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Affiliation:
[1,2]Faculty of Economic, Maulana Malik Ibrahim State Islamic University, Malang, Indonesia

***Correspondence**:
ichasholihah31@gmail.com

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Unveiling the drivers of islamic bank profitability : fundamental and macroeconomic factors in asia

Mar'atus Sholihah[1*], Guntur Kusuma Wardana[2]

ABSTRACT

Purpose: This research aims to analyze the influence of fundamental and macroeconomic factors on the profitability of Islamic banking in Asia during 2019–2023.

Methodology/Approach: This empirical study uses a quantitative descriptive approach analyzed through panel data regression using Eviews software version 12. The sample consists of 18 Islamic banks selected through purposive sampling from the 100 largest Islamic banks in Asia based on total assets during the 2019–2023 period, resulting in 1,080 monthly observation data obtained from the financial statements of each bank.

Findings: The results show that CAR, BOPO, DPK, DER, and inflation have a significant effect on Return on Assets (ROA) partially, while GDP is not significant. Simultaneously, all variables affect ROA with a determination of 99.9%.

Practical and Theoretical Contribution/Originality: This study highlights the importance of operational efficiency (low BOPO), capital management (CAR), DPK optimization, debt structure management (DER), and inflation control in enhancing the performance of Islamic banking in Asia. Although GDP is not significant, monitoring economic conditions remains essential to anticipate indirect impacts on profitability.

Research Limitation: The findings are limited to the analysis of data from 2019–2023, and the study may not fully capture long-term trends or external factors affecting Islamic banking profitability.

Keywords:
Fundamental Factors; Islamic Banks; Macroeconomics; Profitability.

INTRODUCTION

Region	Islamic Banking Assets	Sukuk Outstanding	Islamic Funds Assets	Islamic Insurance Contributions	Total	Share (%)
EAP	313,83	411,25	38,13	5,75	768,96	21,80%
ECA	79,70	102,02	46,24	0,61	228,57	8,30%
GCC	1.463,91	292,96	28,16	14,64	1.847,42	52,50%
SSA	13,36	3,20	3,50	0,01	19,20	0,70%
SA	83,58	19,63	5,13	0,24	108,58	3,10%
MENA	417,79	6,30	0,07	2,79	427,82	12,70%
Others	-	14,64	11,06	-	25,70	0,90%
Total	2.372,17	850,00	132,29	24,05	3.378,51	100%
Share %	70,21%	25,16%	3,92%	0,71%	100%	

Source: Researcher processed data, 2025

Table 1. Breakdown of the Global IFSI by Sector and Region (USD (billion) (2023)

The Islamic economy in Asia has experienced significant growth in recent decades, driven by high demand for financial products that comply with Islamic principles. This growth is also driven by a large Muslim population and increasing awareness of the importance of transactions that are free from usury, gharar, and maysir (Masruroh & Wardana, 2022). In addition, the development of the Islamic economy in Asia is largely driven by Islamic banking, which is a major contributor to the total assets of this sector. The Breakdown of the Global IFSI by Sector and Region data is shown in Figure 1. below:

Based on table 1.1, Islamic banking is the largest sector in global Islamic finance, contributing 70.21% or equivalent to USD 2,372.17 billion. In addition, sukuk (25.16%), Islamic investment funds (3.92%), and Islamic insurance (0.71%) also contributed significantly. The region with the largest contribution is the Gulf Cooperation Council (GCC), which covers 52.50% of total global assets, driven by high demand in the Middle East and supportive government policies. Product innovations such as sukuk and Islamic fintech as well as higher stability also attract global investors looking for adequate investment alternatives (Sari et al., 2024). In addition to significant asset growth, the development of Islamic banks in Asia is also reflected in the increase in their profitability. ROA describes the level of bank efficiency in generating net profit from total assets owned (Wardana & Barlian, 2022). This indicator reflects the bank's ability to manage its assets optimally to achieve profit (Rahma & Mayasari, 2021). Islamic Banking ROA statistics in Asia during the 2022-2023 period can be seen in Figure 1 below:

