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Original Research Article

Comparative Analysis of Bank Performance Between Bank Syariah Indonesia (Private-Shariah) and Bank Central Asia (Private-Conventional) Period of 2021 and 2022

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Abstract: Bank Syariah Indonesia (BSI) is the largest sharia bank in Indonesia, while Bank Central Asia (BCA) is a conventional private bank with the largest capitalization in Indonesia. The fundamental problem at BSI is a cyber attack that has an impact on the IT system, while the fundamental problem at BCA bank is that the mobile banking system will be disrupted in 2022, so researchers will compare the bank's performance in 2021 (before) and 2022 (after). The general objective of this research is to analyze the comparison of bank performance after experiencing technological obstacles from both internal and external sources, while the specific objectives are to find out whether: (1) Any difference in the performance of Bank Syariah Indonesia (Private-Syariah) between 2021 and 2022, (2) Any difference in the performance of Bank Central Asia (Private-Conventional) in 2021 and 2022, (3) Any difference in the performance of Bank Syariah Indonesia (Private-Sharia) and Bank Central Asia (Private Conventional) between 2021 and 2022. The method used in this research is RGEC (Risk Profile, Good Corporate Governance, Earning, Capital). The analytical tool used is *the Wilcoxon* and *Mann Whitney non-parametric t-difference test*. The results obtained are: 1. There is no difference in Bank BSI's performance before and after the IT problem but not constant; 2. There is no difference in Bank BCA's performance before and after the IT problem but not constant; 3. There is no difference in the performance of Bank BSI before and BCA before IT problems occur but are not constant;4. There is no difference in the performance of Bank BSI after and BCA after IT problems occur but are not constant.

Keywords: Bank Health Level and Bank Performance.

1. INTRODUCTIONS

PT. Bank Syariah Indonesia (BSI) is a bank resulting from the merger between PT Bank BRI Syariah Tbk, PT Bank Mandiri Syariah and PT Bank BNI Syariah. The Financial Services Authority (OJK) officially issued a merger permit for the three sharia banking businesses on January 27 2021 via letter Number SR-3/PB.1/2021. (bankbsi, 2021). Bank Syariah Indonesia is the largest sharia bank in Indonesia. Key Performance Summary (KPI) performance analysis related to SGDs number 8 economic growth. The following is an overview of the Sustainability performance of BSI and BCA Banks. BCA's support for other Sustainable Development Goals (TPB) BCA continues to maximize support in achieving the Sustainable Development Goals by continuing to provide support for the 7 Development Goals (Bank Central Asia, 2023) In May 2022, Bank Syariah Indonesia experienced a cyber attack that affected Bank Syariah Indonesia's (BSI) banking service system. The disruption to Bank Syariah Indonesia (BSI) services some time ago was allegedly the result of a cyber attack in the form of ransomware carried out by a group of hackers who called themselves the LockBit Ransomware Group. Member of Commission (Commission XI.DPRRI.go.id, 2023). Based on this phenomenon/condition, researchers are interested in knowing the comparison of BSI bank's performance before it was hacked (in 2021) and after it was hacked (in 2022). PT Bank Central Asia Tbk (BCA) or simply BCA is one of the banking issuers with the largest capitalization on the Indonesia Stock Exchange (BEI). This Indonesian private bank has company values that focus on customers as an important asset in its business.

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(Nurmala. E, 2023). BCA opened its voice regarding the BCA Mobile service error on Monday afternoon (1/8/2022). Bca Executive Vice President Secretariat & Corporate Communication, Heta F. Haeyn apologized for the problem. (Bestari, 2022). Based on this phenomenon/condition, research is interested in examining the performance of BCA bank before the mobile banking error occurred (in 2021) and after the mobile banking error occurred (in 2022). Based on the two phenomena above, the author is interested in researching bank performance at the largest Sharia Bank in Indonesia and the largest conventional private bank in Indonesia in 2021 (before IT problems) and 2022 (after IT problems)

2. MATERIALS AND METHODS

This research is comparative research, namely research that aims to test the information content based on a comparison, namely Sharia Banks and private banks, so that researchers can see differences in financial performance from these events using a comparative research design, namely research that aims to compare. What will be compared in this research is financial performance during 2021 (before IT problems) and 2022 (after IT problems). The analytical tool used is the t test on paired variables and independent variables

