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Testing The Resilience of Sharia Bank During Covid-19 Pandemic

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Abstract

The purpose of this study was to test the resilience of Islamic banks in Indonesia facing Covid-19 which has not shown humility. The resilience of financial institutions, including Islamic banks, is needed so that the stability of financial institutions can be maintained. Several macroprudential policies have been implemented. The research method uses quantitative methods with the Primary Component Analysis technique. The research model refers to the theory of economic evolution. There are stages of bank resilience, starting from the normal stage, persistence and adaptability. The data used was secondary data with data sources from the OJK for performance indicators of Islamic banks with a total of twenty provinces in Indonesia. Data related to the covid-19 pandemic uses data from covid19.go.id. Based on the results of the study, there was a decrease in bank resilience due to Covid-19 pandemic. West Java Province is the province with the highest relative bank resilience score compared to other provinces, with a resilience score of 6.35. Meanwhile, from the results of the KMO test and Bartlet's Test the research data is feasible to use with the KMO value of each normal scenario, persistence and adaptability are greater than 0.05 and Bartlet's Test is significantly (sig = 0.000).

Keywords: Sharia Bank, Primary Component Analysis, Covid-19, Economic Evolution

INTRODUCTION

Since being declared by the World Health Organization Covid-19 as a pandemic, until now it has not subsided, even showing an accelerated spread. The Covid-19 pandemic has caused the economy to be depressed, even into a recession. The business world cannot run as it should, because of restrictions. Financial institutions face serious problems facing the risk of being able to channel funds in the form of loans to various industries. Financial crises, especially in the Banking Industry can cause economic disruption and instability.

In the Q2 period of 2021, there was an easing of health protocols because it was considered that the spread of the Covid-19 virus had slowed down. In this period, based on BPS data, the level of aggregate consumption increased by 5.66 percent

(year on year), even economic growth showed an increase of 7.07 percent (year on year). But this did not last long, because there was a spike in exposure to Covid-19 due to the emergence of new variants. The spike in transmission of the Covid-19 virus occurred in July 2021 as shown in Figure-1 below. This forced the Government to re-implement the Emergency PPKM policy to control the spread of Covid-19. The impact of this policy again creates potential pressure on activities in the business sector and the banking industry.

To maintain the resilience of the financial sector, the banking industry including Islamic Banks, The Central Bank has issued several macroprudential policies such as Countercyclical Buffer (CCB), Loan to Value, Macroprudential Intermediation Ratio, Macroprudential Liquidity Buffer and Short-Term Liquidity Loans (PLJP). The ultimate goal of macroprudential policy is to avoid financial instability, such as: banking crises, which have long-term impacts and can destroy the economy (Nakatani, 2020).

Based on OJK statistical data on credit distribution by Commercial Banks in the period June 2020 - June 2021 there was a downward trend starting from June 2020 to January 2021, then it started to increase again and the highest in June 2021. However NPL has increased to the highest value in May 2021, then a downward trend in the next period. Meanwhile in the same period profit sharing financing by Islamic Banks showed

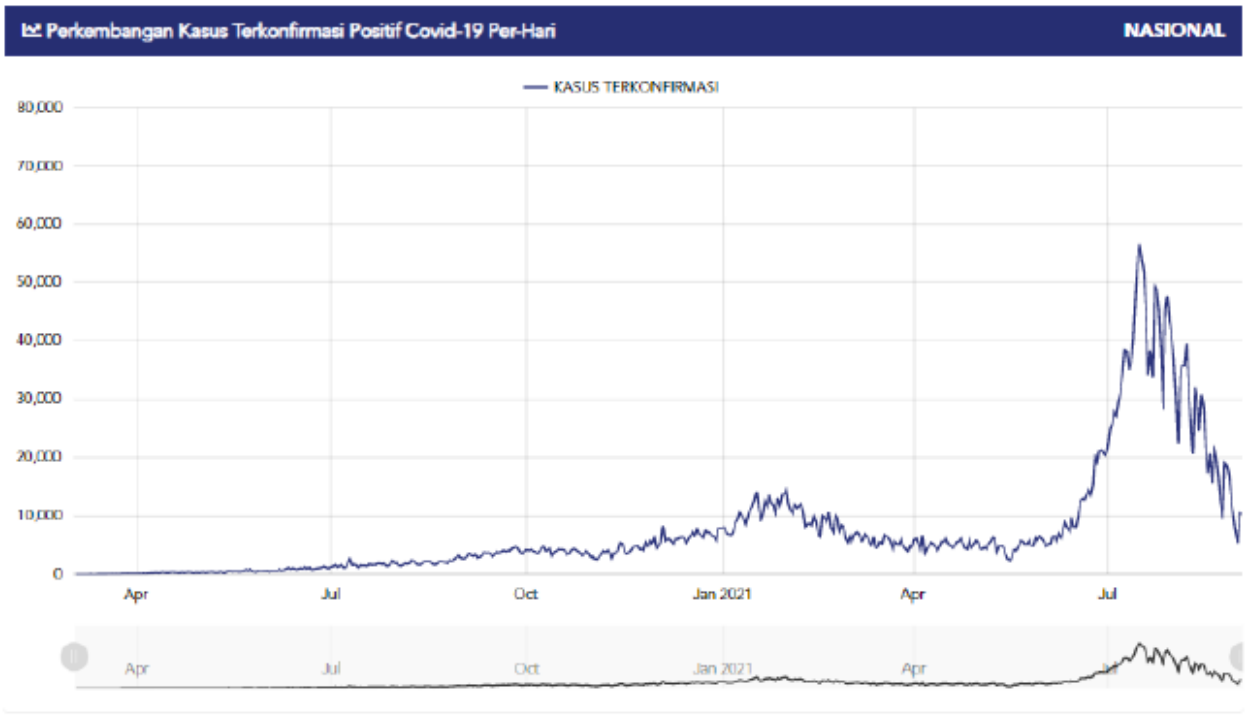


Figure 1. Progress of positive confirmed cases of Covid-19 (per day)
Source: https://covid19.go.id/peta-sebaran-covid19.

