; 5) Leverage ratio: This measures a company's reliance on debt to finance its activities.

Research by Sinaga et al. (2024) shows that objectivity is an indicator that implies that a condition is presented factually without any conflict of interest. This principle refers to the need to present financial information based on concrete evidence and facts, rather than subjective opinions or feelings. Effectiveness, on the other hand, is a crucial component in achieving the goals or objectives set for each company, activity, or program. An organization or company is considered effective if these goals or objectives are achieved (Yahya & Setiyono, 2022).

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is a method used to select or determine the best alternative from several available alternatives based on several predetermined criteria or factors. The TOPSIS method is based on the concept that the best selected alternative not only has the shortest distance from the ideal solution, but also has the longest distance from the negative ideal solution. This concept is widely used in several MCDM models to solve practical decision-making problems (Karande et al., 2016). According to Sarraf et al. (2013), the TOPSIS process consists of several stages, namely: (1) compiling a decision matrix which is then normalized; (2) compiling a decision matrix that has normal weights; (3) determining the positive ideal solution matrix and the negative ideal solution matrix; (4) determining the distance between the value of each alternative with the positive ideal solution matrix and the negative ideal solution matrix; (5) determining the preference value for each alternative; and (6) determining the objectives and criteria and the best alternative.

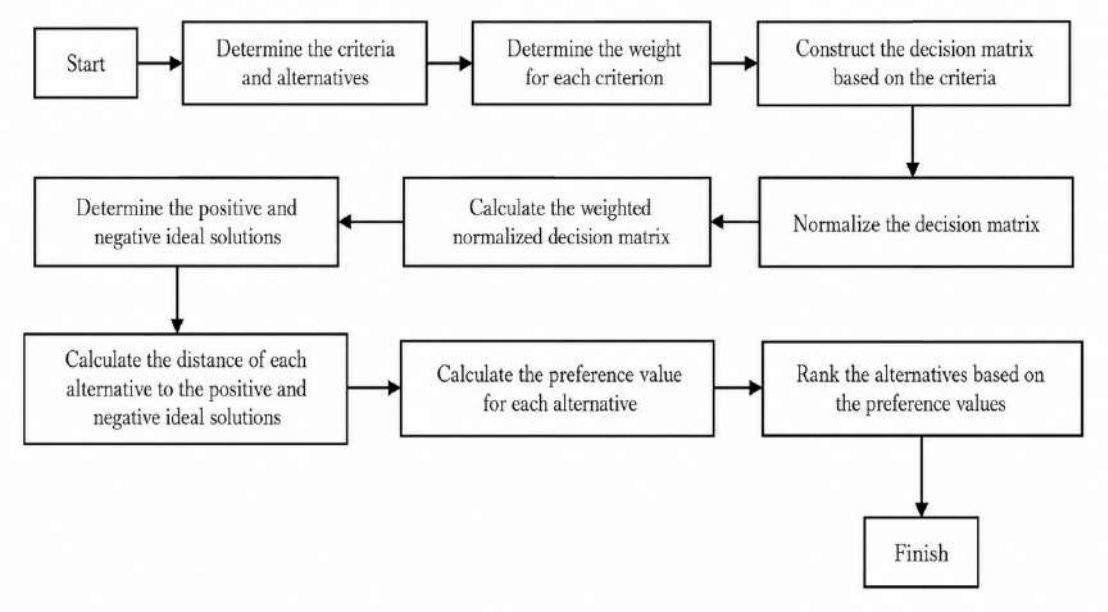


Figure 2. Flowchart for Using the TOPSIS Method

TOPSIS is a highly useful analytical tool with numerous practical applications due to its ability to combine quantitative and qualitative criteria. This method is used in academic research and various industries to assist in complex, critical decision-making. TOPSIS is favored for its reliability and ease of use (Maria & Junirianto, 2021). Once the MCDM analysis is complete, the results are interpreted; this primarily includes a ranking and overall score for each company. At this point, based on the predetermined criteria, a deep understanding of the components that influence company performance is gained.

RESEARCH METHOD

Exploratory and comparative studies are the two main approaches in this research methodology, employing a quantitative framework via descriptive statistics, the non-parametric Mann-Whitney U test, and multi-criteria decision-making (MCDM) modeling. The investigative procedure was conducted across several systematic stages, beginning with data collection, where financial statements and operational reports of commercial banking entities listed on the Indonesia Stock Exchange and registered with the Financial Services Authority (OJK) were gathered for the 2018–2024 observation period on a quarterly basis. These quarterly records comprise statements of profit or loss, balance sheets, cash flows, and key financial ratios, allowing a continuous and granular evaluation of performance over varying macroeconomic cycles.

In the subsequent data organization stage, the collected metrics were extracted and categorized into eight core financial performance and resilience criteria, namely profitability as measured by Return on Assets (ROA) and Return on Equity (ROE), margin efficiency through Net Interest Margin or Net Sharing Margin (NIM), operating efficiency via Operating Expenses to Operating Income (BOPO), liquidity through the Loan/Financing to Deposit Ratio (LDR), credit risk via Net Non-Performing Loans or Non-Performing Financing (Net NPL/NPF), capital adequacy through the Capital Adequacy Ratio (KPMM/CAR), and structural scale represented by Tier 1 Core Capital. The process then advanced to the data exploration stage, which involved screening the structured metrics to identify operational trends, measure data dispersion, and detect potential outliers across both conventional and sharia banking groups prior to executing the difference testing and TOPSIS multi-criteria algorithmic evaluations.

The mathematical implementation of the Technique for Order Preference by Similarity to Ideal

Solution (TOPSIS) was executed through a sequential multi-criteria evaluation procedure formulated within continuous narrative prose. In the initial step, the raw decision matrix consisting of m bank alternatives and n evaluated criteria was converted into a normalized decision matrix, where each normalized element r_{ij} was computed using vector normalization:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}} \quad (1)$$

for i = 1, 2, …., m and j = 1, 2, ….., n.