3. RESULTS & DISCUSSIONS

a. BSI Profile

Indonesian Sharia Bank PT Bank Syariah Indonesia Tbk The banking industry in Indonesia recorded new history with the presence of PT Bank Syariah Indonesia Tbk (BSI), which was officially born on February 1 2021 or 19 Jumadil Akhir 1442 H. President Joko Widodo directly inaugurated the largest Sharia Bank in Indonesia at the State Palace. BSI is a bank resulting from the merger between PT Bank BRIsyariah Tbk, PT Bank Syariah Mandiri and PT Bank BNI Syariah. through Financial Services Authority (OJK) Decree No. 04/KDK.03/2021 officially issued a permit for the merger of the three sharia banking businesses on January 27 2021. Furthermore, on February 1 2021, President Joko Widodo inaugurated the presence of BSI. The composition of BSI shareholders is: PT Bank Mandiri (Persero) Tbk 50.83%, PT Bank Negara Indonesia (Persero) Tbk 24.85%, PT Bank Rakyat Indonesia (Persero) Tbk 17.25%. The remainder are shareholders with less than 5% each.

b. BSI Performance

BSI's performance before (2021) and after (2022) IT obstacles is as follows.

Table 1.1: BSI PERFORMANCE

BSI Performance Ratio (%)	December 2021 (Before)	December 2022 (After)
1. Capital Adequacy Requirement (CAR)	22.09	20.29
2. Non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets	1.47	1.35
3. Non-performing earning assets to total productive assets	2.01	1.79
4. Allowance for impairment losses (CKPN) of financial assets against productive assets	3.01	3.29
5. Return on Assets (ROA)	1.61	1.98
6. Return on Equity (ROE)	13.71	16.84
7. Operating Expenses to Operating Income (BOPO)	80.46	75.88
8. Cost to Income Ratio (CIR)	52.57	51.01

Source: OJK (2022,2023)

d. BCA Profile

PT Bank Central Asia Tbk Commercial Bank Business Sector Ownership of PT Dwimuria Investama Andalan 54.94% Society 45.06% Company Establishment October 10, 1955 Legal Basis for Establishment Deed of Company Establishment No. 38 with Notarial Deed Raden Mas Soeprapto dated 10 August 1955. Approved by the Minister of Justice with a Decree No. J.A.5/89/19 dated 10 October 1955. Shares of PT Bank Central Asia Tbk listed and traded on the Indonesian Stock Exchange Share Listing Date May 31, 2000. Name change, previously the company was called NV Semarang Trade and Industrial Company Knitting Factory. Effective September 2 1975, the Bank's name was changed to PT Bank Central Asia (BCA).

e. BCA performance

Table 1.2.: BCA PERFORMANCE

BCA Performance Ratio (%)	Dec 2021 (Before)	December 2022 (After)
1. Capital Adequacy Requirement (CAR)	25.66	25.77
2. Non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets	1.1	0.91
3. Non-performing earning assets to total productive assets	1.01	0.81

BCA Performance Ratio (%)	Dec 2021 (Before)	December 2022 (After)
4. Allowance for impairment losses (CKPN) of financial assets against productive assets	2.98	3.01
5. Return on Assets (ROA)	3.41	3.91
6. Return on Equity (ROE)	18.25	21.7
7. Operating Expenses to Operating Income (BOPO)	54.15	46.54
8. Cost to Income Ratio (CIR)	36.28	36.1

Source: OJK (2022,2023)

f. Results

The results of the research statistical tests are as below.

f.1. Comparative Test Before and After BSI.

Table 6.3: Validation Test Year

Case Processing Summary							
	Year	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Performance	Before (2021)	8	100.0%	0	0.0%	8	100.0%
	After (2022)	8	100.0%	0	0.0%	8	100.0%

In the above table the BSI data before and after is 100% valid.

Table 1.4.: BSI Descriptive Test

Descriptives				Statistics	Std. Error
	Year				
Performance	Before (2021)	Mean		22.1163	10.36665
		95% Confidence Interval for Mean	Lower Bound	-2.3970	
			Upper Bound	46.6295	
		5% Trimmed Mean		20.0219	
		Median		8.3600	
		Variance		859,739	
		Std. Deviation		29.32131	
		Minimum		1.47	
		Maximum		80.46	
		Range		78.99	
		Interquartile Range		43.24	
		Skewness		1,464	,752
		Kurtosis		1,180	1,481
	After (2022)	Mean		21.5538	9.78184
		95% Confidence Interval for Mean	Lower Bound	-1.5766	
			Upper Bound	44.6841	
		5% Trimmed Mean		19.6581	
		Median		10.0650	
		Variance		765,475	
		Std. Deviation		27.66721	
		Minimum		1.35	
		Maximum		75.88	
		Range		74.53	
		Interquartile Range		41.49	
		Skewness		1,405	,752
		Kurtosis		,975	1,481

Based on the above data, BSI before (2021) Mean 22.1163, 95% Confidence Interval for Mean Lower Bound-2.3970 and Upper Bound 46.6295. After (2022) Mean 21.5538, 95% Confidence Interval for Mean Lower Bound-1.5766, Upper Bound 44.6841.