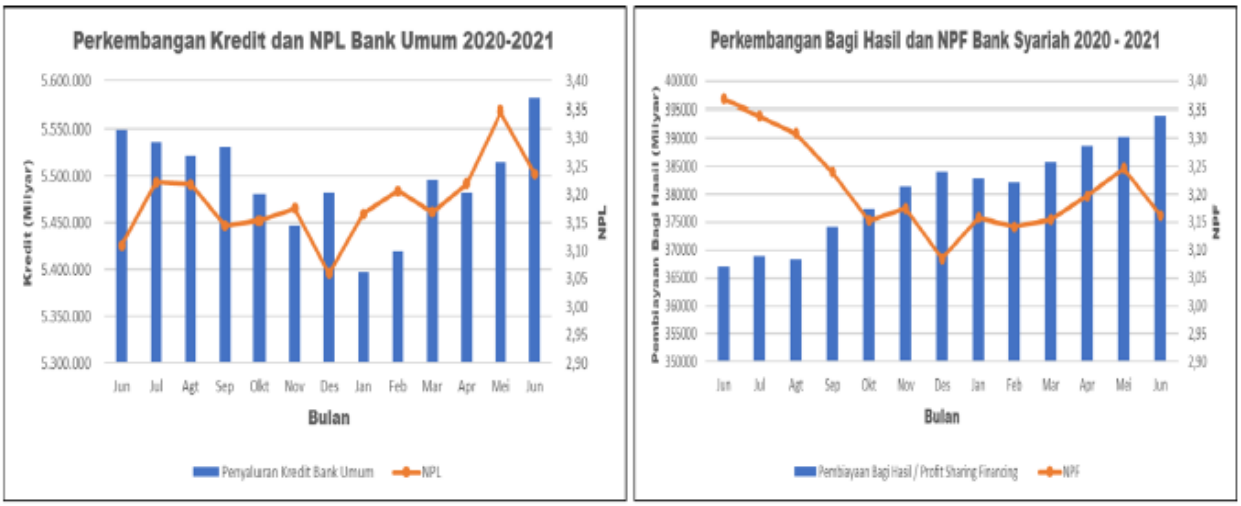


Figure 2. Comparison of development of 3rd party fund distribution and NPL/NPF of Commercial Banks and Islamic Banks 2020 - 2021
Source: OJK.

an increasing trend with the NPF level declining, although it had increased in the February - May 2021 period, then decreased again in June 2021.

Based on the Capital Adequacy Ratio (CAR) indicator of Islamic Banks in June 2021, it shows a figure of 24.26 percent. This figure was higher when compared to 2018 and 2019, which were 20.39 percent and 20.59 percent, respectively. The risk of the Covid-19 pandemic has prompted Islamic Banks to increase the Capital Adequacy Ratio which aims to deal with the risk of losses faced. The Return On Asset (ROA) value in June 2021 was 1.94 percent, bigger than 2018 and 2019, which were 1.28 and 1.27 percent, respectively. Sharia Banks manage assets efficiently and productively compared to before the Covid-19 Pandemic. The percentage of Financing to Deposit Ratio (FDR) in June 2021 is smaller than before the pandemic. This shows that the distribution of 3rd party funds is not running as it should. Many 3rd party funds are idle anticipating profit-sharing losses. The BOPO indicator shows the Bank's prudence in managing its operational costs. Meanwhile, the yield value shows a smaller number compared to before the pandemic. Research from Rolianah et al. (2021) concluded that after the Covid-19 pandemic the yield ratio of Islamic banks decreased, for this reason, maximum risk management is needed to face various changes and challenges due to the pandemic.

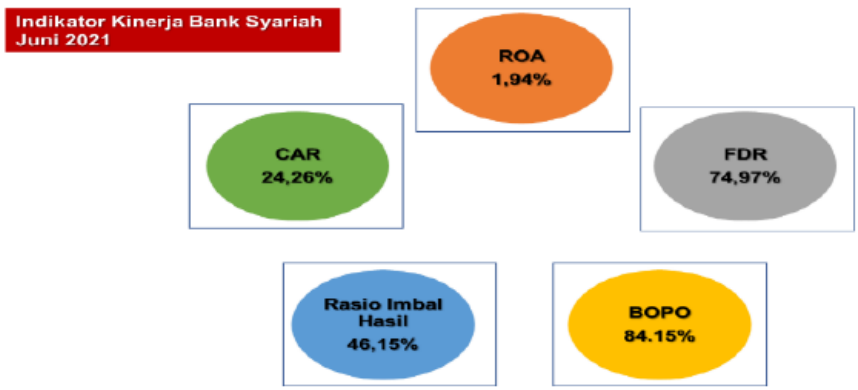


Figure 3. Sharia bank performance indicators for June 2021
Source: OJK, processed.

Although the economy had improved in Q2 2021 and the Islamic Bank Industry showed stable performance both in terms of lending and NPL values, but the risk of the Covid-19 pandemic has not subsided. There should be an increased risk in the next period. There were restrictions, an increasing number of people exposed, death rate and stress levels of people. This should cause the purchasing power and level of public consumption to decline, causing the business world, especially MSMEs to experience a decline in income and liquidity problems. The banking industry, especially Islamic banks, can act as an intermediary institution to help with liquidity problems and the funding needs of the business world. According to Mentari and Putri (2020), if the shocks caused by the Covid-19 pandemic are widespread, this will stress banks and cause loan contractions, and in turn will become a threat to financial stability.

Based on the Sharia Banking Law No. 21 of 2008, Sharia Banking is everything related to Sharia Banks and Sharia Business Units, including institutions, business activities, as well as methods and processes in carrying out their business activities. In running its business based on Sharia principles (Wangsawidjaya, 2012), based on the principles of Islamic law in banking activities based on fatwas issued by institutions that have the authority to determine fatwas in the field of sharia.