To establish the relative importance of each performance criterion, criterion weights (w_j) were determined through an expert judgment elicitation process involving eight senior practitioners and experts across the Indonesian banking industry. These experts assigned priority weights reflecting regulatory compliance, financial health benchmarks, and systemic risk mitigation, such that the weights satisfied $\sum_{j=1}^{n} w_j = 1$. The normalized decision matrix was subsequently multiplied by these assigned weights to generate the weighted normalized matrix, defined as:

$$v_{ij} = w_j \times r_{ij} \quad (2)$$

Following the construction of the weighted matrix, the positive ideal solution (A^+) and the negative ideal solution (A^-) were identified based on the directional attribute of each criterion. For benefit criteria where higher values indicate superior performance, such as ROA, ROE, NIM, CAR, and Core Capital, the positive ideal benchmark corresponds to $A^+ = \max_i(v_{ij})$ and the negative ideal benchmark corresponds to $A^- = \min_i(v_{ij})$. Conversely, for cost criteria where lower values are preferred, specifically operating efficiency (BOPO) and credit risk (Net NPL/NPF), the benchmarks are defined as $A^+ = \min_i(v_{ij})$ and $A^- = \max_i(v_{ij})$.

The geometric separation of each banking alternative from these extreme points was then measured using the Euclidean distance formulas:

$$S_i^+ = \sqrt{\sum_{j=1}^{n} \left(v_{ij} - v_j^+\right)^2} \quad (3)$$

for the distance to the positive ideal solution, and:

$$S_i^- = \sqrt{\sum_{j=1}^{n} \left(v_{ij} - v_j^-\right)^2} \quad (4)$$

for the distance to the negative ideal solution. Finally, the composite relative closeness coefficient (C_i) of each bank to the ideal benchmark was determined by:

$$C_i = \frac{S_i^-}{S_i^+ + S_i^-} \quad (5)$$

where a higher value of C_i, bounded between 0 and 1, indicates that the banking entity is closer to optimal financial resilience and furthest from the negative distress frontier, thereby establishing the ultimate ranking of the institutions.

The weighting of the eight financial criteria in the TOPSIS analysis was determined through the justification of a panel comprising eight national banking industry experts. These experts were selected purposively based on their expertise and a minimum of 10 years of professional experience in the financial sector, representing conventional bank risk management practitioners (3), Sharia commercial bank compliance practitioners (2), banking/capital market analysts (2), and an academic specializing in banking finance (1). Expert justification was obtained by administering a structured questionnaire

utilizing a pairwise comparison or priority scale method to assess the relative importance of each criterion (ROA, ROE, NIM, BOPO, LDR, NPL/NPF, Core Capital, and CAR). The weight scores from the eight experts were then aggregated using a weighted average to produce a normalized criterion weight vector (wj) (where $\sum wj = 1$), serving as the basis for calculating the weighted normalized matrix (vij).

RESULT AND DISCUSSIONS

The financial performance ratios and business resilience of Conventional Commercial Banks and Sharia Commercial Banks (BUS) were compared using descriptive statistical analysis, symbolized as X_i versus X_{i1} (e.g., ROA vs. ROA_1). The sample size difference between the two cohorts, comprising 18 conventional commercial banks (n=18) and 12 sharia commercial banks (n=12), reflects purposive sampling criteria based on the completeness and availability of audited quarterly financial publications spanning the 2018–2024 observation period, as well as the structural population disparity in Indonesia's dual-banking system where the total universe of full-fledged sharia commercial banks is naturally smaller than that of conventional commercial banks.

Regarding profitability metrics, Return on Assets (ROA) in the conventional banking group (n=18) exhibited an average of 1,98%, slightly higher than the sharia banking group (n=12) at 1,75%. However, the sharia banking group displayed a substantially higher maximum value of 10,12%, indicating the presence of specific entities exhibiting exceptionally aggressive asset yield performance. For Return on Equity (ROE), the conventional banking group demonstrated a higher and more consistent mean of 10,53% compared to the sharia banking group's average of 7,14%. Furthermore, the minimum ROE value for the sharia cohort fell to –1,99%, revealing that at least one sharia institution experienced negative equity returns during the evaluated timeframe.

Second, Operational Efficiency (BOPO): The first group had an average of 79,42%, which is considered quite efficient (BI standards are usually below 90%). $BOPO_1$: The second group had a much higher average of 94,16%, with a maximum value reaching 177,14%. This figure above 100% indicates that operating costs are greater than operating income, which is a sign of serious inefficiency in this portion of the data. Third, Credit Risk (NPL and Net NPF) both had a manageable average credit risk (NPL 1,15% and NPF 1,51%), still below the safe threshold of 5%. However, note the Kurtosis value on NPL (10,20). This figure is very high, indicating the presence of extreme data or outliers, where there is one point that has a credit risk far above the average (maximum 5,57%).

Fourth, Capitalization (CAR & Core Capital): The second group (CAR_1) had a very high average (43,99%) compared to the first group (26,92%). The skewness value for CAR_1 (3,33) indicates an extremely right-skewed data distribution. This is reinforced by the maximum value reaching 227,22%, indicating that some entities are significantly over-capitalized compared to other entities in the group.

Fifth, Data Distribution (Skewness & Kurtosis); In general, many variables (such as NPL, CAR, ROA_1, and NIM_1) have skewness values > 1 and kurtosis > 3. This research data indicates that the data is not normally distributed (there is a sharp skew and sharpness). The first group (N=18) tends to be more stable and efficient. The second group (N=12) has very high variability, with some entities being very profitable but others being very inefficient (BOPO > 100%) and having very unequal capitalization.

