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The Impact of Macroeconomics Variables and Bank Internal Factors on Islamic Banking Performance During Covid-19 in Indonesia

Mamadou Salieu Jallow^{1*}

Email; mamadou.salieu@uiii.ac.id

Universitas Islam Internasional Indonesia

Abstract

Previous studies focused on Bank internal factors in analysing the financial performance of Islamic banks. In this paper, we examine the performance of Islamic Banks in Indonesia by using key macroeconomics and bank internal variables as well as including covid-19 as a dummy variable from 2010 to 2021. The study used secondary data collected from World Bank database and Islamic banks annual financial reports. An Econometrics models such as VAR, unit root test and Johansen cointegration test were employed in the estimation process in which ROA was used as a proxy to measure the performance of Islamic Bank whereas Eight variables such as GDP, BOPO, CAR, FDR, NPF, Trade, Inflation, and Covid-19 were used in determining the performance of Islamic Banks in Indonesia. The findings indicate that, the lagged values of Gross Domestic Product (GDP), BOPO, CAR, FDR trade and Covid-19 all have a positive relationship with ROA. In the other hand, the lagged variable of Non-performing Financing (NPF) shows a negative and statistically insignificant relationship with ROA. Consequently, the study recommends that government should introduce expansionary fiscal policy to stimulate economic growth thereby enhancing Islamic banks performance. From this results, management of Islamic banks and those in academia can use it in understanding the macroeconomic and bank internal factors that impact the financial performance of Islamic banking. However, this paper could not examine other variables like digital index, taxation and banks governance structure in determining the financial performance of Islamic banks in Indonesia.

Keywords: Islamic Banks performance; Macroeconomics variables; Bank internal factors; Covid-19.

Abstrak

Penelitian sebelumnya berfokus pada faktor internal Bank dalam menganalisis kinerja keuangan bank syariah. Dalam tulisan ini, kami mengkaji kinerja Bank Umum Syariah di Indonesia dengan menggunakan variabel makroekonomi utama dan internal bank serta memasukkan Covid-19 sebagai variabel dummy dari tahun 2010 hingga 2021. Penelitian ini menggunakan data sekunder yang dikumpulkan dari database Bank Dunia dan bank

syariah. laporan keuangan tahunan. Model ekonometrik seperti VAR, uji akar unit dan uji kointegrasi Johansen digunakan dalam proses estimasi dimana ROA digunakan sebagai proksi untuk mengukur kinerja Bank Umum Syariah sedangkan Delapan variabel seperti PDB, BOPO, CAR, FDR, NPF, Perdagangan, Inflasi, dan Covid-19 digunakan dalam menentukan kinerja Bank Umum Syariah di Indonesia. Temuannya menunjukkan bahwa, nilai lag Produk Domestik Bruto (PDB), BOPO, CAR, perdagangan FDR dan Covid-19 semuanya mempunyai hubungan positif dengan ROA. Sedangkan variabel lag Non-Performing Financing (NPF) menunjukkan hubungan negatif dan tidak signifikan secara statistik terhadap ROA. Oleh karena itu, penelitian ini merekomendasikan agar pemerintah menerapkan kebijakan fiskal ekspansif untuk merangsang pertumbuhan ekonomi sehingga meningkatkan kinerja bank syariah. Dari hasil ini, manajemen bank syariah dan akademisi dapat menggunakannya dalam memahami faktor makroekonomi dan internal bank yang mempengaruhi kinerja keuangan perbankan syariah. Namun, makalah ini tidak dapat menguji variabel lain seperti indeks digital, perpajakan dan struktur tata kelola bank dalam menentukan kinerja keuangan bank syariah di Indonesia.

Kata Kunci: Kinerja Bank Umum Syariah; Variabel makroekonomi; Faktor internal bank; COVID-19.

INTRODUCTION

Islamic banking as an intermediary financial institution help to match savers (depositors) who has excess fund with those in deficit (borrowers) who are in need of funds to carry out their transaction. Unlike the conventional banks, Islamic banks perform their activities in accordance to the syariah principles which is in line with the teachings of the Quran, sunnah, and Fiqh. It is in this regard, that Islamic banks exclusively forbids Interest (riba) base transaction because Allah SWT mention in surah Al-Baqarah 257, that He permits trade while ban trading with interest. This is not the case for conventional banks as interest on loans is their assets which positively help in the growth development of the financial institution. (SHAHAR, PUAD, RAFDI, SANUSI, & HASSIN, 2017).

Recently, the development of Islamic bank is on the rise, according to (Marlina, Rusydiana, Hidayat, & Firdaus, 2021) there are a total number of 526 Islamic banking financial institution operating in 72 different countries with a growth rate of 4.3% year on year, 2.7 trillion dollars of total assets and accounts more than 6% of the global banking financial institution. This rapid development and growth Islamic Banking are perceived by many due to its way of operation with the system of profit and loss sharing basis, assets base transaction and also management and payment of zakat. Thus, these services they offer, contribute immensely in ensuring equitable distribution of resources, poverty alleviation in the society and above all aid in economic growth and development of a country (Aziz & Mohamad, 2015; Purnamasari, Syarifuddin, & Safitr, 2023).