The very basic difference with the conventional banking system is that there is no interest system. Business activities do not contain elements of usury, maisir, gharar, haram and unjust (Wangsawidjaya, 2012). Islam offers a profit-sharing system-mudharabah, financing based on musharakah-capital participation, the principle of buying and selling goods by obtaining a profit-murabaha, financing of capital goods based on the principle of pure lease without a choice (ijarah), or the option of transferring ownership of the goods rented from the bank by the other third party-ijarah wa iqtina (Warka, Heriyanto, 2016). Related to Islamic banking products and services can be seen in Figure-4 below:

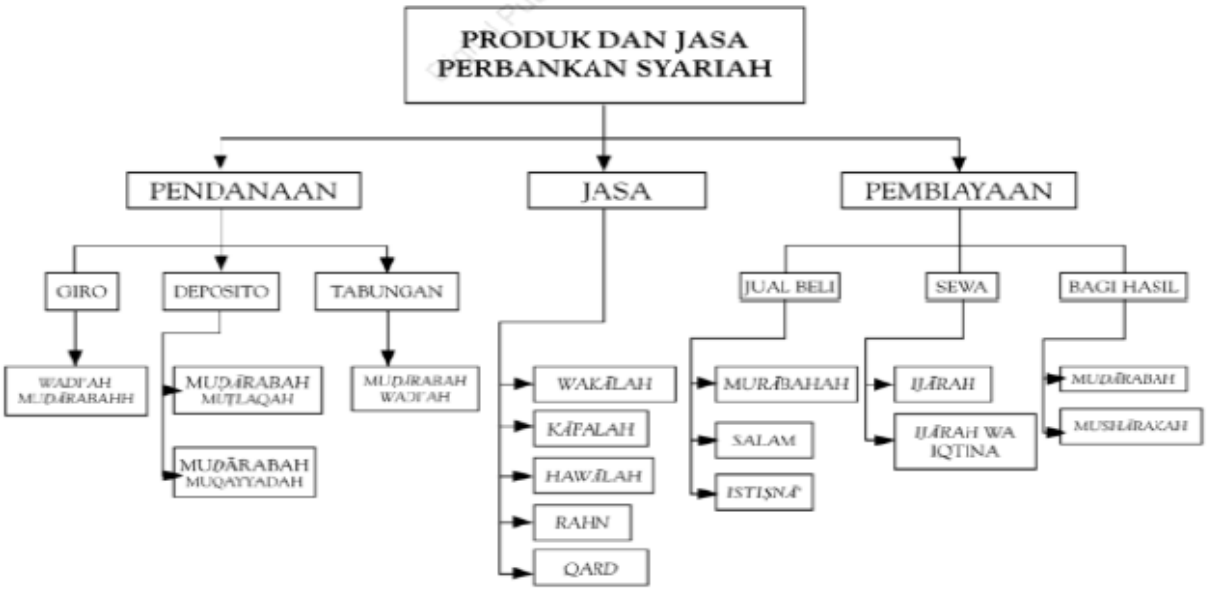


Figure 4. Sharia bank products and services
Source: Wangsawidjaya, 2012.

The function of Islamic financial institutions complements existing financial institutions as intermediary institutions, with three main functions (Muheramtohadi, 2017), namely:

1. Public fundraiser. The collection of funds from the community can be in the form of wadi'ah, namely community assets that are deposited in the form of gold, silver and various other valuables. Fundraising in the form of ijarah and mudharabah. Fundraising with the mudharabah framework is a form of community savings which is then distributed to those in need for business with a profit-sharing scheme.
2. Distribution of funds to communities in need. Sharia Banks as intermediary institutions will channel public savings funds to those in need to open a business or develop a business, or in the form of savings and loans.
3. Social function of society. Islamic banks function to collect funds from the public in the form of Zakat, Infaq and Alms, then distribute them to the community without expecting anything in return.

Just as commercial banks face problems related to loans or bad loans, Islamic banks cannot be separated from financing problems. There are three things that can be done in terms of financing Islamic banks (Wangsawidjaya, 2012), there are:

1. Rescheduling (rescheduling). Make changes to the payment schedule for customer obligations so that customers have time slack to complete their obligations.
2. Reconditioning (reconditioning). Changes in part or all of the financing requirements without adding to the remaining principal of the customer's obligations that must be paid to the bank
3. Restructuring, making changes to financing requirements such as: adding funds to financing facilities, converting financing contracts, converting financing into securities or equity participation.

Resilience is the ability of a system to maintain a certain function, process, or reaction after a disturbance. Resilience is defined as the capacity of a system and the ability to tolerate disturbance and maintain its structure and function. Resilience is often seen as a good thing. If an ecosystem is resilient, or if human communities are resilient, then they will be quite able to withstand the disturbances they face (Fauzi and Rahadi, 2021). Based on this definition, bank resilience can be defined as the ability of banks to adapt quickly to emerging shocks and disturbances and the ability to carry out recovery so that bank functions can continue to run. Bank resilience is closely related and aims to maintain financial system stability, namely a condition where the economic mechanisms of financial institution functions, fund allocation and risk management function work properly and are able to support economic growth. Banking resilience refers to the ability to withstand disruptions and shocks due to various financial and economic crises (Ghost, Saiman, 2021).

Yudistira (2017) states that bank resilience can be seen from several indicators such as the distribution of 3rd party funds and the value of Non-Performing Loans (NPL) for commercial banks or Non-Performing Facility (NPF) for Islamic banks. NPF is a comparison between the amount of non-performing financing and the number of financing facilities provided by Islamic Banks. The larger the NPF value indicates the more vulnerable the financing provided. The NPF ratio can be used as an indicator to identify the quality of a bank's loan.

The concept of resilience seen from the perspective of the theory of economic evolution is an evolutionary process from one stage to another (Simmie, 2009; Boschma, 2015). While Martin and Sunley (2015) resilience can be divided into three parts, namely: (1) the ability of the system to return to its original state due to disturbances; (2) the ability to absorb distractions; (3) the ability to adapt to disturbances and shocks that arise.

