ANALYSIS OF SYARIAH BANKS' FINANCIAL PERFORMANCE BEFORE, DURING AND AFTER THE COVID-19 PANDEMIC IN SOUTHEAST ASIA: THE CAMEL APPROACH

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Abstract**:** *The outbreak of Covid-19 has had an impact on several sectors, including the economy in Southeast Asia, which has an important role in the global supply chain. Covid-19 has an impact on the decline in Real GDP which causes a decline in economic growth which is followed by a recession which causes weak financial performance of Sharia Banking. This research is a type of quantitative research with a comparative approach. This research aims to find out whether there are differences in the financial performance of Islamic banks in Southeast Asia before, during and after the Covid-19 pandemic. The variables used to measure banking performance are CAR, NPF, ROA, BOPO and FDR. The data used is secondary data in the form of documentation of banking financial reports obtained from the financial reports of each Islamic bank. The population of this research is all sharia banking which is included in "The Largest Islamic Bank 2020-2023" according to The Asian Banker, sample selection was carried out using purposive sampling technique, the number of samples for this research was 26 sharia banks. The data analysis method used is the difference test with the Wilcoxon sign test. The results of this study show that before and after there are significant differences as measured by CAR and ROA. Meanwhile, the NPF, BOPO and FDR ratios show that there are no significant differences. Conditions during and after Covid-19 as measured by the BOPO ratio have significant differences. Meanwhile, the CAR, NPF, ROA, FDR ratios show that there are no significant differences.*

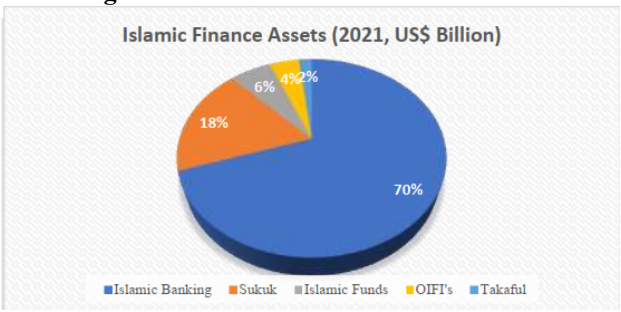
Keywords: *Financial Performance, Sharia Banking, Covid-19*

1. Introduction

The Covid-19 pandemic, caused by the SARS-CoV-2 virus, began in late 2019 in Wuhan, China. The World Health Organization declared it a Public Health Emergency of International Concern (PHEIC) in January 2020 and officially declared it a global pandemic on March 11, 2020. In less than three months, around 126,000 people have been infected in 123 countries, including Africa, Asia, Europe, and America, affecting around 126,000 people. China's economic slowdown is expected to impact Southeast Asian countries, as it has become the second largest trading partner globally and the main trading partner of the region for the past 12 years. This weakening of the Chinese economy will negatively affect global trade, particularly in Southeast Asia, which trades with China (Dewi et al., 2021).

Southeast Asia, with a real GDP growth rate of 4.7%, is crucial for global economic expansion. However, COVID-19 caused a 3.1% drop in global real GDP growth in 2020. Southeast Asian countries, including Malaysia, Indonesia, Singapore, Thailand, and the Philippines, experienced economic declines in the second quarter of 2020, with Malaysia experiencing a 17.1% decline, Indonesia -5.32%, Singapore -13.2%, Thailand -13.2%, and the Philippines -16.5%. Real GDP growth directly impacts bank expansion through increased revenue, default risk, and operating costs. Higher GDP leads to greater bank deposits and higher financing distribution, resulting in higher return on financing. The decline in real GDP impacts economic growth, exacerbated by the recession disrupting various industries, including the financial sector. The Covid-19 pandemic has also impacted Islamic banking, particularly in Southeast Asian countries like Indonesia. Islamic banking organizations coordinate, regulate, and balance various sectors of the economy, making Southeast Asia an important player in the global Islamic financial market. Southeast Asia holds the main control over Islamic banking compared to other Islamic financial indicators.