Due to the exorbitant interest rate charge by conventional banks which is considered as usuary and it is against the teaching of Islam. Again, profit being the main motive of conventional banks, therefore, it against these practices that the Muslims leaders around the world started to conceptualize the idea of setting an interest free banking which

the first attempt began in Pakistan in the 1940s but prove unsuccessful. The second attempt was made in Egypt in 1963 with the formation of Mit Ghamr Local Saving Bank which immensely supported farmers and rural communities. However, the operation of the institution lasted for a shorted period due to the political tension in Egypt thereby leading the bank to be taken over by the Central Bank of Egypt in 1967. So, the takeover, made the bank to change it operation from a shariah base financial institution to an interest base banking institution, this again prove the unsuccessful operation of Islamic banking in the world.

Modern Islamic banking started operation in full swing after the establishment of the Organization of Islamic Cooperation (OIC), in which leaders discuss several issues affecting its member states, this includes economic related activities and their possible solutions. It is during these conferences, that the organization came up with the idea of setting up shariah compliance banks that prohibit interest base transaction and promote profit sharing. Therefore, the first modern private sharia bank was the Dubai Islamic Bank which was established in 1975 by a unit of Muslim businessmen from different countries. This development was replicated through the formation of two Islamic banks in 1977 by Faysal Bank in Egypt and Sudan respectively.

Sharia banks were not heavily disrupted compare to the conventional banks during the global financial crisis, the reason behind this is that, Islamic banks were not engaging in issuing cash loans instead they operate on assets base financing which is not the case for the conventional banks. This development made Islamic banks to be more liquid and were resilient to the global financial crisis over the conventional banks which enhanced greatly the financial performance of the Islamic banking sector. Therefore, this attracted countries that are not Muslims dominance like UK and France to the idea of establishing Islamic banking in their countries (Tabash & Dhankar, 2014).

On the global stage, the sector is described as the fastest growing financial institution in world growing considering its total assets, the market share and its involvement as a financial intermediary institution (Kismawadi, 2022). The Islamic Finance Development Report 2020 indicated that, there was an increased in the annual growth rate of Islamic banking from 14% to 20% in the year 2010 to 2018. The rapid growth of Islamic banking is mainly attributed to its risk sharing mechanism which helped in attracting the public to bank with the sector especially during the 2007 to 2008 global financial crisis and the covid-19 period, as Islamic banks were resilient compare to the conventional banks from the impacts of the crises which ultimately made IBs to expand their growth and financial performance (Kismawadi, 2022). Growth of IBs increases from \$1.3 trillion in 2012 to \$1.7 trillion in 2018 and is forecasted to reach \$2.175 trillion by 2024 (Kismawadi, 2022). Saudi Arabia has the largest share of Islamic banking assets about 30.6 percent followed by Iran which has 17 percent while Indonesia is ranked among the top ten countries with the largest Islamic financial index but the conventional banks in Indonesia still been the dominance in the country's economy (statista, 2022).

In Indonesia, the evolution of Islamic banking was introduced in 1992 with the formation of PT Bank Muamalat Indonesia (BMI) and the authority that is responsible in supervising and monitoring the activities of Islamic banks is Bank Indonesia. At the

beginning, the government does not give much attention to the development of Islamic banks in the country instead they focus more on conventional banks which operates on interest rate basis rather than profit sharing as the case of Islamic banking (Hasan, 2019). However, recent report by the Financial Services Authority indicated that the advancement of Islamic banks in Indonesia is on the rise, this development is anchored on the basis that, the country is largely dominated by Muslims in terms of population which makes Islamic banking operation easier, the increase number of middle income people and the development of Islamic financial institutions in the country, as there are 14 Islamic banks, 20 Islamic windows and 164 Sharia Rural Banks (OJK, 2020). In addition, according to (OJK, 2020; Statista, 2022) Islamic banking total assets growth worth was Rp575.85 trillion in 2020 and Rp676.74 trillion in 2022 respectively. This 17% increase in total assets growth rate between 2020 and 2022 indicates a rapid and healthy growth of the Islamic financial sector with Bank Rakyat being the biggest bank in term of assets followed by Mandiri and Bank Central Asia. These three Banks combined have a total asset of about \$71 billion.

After reviewing several related studies, we found that they examined the effects of banks internal factors on the performance of Islamic banks Indonesia without taking into consideration key macroeconomic variables. Thus, this paper aims to fill the gap by considering macroeconomic variables such as GDP, inflation and trade as well as including covid-19 as a dummy variable combine with Islamic banks internal factors such as CAR, BOPO, FDR and NPF in examining the financial performance of Islamic banks in Indonesia using Return on Assets (ROA) as the proxy for measurement of the performance. Consequently, this would immensely help policy makers, management of Islamic banks and other relevant stakeholders in making informed decisions.