Table 1.5: BSI Normality Test

Tests of Normality							
	Year	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Performance	Before (2021)	,250	8	,149	,769	8	.013
	After (2022)	,268	8	,094	,780	8	.017
a. Lilliefors Significance Correction							

From the normality test data, data that is smaller than 0.05 means that the data is not normally distributed, so the Wilcoxon nonparametric test is used.

Table 1.6: BSI -WILCOXON TEST
Wilcoxon Signed Ranks Test

Ranks				
		N	Mean Rank	Sum of Ranks
After (2022) - Before (2021)	Negative Ranks	5 [a]	4.40	22.00
	Positive Ranks	3 [b]	4.67	14.00
	Ties	0 [c]		
	Total	8		
a. After (2022) < Before (2021)				
b. After (2022) > Before (2021)				
c. After (2022) = Before (2021)				

In the above table: After (2022) - Before (2021) where Negative Ranks5 data has a mean of 4.40 and sum of ranks 22. Positive Ranks 3 data has a mean of 4.67 and sum of ranks 14.

Table 1.7.: Wilcoxon test

Test Statistics [a]	
	After (2022) - Before (2021)
Z	-.560 [b]
Asymp. Sig. (2-tailed)	,575
a. Wilcoxon Signed Ranks Test	
b. Based on positive ranks.	

Based on the Wilcoxson test results, sig (2-tailed) 0.575 is greater than 0.05, meaning there is no difference before and after IT problems at BSI Bank.

f.2. Comparative Test Before and After BCA.
Below are the results of comparative statistical tests before and after BCA :

Table 1.8: BCA Validation Test

	Year	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Performance	Before (2021)	8	100.0%	0	0.0%	8	100.0%
	After (2022)	8	100.0%	0	0.0%	8	100.0%

In the above data, BCA data before and after is 100% valid.

Table 1.9.: Descriptive Test

Descriptives					
	Year			Statistics	Std. Error
Performance	Before (2021)	Mean		17.8550	6.95944
		95% Confidence Interval for Mean	Lower Bound	1.3986	
			Upper Bound	34.3114	
		5% Trimmed Mean		16.7744	
		Median		10.8300	
		Variance		387,470	
		Std. Deviation		19.68426	
		Minimum		1.01	
		Maximum		54.15	

Descriptives				Statistics	Std. Error
	Year				
		Range		53.14	
		Interquartile Range		32.06	
		Skewness		,968	,752
		Kurtosis		-.090	1,481
	After (2022)	Mean		10.8413	5.87576
		95% Confidence Interval for Mean	Lower Bound	-3.0527	
			Upper Bound	24.7352	
		5% Trimmed Mean		9.4153	
		Median		3.3100	
		Variance		276,197	
		Std. Deviation		16.61916	
		Minimum		.81	
		Maximum		46.54	
		Range		45.73	
		Interquartile Range		19.08	
		Skewness		1,867	,752
		Kurtosis		2,777	1,481

In the above table BCA Performance Before (2021) Mean 17.8550, 95% Confidence Interval for Mean Lower Bound 1.3986 Upper Bound 34.3114. while BCA After (2022) Mean 0.8413.95% Confidence Interval for Mean Lower Bound-3.05 27, upper bound 24.7352.

Table 1.10: BCA Normality Test

Tests of Normality		Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Year	Statistics	df	Sig.	Statistics	df	Sig.
Performance	Before (2021)	,268	8	,093	,853	8	.101
	After (2022)	,412	8	,000	,666	8	,001
a. Lilliefors Significance Correction							

In the BCA above data, the data before is greater than 0.05, meaning the data is normally distributed, but the data after is smaller than 0.05, the data is not normally distributed so the Wilxocon nonparametric test is used.