Figure 1. Islamic Financial Assets in 2021



Source: *Islamic Finance Development Report (IFDR)*, 2021

Islamic banking, with 70% of its assets, has experienced a significant increase in economic transactions due to disruptions in the past decade. Despite the decline in financial performance in Southeast Asia due to Covid-19, Islamic banking is more adaptable than conventional banking. The potential for Islamic banking to survive the crisis is influenced by factors such as prioritizing funding focused on actual economic activities, having a more liquid asset composition, and avoiding high-risk financial instruments like cash management bills, SWAP instruments, and collateralized debt bonds. These factors contribute to its resilience and adaptability in the face of economic downturns. Bank performance is crucial for maintaining a bank's competitiveness and business complexity in the banking sector. It demonstrates a bank's ability to manage and deploy resources effectively. The above efforts are not only carried out by Islamic banks in Indonesia, Islamic banking in other countries in the world also makes efforts to improve financial conditions and to improve its competitiveness (Wardana & Barlian, 2022). Banks must identify daily operational issues and use performance assessment results to create business plans and assessment materials based on operational activities and company policies. This ensures customer and investor confidence in the bank and helps it thrive in the increasingly complex business environment.

The Covid-19 pandemic has highlighted the need for Islamic banking to monitor its financial performance to ensure its sustainability and efficiency. Key financial ratios include Capital Adequacy Ratio (CAR), Non-Performing Financing (NPF), Return on Asset (ROA), Operating Costs to Operating Income (BOPO), and Financing to Deposit Ratio (FDR). Maintaining a CAR is crucial for optimal growth, risk management, and competitiveness with other Islamic financial institutions. NPF measures the value of a bank's assets and measures the percentage of non-performing loans to customers in case of default. The Return on Assets

(ROA) ratio is a crucial indicator for assessing the financial performance of Islamic banks. It measures a company's ability to efficiently seek profit, reflected in sales revenue and investment income. Higher profits lead to higher quality financial performance. The ROA ratio is a key measure of how well a business uses its resources, and is used to assess the health of the largest Islamic banking in Southeast Asia, according to The Asian Banker. Therefore, ROA is a crucial tool for evaluating the profitability of Islamic banks.

The operating cost to operating profit ratio (BOPO) and the Financial Derivatives Ratio (FDR) are crucial metrics for evaluating profitability. BOPO measures the ratio of credit given to equity and public funds, while FDR measures the credit given to depositors. The FDR ratio negatively impacts a bank's ability to compensate depositors reliant on loans. Table 1.2 displays the average financial ratios of 26 largest Islamic banks in Southeast Asia from 2018-2023.

Table 1. Average Financial Ratio of the Largest Islamic Banking in Southeast Asia 2018 - 2023 (%)

Ratio	2018	2019	2020	2021	2022	2023
CAR	19,43	19,79	21,36	22,03	21,78	21,29
NPF	2,31	2,24	2,36	2,22	2,11	2,04
ROA	1,96	2,15	1,58	1,66	1,84	1,41
BOPO	64,75	62,54	67,98	70,65	59,97	6,42
FDR	88,86	88,40	91,63	86,37	86,72	89,56

Source: *Largest Islamic Banking Financial Report in Southeast Asia* 2018 -2023

Table 1. reveals that Islamic banks with the largest assets in Southeast Asia have different financial ratio statistics over the past six years. The CAR ratio of these banks increased before 2018-2019 and during the pandemic in 2020-2021, indicating their ability to handle the Covid-19 crisis and reduce non-performing assets (NPF). However, after the pandemic, CAR decreased in 2022 and 2023 due to less capital to face credit risk and reduce NPF. Despite this, the average CAR ratio of Islamic banks in Southeast Asia remains healthy. The average NPF ratio in table 1.1 decreased from 2018 to 2023 due to increased Islamic bank capital during the pandemic. This increased capital allows Islamic banks to reduce NPF and face credit risk. Central banks, like Indonesia and Thailand, implemented policies to help customers affected by the pandemic. The average NPF ratio indicates relatively healthy performance of Islamic banks in Southeast Asia.

The average NPF shown in table 1. shows that the ratio has decreased from before Covid in 2018 to after Covid in 2023, where the pandemic caused an increase in Islamic bank capital so that the financing ratio decreased. This means that Islamic banks have more capital to face credit risk and reduce NPF. Several policies implemented by central banks, including Indonesia and Thailand, so that Islamic banks restructure financing to help customers affected by the pandemic (Preechalert, 2022). When viewed from the average NPF ratio in the table, it shows that the performance of Islamic banks in Southeast Asia is relatively healthy. The ROA ratio in the table fluctuates due to economic uncertainty, financing restructuring, and interest rate changes during the Covid-19 crisis. This affects bank income and assets, impacting the ROA ratio. The BOPO ratio also fluctuates, with Islamic banks with a low BOPO ratio being more efficient in managing operational costs. Despite the pandemic, the average percentage of the BOPO ratio among the largest Islamic banks in Southeast Asia remains relatively normal, even very efficient in managing operational costs. This indicates the health and sustainability of their business.