The ability of the system to return to its original state due to disturbance is also known as engineering resilience. As with the law of economic equilibrium, the movement of the demand and supply sides will lead to a new balance. Failure to restore balance can be interpreted as a market failure. On the part of

resilience as the ability to absorb disturbances is the concept of ecological resilience. The ability to absorb disturbances requires that the system is still in a state of initial equilibrium. When the disturbance or shock exceeds the ability to absorb, there will be a new balance path that is different from the previous balance. Adaptive resilience is the ability of the system to anticipate adapting quickly to disturbances and shocks that arise. The ability to maintain some of the main functions or performance of a system. Adaptive resilience is also known as evolutionary resilience.

Meanwhile, according to Juntao (2017) the concept of resilience can be divided into three stages, there are: (1) the Persistence stage; (2) Adaptability stage; and (3) Transformation stage. Persistence refers to a system's capacity to recover and return to its original system structure after a disturbance. At the Persistence stage, influenced by system disturbances and vulnerabilities, the disturbance factor can be in any form, economic, political, social, natural disasters and also health, such as outbreaks, infectious diseases such as the Covid-19 pandemic. The Adaptation stage refers to the system's capacity to learn, incorporate experience and knowledge, and continue to develop in previously established pathways. While the Transformation stage requires novelty and innovation to be able to create a new path of resilience, because the resilience of the old system can no longer be maintained.

Based on the description of the background above, the problem to be researched can be formulated. How is the resilience of Islamic banks during the Covid-19 pandemic. To measure the resilience of Islamic Banks, it is divided into three stages, there are: (1) Normal Stage; (2) Persistence Stage (Stage of Shock & Disturbance); (3) Adaptability Stage.

METHODS

Types of research

The research used in this study is quantitave method. The Primary Component Analysis (PCA) technique approach is applied. PCA technique is used to measure the resilience score of Islamic banks in all provinces in Indonesia.

Research Data and Variables

The research data uses data on several Islamic Bank indicators, there are: Assets, Financing, 3rd Party Funds, Facility Deposit Ratio (FDR), and Non-Performance Facility (NPF). Data sources for Islamic Bank Indicators are taken from OJK data publications. The indicators of the Covid19 pandemic include: the number of people exposed to Covid19, the number of people who died, the number of people recovered, health facilities. Source of data obtained from covid19.go.id.

Factor Analysis Procedure

Table 1. Sharia Bank resilience indicator

Aspect/Level	Indicator	Unit	Source Data	Direction
Normal	Asset	rupiah	OJK	Positive
	Financing	rupiah	OJK	Positive
	3rd Party Funds	rupiah	OJK	Positive
	FDR	rupiah	OJK	Positive
	NPF	rupiah	OJK	Negative
Persistence	FDR	rupiah	OJK	Positive
	NPF	rupiah	OJK	Negative
	Covid-19 Impact Ratio	persentase	covid.go.id	Negative
	Number of people died	persentase	covid.go.id	Negative
	Number of Hospitals	persentase	covid.go.id	Positive
Adaptability	NPF	persentase	OJK	Negative
	Using Mask	persentase	covid.go.id	Positive
	Keep the distance	persentase	covid.go.id	Positive
	Vaccination	persentase	covid.go.id	Positive
	Num. of recovered patients	orang	covid.go.id	Positive

To perform factor analysis, there are three steps that must be carried out (Widarjono, 2020), there are: First, is to calculate the correlation matrix to determine the adequacy requirements for data in factor analysis. Second, look for factors or extracting factors (extracting factor). Third, doing factor rotation, which is looking for factors that are able to optimize the correlation between the observed independent indicators.

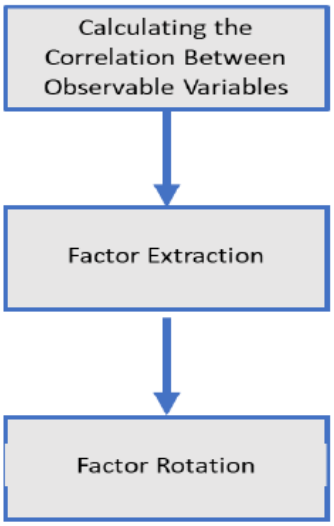


Figure 5. Factor analysis procedure

Calculating Factor Correlation

In doing factor analysis, the first decision that must be taken is to analyze whether the data is sufficient to meet the requirements in factor analysis. There are several measures that can be used for data adequacy requirements, such as: matrix correlation between indicators, partial correlation, Barlett's test of sphericity, and the Kaiser-Meyer Olkin (KMO) method.

Matrix correlation method between indicators is to check the correlation matrix. The high correlation between indicators indicates that these indicators can be grouped into an indicator that is homogeneous so that each indicator is able to form a general factor or construct factor. On the other hand, the low correlation between indicators indicates that these indicators are not homogeneous so they are not able to form construct factors.

Partial correlation is looking for the correlation of one indicator with other indicators by controlling for other indicators. These partial correlations are called negative anti-image correlations. To be included in the factor analysis, this partial correlation should be as small as

possible. However, there is no definite measure of how small the partial correlation is. Usually the magnitude of the determination of this partial correlation is subjective.

Barlett's test is a statistical test for the overall significance of all correlations in the correlation matrix. In this case, the null hypothesis will be tested that the observed data is a sample of a multivariate normal distribution population in which all correlation coefficients are equal to zero. This test can usually be proxied using the Chi Squares . distribution test.

In this study using the KMO method. The KMO method measures the adequacy of overall sampling and measures the adequacy of sampling for each indicator. The KMO method does not require statistical tests, but it can be seen from the homogeneity as shown in Table-2 below.

$$KMO = \frac{\Sigma\Sigma r^2 ij}{\Sigma\Sigma r^2 ij + \Sigma\Sigma a^2 ij}$$

Where r2ij = correlation coefficient; a2ij = partial correlation coefficient

Table 2. KMO measurement

KMO result	Recommendation
>= 0,90	Very good
0,80 – 0,89	Useful
0,70 – 0,79	Normal
0,60 – 0,69	Enough
0,50 – 0,59	Bad
<= 0,50	Not accepted

Factor Extraction

Factor extraction is a method used to reduce data from several indicators to produce fewer factors that can explain the correlation between the observed indicators. There are several methods that can be used, such as: Principal Components Analysis, Principal Axis Factoring, Unweighted Least Squares, Generalized Least Squares, Maximum Likelihood.