The financial performance of Islamic banks is becoming interesting in the eye of the investors, because it shows the investment decision hence, many factors can influence the performance of sharia banks. Therefore, to give a better understanding of the determinants of Islamic banking financial performance, this paper intends to explore and analyse macroeconomic variables and Bank internal factors that impact the performance of Islamic banking in Indonesia including the Covid-19 period.

The rest of this paper is structured as follows, the first part presents the literature review of banks financial performance, the second section develop the research methodology of the paper, the third part discuss the empirical results of the research and the final part highlight the conclusion and recommendation of the paper.

LITERATURE REVIEW

Theoretical Review of Bank Profitability

Bank profitability is influence by several factors, thus in this study we examined Islamic bank profitability by taking into consideration Bank internal variables and macroeconomic variables. By doing so, we first look at theories related to bank profitability. The profitability of bank is the ultimate priority of all the players in the banking industry, these includes bank owners, bank management, regulators and financial markets.

The dynamic theory of profit

This theory that was established by J.B. Clark, argues that bank profitability influences due to the non-static condition of society which causes future uncertainty so therefore the end results of this activity is the involvement of risk. Thus, profit is considered base on the return in the risk taking and bearing situation. In a general perspective a high-risk undertaking activity should yield a high return thereby increasing financial performance of a bank in an uncertain market condition. In the other hand, when a society is in a static market condition, thus in this situation profit does not change due to the fact that the risk condition does not exist (Isayas, 2022).

The theory further stated that the non-static of a society arises due to the variation in the number of people living in the society, variation in the preference and taste of people, the availability of capital in different times and condition, the potential number of investors etc so these changes makes profit to change as when they are not anticipated however, profit does not change when the above mention changes are already foreseen and such occurs regularly thus it makes management to adjust output level according to the anticipated changes (Isayas, 2022).

A similar theory called the standard theory stated that bank owners are the beneficiaries of the profit made by the institution. Thus, for the bank to attain maximum return for the shareholders, it must be able to maximize its revenue and minimize its cost (Bikker & Bos, 2008).

This theory further argues that there are several factors that are related to bank profit maximization. It stated that the first step in determining the profit maximization of banks is the idea of engaging into portfolio investment which would be able to diversify risk thereby reducing losses. Bank management usually invests in areas associated with high risk as it gives high return when the investment is variable (Bikker & Bos, 2008).

Furthermore, another theory that talked about bank profitability is the principal-agent theory as it argues that, in the absence of accurate and adequate information, bank owners find it difficult to properly supervise the activities of the bank management in the operation and decision-making process that management undertakes, therefore, this action may lead of the discretion of the bank management to undertake decision that may not yield maximum profit at a minimum cost. When there is no complete information to rely on (Bikker & Bos, 2008).

In addition, another theory that highlights banks' profitability is the economic theory which suggested that in a perfect competition, banks' attaining maximum profit is equal to cost minimization. This situation arises due to the fact that many banks operate in this system with similar products and services offered to customers this makes it difficult for a specific bank to have a market power and to be able to influence the market to maximize profit at a minimum cost. However, there are external factors such as government policies or regulations and economic shocks can influence the bank's profitability will lead to suboptimal performance. Besides, the theory further argues that in an imperfect competition condition banks have the market power to influence the financial performance as it can attain maximum profit at with minimal cost at an output level. This

is possible through collusion of banks or forming a monopoly in the banking industry (Bikker & Bos, 2008).

Bank market power theory

The market power theory which was established in the beginning of 1980s suggested that bank performance is affected due to the structure of the banking industry. This theory postulates that the number and shares of the banks in the industry have the ability to influence the bank's profitability. Thus, banks with high concentration and have large shares meaning banks that have low competition in the market have the potential to offer heterogeneous products and services has to ability to increase prices and make higher profit. Again, they can influence the interest rate through the form monopoly thereby giving out loan with higher interest rate which increase the return and profitability of the banks thereby stimulate the financial performance of the bank. On the other hand, banks that are less concentrated and have low shares in the market will yield lower profit as competition is high and cannot provide variety of products to influence the price (Ferrouhi, 2018) and (Isayas, 2022). Besides, this theory argues that Islamic banks have a market power in situation whereby the demand for sharia compliant bank is high but with limited supply. Therefore, this improves the financial performance of the Islamic banks as customers have no other option due to lack of competition (setyawati, kartini, rachman, & febian, 2015).

EMPIRICAL LITERATURE REVIEW

Several studies have empirically analyzed and examined the factors that affect the financial performance of Islamic banks. (Wahyudi, Mutmainah, Nahar, Adha, & Rifan, 2021), examined the performance of Islamic banks in Indonesia during 2019 corona virus pandemic. They used linear regression method to estimate the results where Return on assets was used as the explained variable while Capital Adequacy Ratio, Non-Performing Financing, Finance Deposit Ration and BOPO as independent variables. To summarize the result, it shows that a 1% rise in CAR will lead to an increase in ROA by about 0.138%. this suggest a positive relationship between CAR and ROA in which CAR was resilient during Covid-19 as it was not negatively affected by the impact of the global pandemic. However, BOPO shows a negative relationship with ROA, hence 1% increases in BOPO lead to a fall in ROA by about 0.252% (Wahyudi, Mutmainah, Nahar, Adha, & Rifan, 2021).