Table 1. reveals that the average FDR ratio fluctuated, but in 2020, it reached 91.63%, a threshold for a bank to be considered good. This increase was primarily due to the Covid pandemic, which increased liquidity risk, resulting in a sharp increase in the ratio. The Covid-19 pandemic has significantly impacted bank health, necessitating an objective benchmark to evaluate its impact. Comparing Islamic banking's condition during the pandemic with a country's financial sector before the outbreak can provide impartiality. Bank performance and health are crucial aspects to evaluate a bank's quality and differentiate it from competitors. Financial performance calculations can be conducted using methods like financial ratio analysis, and CAMEL criteria can be used to assess Islamic banks' performance before and after the pandemic.

Bank Indonesia developed the CAMEL ratio analysis to assess bank performance and overall health. The Federal Reserve Bank of America created the CAMEL framework in the 1970s to regulate bank audit procedures. Since then, regulators have increasingly used CAMEL indicators to evaluate banks' financial health. Bank Indonesia's Circular Letter No. 6/23/DPNP and Regulation No. 13/1/PBI/2011 and No. 6/10/PBI. /2004 are used as benchmarks for implementing general bank health research. The bank health analysis assessment system has been renamed RGEC (Risk profile, Good Corporate Governance, Earnings & Capital) to better measure a bank's financial performance. Despite the RGEC approach no longer being used, CAMEL is still used in this study due to its comprehensiveness. The CAMEL method evaluates capital components, asset quality, management, profitability, and market sensitivity, making it more comprehensive in measuring a bank's financial performance. Research by Fauzan et al (2021) supports this, stating that the CAMEL method has advantages in assessing a bank's financial performance during the Covid-19 pandemic compared to the RGEC method. It also provides a more comprehensive picture of financial performance by considering market sensitivity and management, which is crucial in uncertain situations during the pandemic. Thus, the CAMEL method offers a more holistic picture of a bank's financial performance during the Covid-19 pandemic.

Previous studies by Diana (2021) show that Islamic banks in Indonesia have shown good performance in terms of profitability ratio, ROA, ROE, and solvency, while their liquidity ratio has decreased. However, Pratomo (2021) found that the Covid-19 pandemic negatively impacted the performance of both conventional and Islamic banking, particularly in terms of operating cost efficiency. The study also revealed that the pandemic reduced the stability of both types of banking, particularly Islamic banking, which is more affected than conventional banking, as evidenced by the higher decline in their income generation capacity. The Covid-19 pandemic has significantly impacted Islamic banking, with policies implemented by central banks such as the Central Bank of Malaysia (BNM) and Thailand's Preechalert having a negative impact on their performance. Research by Irda Syahira et al (2020) found that the financial stability of Islamic banks appears more stable than conventional banks in dealing with financial problems caused by the pandemic. Amanah Islamic Investment Bank Philippines is the only Islamic bank in the Philippines that shows stability during the pandemic. In Indonesia, both Islamic and conventional banks' financial performance is generally good and within reasonable limits.

The research reveals a difference in the financial performance of Islamic banks before and after the Covid-19 pandemic, as measured by certain financial ratios. Sanjaya's research (2022) found a significant difference in CAR, NPM, and ROA during the pandemic, but not NPL and ROA. Dewi's research (2022) suggests that the CAR, ROA, NPF, and FDR ratios indicate healthy financial performance, indicating that Islamic banks' financial performance before and after the pandemic remains consistent. This study aims to examine the financial

performance of Islamic banks in Southeast Asia before, during, and after the Covid-19 pandemic using the CAMEL approach. The financial performance of banks in each country is influenced by various policies implemented by each country. The study aims to collect empirical evidence on the strength of Islamic banking performance in Southeast Asia, highlighting the need for further research and understanding of its impact on the region.

2. Literature Review and Hypothesis Development

2.1 Literature Review

Stakeholder

Corporate legitimacy theory and stakeholder theory emphasize the importance of a company's understanding of its operations and policies, allowing management to influence decisions and fulfill obligations (McWilliams et al., 2006). Stakeholder theory suggests stronger business relationships lead to better deals, while challenging ones hinder them. Covid-19's negative impacts highlight the need for collaboration, mutual respect, and trust among stakeholders.re asked to replace the page number (when the paper was accepted) on the header of the first page and on the footer of other pages in order to set a unique page number in the Proceedings (Mardikanto, 2014).