The Principal Axis Factoring method is almost similar to the PCA method. The difference is that the initial togetherness indicator is given a value of = 1. Unweighted Least Squares is a procedure to minimize the number of differences squared between the observed and produced correlation matrices by ignoring the diagonal matrix of a certain number of factors. Generalized Least Squares is a method of minimizing error as is the Unweighted Least Squares method. However, the correlation is weighed by the uniqueness of the indicator (error). The correlation of indicators that have large errors is given a smaller scale than indicators that have smaller errors. Maximum Likelihood is a factor extraction method that produces parameter estimates that are most likely to obtain an observation correlation matrix if the sample has a multivariate normal distribution.

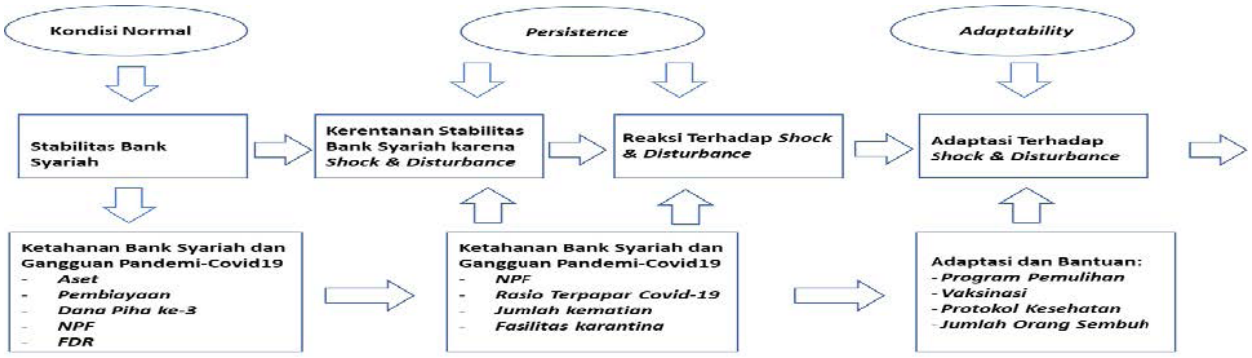
In this study using the PCA method. PCA or Principal Component Analysis is the simplest method for factor extraction. This method forms a linear combination of the observed indicators. The first principal component is the combination that explains the greatest amount of variance in the sample. Furthermore, the second main component is to explain the number of variants that is the second largest and is not related to the variance of the second main component. The next principal component accounts for a smaller portion of the total sample variance and is unrelated to the others.

Factor Rotation

Factor rotation is required if the factor extraction method has not yet produced a clear principal component. The purpose of factor rotation is to obtain a simpler factor structure for easy interpretation. There are several methods that can be used, namely:

1. Varimax method. Orthogonal rotation method to minimize the number of indicators that have a high loading factor for each factor.
2. Quartimax method. Rotation method to minimize the number of factors used to explain indicators
3. Equamax method. Combined method between varimax method which minimizes indicators

and quartimax method which minimizes factor



Research Model

The Islamic Bank Resilience research model adopts Juntao's (2017) economic resilience model. The resilience of Islamic banks is divided into three stages, namely: Normal, Persistence and Adaptability. The data used for Sharia Bank Resilience uses OJK data for 2018-2021. Research observations cover 20 provinces in Indonesia.

In order for the Islamic Bank resilience indicator units to be the same, first normalization is carried out using the general formula as follows:

$$X_{it} = \frac{(Xit - X\ minimum)}{(X\ maksimum - X\ minimum)} \text{ x } 100$$

Equation (1)

After normalization, all values of the indicators will be between 0 and 100. Furthermore, by using PCA evaluation, the equation for the resilience function of Islamic Banks can be written into Normal, Persistence and Adaptability conditions as follows:

$$f(normal) = \frac{\lambda 1}{\sum_{i=1}^{n} \lambda i} W1 + \frac{\lambda 2}{\sum_{i=1}^{n} \lambda i} W2 + \frac{\lambda n}{\sum_{i=1}^{n} \lambda i} Wn$$

Equation (2)

$$f(persistence) = \frac{\lambda 1}{\sum_{i=1}^{n} \lambda i} W1 + \frac{\lambda 2}{\sum_{i=1}^{n} \lambda i} W2 + \frac{\lambda n}{\sum_{i=1}^{n} \lambda i} Wn .$$

Equation (3)

$$f(adaptability) = \frac{\lambda 1}{\sum_{i=1}^{n} \lambda i} W1 + \frac{\lambda 2}{\sum_{i=1}^{n} \lambda i} W2 + \frac{\lambda n}{\sum_{i=1}^{n} \lambda i} Wn .$$

Equation (4)

The value of W1 to Wn shows the value of the Main Components of the Islamic Bank resilience indicators under normal conditions, persistence and adaptability. The values of λ1 to λn are variance values that explain each value of the Main Component W1..Wn. Sharia Bank resilience is the sum of f(Normal), f(persistence) and f(adaptability)

Sharia Bank Resilience = f(normal) + f(persistence) + f(adaptability)

Equation (5)