Since the results shows that CAR has positive relationship with ROA and significantly affect the performance of Islamic banking whereas BOPO suggest a negative relationship with banks performance. While the variables of FDR and NPF show an insignificant impact ROE and ROA. Therefore, it implies that Islamic banks should endeavour and concentrate on having more Capital Adequacy Ratio (CAR) especially during global crisis like that of the covid-19 because it contributes in improving the performance of Sharia banks than other internal bank factors such as BOPO, FDR, and NPF. (Salsabilla, Azhari, Wahyudi, Pambudi, & Riduwan, 2021) conducted a similar study with an objective to investigate the influence of the corona virus pandemic on the profitability of Islamic Banks in Indonesia during the peak of covid-19 pandemic in 2020

using a multiple linear regression model to estimate the effects of internal Islamic banks variables such CAR, NPF, BOPO and FDR on ROA and ROE. Their findings indicated that FDR and BOPO have a statistically significance impact on ROA while CAR and NPF has no influence on ROA.

Furthermore, ROE being dependent variable, the results of the test shows that CAR and BOPO have a significant impact on ROE while NPF and FDR have no influence on ROE. The study suggested that a 1% increase in BOPO, will lead to a decrease in ROE by 0.842%. Besides, their results show a significant ROA profitability level at 1.71%, while ROE decreased by 8.77%. The decrease in ROE is cause by lack of financing distribution and more use of third-party funds (Salsabilla, Azhari, Wahyudi, Pambudi, & Riduwan, 2021).

The study concluded that, Islamic banks were resilient from the negative impact of covid-19 which made their financial performance not been heavily affected by the impact of the pandemic (Salsabilla, Azhari, Wahyudi, Pambudi, & Riduwan, 2021). (Ichsan, Suparmin, Yusuf, Ismal, & Sitompul, 2021), made a related study with the objective to investigate the financial performance of shariah Banks in Indonesia in the period of the covid-19 crisis. They applied multiple liner regression with Ramsey test as tools to estimate their data for the period 2011 to 2021. The findings indicated that CAR, BOPO and FDR all have a positive coefficient of 0.117, 0.013 and 0.051 respectively therefore, this signifies a positive relationship CAR and ROA, BOPO and ROA and FDR and ROA in which means that if CAR, BOPO and FDR increase by 1%, ROA will increase by 0.117%, 0.013% and 0.051% respectively. However, the variable NPF which has a coefficient of -0.469 signifies an inverse relationship between NPF and ROA which means when NPF increase by 1%, ROA as financial performance variable will fall by about -0.469%.

Their findings concluded that, the independent variables such as CAR, BOPO and FDR have a positive and significant impact on the financial performance of shariah Banks in Indonesia during corona virus pandemic. On the other side, the variable Not Performing Financing (NPF) had a negative impact on the financial performance (ROA) (Ichsan, Suparmin, Yusuf, Ismal, & Sitompul, 2021), also examined the impact of macroeconomics factors on the profitability of Islamic banks in the Islamic division people's Bank of Zanzibar in Tanzania from 2011 to June 2018 using Vector Error Correction. The motive of their study was to explore the influence of macroeconomic variables on the profitability of the Bank. In this process, they use macroeconomics variables such as GDP, Inflation and money supply as independent variables while ROA is was used as proxy which represented represents the dependent variable. Their findings suggested that, if inflation increase by one unit, ROA will decrease by 0.234040, as for GDP growth, if it increases by 1% ROA will also increase by 2.816806% and if money supply increase by one unit, ROA will increase by 1.661735. this finding implies that, GDP growth rate and Money supply have positive relationship with ROA while inflation has an inverse relationship with ROA. I agree with their findings considering the normal law of demand, therefore, when prices increase, consumption falls as a result it slows down the economic growth and the profitability of Banks will as well be affected in a negative way. However, as the GDP growth rate which is a key macroeconomic variable use in determining the growth of a

country including Banks, therefore when GDP growth increases it would positively affect ROA thereby influencing the financial performance of Banks as the economy is booming (Hafidh & Burhan, 2021).

In another study conducted by (AshrafulFerdousChowdhury, 2015) in which he examined empirical research in Malaysia Islamic banks as to which factors are more essential in determining the performance of Islamic banks in terms of internal bank or macroeconomics variables. He carried out research of using a pooled ordinary least square method to provide a comparative analysis of the factors that influence the profitability of sharia banks in Malaysia from 2007 to 2013. GDP growth, inflation rate, money supply and savings to gross national income were represented as macroeconomic factors while the bank specific factors were loan loss provisions / total assets, equity/total assets, noninterest expenses/total assets reflect the operation function and total loan/total asset all of these were used as independent variable while ROA was the dependent variable.