Islamic Banking

Islamic banks have grown globally, becoming financially resilient institutions post-crisis (Aliyu & Yusof, 2016). They channel funds directly to the real economy, focus on risk sharing, and drive economic development through innovation (Alqahtani & Mayes, 2018). Islamic banks adhere to Qur'an and Hadith principles, ensuring sanctity of contracts, risk sharing, prohibition of speculative activities, consideration of money as capital, and prohibition of usury (Nurhayati & Wasilah, 2015).

Financial Performance

Company performance is the formal assessment of a company's operational effectiveness and efficiency over time (Mahmud & Abdul, 2016). It involves identifying metrics to measure profit generation and ensuring compliance with financial regulations, such as Financial Accounting Standards (SAK) or GAAP (Fahmi, 2015). Financial performance is a formal assessment of a company's efficiency in generating revenue and cash positions. It helps in predicting a company's growth and development (Hery, 2016). Performance reviews benefit businesses by maximizing employee motivation, supporting decision-making, determining training needs, providing feedback, and establishing reward distribution (Prayitno, 2010).

Performance Measurement

Performance measurement is a process in human resource management that evaluates work progress towards organizational goals, fostering collaboration among experts in their respective fields to contribute positively to the organization (Hidayat, 2018). Financial statements provide crucial data for assessing company performance and maintaining public trust in banks (Sukarno, 2011). They provide relevant data on bank operations, financial position, and changes over time (Suwiknyo & Muhammad, 2009). Islamic banks' success is measured not only by marketing, operations, financial distribution, technology, and human resources but also by maintaining sharia aspects in their operations (Jumingan, 2011).

CAMEL Method

1. Capital, The Capital Adequacy Ratio (CAR) measures a bank's capacity to maintain sufficient capital and its management team's ability to identify and manage risks (Kuncoro & Suhardjono, 2011).
2. Asset Quality, Non-Performing Loan (NPL) measures a bank's asset value, reducing losses and credit quality. Negative correlation with economic growth, especially in Islamic banking (Ismail, 2011).
3. Profitability is the firm's ability to earn a profit (Dewi & Sudiartha, 2017). The greater the profitability of the firm, the firm will choose to use the profit in the form of net profit or retained earnings to finance the firm's operational activities to reduce the use of debt by the firm. (Masruroh & Wardana, 2022)
4. Earning, Profitability is a business's ability to generate profits over time, measured by the ratio of operating costs to operating profit (BOPO), indicating efficiency in operations (Kasmir, 2016).
5. Liquidity, Liquidity ratios assess a business's ability to pay short-term debts, monitor financial position, and provide insight into future obligations. The Financing To Deposit Ratio (FDR) also measures liquidity (Kasmir, 2016).

2.2 Hypothesis

H1: There is a difference in the level of financial performance of Islamic banks as measured by the CAR ratio before, during and after the Covid-19 pandemic in Southeast Asia.

H2: There is a difference in the level of financial performance of Islamic banks as measured by the NPF ratio before, during and after the Covid-19 pandemic in Southeast Asia.

H3: There is a difference in the level of financial performance of Islamic banks as measured by the ROA ratio between before, during and after the Covid-19 Pandemic in Southeast Asia.

H4: There is a difference in the level of financial performance of Islamic banks as measured by the BOPO ratio before, during and after the Covid-19 Pandemic in Southeast Asia.

H5: There is a difference in the level of financial performance of Islamic banks as measured by the FDR ratio between before, during and after the Covid-19 Pandemic in Southeast Asia.

3. Research Methods

Quantitative research, as per Suryani & Hendryadi (2015), employs a comparative approach to study phenomena using numerical data, determining their status through statistical processing, making it a quantitative research type. The study examined the largest Islamic banks in Southeast Asian countries before, during, and after the Covid-19 pandemic, using data collected directly from the official websites of each bank. The research included Islamic banks listed in The Largest Islamic Banks 2020-2023 (May Bank Syariah, CIMB Islamic Bank, BIBD, Bank Muamalat, Bank BTPN Syariah, Islamic Bank of Thailand, etc), as per The Asian Banker. This study analyzed 26 selected Islamic banks in Southeast Asia, including The Largest Islamic Bank in 2020-2023, using the sampling criteria outlined in The Asian Banker's table.