Table 3. Descriptive statistics of research variables

Variables	Obs	Mean	std.Dev	Min	Max
Aset	273	676420,8	1.065.352	5.592..812	4..676.923
(x1-Normalisasi)	273	1.436.053	2.280.618	0	100
Pembiayaan	273	501814.7	808262 2	2.477.389	3.536.910
(x2-Normalisasi)	273	1.412.719	2.286.823	0	100
DanaPhk-3	273	444..411	691773,5	2.855.081	3.051.018
(x3-Normalisasi)	273	1.448.597	2.269.477	0	100
FDR	273	1.104.873	3.442..528	3..400.247	246,625
(x4-Normalisasi)	273	3.597.213	1.619.079	0	100
NPF	273	1.009.893	1.021.774	0,7624342	490,661
(x5-Normalisasi)	273	8.067.124	2.115.314	0	100
Terpapar	273	32609..43	64945,89	20	430,059
(x6-Normalisasi)	273	9.242.175	1.510.232	0	100
Meninggal	273	9.486.639	1.787.766	1.22	12041.65
(x7-Normalisasi)	273	9.213.115	1.484.802	0	100
Masker	273	8.122.143	1.243.782	37,16	98,79
(x8-Normalisasi)	273	7.149.347	2.018.144	0	100
Jagajarak	273	7.716.956	1.590.405	17,53	100
(x9-Normalisasi)	273	7.23L667	1.928.464	0	100
RumahSakit	273	682,381	8.123.082	3	281
(x10-Normalisasi)	273	2.346.694	2.921.972	0	100
Vaksin-1	273	1.326.923	398,825	0	2,863
(x11-Normalisasi)	273	463,473	1.393.032	0	100
Sembuh	273	28062,62	57816,02	5,52	393,934
(x12-Normalisasi)	273	7.122.385	1.467.678	0	100

RESULTS

The following is descriptive statistical data for all the provinces observed. There are twelve variables used. The data period used is the data period from May-2020 to May-2021. Descriptive statistics of the normalized data are also displayed.

Before running the PCA program in Stata, the observation data which is divided into normal, persistence and adaptability stages, normalize the data first using equation (1). The results of

Table 4. Descriptive statistics of research variables

Prov-	Normal					Persistence				Adaptability				
ince	x1	x2	x3	x4	x5	x6	x7	x10	x5	x4	x8	x9	x11	x12	x5
Aceh	8,08	7,45	7,76	37,49	87,61	98,47	98,39	2,88	87,61	37,49	60,85	71,24	1,05	1,43	87,61
Sumatera Utara	4,27	4,06	4,49	33,20	92,01	96,36	96,10	32,01	92,01	33,20	72,19	75,19	3,84	3,38	92,01
Sumatera Barat	5,14	5,03	5,92	30,32	85,52	95,75	95,59	7,55	85,52	30,32	77,21	79,89	1,27	4,00	85,52
Sumatera Selatan	0,39	0,38	0,27	51,24	90,05	97,52	97,32	14,39	90,05	51,24	65,28	67,77	2,51	2,29	90,05
Bangka Belitung	8,87	8,59	12,16	22,57	18,58	98,97	98,97	3,24	18,58	22,57	60,10	59,90	0,54	1,00	18,58
Bengkulu	1,70	1,68	1,83	33,50	63,70	99,33	99,32	3,24	63,70	33,50	61,37	60,62	0,46	0,64	63,70
Riau	1,14	0,90	1,48	17,66	84,27	95,18	95,05	7,91	84,27	17,66	65,64	64,94	1,98	4,56	84,27
Lampung	16,04	15,34	11,24	58,34	92,20	98,49	98,48	12,95	92,20	58,34	71,47	76,94	1,61	1,44	92,20
DKI Jakarta	0,24	0,13	0,25	19,96	26,32	56,89	55,26	44,24	26,32	19,96	76,38	73,85	16,03	40,50	26,32
Jawa Barat	96,24	96,73	94,13	40,08	87,11	74,52	74,22	100,0	87,11	40,08	68,44	69,19	14,45	24,28	87,11
Banten	23,66	22,23	27,77	27,76	76,36	95,65	95,51	28,42	76,36	27,76	65,95	68,71	3,55	4,11	76,36
Jawa Tengah	41,61	42,04	42,46	38,05	89,13	81,15	80,64	81,65	89,13	38,05	76,92	72,87	13,69	17,79	89,13
DI Yogyakarta	19,12	17,01	19,93	30,57	84,72	96,52	96,50	19,78	84,72	30,57	87,56	85,51	2,89	3,32	84,72
Jawa Timur	50,02	49,50	51,24	36,75	80,55	82,13	80,84	86,33	80,55	36,75	75,43	72,54	17,80	16,49	80,55
Bali	0,21	0,22	0,29	25,85	88,69	95,45	95,26	20,14	88,69	25,85	84,69	80,88	6,72	4,28	88,69
Kalimantan Tengah	0,01	0,03	0,02	31,31	95,07	97,95	97,86	4,32	95,07	31,31	79,63	77,05	0,90	1,92	95,07
Kalimantan Timur	0,24	0,14	0,25	19,95	90,43	93,27	93,14	6,12	90,43	19,95	85,38	86,26	1,67	6,38	90,43
Kalimantan Selatan	1,43	1,52	1,77	30,49	92,17	96,34	96,03	5,40	92,17	30,49	72,22	65,46	1,24	3,37	92,17
Sulawesi Selatan	2,63	2,66	1,33	88,71	76,55	92,82	92,36	10,43	76,55	88,71	72,17	72,83	3,35	6,64	76,55
Maluku Utara	3,96	3,34	3,48	36,94	96,95	99,39	99,32	-	96,95	36,94	56,48	64,38	0,27	0,56	96,95
NTB	16,55	17,71	16,15	44,67	96,13	98,71	98,59	1,80	96,13	44,67	66,00	72,64	1,51	1,19	96,13

the normalization calculation are between 0 – 100. By normalizing the data, the data has the same size. The following are the results of the calculation of data normalization which are grouped into normal, persistence and adaptability stages:

Furthermore, after normalizing the data, the correlation, extraction and rotation calculations are carried out and run the PCA program in the Stata 16 software. Based on the PCA calculations for each normal condition, persistence and adaptability data, the results of equations (2), (3) and (4) with the following equation:

f(normal) = 0,6035 N1 + 0,2443 N2 + 0,1513 N3 + 0,0007 N4 + 0,0001 N5

f(persistence) = 0,4579 P1 + 0,3019 P2 + 0,1711 P3 + 0,0417 P4 + 0,0274 P5

f(adaptability) = 0.6163 A1 + 0,2446 A2 + 0,1387 A3 + 0,0004 A4

To determine the value of the principal component selected, the value of the principal component is taken based on the eigenvalue greater than 1 ((Hendro M, et al., 2012). Based on the extraction results, two main component values are obtained which have eigenvalues greater than 1. These results are obtained both for the normal aspect equation, persistence as well as adaptability. Based on this equation, the score for each stage is obtained. The score is obtained by running the command in Stata to get a score for each stage of Islamic bank resilience. The following is the result of the score or value of the resilience of Islamic banks in 20 provinces which were observed based on aspects of normal conditions, persistence and adaptability.