Table 1. Descriptive Analysis of Conventional Commercial Banks

Variable	N	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Skewness	Kurtosis
ROA	18	197,927	0,2280	0,9674	0,73642	11,264	17,939	30,298	38,060	0,52	-0,88
ROE	18	105,295	12,728	54,002	31,035	54,912	97,237	142,567	193,843	0,46	-1,03
NIM	18	44,045	0,2559	10,857	19,410	37,734	44,426	50,138	68,375	-0,08	1,29
BOPO	18	794,197	26,350	111,797	552,786	721,622	779,307	892,346	977,568	-0,40	-0,26
LDR	18	841,728	437,839	185,759	429,418	771,961	866,098	895,946	1,367,860	0,66	4,06
NPL Net	18	115,547	0,29165	12,374	0	0,4983	0,8507	12,875	55,724	2,92	10,20
Core Capital (Tier 1)	18	52316235	14944823	63405513	3250511	12205398	27732667	56914479	193755219	1,53	0,85
KPMM/ CAR Ratio	18	269,260	27,931	118,504	171,918	207,151	246,518	286,637	703,036	3,17	11,57

Table 2. Descriptive Analysis of Sharia Commercial Banks

Variable	N	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum	Skewness	Kurtosis
ROA	12	17,528	0,7925	27,453	-0,3789	0,4458	11,610	19,584	101,211	2,98	9,67
ROE	12	71,467	21,465	74,359	-19,917	13,873	40,494	115,071	231,654	0,95	0,33
NIM	12	64,812	20,074	69,539	11,225	26,351	51,978	67,674	276,525	2,97	9,61
BOPO	12	941,597	82,017	284,117	646,443	808,742	889,816	971,328	1,771,360	2,53	7,68
LDR	12	853,742	43,609	151,066	586,918	760,004	843,200	973,179	1,080,580	-0,13	-0,56
NPF Net	12	15,144	0,3839	13,299	0,0010	0,1475	16,942	24,687	416,143	0,45	-0,56
Core Capital (Tier 1)	12	3586739	1506268	5217865	393534	1097276	1906008	3790976	19570033	3,06	9,90
KPMM/ CAR Ratio	12	439,913	168,427	583,447	194,250	205,039	236,354	376,603	2,272,220	3,33	11,32

Comparison of Financial Performance and Business Resilience Based on Difference Test Results

The profitability sector had a p-value below 0,05, indicating a significant difference in the capabilities of the banks. During the observation period, conventional banks demonstrated higher returns on assets (ROA) and returns on equity (ROE) than Islamic Commercial Banks (BUS). These results indicate that conventional banks utilize their assets and capital better to generate net profit. This aligns with research by Prasada (2020), which states that this difference is often due to the use of more stable interest-based instruments to provide income certainty compared to the profit-sharing system in Islamic banks; changes in customers' actual business performance significantly influence this.

Table 3. Results of Differential Test

No	Criteria	Conventional Banks	Sharia Commercial Banks	Difference Test Results (Median)		Description
				w-value	p-value	
1	ROA	1,98	1,75	324	0,030	Higher for Conventional Banks than Sharia Banks
2	ROE	10,53	7,15	323	0,033	Higher for Conventional Banks than Sharia Banks
3	NIM	4,40	6,48	257	0,830	No Difference Between Conventional Banks and Sharia Banks
4	BOPO	79,42	94,16	234	0,030	Lower for Conventional Banks than Sharia Banks

No	Criteria	Conventional Banks	Sharia Commercial Banks	Difference Test Results (Median)		Description
				w-value	p-value	
5	LDR	84,17	85,37	273	0,608	No Difference Between Conventional Banks and Sharia Banks
6	Net NPL (%) or NPF (%)	1,16	1,51	261	0,229	No Difference Conventional Banks and Sharia Banks
7	KPMM/CAR Ratio	26,93	43,99	265	0,730	No Difference Between Conventional Banks and Sharia Banks

The Operational Efficiency (BOPO) sector showed a p-value of 0,030, which is less than 0,05. This indicates a significant difference in efficiency levels. Compared to Islamic banks, whose operating expenses are almost equal to their operating income, conventional banks have a significantly lower (better) BOPO figure (79,42%) than Islamic banks (94,16%). This indicates that conventional banks are better able to manage operating costs compared to Islamic banks. The average BOPO and BUS figures are around 95%, indicating significant operating expenses. Firmansyah & Arham (2021) stated that the high BOPO in Islamic banking is due to high operating costs for product promotion, a smaller office network than conventional banks, and higher fees to attract third-party funds.

The Capital Sector (Tier 1 Core Capital) produced a p-value of 0,000, which is less than 0,05. This is the most obvious difference between the two. The core capital capacity of conventional banks is much larger than that of Islamic commercial banks. This is usually related to the much larger scale and duration of conventional banks' operations. This indicates that Islamic banking faces economies of scale, as although the CAR ratio has not changed significantly, Islamic banks appear to have a high CAR ratio, but they lag far behind in terms of total core capital. According to Mubarok (2019), this difference in core capital prevents Islamic banks from undertaking significant financing expansion for large-scale projects. This contrasts with conventional banks, which have strong capital.

Although there is a difference in the average (mean/median), the statistical test results show a p-value greater than 0,05, indicating that the difference is considered statistically insignificant or merely due to chance. Although BUS appears to be higher (6,48%), the NIM (Net Interest Margin/Net Sharing Margin) has a p-value of 0,830, statistically indicating that its ability to generate margin income is similar to that of conventional banks. LDR (Liquidity) has a p-value of 0,608, indicating that both types of banks have the same level of liquidity or fund distribution. NPL/NPF (Credit Risk) has a p-value of 0,229, indicating that the asset quality or level of non-performing loans between the two types of banks is the same or equivalent in the healthy category. CAR has a p-value of 0,730. Although the BUS figure (43,99%) is much higher than Conventional (26,93%), the difference test shows no significant difference. This is likely due to the wide variation in data (standard deviation) on the CAR of Sharia Banks (some Sharia banks have very high CAR, others are average).