Table 2. Sample Selection Criteria

No	Sample Selection Criteria	Number of Samples
1	A registered Islamic bank and ranked as the Largest Islamic Bank in 2020-2023 according to The Asian Banker.	100
2	Islamic banks that are not in the Southeast Asia region	(72)
3	Sharia Banks that do not have CAR, NPF, ROA, BOPO, FDR ratio values during the 2018-2023 period	(2)
Total number of Islamic banks that were the research samples		26

Note: Data processed by authors

Based on the conclusions above, 26 are obtained islamic banks in Southeast Asia as the sample of this study, are shown in Table 3 as follows:

Table 3. Research Sample

NO.	COUNTRY	BANK NAME	AVERAGE ASSETS
1	MALAYSIA	Maybank Islamic	60507
2		CIMB Islamic Berhad	27821
3		Bank Rakyat	26501
4		RHB Islamic Bank	19864
5		Bank Islam	17640
6		Public Islamic Bank	17327
7		AmBank Islamic	11989
8		MBSB Bank	11268
9		Hong Leong Islamic Bank	9527
10		Bank Muamalat	6230
11		HSBC Amanah	4797
12		OCBC Al-Amin Bank	3964
13		Standard Chartered Saadiq	1848
14		Al Rajhi Bank	2057
15	INDONESIA	BSI	15615
16		Bank Muamalat	3742
17		Bank Aceh Syariah	1739
18		Bank Aceh Syariah	1739
19		Bank Panin Dubai Syariah	777
20		BTPN Syariah	1109
21		Bank Mega Syariah	825
22		Bank BCA Syariah	649
23		Bank BJB Syariah	604
24		Bank Syariah Bukopin	412
25	BRUNEI	Bank Islam Brunei Darussalam	7823
26	THAILAND	Islamic Bank Of Thailand	2421

Note: Data processed by authors

This study uses secondary data from the annual financial report of the Southeast Asian Islamic banking industry from 2020-2023, sourced from literature and documentary studies. Secondary data are initial findings from research obtained indirectly from researchers, a process known as documentation.

4. Result and Discussion

Islamic banks, based on Quran and Hadith, have become crucial financial institutions globally, especially during the economic crisis. Southeast Asia, including Malaysia and Indonesia, has experienced rapid growth in Islamic banking, with Malaysia using a state-driven approach and Indonesia focusing on a market-driven community approach. Brunei Darussalam, Singapore, and other countries with minority Muslim populations, such as the Philippines and Thailand, are actively developing the Islamic banking industry.

4.1. Data Analysis

4.1.1. Descriptive Statistics

This study analyzed 26 Islamic Banks in Southeast Asia using descriptive statistics. The data was collected over a 6-year period, including pre-pandemic years 2018-2019, post-pandemic years 2020-2021, and post-pandemic years 2022-2023. The study used the CAMEL Method to measure financial performance indicators, including Capital Adequacy Ratio, Non-Performing Financing, Return on Asset, BOPO, and FDR.

Table 4. Descriptive Statistics Results Before the Pandemic (2018-2019)

	N	Minimum	Maximum	Mean	Std. Deviation
CAR before Covid	52	-3,17	44,57	19,4862	8,10901
NPF before Covid	52	,35	5,89	2,2760	1,49459
ROA before Covid	52	,02	13,58	2,0504	2,45627
BOPO before Covid	52	28,40	99,60	63,6465	23,64470
FDR before Covid	52	39,59	131,38	88,6323	18,07351
Valid N (listwise)	52				

Note: Data processed by SPSS 26

Table 5. Descriptive Statistics Results During the Pandemic (2020-2021)

	N	Minimum	Maximum	Mean	Std. Deviation
CAR during Covid	52	-6,51	56,40	21,697	10,16126
NPF during Covid	52	,08	8,83	2,2887	1,87510
ROA during Covid	52	-5,48	7,61	1,6206	1,93686
BOPO during Covid	52	24,40	202,74	69,3175	33,34959
FDR during Covid	52	,47	196,73	83,9912	33,17479
Valid N (listwise)	52				

Note: Data processed by SPSS 26

Table 6. Descriptive Statistics Results After the Pandemic (2022-2023)

	N	Minimum	Maximum	Mean	Std. Deviation
CAR after Covid	52	-6,00	53,66	21,5062	9,54095
NPF after Covid	52	,42	7,27	2,0765	1,54269
ROA after Covid	52	-7,13	11,43	1,7163	2,10951

BOPO after Covid	52	26,30	206,19	63,1929	29,46597
FDR after Covid	52	38,37	129,29	87,3856	19,82411
Valid N (listwise)	52				

Note: Data processed by SPSS 26

The research data consists of 52 variables, with the lowest value being the minimum and the highest value being the maximum, as per the data processing results.