Table 5. Resilience of Sharia Banks in 20 provinces in Indonesia

Province	Normal	Persistence	Adaptability	Resilience
Aceh	0,54	0,79	-0,40	0,92
Sumatera Utara	0,28	0,60	0,43	1,30
Sumatera Barat	0,32	0,14	0,73	1,18
Sumatera Selatan	0,05	1,53	-0,31	1,28
Bangka Belitung	0,35	-2,78	-2,58	-5,01
Bengkulu	-0,03	-0,34	-1,45	-1,82
Riau	-0,06	-0,61	-0,56	-1,24
Lampung	1,14	2,07	0,47	3,68
DKI Jakarta	-0,36	-5,57	-0,89	-6,82
Jawa Barat	7,19	-0,75	-0,09	6,35
Banten	1,72	- 0,37	-0,54	0,81
Jawa Tengah	3,14	-0,32	0,52	3,33
DI Yogyakarta	1,32	0,18	1,47	2,97
Jawa Timur	3,72	-0,70	0,26	3,28
Bali	-0,08	0,02	1,22	1,16
Kalimantan Tengah	-0,04	0,73	0,92	1,61
Kalimantan Timur	-0,10	-0,37	1,53	1,06
Kalimantan Selatan	0,06	0,45	-0,06	0,45
Sulawesi Selatan	0,31	2,59	- 0,05	2,85
Maluku Utara	0,26	1,20	-0,73	0,73
NTB	1,29	1,52	0,10	2,91

The score of the resilience of Islamic banks at the normal stage, persistence and adaptability as well as the total score (resilience) of the resilience of 20 Islamic banks throughout Indonesia in the form of images can be seen in Figure-7.

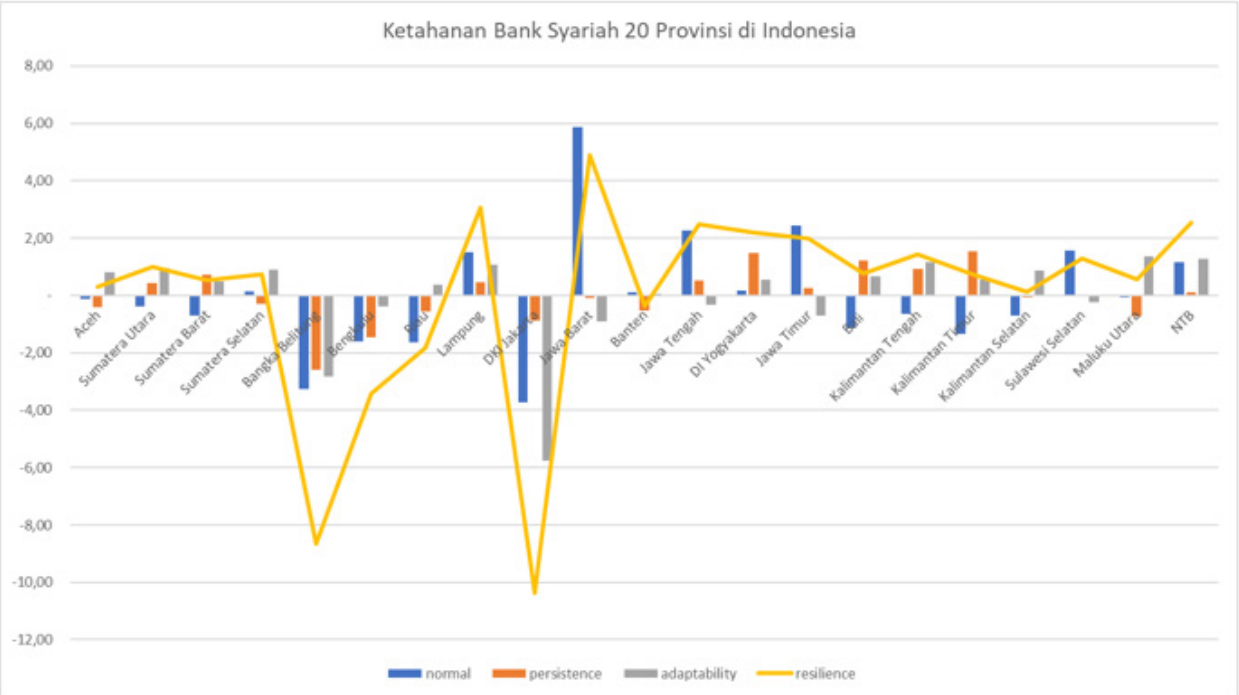
Furthermore, to test the feasibility and adequacy of the variable whether it can be used for testing this research, the KMO test and Bartlet's test are used. The following are the results of the KMO value and the results of the Bartlet's test.

DISCUSSION

Based on the results of data processing using the PCA technique, can be known that under normal conditions Islamic banks in the province of Java have the highest score when compared to Islamic banks outside Java. The highest score was in the province of West Java, with a score of 7.19 under normal conditions. The second to fifth highest scores were in East Java Province at 3.72, Central Java at 3.14, Banten at 1.72 and DI Yogyakarta at 1.32. While the lowest position was in the province of DKI Jakarta.