Four of the eight tested criteria were significant: ROA, ROE, BOPO, and Core Capital. Four criteria were statistically identical: NIM, LDR, NPL/NPF, and CAR. The absence of significant differences in the NPL/NPF, LDR/FDR, and NIM/NOM variables indicates that risk and liquidity management practices work together. This finding is supported by Wahid and Mawardi (2022), who emphasized that the Financial Services Authority (OJK)'s consistent supervisory policies have encouraged Islamic banks to implement the same stringent prudential standards as conventional banks. Conventional banks have competitive advantages in terms of efficiency (BOPO) and profitability (ROA/ROE), supported by substantial core capital. Meanwhile, in terms of risk management (NPL) and capital adequacy (CAR), Islamic banks are able to compete on equal footing with conventional banks.

Conventional banks hold a clear advantage in operational efficiency, evidenced by significantly

lower BOPO ratios (79,42% versus 94,16%; p = 0,030). They successfully leverage their massive core capital averaging IDR 52,31 trillion compared to IDR 3,58 trillion for Sharia commercial banks (BUS); p = 0,000 to spread fixed operational costs and adopt digital banking technologies at scale, resulting in lower intermediation costs and superior profitability (ROA and ROE). Regarding asset quality resilience and liquidity, comparative tests reveal no significant differences between NPL and NPF ratios (p = 0,229) or between LDR and FDR figures (p = 0,608). Sharia banks demonstrate credit risk mitigation resilience comparable to that of conventional banks, driven by their asset-backed financing models and adherence to prudential principles. Furthermore, Sharia banks maintain a substantial capital buffer (average CAR of 43,99%) to absorb potential losses. However, conventional banks hold the advantage regarding resilience against long-term macroeconomic shocks, supported by their massive nominal capital scale (Tier 1) and broader revenue diversification. Conventional banks maintain a competitive edge in operational cost efficiency, nominal capital scale, and profitability. Conversely, Sharia banks prove capable of competing on par in terms of asset health (NPL/NPF), compliance with OJK prudential standards, and capital adequacy ratios (CAR). The primary strategic challenge facing Islamic banking moving forward lies not in risk management, but rather in the imperative to consolidate core capital and accelerate operational efficiency, specifically by lowering the BOPO ratio to enable full competitiveness with conventional banks.

Determining the Best-Performing and Highly Resilient Banks Using the TOPSIS Method Based on Bank Performance Criteria

This study uses a demand preference approach based on similarity to the ideal solution (TOPSIS), which differs from conventional financial ratio analysis. The results show that the highest-ranking banks do not necessarily have the best performance across all metrics. Instead, they typically balance profitability, liquidity, and risk well. The ability of OJK-registered banks to utilize the "Positive Ideal Solution" demonstrates management's ability to optimize all available resources, while the ability to utilize the "Negative Ideal Solution" indicates the resilience of the bank's internal control system to potential financial failure.

This study highlights interesting dynamics between the two banking business models. In Islamic banking, the trend toward stable scores on liquidity and asset quality suggests that the yield model and the prohibition on speculative instruments provide additional protection against significant market fluctuations. This aligns with Islamic financial resilience theory, which emphasizes the principle of prudence. While economies of scale and established market networks significantly influence conventional banking, which excels in profitability and operational efficiency, the use of the TOPSIS approach demonstrates that these profitability advantages often require more complex risk management. Banking financial performance has many aspects. For example, a bank may have a high Return on Assets (ROA); however, the TOPSIS method will automatically lower its preference score if the bank's liquidity or capital ratios fall below critical levels. This suggests that, for both regulators and investors, a one-sided view of the ratios can lead to unfair decisions.

Profitability indicators such as ROA and ROE are relatively high compared to other criteria, according to financial performance data for conventional banks registered with the Financial Services Authority. Furthermore, the average CAR and BOPO values indicate strong capitalization, while the average NPL and BOPO values indicate differences in bank efficiency and risk. With the highest preference value (C^+) of 0,967, PT Bank Central Asia, Tbk, as a private commercial bank, demonstrated the best performance based on the TOPSIS analysis. This value reflects BCA's closest proximity to the positive ideal solution compared to other banks. This superiority is supported by the combination of high average ROA and ROE, low BOPO values (indicating efficiency), and relatively low NPL levels.

Table 4. Conventional Bank Performance (2018-2024)