The research findings suggested that the average effects of macroeconomics variables were 3.7%, 2.8%, 122.03% and 36.54% respectively. However, bank internal factors such as capital adequacy has positive and significant effects on the bank's profitability while operational efficiency like overhead expenses is inversely related to Islamic bank's performance. Besides, the results of the standard deviation showed that for bank specific factor liquidity risk is the highest while for the macroeconomic variable is money supply (AshrafulFerdousChowdhury, 2015).

Furthermore, the finding indicated that the reason why inflation has a positive and significant impact on the profitability of Islamic Banks in Malaysia this result is anchored on the basis that Islamic Banks in Malaysia anticipated the level of inflation rate, investigated the impacts of macroeconomics factors on financing performance and profitability of Islamic banking in Indonesia using a quarterly data period from 2018 to 2021. He examines this study by using macroeconomic factors namely; inflation, lending rate, forex rate and GDP as the independent variable while financial performance and profitability as dependent variable. The findings of the research suggested that all the independent variables had no significant impact on the bank financing but had significant effect on the profitability of Islamic banks. The reason why there is no significant effect of the macroeconomic variables on the banking financial performance is due to that fact that during the covid-19 period as it has negatively impacted economies around the world including that of Indonesia, therefore, inflation was high which cause the purchasing power of the people to fall which cause the value of the money to fall as a result Murabaha financing falls as peoples demand for goods reduced which negatively affected Islamic financing to. During the covid-19 period government of Indonesia reduced the bank rate to allow the public to easily get access to Bank loan however, this decision affected the banking financing performance as the public as not motivated to save their money with banks which makes the interest rate to have no impact on the financial performance of Islamic banks. As for exchange rate, during the peak of the covid-19 pandemic internal businesses fall which makes banking financial performance to fall (Febriany, 2021).

RESEARCH HYPOTHESIS

H1: Gross Domestic Product (GDP) has a positive impact on the financial performance of Islamic banking

H2: Trade has statistically significant influence on the financial performance of Islamic banking

H3: Inflation has a positive effect on the financial performance of Islamic banking

H4: BOPO has positive and statistically significant impact on the financial performance of Islamic banking

H5: FDR has statistically significant effect on the financial performance of Islamic banking

H6: NPF has positive impact on the financial performance of Islamic banking

H7: CAR has positive impact on the financial performance of Islamic banking

H8: Covid-19 has positive and significant effect on the financial performance of Islamic banking

RESEARCH METHODOLOGY

In this research we employ a quantitative approach using a Vector Autoregressive Method (VAR) to estimate and analyse the determinants of Islamic banking financial performance. We used a secondary data that are collected from world bank database and Islamic banks' annual report for a period from 2010 to 2021. To achieve our aim, we used macroeconomic variables and Islamic bank internal factors where Return on Assets (ROA) is used as the proxy in determining the factors that impact the performance of Islamic banking in these two countries.

Dependent variables

Return on Assets (ROA) refers to a ratio which is used in determining the financial performance of banks and other firms in regards to its assets. We used this variable as a proxy because it indicates how efficient banks use its assets to generate profit. This variable was also used a proxy by (Wastuti, 2022).

ROA is calculated with the use of the formula below:

$$ROA = \frac{\text{PROFIT BEFORE TAX}}{\text{TOTAL ASSETS}} \times 100$$

Independent variables

Macroeconomic variables/External factors

The first variable is Gross Domestic Product (GDP) which is referred to as the total monetary value of final goods and services produce in a particular country during a particular period of time. We decided to use GDP is this estimation because is a key macroeconomic indicator that helps to determine the economic growth of a country. This variable was also used by (Khalidin, 2022).

Furthermore, inflation was also used in this study inflation refers to the steady rise in the overall price level of all goods and services in a country at a particular time. We used inflation this in this study because it helps us understand the purchasing power of the people

and how it influences the financial performance of Islamic banks. GDP was also used in a similar study conducted by (Amzal, 2016).

In addition, to understand the effects of the total number of goods and services that a country import and export on the performance of Islamic banking we decided to use trade as a macroeconomic variable. Foreign trade help countries to get goods and services that they could not produce. This variable was also used by (Hamadou, 2022).