Table 6. KMO and bartlet's test

Result	Normal	Persistence	Adaptability
Kaiser-Meyer-Olkin Measure Sampling of Adequacy	0,667	0,522	0,5058
Barlet's Test of Sphericity			
- Chi - Squares	3196.422	666.029	1680.213
- Df	10	10	10
- Sig.	0.0000	0.0000	0.0000



In the Normal scenario, actually there has been a Covid-19 pandemic, because the data was taken in the period May-2020 - May-2021. But in the normal scenario, the shock factor is not included due to the pandemic. The score based on the calculation using the PCA technique is a combination of Assets, Financing, 3rd Party Funds, Finance to Deposit Ratio (FDR) and Non Performing Loan (NPF) variables. Judging from the NPF value of DKI Jakarta province, it shows the largest NPF value in March 2021, which is 49.07 percent. This result is consistent with the PCA score which puts DKI Jakarta in the lowest position.

Meanwhile, if we look at the smallest NPF value, it is owned by the province of Central Kalimantan. The resilience of Islamic banks in Central Kalimantan is at a moderate level based on the PCA score, although the NPF value is small, in terms of Assets, Financing and 3rd Party Funds it is relatively very small. Judging from the value of the ratio of financing and capital (FDR) is also relatively small. In general, the resilience of Islamic banks during the Covid-19 pandemic has relatively experienced a slight decline in performance. According to Kumaidi and Padli (2021), the impact of the Covid-19 pandemic has resulted in an increase in the Capital Adequacy Ratio (CAR) to 21.80 percent, a decrease in Return on Assets by 1.79 in January 2021 and a decrease in the NPF value for the January 2020 - January period. 2021, from 3.46 percent to 3.20 percent.

Based on PCA calculations with persistence scenarios, the resilience score of Sharia banks with the highest persistence scenarios is in Aceh province at 2.59, followed by North Sumatra at 2.07; West Sumatra 1.53; South Sumatra 1.52; Bangka Belitung 1.20; Bengkulu 0.79; Riau 0.73; Lampung 0.60; DKI Jakarta 0.45 and West Java 0.18. In this scenario, the disruption factor is included due to the Covid-19 pandemic, namely people who are exposed to the Covid-19 virus, people who die. The province of Aceh during the Covid-19 pandemic was the province with the least number of people exposed and died from Covid-19, followed by the provinces that had the next highest score after the province of Aceh. Meanwhile, the five provinces with the lowest scores in the persistence scenario are NTB, North Maluku, South Sulawesi, South Kalimantan and East Kalimantan.

In the adaptability scenario, where at this stage the learning process has been carried out. The handling of the COVID-19 pandemic has gotten better with the implementation of health protocols, social distancing and vaccinations. But at this adaptability stage, it is not optimal, because the administration of the first vaccine only started in early January 2021 and compliance with health protocols is fully complied with. The ten provinces that have resilience at this stage are East Kalimantan, DI Yogyakarta, Bali, Central Kalimantan, West Sumatra, Central Java, Lampung, North Sumatra, East Java and NTB. Meanwhile, in terms of financial performance, for example, in terms of financing, it is still relatively good with the NPF value of most Islamic banks having an NPF value of below 5 percent.

Overall, the largest Islamic Bank resilience value is in the province of West Java, with a score of 6.35. Furthermore, the five provinces with a score of Sharia bank resilience during the Pandemic in a row were Lampung province of 3.68; Central Java 3.33; East Java 3.28; DI Yogyakarta 2.97; and NTB 2.91. Sharia Banks in West Java province in terms of Assets, Financing and 3rd Party Funds have the relatively largest value when compared to Islamic banks located in other provinces. Meanwhile, in terms of FDR, the ratio of financing to third party deposits is relatively moderate, still within the limits of manageable risk. The FDR value of Islamic banks in West Java province ranges from 115 – 125 percent. On the other hand, the NPF value, although not the smallest, is still maintained, which is between 5-7 percent. There are four provinces that have the lowest Islamic bank resilience scores, namely DKI Jakarta, Bangka Belitung, Bengkulu and Riau. In line with the results of the PCA calculation, based on financial

performance indicators, such as DKI Jakarta province has a relatively large NPF value when compared to other provinces in Indonesia, as well as Bangka Belitung, Bengkulu and Riau provinces.

Based on the KMO test, the results of the KMO value both in the Normal, Persistence and Adaptability scenarios show that the KMO value is greater than 0.50, then the data used in this study meets the adequacy requirements for principal component factor analysis. The results of the KMO test are reinforced by the results of the Bartlet's test which shows that all test results in all scenarios show a significant level (sig. = 0.0000), so that based on the Bartlet's test also meets the adequacy requirements for factor analysis.

CONCLUSION

Based on the results and discussion in general, the resilience of Islamic banks in the provinces in Indonesia has a fairly good bank resilience. This is reflected in the financial performance data of Islamic banks. West Java Province has the highest Sharia banks resilience compared to other provinces in Indonesia. The Islamic banks resilience score in West Java Province is 6.35. The resilience score of Islamic banks in the province of West Java is in line with and supported by data on the financial performance of Islamic banks. In terms of Assets, Financing and Third Party Funds, West Java is the province with the largest value compared to other provinces. From the FDR and NPF figures, West Java province shows moderate numbers, meaning that the risk of bank management is still under the control of Islamic banks. There are four provinces that have the lowest scores for the resilience of Islamic banks, there are: DKI Jakarta, Bangka Belitung, Bengkulu and Riau. The disruption of the Covid-19 pandemic is quite felt, especially in the province of DKI Jakarta as the largest province with a very fast spread of Covid-19. The resilience of Islamic banks is relatively good, Islamic banks are able to carry out financing even on a limited basis and with strict risk management, this is reflected in the value of their FDR and the role of OJK in carrying out risk management which continuously performs the supervisory function of Islamic banks in Indonesia.

Based on the KMO and Bartlet's Test, it shows that the research data used in both the Normal, Persistence and Adaptability scenarios are feasible to use with a KMO value greater than 0.50 and a significant value (sig = 0.0000).

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