No	Bank Name	Criteria							
		ROA	ROE	NIM	BOPO	LDR	NPL Net	Core Capital (Tier 1)	KPMM/ CAR Ratio
1	PT BANK RAKYAT INDONESIA (PERSERO), Tbk	3,34	19,38	6,84	69,94	87,81	0,88	193.755.219	22,18
2	PT BANK MANDIRI (PERSERO), Tbk	3,09	19,08	5,10	62,70	88,46	0,51	170.209.871	20,00
3	PT BANK NEGARA INDONESIA (PERSERO),Tbk	2,14	13,49	4,60	75,03	88,58	0,82	110.178.521	19,22
4	PT BANK DANAMON INDONESIA,Tbk	2,03	9,00	5,28	77,31	93,31	1,10	31.482.628	24,72
5	PT BANK PERMATA, Tbk (formerly PT Bank Bali)	1,19	5,19	4,28	84,79	79,79	0,93	35.821.306	29,48
6	PT BANK CENTRAL ASIA, Tbk	3,81	19,35	5,68	55,28	66,50	0,65	175.255.292	25,59
7	PT BANK MAYBANK INDONESIA Tbk (formerly PT Bank Internasional Indonesia, Tbk)	0,93	5,35	3,93	87,43	87,93	2,28	21.942.786	23,08
8	PT BANK PAN INDONESIA, Tbk (formerly PT Pan Indonesia Bank, Tbk)	1,79	7,28	4,68	77,32	92,64	0,66	37.482.534	28,15
9	PT BANK CIMB NIAGA, Tbk (formerly PT Bank Niaga, Tbk)	1,80	10,44	4,10	78,55	85,41	1,21	39.159.799	21,15
10	PT BANK UOB INDONESIA (formerly BANK UOB BUANA)	0,81	5,54	3,82	92,24	80,94	1,50	13.651.3.40	17,19
11	PT BANK OCBC NISP, Tbk (formerly PT Bank NISP, Tbk)	1,99	11,27	4,07	72,90	82,81	0,78	29.832.106	20,95
12	CITIBANK, N,A, (formerly First National Citibank)	3,38	13,49	4,98	73,90	64,98	0,38	7.867.574	28,53
13	JP MORGAN CHASE Bank, N,A,, INDONESIA BRANCH (formerly JPMorgan Chase Bank)	1,55	6,59	1,94	89,95	42,94	0,12	4.347.281	36,76
14	BANK OF AMERICA, N,A, - JAKARTA BRANCH (formerly The Bank of America NT & SA)	1,57	4,22	2,94	97,76	80,06	0,00	3.250.511	70,30
15	PT BANK CHINA CONSTRUCTION BANK INDONESIA, Tbk (formerly PT Bank Windu Kentjana International, Tbk)	0,74	3,10	3,64	90,90	87,91	1,73	4.484.817	29,07
16	PT BANK TABUNGAN NEGARA (PERSERO), Tbk,	0,87	12,14	3,58	89,00	98,84	5,57	20.650.462	18,56
17	PT BANK BTPN, Tbk (formerly PT Bank Tabungan Pensiunan Nasional, Tbk)	1,60	8,07	4,83	5,45	136,79	0,46	25.633.227	25,17
18	PT BANK MEGA, Tbk	3,01	16,55	4,98	69,11	69,41	1,22	16.686.954	24,59

Table 5. Performance Priorities and Resilience of Conventional Commercial Banks in Indonesia TOPSIS

No	POTENTIAL BANK ALTERNATIVES	S+	S-	Ci^+	Rank
1	PT BANK RAKYAT INDONESIA (PERSERO), Tbk	0,001	0,019	0,954	2
2	PT BANK MANDIRI (PERSERO), Tbk	0,001	0,018	0,938	3
3	PT BANK NEGARA INDONESIA (PERSERO),Tbk	0,004	0,011	0,744	6
4	PT BANK DANAMON INDONESIA, Tbk	0,006	0,009	0,617	8
5	PT BANK PERMATA, Tbk (formerly PT Bank Bali)	0,010	0,007	0,423	14
6	PT BANK CENTRAL ASIA, Tbk	0,001	0,021	0,967	1
7	PT BANK MAYBANK INDONESIA Tbk (formerly PT Bank Internasional Indonesia, Tbk)	0,013	0,004	0,233	17
8	PT BANK PAN INDONESIA, Tbk (formerly PT Pan Indonesia Bank, Tbk)	0,007	0,009	0,578	10
9	PT BANK CIMB NIAGA, Tbk (formerly PT Bank Niaga, Tbk)	0,006	0,008	0,569	11
10	PT BANK UOB INDONESIA (formerly BANK UOB BUANA)	0,012	0,006	0,309	15
11	PT BANK OCBC NISP, Tbk (formerly PT Bank NISP, Tbk)	0,005	0,010	0,659	7
12	CITIBANK, N,A, (formerly First National Citibank)	0,002	0,016	0,895	4
13	JP MORGAN CHASE Bank, N,A,, INDONESIA BRANCH (formerly	0,009	0,010	0,521	13
14	BANK OF AMERICA, N,A, - JAKARTA BRANCH (formerly The Bank of America NT & SA)	0,010	0,011	0,531	12
15	PT BANK CHINA CONSTRUCTION BANK INDONESIA, Tbk (formerly PT Bank Windu Kentjana International, Tbk)	0,014	0,005	0,255	16
16	PT BANK TABUNGAN NEGARA (PERSERO), Tbk,	0,019	0,002	0,087	18
17	PT BANK BTPN, Tbk (formerly PT Bank Tabungan Pensiunan Nasional, Tbk)	0,007	0,010	0,587	9
18	PT BANK MEGA, Tbk	0,002	0,014	0,864	5

Banks with a high Return on Assets (ROA) indicate they have the best ability to generate profits from their assets. Furthermore, a high average ROE indicates that capital is being used effectively to generate profits. These two indicators serve as profitability criteria in TOPSIS, directly increasing preference scores. From a risk perspective, the best banks in the study sample have a lower average NPL value than other banks in the study sample. This value indicates good creditworthiness and can reduce the likelihood of default. This condition increases the gap between the negative and positive ideal solutions in the TOPSIS method.

Furthermore, the best banks have a low average BOPO value, indicating high operational efficiency. This indicates that the bank is able to manage operating costs better than the revenue generated. This efficiency is one of the main factors driving the high Ci+ value in the TOPSIS results. A high average CAR value is also a key factor in helping the best banks achieve the top ranking. A bank's ability to manage risks and maintain financial stability is demonstrated by a high level of capital. A high CAR value in the TOPSIS method will bring the alternative closer to the positive ideal solution.