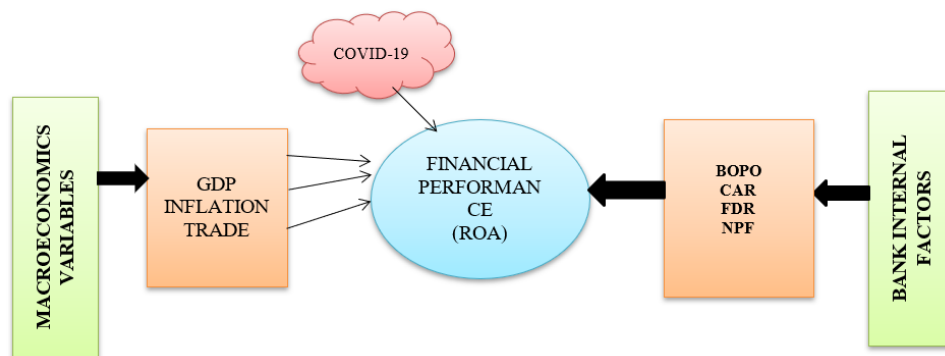
Internal Islamic Bank specific factors

Banking operating profit to operating expenses (BOPO) means a financial ratio shows the proportion of operating income to operating expenses. This variable is used because it helps to determine the efficiency in the operation of Islamic banks as high BOPO ratio indicates that the banks income is more than its expenses which represent good sign of financial performance while a low ratio shows a poor financial performance. This variable was also used by (Wastuti, 2022).

The second variable is Capital Adequacy Ratio (CAR) which means is a financial ratio which helps to measure the financial stability of a bank and its ability to overcome potential risk. This variable is used in the study as it helps in determining the performance of banks especially in economic crisis period as this study cover covid-19 period. So, a high CAR ratio shows that a bank has a large buffer to absorb potential losses which is key for the banks' stability while a lower ratio indicates that the bank cannot cover its losses in the event that a risk occur. This variable was also used by (Ichsan, Suparmin, Yusuf, Ismal, & Sitompul, 2021).

Third variable is financing to deposit ratio (FDR) this measures the liquidity of a bank and its proportion to the bank's financing to its deposit. A high FDR shows that a bank depends heavily from borrowed fund to finance its operation which can be a potential risk that a bank may suffer from. By (Ichsan, Suparmin, Yusuf, Ismal, & Sitompul, 2021).

The final variable is Non-performing Financing (NPF) this is a ratio which is used to measure the credit risk of a bank and its proportion to financing that is not repaid on due time. We used these variables as a component in determining the financial performance of Islamic banks because a high NPF ratio shows that a bank has a high level of credit risk which will lead to a potential financial loss of the bank vice versa. This variable was also used by (Al-Qudsy, Umam, & Masrifah, 2020; Wastuti, 2022).



Model estimation

In order to carry out the econometric estimation and analysis of the determinants variables that influence the financial performance of Islamic banking in Indonesia, we used a time series data with Vector autoregressive model which involves the following steps:

Unit root test

Since the variables selected for this model are time series data, thus it requires a unit root test to ensure they are stationary before the estimation without which, it may lead to spurious regression and it will not give a desired result. Therefore, we used Augmented Dickey-Fuller (ADF) to test the stationarity of the variables which allowed us to proceed to the next level.

Johansen Co-integration test

This test was used to understand the short-run and long run relationship of the time series variables with one lag value. In this process we determine the relationship between the selected variables and the financial performance of Islamic banks with the use of the Trace statistics and the Maximum Eigenvalue (ME) statistics which can help to ascertain as to whether the variables are cointegrated or not.

Vector Autoregressive (VAR) Model Estimation

After carrying out the above previous stages, we then proceeded with the estimation of the data. VAR is used in this study to help in giving a better understanding on how the lag variables influence the performance of each current variable. This way it will help to ascertain the short run and long relationship of the variables as well as forecast the future impact of the variables on the financial performance of banks.

RESULTS AND DISCUSSION

Unit Root ADF Test

We commence the analysis of these results with the unit root test, on the basis of the H_0 : which suggest to say there is a unit root meaning the variables undertaken are non-stationary, thus, if the results of the p-values are less than 0.05 at alpha 5% significance level then we reject the null the hypothesis as it means the variables are stationary.

From table 1 below, using the ADF test, it shows that all undertaken variables are non-stationary at level as their p-values are greater than 0.05. therefore, to obtain a stationarity results, we proceeded with first difference test in which the variables indicated a p-value less than 0.05. The first difference results implies that we reject H_0 as the probability values of all the individual variables are less than alpha 5% significance level which means they are all stationary at first difference.

Table 1
The ADF test

variables	ADF		
	LEVEL	1st difference	2nd difference
ROA	0.0000	0.0000	0.0000
LnGDP	0.7789	0.0000	0.0000
Inf	0.0001	0.0000	0.0000
Trade	0.7167	0.0000	0.0000
CAR	0.0014	0.0000	0.0000
NPF	0.0574	0.0000	0.0000
BOPO	0.4605	0.0000	0.0000
FDR	0.0000	0.0000	0.0000

prob values, 5% significance level

Johansen Cointegration Rank Trace Test

Besides, in table 2 below, gives a summary of the findings from the Johansen cointegration rank test (trace). This table shows that there are five cointegrating vectors at the 5% level of significance, this indicates that H0 of no co-integration is rejected for ranks of zero and less than or equal to 5 (i.e., the presence of five cointegrating vectors indicates that the null hypothesis of no cointegration is rejected). This indicates that there is a connection that exists between the five variables over the long term.