Table 1.11: BCA - Test Ranks Wilcoxon Signed Ranks Test

Ranks		N	Mean Rank	Sum of Ranks
After (2022) - Before (2021)	Negative Ranks	5 [a]	5.60	28.00
	Positive Ranks	3 [b]	2.67	8.00
	Ties	0 [c]		
	Total	8		
a. After (2022) < Before (2021)				
b. After (2022) > Before (2021)				
c. After (2022) = Before (2021)				

In the BCA above data : After (2022) - Before (2021) Negative Ranks 5 data mean ranks 5.60, sum of ranks 28. Positive Ranks 3 data with mean rank 2.67 sum of ranks 8.

Table 1.12.: Wilcoxon test

Test Statistics [a]	
	After (2022) - Before (2021)
Z	-1,400 [b]
Asymp. Sig. (2-tailed)	,161
a. Wilcoxon Signed Ranks Test	
b. Based on positive ranks.	

Based on the above table, a sig (2-tailed) is greater than 0.05, meaning there is no difference in performance before and after IT problems at BCA.

f.3. Comparative Test of BSI with BCA Before IT Problems

The following is a statistical test comparing BSI with BCA before IT problems:

Table 1.13.: Previous BSI and BCA Validation Test (2021)

Case Processing Summary								
	Year	Cases						
		Valid		Missing		Total		
		N	Percent	N	Percent	N	Percent	
Performance	BSI Before (2021)	8	100.0%	0	0.0%	8	100.0%	
	BCA Before (2021)	8	100.0%	0	0.0%	8	100.0%	

In the above data, before the IT problems for BSI and BCA the data is 100% valid.

Table 1.14.: Descriptive Test

Descriptives				Statistics	Std. Error
2Performance	BSI Before (2021)	Mean		22.1163	10.36665
		95% Confidence Interval for Mean	Lower Bound	-2.3970	
			Upper Bound	46.6295	
		5% Trimmed Mean		20.0219	
		Median		8.3600	
		Variance		859,739	
		Std. Deviation		29.32131	
		Minimum		1.47	
		Maximum		80.46	
		Range		78.99	
		Interquartile Range		43.24	
		Skewness		1,464	,752
		Kurtosis		1,180	1,481
	BCA Before (2021)	Mean		17.8550	9.78184
		95% Confidence Interval for Mean	Lower Bound	1.3986	
			Upper Bound	34.3114	
		5% Trimmed Mean		16.7744	
		Median		10.8300	
		Variance		387,470	
		Std. Deviation		19.68426	
		Minimum		1.01	
		Maximum		54.15	
		Range		53.14	
		Interquartile Range		32.06	
		Skewness		,968	,752
		Kurtosis		-.090	1,481

In the above table, BSI Performance Before (2021) with Mean 22.1163, 95% Confidence Interval for Mean Lower Bound-2.3970 and Upper Bound 46.6295.

Meanwhile, BCA Before (2021) Mean 17.8550, 95% Confidence Interval for Mean Lower Bound 1.3986, Upper Bound 34.3114.

Table 1.15.: BSI & BCA Normality Test (Before)

Tests of Normality							
	Year	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	
Performance	BSI Before (2021)	,250	8	,149	,769	8	.013
	BCA Before (2021)	,268	8	,093	,853	8	.101

In the above data, BCA before IT constraints, the normality test is greater than 0.05, meaning the data is normally distributed, while the BSI is smaller than

0.05, the data is not normally distributed so the Mann Whitney nonparametric independent test is used.

Table 1.16.: Ranks Test - Before (2021) Mann-Whitney Test

Ranks				
	Year	N	Mean Rank	Sum of Ranks
Performance	BSI Before (2021)	8	8.63	69.00
	BCA Before (2021)	8	8.38	67.00
	Total	16		

In the table above, from 8 BSI data before ranks, the mean rank is 8.63 with a sum of ranks of 6.69, while from 8 BCA data it is 8.38 with a sim of ranks of 67.

Table 1.17: Mann Whitney Before (2021)

Test Statistics [a]	
	Performance
Mann-Whitney U	31,000
Wilcoxon W	67,000
Z	-.105
Asymp. Sig. (2-tailed)	,916
Exact Sig. [2*(1-tailed Sig.)]	,959 [b]
a. Grouping Variable: Year	
b. Not corrected for ties.	