1. The study analyzed 52 observation data, revealing that the CAR ratio before the Covid-19 pandemic was -3.17, with a mean of 19.4862 and a maximum of 44.57. During the pandemic, the CAR ratio was -6.51, with a mean of 21.7246 and a standard deviation of 10.31298. After the pandemic, the CAR ratio was -6.00, with a mean of 21.5062 and a standard deviation of 9.54095. The data suggests that Islamic banking has a strong ability to manage operational costs during the pandemic, whereas after the pandemic, it experienced a decline.
2. The study analyzed 52 observation data to determine the NPF ratio before, during, and after the Covid-19 pandemic. The data showed a mean value of 2.2760 with a standard deviation of 1.49459. During the pandemic, the mean value was 0.08 with a standard deviation of 1.87589. After the pandemic, the mean value was 0.42 with a standard deviation of 1.54269. The data suggests that the mean values before, during, and after the pandemic were greater than the standard deviation values, indicating a low data deviation and an even distribution of values. However, the NPF ratio increased during the pandemic compared to before, while decreasing after the pandemic.
3. The study analyzed 52 observation data, revealing a low ROA ratio before the Covid-19 pandemic, with a mean of 1.8935 and a standard deviation of 2.40614. During the pandemic, the minimum ROA was -6.72, with a maximum of 10.72 and a mean of 1.3310. After the pandemic, the minimum was -7.13, with a maximum of 11.43 and a mean of 1.7163. The data suggests a low data deviation and an even distribution of values. However, the ROA ratio decreased during the pandemic compared to before.
4. The study analyzed 52 observation data, revealing a decrease in the BOPO ratio before the Covid-19 pandemic, with a mean of 63.6465 and a standard deviation of 23.64470. During the pandemic, the mean was 24.40, with a maximum of 202.74 and a standard deviation of 33.34959. After the pandemic, the mean was 38.37, with a maximum of 129.29 and a standard deviation of 19.82411. The data suggests that the pandemic caused a decrease in income and an increase in operational costs.
5. The study analyzed 52 observation data, revealing a low mean value before, during, and after the Covid-19 pandemic. The FDR ratio had a mean value of 88.7210 with a standard deviation of 17.96362, while during the pandemic it had a mean value of 196.73 with a standard deviation of 24.27558. After the pandemic, the FDR ratio had a minimum value of-38.37 with a standard deviation of 19.82411. The data suggests a low deviation and even distribution of values.

4.1.2. Normality Test

The normality test is used to determine the distribution of data from research variables. This study uses it to determine if a difference test uses a parametric or non-parametric test. Parametric tests require data to be normally distributed, while non-parametric tests use Wiloxon sign rank or non-parametric tests. If the number of samples is less than 50, Shapiro Wilk is used, and if it is greater than 50, Kolmogorov Smirnov is used. A Sig. value of >0.05 indicates normal distribution, and <0.05 indicates non-normal distribution.

Table 7. Normality Test Results Before the Pandemic (2018-2019)

	Kolmogorov Smirnov		
	Statistic	Df	Sig.
CAR before Covid	0,198	52	0,000
NPF before Covid	0,177	52	0,000
ROA before Covid	0,285	52	0,000
BOPO before Covid	0,137	52	0,015
FDR before Covid	0,136	52	0,018

Note: Data processed by authors

Table 8. Normality Test Results During the Pandemic (2020-2021)

	Kolmogorov Smirnov		
	Statistic	Df	Sig.
CAR during Covid	0,220	52	0,000
NPF during Covid	0,192	52	0,000
ROA during Covid	0,164	52	0,001
BOPO during Covid	0,125	52	0,040
FDR during Covid	0,183	52	0,000

Note: Data processed by authors

Table 9. Normality Test Results After the Pandemic (2021-2023)

	Kolmogorov Smirnov		
	Statistic	Df	Sig.
CAR after Covid	0,208	52	0,000
NPF after Covid	0,267	52	0,001
ROA after Covid	0,275	52	0,000
BOPO after Covid	0,122	52	0,050
FDR after Covid	0,131	52	0,026

Note: Data processed by authors

The Kolmogorov Smirnov Normality Test indicates that the ratio value of Islamic Banks in Southeast Asia before, during, and after the pandemic is:

1. The normality test revealed that the CAR ratio of Islamic banks in Southeast Asia before the pandemic in 2018 and 2019 had a sig value of 0.000 < 0.05. During the pandemic in 2020 and 2021, it was 0.000 < 0.05, indicating abnormal data distribution due to extreme values or outliers.
2. The normality test revealed that the NPF ratio of Islamic banks in Southeast Asia before the pandemic had a sig value of 0.000 < 0.05, increased to 0.000 < 0.05 during the pandemic in 2020 and 2021, and 0.001 < 0.05 after the pandemic in 2022 and 2023, indicating abnormal data distribution.
3. The normality test revealed that the ROA ratio of Islamic banks in Southeast Asia before the pandemic in 2018 and 2019 was 0.000 < 0.05, 0.001 < 0.05 during 2020 and 2021, and 0.000 < 0.05 after 2022 and 2023, indicating abnormal data distribution due to extreme values or outliers.
4. The normality test revealed that the BOPO ratio of Islamic banks in Southeast Asia before the pandemic had a sig value of 0.015 < 0.05, 0.040 < 0.05 during the pandemic, and 0.050 < 0.05 after the pandemic, indicating abnormal data distribution due to extreme values or outliers.

5. The normality test revealed that the FDR ratio of Islamic banks in Southeast Asia before the pandemic had a sig value of 0.018 < 0.05, increased to 0.000 < 0.05 during the pandemic in 2020 and 2021, and then to 0.026 < 0.05 in 2022 and 2023, indicating abnormal data distribution.

4.1.3. Difference Test

The study uses the sign-wilcoxon test to compare the financial performance of Islamic banks in Southeast Asia before, during, and after the Covid-19 pandemic. The test is a non-parametric method, and the results are analyzed using a table. If the sig. value is > 0.05, there is no difference, and if it is < 0.05, there is a difference. The results of the sign-wilcoxon difference test are presented in table 4.9.

Table 10. Wilcoxon Sign Difference Test Results Before-During the Pandemic

Indicator	Z	Sig (2-Tailed)	Note	Decision
CAR before-during	-2,887	0,004	P < 0,05	H_1 Accepted
NPF before-during	-0,239	0,811	P > 0,05	H_2 Rejected
ROA before-during	-2,008	0,045	P < 0,05	H_3 Accepted
BOPO before-during	-1,566	0,117	P > 0,05	H_4 Rejected
FDR before-during	-0,556	0,479	P > 0,05	H_5 Rejected

Note: Data processed by authors

The Wilcoxon sign difference test results show a significant difference in the CAR ratio and ROA ratio between Southeast Asian Islamic banks before and during the Covid-19 pandemic. However, the NPF, BOPO, and FDR ratios showed no significant difference (>0.05), indicating no significant difference in the financial performance of these banks. The results suggest that the financial performance of these banks remains consistent despite the pandemic.

Table 11. Wilcoxon Sign Difference Test Results During and After the Pandemic

Indicator	Z	Sig (2-Tailed)	Note	Decision
CAR during-after	-0,410	0,682	P > 0,05	H_1 Rejected
NPF during-after	-1,152	0,249	P > 0,05	H_2 Rejected
ROA during-after	-0,914	0,361	P > 0,05	H_3 Rejected
BOPO during-after	-2,149	0,032	P < 0,05	H_4 Accepted
FDR during-after	-0,815	0,415	P > 0,05	H_5 Rejected

Note: Data processed by SPSS 26

The Wilcoxon sign difference test results show a significant difference in the BOPO ratio during and after the pandemic, with a sig value of 0.032. However, the CAR, NPF, ROA, and FDR ratios show no significant difference in the financial performance of Islamic banks in Southeast Asia during and after the Covid-19 pandemic.

4.2. Discussion of Research Results

4.2.1. Differences in the financial performance of Islamic Banks in Southeast Asia before, during and after the Covid-19 pandemic as measured by the CAR ratio

The Sign-Wilcoxon test showed a significant difference in the capital ratio before and during the Covid-19 pandemic, with a mean CAR ratio of 19.4862% before the pandemic and 21.6973% during the pandemic. The study suggests that Islamic banks in Southeast Asia demonstrated strong resilience during the pandemic, as their CAR ratio increased significantly. However, no significant difference was found in the capital ratio during and after the pandemic. This aligns with a previous study by Sullivan & Widoatmodjo (2021), which also found differences in financial performance. The CAR ratio in Indonesia remained stable despite the Covid-19 pandemic due to a minimum provision for protection against losses. It serves as a buffer during economic expansion and contraction phases, and increased liquidity from third-party fund receipts strengthens bank capital. Research by Seto & Septianti (2021) shows no difference in performance measured by the CAR ratio, meeting Bank Indonesia's standards.