Table
Johansen Cointegration Rank Trace Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.990572	886.1634	179.5098	0.0000
At most 1 *	0.937307	447.7398	143.6691	0.0000
At most 2 *	0.515766	187.4069	111.7805	0.0000
At most 3 *	0.420610	119.2393	83.93712	0.0000
At most 4 *	0.267723	67.93595	60.06141	0.0093
At most 5	0.193503	38.64595	40.17493	0.0707
At most 6	0.106288	18.43077	24.27596	0.2284
At most 7	0.080256	7.867856	12.32090	0.2471
At most 8	4.02E-05	0.003774	4.129906	0.9593

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Johansen Cointegration Maximum Eigenvalue Test

In addition, the Johansen cointegration maximum Eigenvalue test in table 3 below shows that there are four cointegrating vectors at the 5% level of significance, respectively, this indicates that the null hypothesis of no cointegration is rejected for ranks of zero and less than or equal to 5 this means that there is a connection that exists between the three variables over the long term.

Table 3
Johansen Cointegration Maximum Eigenvalue Test

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.990572	438.4235	54.96577	0.0000
At most 1 *	0.937307	260.3329	48.87720	0.0000
At most 2 *	0.515766	68.16759	42.77219	0.0000
At most 3 *	0.420610	51.30335	36.63019	0.0005
At most 4	0.267723	29.29000	30.43961	0.0691
At most 5	0.193503	20.21518	24.15921	0.1566
At most 6	0.106288	10.56291	17.79730	0.4277
At most 7	0.080256	7.864081	11.22480	0.1833
At most 8	4.02E-05	0.003774	4.129906	0.9593

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Vecto Autocorrelation (VAR) Result

Finally, table 4 result below depicts the estimated VAR coefficients of correlation over the period from 2010 to 2021, by a single functional process. The pattern of correlations has undergone remarkable changes due to the Covid 19.

In practice, VAR estimates as many equations as there are variables since it assumes that all relevant variables are in some way impacting each other across time as a unique universe. This model is used to analyse the causal relationship between multiple variables over time.

Since the study primarily focuses on examining the macroeconomic and bank internal specific variables that influence the financial performance of sharia banks in Indonesia thus, our of interest will be directed to focus on how the selected lag variables impact Return on Assets (ROA).

Using a t-statistics of one tail test at 87 degrees of freedom, represent the values of 1.662 and 1.291 at 5% and 10% respectively. Therefore, the lag variable of Gross Domestic Production (LNGDP) has positive relationship with the financial performance of Islamic banks which means we accept hypothesis number one (1). However, it shows a statistical insignificant as the t-statistics of 0.35019 is less than 1.662.

This result resonates with the findings of (Hafidh & Burhan, 2021) in which they investigate the effects of macroeconomics variables on the profitability of Islamic banks in Zanzibar. The positive relationship of GDP to ROA justifies the fact that GDP is a key indicator in determining the growth of a country so when it increase, it would lead to a positive rise in the growth of other sectors of the economy which includes Islamic banks.

The coefficient value of the lagged variable banking operating profit to operating expenses (BOPO) has a positive relation to ROA and it is statistically significant as its t-

statistics 2.3 is more than 1.662 of a one tail at 5% level, therefore, we accept hypothesis number four (4). This means that when BOPO increase by one percent, ROA will also increase by about 4.23% this is similar to the findings of (widiastuty, 2022) who examine the banking performance in Indonesia before and during the Covid-19 pandemic. The significant relationship shows that the revenues of banks are more than their expenses, so it has a positive impact on financial performance of banks represented by return on assets (ROA).

The variable financial ratio (CAR), is an indicator of a bank's capacity to withstand the impact of prospective risks and maintain its financial stability. The result from the VAR table shows that, the coefficient of CAR has a positive value (0.034) and it is statistically significant as the t-statistics of 1.83068 is greater than 1.662 of a one tail test at 5% level which means we accept hypothesis number seven (7). This finding suggests that financial stability has a positive impact on the performance of banks especially during economic crises time like covid-19. Thus, a higher value of CAR means a bank has a larger buffer to absorb potential losses, which is key for the banks' stability and financial independency. This resonates with the findings of (widiastuty, 2022)

The coefficient of financing to deposit ratio (FDR) has a negative sign and its t-statistics value of 1.006 is less than 5% significance level for both one tail and two tail tests thus, we reject hypothesis number five (5). This inverse relationship means that the financial deposit ratio of banks, which measures the liquidity of a bank and its proportion to the bank' financing to its deposit, therefore, when it increases, the bank performance will decrease. This is because the financial deposit ratio measures the liquidity of a bank and its and its proportion to the bank' financing to its deposit.