Based on the Mann Whitney Sig test (2-tailed), greater than 0.05 means there is no difference in performance between BSI and BCA before IT problems.

f.4. Comparative Test of BSI with BCA After IT Problems

Table 1.18: Validity test

Case Processing Summary							
	Year	Cases					
		Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
Performance	BSI After (2022)	8	100.0%	0	0.0%	8	100.0%
	BCA After (2022)	8	100.0%	0	0.0%	8	100.0%

For BSI and BCA data after (2022), IT data constraints are 100% valid

Table 1.19: Descriptives Test

Descriptives					
	Year			Statistics	Std. Error
Performance	BSI After (2022)	Mean		21.5538	9.78184
		95% Confidence Interval for Mean	Lower Bound	-1.5766	
			Upper Bound	44.6841	
		5% Trimmed Mean		19.6581	
		Median		10.0650	
		Variance		765,475	
		Std. Deviation		27.66721	
		Minimum		1.35	
		Maximum		75.88	
		Range		74.53	
		Interquartile Range		41.49	
		Skewness		1,405	,752
		Kurtosis		,975	1,481
	BCA After (2022)	Mean		10.8413	5.87576
		95% Confidence Interval for Mean	Lower Bound	-3.0527	
			Upper Bound	24.7352	
		5% Trimmed Mean		9.4153	
		Median		3.3100	
		Variance		276,197	
		Std. Deviation		16.61916	
		Minimum		.81	

Descriptives			Statistics	Std. Error
	Year			
		Maximum	46.54	
		Range	45.73	
		Interquartile Range	19.08	
		Skewness	1,867	,752
		Kurtosis	2,777	1,481

In the above data, BSI Performance After (2022) Mean 21.5538, 95% Confidence Interval for Mean Lower Bound -1.5766 Upper Bound 44.6841.

Meanwhile, BCA After (2022). Mean 10.8413.95% Confidence Interval for Mean Lower Bound-3.05 27, upper bound 24.7352.

Table 1.20: BCA and BSI Normality Test (After)

Tests of Normality		Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Year	Statistics	df	Sig.	Statistics	df	Sig.
Performance	BSI After (2022)	,268	8	,094	,780	8	.017
	BCA After (2022)	,412	8	,000	,666	8	,001
a. Lilliefors Significance Correction							

Based on the normality test above on BSI and BCA after IT problems, the data sig is smaller than 0.05,

meaning the data is not normally distributed so we use Man Whitney.

Table 1.21: Mann Whitney Ranks - After (2022)

Ranks		N	Mean Rank	Sum of Ranks
	Year			
Performance	BSI After (2022)	8	9.25	74.00
	BCA After (2022)	8	7.75	62.00
	Total	16		

From the ranks table of 8 (BSI After - 2022) performance data the mean ranks are 9.25 with a sum of

ranks of 74, while BCA after (2022) has a mean rank of 7.75 with a sum of ranks of 62.

Table 1.22: Mann Whitney test

Test Statistics [a]	
	Performance
Mann-Whitney U	26,000
Wilcoxon W	62,000
Z	-.630
Asymp. Sig. (2-tailed)	,529
Exact Sig. [2*(1-tailed Sig.)]	.574 [b]
a. Grouping Variable: Year	
b. Not corrected for ties.	

Based on the data above, a sig (2-tailed) greater than 0.05 means there is no difference in performance between BSI and BCA after IT problems.

f.5. Discussion
f.5.1. Discussion
Based on the research results above, it can be discussed further as follows:

f.5.1.1. Comparison of BSI Performance : Before (2021) and After (2022)
Referring to the research results, there was no difference in BSI performance before (2021) and after (2022) IT problems, this is in line with research

conducted by Widyanto, *et al.,* (2019) and Rosdiana R (2019).
Even though there are no differences, bank performance is not constant because:
1. Capital Adequacy Requirement (CAR) fell insignificantly by -1.8%, so capital performance decreased.
2. Non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets decreased not significantly -0.12%, so profitability performance decreased
3. Non-performing earning assets to total productive assets decreased insignificantly -0.22%, so profitability performance decreased

4. Allowance for impairment losses (CKPN) of financial assets against productive assets increased insignificantly by 0.28%, so that profitability performance increased

5. Return on Assets (ROA) increased not significantly by 0.37%, so profitability performance increased

6. Return on Equity (ROE) increased insignificantly by 3.13%, so profitability performance increased

7. Operating Expenses to Operating Income (BOPO) decreased insignificantly -4.58%, so profitability performance decreased

8. Cost to Income Ratio (CIR) decreased insignificantly -1.56%, so profitability performance decreased

f.5.1.2. Comparison of BCA Performance : Before (2021) and After (2022)

Based on the research results, there is no difference in BCA's performance before (2021) and after (2022) IT obstacles, this is in line with research conducted by Faizal H, et el (2018) and Sari A (2019).