The ranking results also demonstrate how each banking entity responds to monetary policy and the strict oversight of the Financial Services Authority (OJK). Banks with higher scores are typically more flexible in adjusting their asset and liability structures to changes in interest rates and exchange rate fluctuations, which directly impact the TOPSIS criteria scores. This is reflected in the Ci+ value approaching 1, indicating a position very close to ideal conditions. Therefore, these banks can be used as benchmarks in managing banking financial performance.

The average criteria scores indicate that Islamic banks registered with the Financial Services Authority (OJK) possess a number of distinct attributes compared to conventional banks. Financing Risk Stability (NPF) and CAR values indicate good performance; however, average ROA and ROE tend to be lower. Furthermore, the high BOPO (Operating Expenses to Operating Income) ratio indicates that operational efficiency remains a major issue for Islamic banks.

Table 6. Performance of Islamic Banks (2018-2024)

No	Bank Name	Criteria							
		ROA	ROE	NIM	BOPO	LDR	NPL Net	Core Capital (Tier 1)	KPMM/ CAR Ratio
1	PT BANK ACEH SYARIAH (formerly PT Bank Aceh)	2,00	16,30	7,10	73,46	66,10	0,15	2.463.588	20,23
2	PT BANK NTB SYARIAH (formerly PT BPD Nusa Tenggara Barat)	2,01	11,61	5,35	80,50	81,92	0,53	1.416.786	30,02
3	PT BANK MUAMALAT INDONESIA, Tbk (formerly PT Bank Syariah Muamalat Indonesia)	0,08	0,81	1,12	97,87	58,69	2,49	4.233.439	21,32
4	PT BANK VICTORIA SYARIAH (formerly PT Bank Swaguna)	0,44	2,00	2,83	93,72	75,88	2,40	393.534	38,32
5	PT BANK JABAR BANTEN SYARIAH	0,62	4,13	5,33	92,85	90,66	2,16	990.772	19,48
6	PT BANK SYARIAH INDONESIA, Tbk (formerly PT Bank Syariah Mandiri)	1,51	11,21	5,77	82,00	81,20	1,97	19.570.033	22,62
7	PT BANK MEGA SYARIAH (formerly PT Bank Syariah Mega Indonesia)	1,84	10,30	5,06	82,40	76,35	1,42	1.801.724	24,56
8	PT BANK PANIN DUBAI SYARIAH, Tbk (formerly PT Bank Panin Syariah, Tbk)	0,47	3,08	2,52	94,93	98,28	2,61	2.010.292	22,71
9	PT BANK KB BUKOPIN SYARIAH (formerly PT Bank Syariah Bukopin)	-0,38	-1,99	2,57	105,29	108,06	4,16	942.388	19,43
10	PT BANK BCA SYARIAH (formerly PT Bank UIB)	1,19	3,97	4,65	85,11	86,72	0,15	2.445.693	35,67
11	PT BANK BTPN SYARIAH, Tbk (formerly PT Bank Tabungan Pensiunan Nasional Syariah, Tbk)	10,12	23,17	27,65	64,64	94,44	0,13	5.209.938	46,31
12	PT BANK ALADIN SYARIAH, Tbk (formerly PT Bank Net Indonesia Syariah, Tbk)	1,13	1,18	7,82	177,14	106,19	0,00	1.562.678	227,22

PT Bank BTPN Syariah, Tbk is a sharia bank with a preference score (Ci+) of 0,980, according to the TOPSIS analysis. Among other Islamic banks, BSI's performance is closest to the ideal standard. High CAR, low NPF, and good FDR stability support this advantage. The best Islamic banks have relatively stable average ROA and ROE values, although not as high as conventional banks. This indicates a more conservative and prudent-based Islamic business model. This value still contributes positively to the TOPSIS analysis, although it is not dominant.

Tabel 7. Performance Priorities and Resilience of Islamic Commercial Banks in Indonesia TOPSIS Results

No	POTENTIAL BANK ALTERNATIVES	S+	S-	Ci^+	Rank
1	PT BANK ACEH SYARIAH (formerly PT Bank Aceh)	0,050	0,023	0,315	2
2	PT BANK NTB SYARIAH (formerly PT BPD Nusa Tenggara Barat)	0,055	0,016	0,223	3
3	PT BANK MUAMALAT INDONESIA, Tbk (formerly PT Bank Syariah Muamalat Indonesia)	0,094	0,002	0,021	11
4	PT BANK VICTORIA SYARIAH (formerly PT Bank Swaguna)	0,086	0,003	0,031	10
5	PT BANK JABAR BANTEN SYARIAH	0,078	0,004	0,054	8
6	PT BANK SYARIAH INDONESIA, Tbk (formerly PT Bank Syariah Mandiri)	0,059	0,012	0,174	4
7	PT BANK MEGA SYARIAH (formerly PT Bank Syariah Mega Indonesia)	0,058	0,012	0,171	5
8	PT BANK PANIN DUBAI SYARIAH, Tbk (formerly PT Bank Panin Syariah, Tbk)	0,085	0,003	0,033	9
9	PT BANK KB BUKOPIN SYARIAH (formerly PT Bank Syariah Bukopin)	0,106	0,001	0,006	12
10	PT BANK BCA SYARIAH (formerly PT Bank UIB)	0,071	0,009	0,114	7
11	PT BANK BTPN SYARIAH, Tbk (formerly PT Bank Tabungan Pensiunan Nasional Syariah, Tbk)	0,002	0,106	0,980	1
12	PT BANK ALADIN SYARIAH, Tbk (formerly PT Bank Net Indonesia Syariah, Tbk)	0,072	0,011	0,128	6

The main advantage of Islamic banks in maintaining financial stability is their good financing quality, as indicated by their low average Net NPF (Non-Performing Financing) value. The BOPO (Operating Expenses to Operating Income) value of the best Islamic banks remains relatively high compared to conventional banks, but lower than that of other Islamic banks in the TOPSIS calculation because the low Net NPF helps increase the preference score. This indicates that, although not yet optimal, efforts have been made to improve operational efficiency. This efficiency still contributes positively to the increase in the C^+ score in the TOPSIS method.