4.2.2. Differences in the financial performance of Islamic Banks in Southeast Asia before, during and after the Covid-19 pandemic as measured by the NPF ratio

The Wilcoxon Sign Test showed a significant difference in the NPF ratio before and during the Covid-19 pandemic, with a mean of 2.2760% before the pandemic, 2.2887% during the pandemic, and 2.0765% after the pandemic. This indicates a significant difference in the bank's capacity to manage financing problems for disbursed funding. The Bank's increasing NPF ratio, unprofessional capital management, and higher risk of capital financing led to a significant difference in NPF rates during and after Covid-19. The decrease in average value reflects consistent repayment of financing, impacting the corporate sector and reducing borrowers' inability to pay.

The study by Hernawati et al (2021) and Widodo (2021) found that the net profit of Islamic banks in Southeast Asia decreased after the Covid-19 pandemic. The increase in the Capital Asset Ratio (CAR) indicates more capital to absorb potential losses and reduces the risk of default. However, limited community mobility and decreased purchasing power led to ineffective credit distribution and increased credit risk. Fixed operating expenses also contributed to the decline in NPL.

4.2.3. Differences in the financial performance of Islamic Banks in Southeast Asia before, during and after the Covid-19 pandemic as measured by the ROA ratio

The Sign-Wilcoxon Test showed a significant difference in the management ratio before and during the Covid-19 pandemic, with a ROA significance value of 0.045. However, the third hypothesis was rejected, indicating no significant difference. The mean ROA before and during the pandemic was 2.0504%, 1.6206%, and 1.7163% respectively, indicating a safe ROA ratio value. The ROA ratio measures management's profitability, with higher ratios indicating better profitability. The Covid-19 pandemic significantly impacted the ROA value, with an average of 2.0504% before and 1.6206% during the pandemic. The pandemic's lifestyle shift from consumptive to saving led to worsening banking liquidity.

The study by Fitriani (2020) reveals a difference in banking financial performance before and during the Covid-19 pandemic, primarily due to the average level of banking ROA ratio. Islamic banks experienced lower profitability and decreased asset value, highlighting the impact of unstable economic conditions on financial performance.

4.2.4. Differences in the financial performance of Islamic Banks in Southeast Asia before, during and after the Covid-19 pandemic as measured by the BOPO ratio

The Sign-Wilcoxon Test showed no significant difference in profitability ratio before and during the Covid-19 pandemic, while the fourth hypothesis was accepted, indicating a significant difference in the BOPO ratio. The mean BOPO before the pandemic was 63.6465%, 69.3175% during the pandemic, and 63.1929% after. The BOPO ratio was considered safe if below 94%, but increased during the pandemic due to decreased operating income and financing defaults. This increase in the BOPO ratio was attributed to the inefficiency of operating costs incurred by Islamic banks, leading to higher problematic conditions.

4.2.5. Differences in the financial performance of Islamic Banks in Southeast Asia before, during and after the Covid-19 pandemic as measured by the FDR ratio

The The Sign-Wilcoxon Test showed a significant difference in profitability ratio before and during the Covid-19 pandemic, with a mean FDR of 88.6323% before the pandemic and 83.9912% during the pandemic. However, the fifth hypothesis was rejected, indicating no significant difference. The average FDR during the pandemic was 87.3856%, considered safe if it exceeded the regulation of 75% and 120%. FDR, a ratio relating to funds used with Third Party Funds (TPF), decreased significantly before and during the Covid-19 period. The average FDR before Covid-19 was 88.6323%, but decreased by 83.9912% due to decreased financing/credit growth and increased TPF growth. Effendi and Hariani (2020) found no significant difference in performance in Islamic banking during crisis conditions.

5. Conclusion

The Sign-Wilcoxon Test results indicate significant differences before and after Covid-19, as measured by CAR and ROA, but no significant difference in NPF, BOPO, and FDR ratios. The BOPO ratio shows a significant difference, but no significant difference in CAR, NPF, ROA, and FDR ratios.

1. The financial performance of Islamic banking in Southeast Asia showed significant differences before and during the Covid-19 pandemic, as measured by the CAR ratio, but no significant difference was observed post-pandemic.
2. The NPF ratio indicates no significant difference in the financial performance of Islamic banking in Southeast Asia before, during, or after the Covid-19 pandemic.
3. The financial performance of Islamic banking in Southeast Asia before and during the Covid-19 pandemic was analyzed using the ROA ratio, but there was no significant difference in performance between the two periods.
4. The financial performance of Islamic banking in Southeast Asia was not significantly different before and during the Covid-19 pandemic, as measured by the BOPO ratio, but there was a significant difference after the pandemic.
5. The financial performance of Islamic banking in Southeast Asia before and during the Covid-19 pandemic, as measured by the FDR ratio, exhibited significant differences.

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