Even though there are no differences, bank performance is not constant due to:

1. Capital Adequacy Requirement (CAR) increased insignificantly by 0.11%, so capital performance increased.

2. Non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets decreased not significantly -0.19%. so that profitability performance decreases

3. Non-performing earning assets to total productive assets decreased insignificantly -0.2%, so profitability performance decreased.

4. Allowance for impairment losses (CKPN) of financial assets against productive assets increased insignificantly by 0.03% so that profitability performance increased

5. Return on Assets (ROA) increased by an insignificant 0.5%, so profitability performance increased

6. Return on Equity (ROE) increased insignificantly by 3.45%, so profitability performance increased

7. Operating Expenses to Operating Income (BOPO) decreased insignificantly -7.61%, so profitability performance decreased

8. Cost to Income Ratio (CIR) decreased insignificantly -0.18%, so profitability performance decreased

f.5.1.3. Comparison between BSI and BCA: Performance 2021 (Before IT Problem)

Referring to the research results, there was no difference in the performance of BSI in 2021 (before) and BCA in 2021 (before) relating to IT problems, this is in line with research conducted by Widyanto, *et al.,* (2018) and Rosdiana R (2019).

Even though there are no differences, bank performance is not constant because:

1. BSI's Capital Adequacy Requirement (CAR) is insignificantly lower than BCA's capital ratio of -3.57%

2. BSI's non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets are insignificantly lower than BCA's profitability ratio of -0.37%.

3. Non-performing earning assets to total productive assets decreased insignificantly -1%

4. Allowance for impairment losses (CKPN) of financial assets against productive assets BSI is insignificantly lower than BCA's profitability ratio of -0.03%.

5. BSI's Return on Assets (ROA) is insignificantly higher than BCA's profitability ratio of 1.8%

6. BSI's Return on Equity (ROE) is insignificantly higher than BCA's profitability ratio of 4.5%

7. BSI's Operating Expenses to Operating Income (BOPO) is insignificantly higher than BCA's profitability ratio of 26.31%

8. BSI's Cost to Income Ratio (CIR) is insignificantly lower than BCA's profitability ratio of -16.29%

f.5.1.4. Comparison between BSI and BCA: Performance 2022 (After IT problem)

Refering to the research results, there is no difference in the performance of BSI in 2022 (after) and BCA in 2022 (after) relating to IT constraints, this is in line with research conducted by Widyanto, *et al.,* (2018) and Helsinawati, *et al.,* (2019).

Even though there are no differences, bank performance is not constant because:

1. BSI's Capital Adequacy Requirement (CAR) is insignificantly higher than BCA's capital ratio of 5.48%

2. BSI's non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets are insignificantly lower than BCA's profitability ratio of -0.44%.

3. BSI's non-performing earning assets to total productive assets is insignificantly lower than BCA's profitability ratio of -0.98%

4. Allowance for impairment losses (CKPN) of financial assets against productive assets BSI is insignificantly lower than BCA's profitability ratio of -0.28%

5. BSI's Return on Assets (ROA) is insignificantly higher than BCA's profitability ratio of 1.93%

6. BSI's Return on Equity (ROE) is insignificantly higher than BCA's profitability ratio of 4.86%
7. BSI's Operating Expenses to Operating Income (BOPO) is insignificantly lower than BCA's profitability ratio of -29.34%
8. BSI's Cost to Income Ratio (CIR) is insignificantly lower than BCA's profitability ratio of -14.91%

F.5.2. CONCLUSIONS AND RECOMMENDATIONS
f.5.2.1. Conclusion
Based on the results and discussion, it can be concluded that:
1. There is no difference in BSI Bank's performance before (2021) and after (2022) IT obstacles but it is not constant
2. There is no difference in Bank BCA's performance before (2021) and after (2022) IT obstacles but it is not constant
3. There is no difference in the performance of Bank BSI in 2021 (before) and BCA in 2021 (before) relating to IT problems but it is not constant.
4. There is no difference in the performance of Bank BSI in 2022 (after) and BCA in 2022 (after) relating to IT obstacles but it is not constant.

f.5.2.2. Suggestion
1. BSI Bank is expected to be able to increase the Capital Adequacy Requirement (CAR) to decrease non-significantly, Non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets, and improve the performance of Non-performing earning assets to total productive assets.
2. Bank BCA is expected to increase non-performing earning assets and non-performing non-earning assets to total earning assets and non-productive assets and increase the ratio of non-performing earning assets to total productive assets.

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