The best Islamic banks have a strong capital structure and are able to absorb risk well, as indicated by a high average CAR (Capital Adequacy Ratio). A stable FDR (Financing to Deposit Ratio) also indicates the ability to balance financing and liquidity. These banks receive the highest preference score among their competitors due to this combination of factors. Overall, the performance of conventional and Islamic banks differs significantly. PT Bank Central Asia, Tbk has a preference score $(C^+)_i$ of 0.967, while PT Bank BTPN Syariah, Tbk has a preference score (C^+) of 0.980. Compared to other banks in each group, this value indicates that these two banks are closest to the positive ideal solution. Therefore, these two banks can be categorized as having the best financial performance during the study period. Islamic banks have limitations in generating profits and cost efficiency, but conventional banks excel in profitability and operational efficiency, as indicated by their higher C^+ values. This difference reflects the unique characteristics of each banking system, each of which has a different operational approach.

Overall, the TOPSIS results indicate that the best Islamic banks have advantages in stability and risk management, although they still face challenges with profitability and efficiency. Within the assessment framework used, these banks have approached the ideal condition with Ci+ values approaching 1. Therefore, these banks can be used as models for the development of Islamic banking performance in the future.

Performance Analysis Based on KBMI Classification 1 to 4

Bank classification based on their core capital (KBMI) is a critical component influencing the TOPSIS preference score. According to POJK No. 12/POJK.03/2021, banks are categorized into KBMI 1 to 4. Banks with KBMI 1 and 2 typically have liquidity ratios close to the Positive Ideal Solution. Banks in this group are more vulnerable to falling within the Negative Ideal Solution range if their asset quality ratios (NPL/NPF) decline due to their limited capital, but their expertise in targeting specific market segments (niche markets) provides resilience. However, their profitability may not be as high as banks with KBMI 4.

The results show that banks in KBMI 3 and KBMI 4 categories (with core capital exceeding IDR 70 trillion) more frequently receive top TOPSIS rankings in terms of operational efficiency and profitability. This is due to their ability to significantly digitize banking and diversify non-interest income sources. A bank's capacity to take risks and grow further can be better illustrated through its classification based on core capital (KBMI). Cluster analysis can be conducted based on statistical and descriptive test results. First, KBMI 4 (Core Capital > IDR 70 trillion). Banks in this group, such as Mandiri, BRI, BCA, and BNI, demonstrate the most stable levels of efficiency (BOPO) and profitability (ROA/ROE). Their large economies of scale enable these banks to make massive technology investments, leading to operational cost efficiencies. This is consistent with research by Tobing (2025), which states that KBMI 4 banks consistently rank among the Very Healthy composite, particularly in maintaining their Net Interest Margin (NIM) despite the transition to the digital era. Second, KBMI 3 (Core Capital > IDR 14 trillion - IDR 70 trillion) and KBMI 2 (Core Capital > IDR 6 trillion - IDR 14 trillion). Banks in this middle group demonstrate good resilience but have higher performance variability than KBMI 4. This group often faces pressure on the cost of funds to compete for liquidity. Astuti (2024) revealed that KBMI 2 and 3 banks are highly responsive to external economic shocks (such as the pandemic), where their flexibility in credit restructuring is a key determinant of asset quality (NPL).

Third, KBMI 1 (Core Capital up to IDR 6 trillion). Banks in the KBMI 1 classification, which often include Regional Development Banks or small private banks, tend to have very high CAR ratios as a percentage, but limited nominal core capital. This indicates the presence of idle funds, or capital that has not been optimally channeled to the productive sector. Kusuma and Hidayati (2023) explained that KBMI 1 banks face significant challenges in operational efficiency due to the lack of economies of scale, resulting in higher BOPO values compared to other groups. Fourth, cross-group comparisons (difference test) were conducted. The results showed that differences in core capital significantly impacted a bank's ability to generate net profit. There was a positive correlation between core capital and efficiency. The higher the KBMI group, the lower the BOPO ratio, indicating that strengthening core capital is key to enhancing the competitiveness of national banking, in line with the OJK's vision of promoting banking consolidation.

Ratio-Based Performance Mapping and Bank Ranking

Using the TOPSIS method, performance mapping results demonstrate synchronization between key ratios and each bank's strategic position. Banks ranked in the top 10 consistently demonstrate positive mappings in ROA and NIM ratios. TOPSIS also shows that banks with substantial capital (KBMI 4) are able to optimize their assets to generate stable profits, distancing them from the negative ideal point in terms of profitability.

Mapping positive liquidity ratios (such as the FDR) is typically the focus of Islamic banking mapping. Although Islamic banks are spread across various KBMI levels (the majority are KBMI 1 and 2), their approach to the ideal liquidity solution demonstrates characteristics of a more conservative and secure business model when facing third-party fund withdrawals. This mapping indicates that banks with low preference scores are generally closer to the Negative Ideal Solution on the NPL/NPF criteria. This conveys a strong message that, even if other ratios, such as capital, are adequate, failure to maintain asset quality will significantly lower a bank's ranking in the multi-criteria decision-making system. Table 7 displays a summary of the average TOPSIS preference scores based on KBMI groupings to show the relationship between preference scores and capital capacity.