The ratio that is used to quantify the credit risk of a bank and its percentage to financing that is not returned on the due date may be found by looking at the value of the coefficient that is associated with non-performing financing, also known as NPF. When determining the overall economic wellbeing of Islamic banks, this is one of the considerations that is taken into account. Therefore, the lagged value of NPF has a positive and statistically significant effect on to ROA as the t-statistics of 1.99 is greater than 1.662 at 5% level of one tail test which means we accept hypothesis number six (6). This indicates that when NPF increases by one percent, the financial performance of banks will also increase by about 26.8693% other factors held constant

The lagged values of variable return on assets (ROA) have a positive coefficient (0.965) and statistically significant effects on the current ROA as the t-statistics of 3.7572 is greater than 1.662 at 5% level of one tail test. Therefore, when the lagged value of ROA increases by 1% the current ROA will also increase by about 96.5%, other factors held constant. The positive relationship provides shareholders with an indication of how effectively a business is able to transform the money it invests into net income. The greater the ROA figure, the better for the banks, since it indicates that the business is able to generate a greater profit from a reduced level of investment. To put it another way, a higher ROA indicates more asset efficiency and betterment in the performance of Islamic banks.

Banks play an important role in the international commercial activities by supplying importers and exporters with finance and guarantees. While having access to external

financing is necessary for domestic manufacturing, having such access is particularly crucial for businesses that are engaged in exporting. The coefficient value attached with the variable trade is (0.069) and which shows a statistically significant relationship to ROA as its t-statistics of 1.54 is greater than 1.291 of t-statistics at 10% significant level on a one tail test thus we reject accept hypothesis number two (2). This mean when trade by one unit, the Islamic banks financial growth will increase by about 6.9%. This indicates that trade of previous year, during Covid-19 has positive impact on Islamic banks performance as banks as the provision of working capital in connection with and in support of international trade transactions and the provision of tools to mitigate payment risk are among the most important functions performed by bank-intermediated trade finance, sometimes simply known as trade finance.

The lagged variable of inflation shows statistically insignificant effect on ROA as the t-statistic of the value $0.4467 < 1.663$ thus, we reject hypothesis number three (3). This indicates that, inflation does not impact the financial performance of Islamic banks during the period of the study. This insignificant relationship result is similar to the findings of (Isayas, 2022). However, the co-efficient of the variable inflation shows a positive relationship with ROA which is opposite to the findings of (Isayas, 2022).

The dummy variable Covid-19 is highly statistically significant and has a directional relationship to Islamic banks financial performance as it has a t-statistics of 2.235 which is greater than alpha 5% significance level hence we accept hypothesis number eight (8). The positive relationship of Covid-19 to financial performance of Islamic banks means they are resilient to the negative shock of the pandemic as Islamic banks operate on profit and risk sharing basis. Again, they do not engage in speculation which made them to have an edge over conventional banks.

The value of R-square for variable return on assets (ROA) is 0.23, means that this model reveals 23 percent of variability in the variables used in this model and explained by the VAR mode. The F-statistics with a value of $2.8595 > 1.633$ shows that the overall model is statistically significant

CONCLUSION AND RECOMMENDATIONS

in the effort to examine the factors that influence Islamic banking in Indonesia, this paper first tests the unit root using ADF which shows that all variables are stationary at first difference hence it rejects the null hypothesis. Besides, the Johansen cointegration test shows that there is a long run and short run relationship between Islamic banking financial performance and, macroeconomic and banks internal factors. Consequently, this paper examines that there is a directional relationship between Gross Domestic Product (GDP) and Islamic banks financial performance. This implies that GDP is a necessary condition for the performance of Islamic banks. Therefore, policy makers should try to increase GDP by employing an expansionary fiscal policy which is to reduce taxes and increase government spending thus enhancing economic growth which also positively influence Islamic banking performance.

The lagged variables such as BOPO, CAR, NPF, ROA trade and all indicate positive and significant relationship to the financial performance of Islamic Banks in

Indonesia. While the lagged variable of FDR shows a negative and statistically insignificant effect to ROA. The dummy variable which is covid-19 shows a positive and a statistically significant relationship with the financial performance of Islamic banks. This implies that Islamic banks were resilient to impact of the pandemic.

As the study was able to examining the financial performance of Islamic banks in Indonesia by using key macroeconomic and bank internal variables as well as using covid-19 as a dummy variable. Thus, to enhance the growth of Islamic banks, this study recommends that government should employ fiscal policy measures especially expansionary fiscal policy in other to stimulate economic growth through an increase in spending as disposable income increases thus leading to a booming state of an economy. This way it helps other sectors of the economy like Islamic banks to grows thereby creating more job opportunities and improve shareholders' value. Besides, management of Islamic banking should endeavour to diversify their business portfolios to avoid risk of losses in its financial operations.

One of the limitations of this study is that, it could not examine other determinant of Islamic bank's performance like taxation and governance structure. Again, due to the unavailability of data the study only focuses on one country. Therefore, future researchers are encouraged to include more countries to provide a comparative and comprehensive understanding of the factors that influence the financial performance of Islamic banks.

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