Tabel 8. Average TOPSIS Preference Score per KBMI Group

Average TOPSIS Score	Bank Name	Bank Group	Main Characteristics
0.85 - 0.95	PT Bank Central Asia, Tbk PT Bank Rakyat Indonesia (PERSERO), Tbk PT BANK MANDIRI (PERSERO), Tbk PT Bank Mega, Tbk PT Bank BTPN Syariah, Tbk (formerly PT Bank Tabungan Pensiunan Nasional Syariah, Tbk) Citibank, N.A, (formerly First National Citibank)	KBMI 4 KBMI 3 KBMI 2	Dominance in profitability and technological efficiency
0.70 - 0.84	PT Bank Negara Indonesia (Persero), Tbk	KBMI 4	Balance between credit expansion and risk
0.55 - 0.69	PT Bank Danamon Indonesia, Tbk PT Bank Pan Indonesia, Tbk (formerly PT Pan Indonesia Bank, Tbk) PT Bank CIMB NIAGA, Tbk (formerly PT Bank Niaga, Tbk) PT Bank OCBC NISP, Tbk (formerly PT Bank NISP, Tbk) PT Bank BTPN, Tbk (formerly PT Bank Tabungan Pensiunan Nasional, Tbk)	KBMI 3	Focus on niche markets and local liquidity
0.40 - 0.54	PT Bank Permata, Tbk (formerly PT Bank Bali) JP Morgan Chase Bank, N.A, Indonesia Branch (formerly JPMorgan Chase Bank) Bank of America, N. A, - Jakarta Branch (formerly The Bank of America NT & SA)	KBMI 3 KBMI 1	Vulnerability to economies of scale and operating costs

Financial performance ranking and core capital are positively correlated, as shown in the table above. While some banks have a KBMI of 4, PT Bank Negara Indonesia (Persero) Tbk has a TOPSIS score between 0,70 and 0,84, or 0,744. Therefore, PT Bank Negara Indonesia (Persero) Tbk appears to have a balance between credit expansion and risk. Furthermore, substantial capital typically allows banks to take operational risks and invest in information technology, ultimately improving efficiency and profitability. Banks with a KBMI of 1, on the other hand, tend to be less than ideal, primarily due to high operating costs compared to revenue generation.

Mapping of banking financial performance is conducted to provide a clear classification of competitive positions among banks. Based on the results of financial ratio analysis, performance mapping can be grouped into three main quadrants. First, mapping is based on efficiency and profitability (the dominant quadrant). Based on research data, conventional banks occupy the High Profit - High Efficiency quadrant, characterized by high ROA and low BOPO. In contrast, Islamic Commercial Banks (BUS) are in the Moderate Profit - Low Efficiency quadrant. This mapping indicates a strong correlation between operational efficiency and profit-generating ability. According to Sanjaya and Mertha (2024), banks that are able to map efficiency by reducing intermediation costs through digitalization tend to have more stable bank health ratings in the Earnings aspect. The results of a difference test on the NPL/NPF and CAR variables indicate that both types of banks are at an equal level of resilience. This mapping demonstrates that banks with large capital (KBMI 3 and 4) do not necessarily have lower risk than smaller banks (KBMI 1), but they do have a stronger capital buffer to absorb potential losses. This ranking aligns with the RGEC (Risk Profile, Good Corporate Governance, Earnings, and Capital) method stipulated in PBI No. 13/1/PBI/2011, where strong capital (CAR) is the main foundation of bank health ratings. Third, the KBMI-Based Business Scale Mapping based on Bank Groups based on Core Capital (KBMI) shows clear market fragmentation. Bank KBMI 4 dominates the top ranking in terms of asset volume and market reach, while banks KBMI 1 and 2 focus on niche or regional market share. Handayani *et al*. (2023) show that the current mapping of Indonesian banking results in polarization: large banks have higher technology and service ratings, while small banks rely on local customer loyalty ratings. Overall, the bank rankings in this study indicate that core capital capacity is a key differentiator. Banks with high core capital, especially conventional banks, automatically have better efficiency ratings because they have the ability to spread fixed costs across a larger number of transactions. This mapping shows that, although the TOPSIS method is highly mathematical, the results can explain the structure of the Indonesian banking industry. There, capital strength remains a key factor in achieving stable and optimal performance.

CONCLUSION

This study provides a comparative perspective on the financial performance and business resilience of conventional and Sharia commercial banks in Indonesia within the Core Capital-based Bank Group (KBMI) framework. The findings suggest that competitive advantages in the banking industry are shaped not only by business models but also by institutional scale, operational efficiency, and the capacity to manage financial resources. While conventional banks benefit from established scale advantages, Sharia banks demonstrate the potential to maintain financial soundness and compete within the dual banking system. The multi-criteria assessment further highlights that banking performance and resilience should be understood as multidimensional outcomes rather than determined by individual financial indicators.

From a managerial and regulatory perspective, improving competitiveness requires strategies tailored to each bank's operational characteristics and capital position. Sharia banks and smaller institutions should prioritize sustainable efficiency improvements, digital transformation, and the strengthening of business capabilities. Capital management should focus not merely on maintaining

adequate buffers but also on allocating resources prudently to support productive financing and long-term resilience. For regulators, differentiated supervisory approaches and appropriately designed consolidation or capital-strengthening initiatives may help address structural constraints without compromising financial stability or institutional diversity. Multi-criteria decision-making methods such as TOPSIS may complement conventional supervisory tools by providing an integrated perspective on banking performance, subject to appropriate criteria selection, weighting, and validation.

This study contributes to the comparative assessment of Indonesia's dual banking system by integrating financial performance analysis with a multi-criteria evaluation framework. Nevertheless, the findings should be interpreted within the scope of the selected sample, observation period, financial indicators, and TOPSIS weighting scheme. Future research could incorporate dynamic resilience measures, macroeconomic conditions, governance characteristics, digitalization capabilities, and alternative weighting methods to strengthen the robustness and explanatory depth of the assessment. Further investigation may also examine how institutional scale and business model characteristics interact in shaping banks' long-term competitiveness and resilience.

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