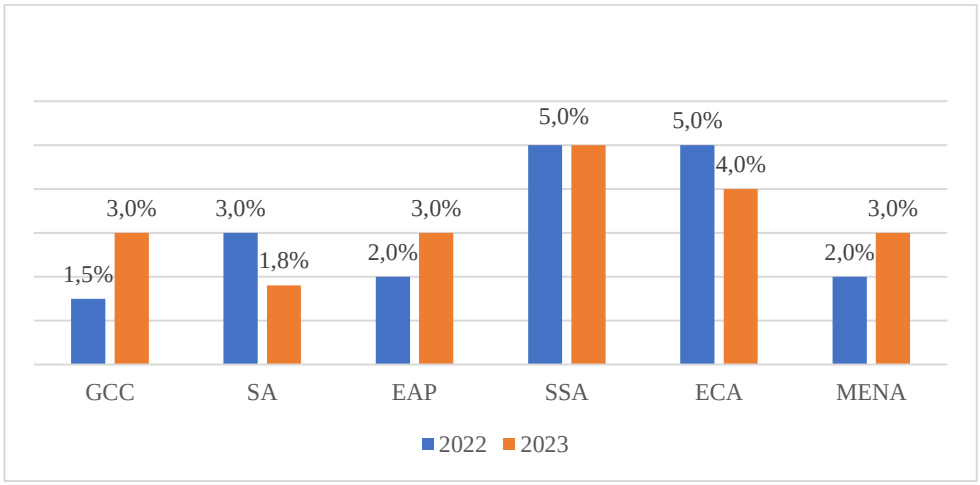

Figure 1. Statistics of Islamic Banking ROA in Asia 2022-2023

Source: Researcher processed data, 2025

Figure 1 shows the change in ROA across regions in 2022-2023, with variations in profitability performance. GCC saw a significant increase in ROA from 1.5% in 2022 to 3% in 2023, indicating improved asset utilization efficiency. South Asia (SA) fell from 3% to 1.8% due to economic slowdown, political instability, or increased operating costs affecting profitability. East Asia & Pacific (EAP) increased from 2% to 3%, while Sub-Saharan Africa (SSA) maintained the highest ROA at 5%. Europe and Central Asia (ECA) fell from 5% to 4% due to high inflation and tight monetary policies, such as interest rate hikes, as well as economic uncertainty affecting the investment and banking climate. Middle East and North Africa (MENA) (excluding GCC) increased from 2% to 3%, indicating improved financial sector performance.

Despite having the largest assets globally, the ROA of Islamic banking in Asia has decreased due to several factors such as fundamental factors. In a study conducted by Dwiningtyas & Yoewono (2023) and Savira & Hapsari (2023) it was explained that the fundamental factors that affect bank profitability include the Capital Adequacy Ratio (CAR), Operating Expenses to Operating Income (BOPO), Third Party Funds (DPK), and Debt to Equity Ratio (DER). A high CAR allows banks to be more aggressive in investing and providing credit, which in turn can increase income and support financial stability (Salsabila & Wicaksono, 2022). In addition to CAR, there are other factors, namely, low BOPO reflects operational efficiency that can increase ROA, because banks can reduce operational costs and maximize income. Conversely, high BOPO indicates inefficiency that reduces profits and lowers ROA (Rachma & Wardana, 2023). Furthermore, there is a DPK variable that plays an important role as the main source of funds that allows banks to channel financing, increase income, but also carries risks that can affect ROA (Nainggolan & Abdullah, 2019). Another variable that plays an important role in influencing ROA growth is DER, although it increases the potential for returns by allowing banks to access additional funds for expansion and increasing productive assets, it also increases financial risk if debt is not managed carefully, which can reduce ROA (Wardana, 2024). Statistics on the growth of fundamental factors of Islamic banks in Asia are presented in Figure 2 below:

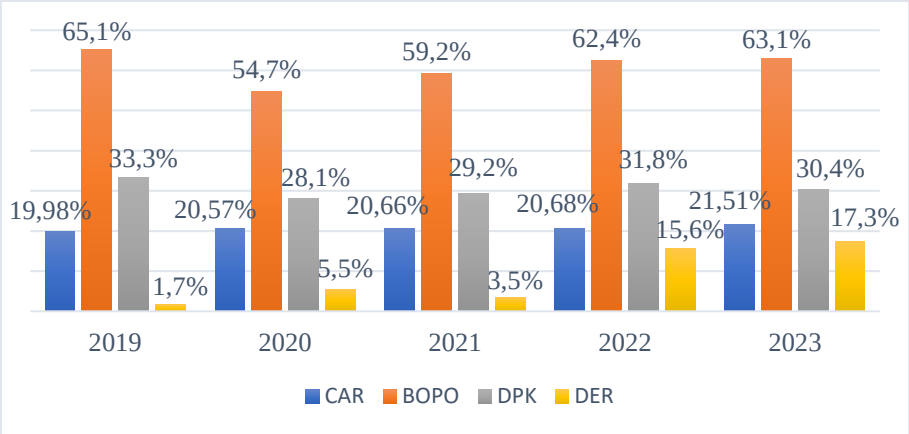

Figure 2. Growth of Fundamental Factors of Islamic Banking in Asia

Source: Researcher processed data, 2025

Figure 2 shows the development of fundamental factors of Islamic banks in Asia throughout the period 2019 to 2023. In 2019, CAR was at 19.98%, reflecting stable capital adequacy, while BOPO was quite high at 65.1%, indicating still low operational efficiency. DPK was recorded at 33.3%, indicating a high amount of public funds collected. DER was very low at 1.7%, meaning that banks rely more on their own capital. In 2020, CAR increased to 20.57% as an anticipatory measure in facing high economic uncertainty during the COVID-19 pandemic crisis. In addition, BOPO experienced a significant decline to 54.7%, indicating an increase in operational efficiency, which was most likely due to the bank's efforts to reduce operational costs amidst declining revenues due to the pandemic. The increasing digitalization of banking services during the pandemic also helped reduce costs and increase efficiency. Meanwhile, DPK experienced a slight decline to 28.1% as people preferred to save funds in more liquid forms or place them in other financial instruments that were safer and easier to liquidate. On the other hand, DER increased significantly to 5.5%, indicating that Islamic banks were starting to rely on debt as additional capital to support liquidity in difficult times. This step was also intended to support the expansion of digital services which became increasingly important during the pandemic, when physical interactions were limited and the need for digital services increased. In 2021, CAR was stable at 20.66% and BOPO increased to 59.2% indicating increased operating costs. DPK increased slightly to 29.2%, indicating that public trust remained strong, while DER fell to 3.5% as a sign of reduced dependence on debt. In 2022, CAR increased to 21.51%, reflecting further capital strengthening, but BOPO rose again to 62.4%, indicating still low efficiency. DPK rose to 31.8% and DER jumped to 15.6%, indicating higher debt usage. In 2023, CAR decreased to 17.3%, BOPO increased to 63.1%, and DPK decreased slightly to 30.4%, which could be caused by economic conditions or banking competition. DER increased to 17.3%, indicating a high proportion of debt in the bank's capital structure.

The profitability of Islamic banks is also influenced by external factors, namely macroeconomic conditions, in addition to fundamental factors. There are many factors that influence the profitability of Islamic banking; however, this study focuses only on fundamental and macroeconomic factors because both have a strong foundation in Agency Theory as the grand theory. Fundamental factors illustrate how agents conduct their operations in accordance with the interests of principals, while macroeconomic factors show how agents respond to external conditions that may affect the agency relationship. Agency Theory itself explains the relationship between capital owners (principals) and managers (agents) in managing resources efficiently to minimize conflicts of interest and enhance

stakeholder welfare. This research refers to Agency Theory to analyze the influence of fundamental and macroeconomic factors on the profitability of Islamic banking in Asia. Agency Theory explains the relationship between capital owners (principals) and managers (agents), where Islamic banking is expected to be able to manage resources efficiently to minimize conflicts of interest and improve stakeholder welfare (Rizky, 2022). In this context, fundamental factors such as CAR, BOPO, DPK, and DER serve as key indicators of an agent's effectiveness in managing capital, operational efficiency, fund mobilization, and risk control, ensuring alignment with the principal's interests (Pratama, 2019). On the other hand, macroeconomic factors such as GDP and inflation influence financing strategies, risk management, and operational stability, potentially creating information asymmetry between agents and principals (Apriani, 2024). In a study conducted by Sarif & Sholihah (2024), it is explained that macroeconomic conditions include factors such as Gross Domestic Product (GDP) and Inflation. Good GDP growth increases demand for credit, investment, and consumption, which has a positive impact on bank profitability, while declining GDP reduces economic activity and profitability (Syafa'ati & Wicaksono, 2023). In addition, high inflation can increase operating costs and reduce purchasing power, which reduces demand for financial products, while controlled inflation creates economic stability that supports business growth (Fauziyah & Wardana, 2022). Data on Macroeconomic Growth in Asia is presented in Figure 3 below:

Figure 3 illustrates the development of GDP and inflation from 2019 to 2023, which has an impact on the profitability of Islamic banks. In 2019, GDP grew by 2.8% with low inflation of 1.9%, creating economic stability. In 2020, the COVID-19 pandemic hit the world, causing significant disruption to economic and social activities. Mobility restrictions, business closures, and global uncertainty affected investment and consumption. This resulted in a GDP contraction of -2.7%, indicating a serious economic recession. Although inflation was low at 1.8%, this figure reflects low purchasing power and public demand rather than economic stability. For Islamic banks, this situation is a major challenge due to increasing credit risks and declining financing activities. 2021 marked an economic recovery with GDP growing by 3.5%, but inflation jumped to 6.5%, increasing banks' operating costs. In 2022, GDP continued to grow by 3.5% and inflation fell slightly to 6.4%, indicating price stability. In 2023, GDP grows by 3.2% with inflation falling to 5.8%, creating more conducive conditions for Islamic banking profitability due to increasing credit demand and decreasing operational cost pressures.

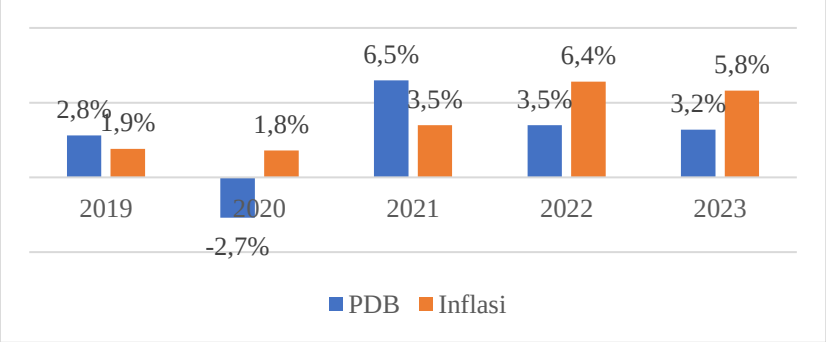

Figure 3. Macroeconomic Growth in Asia

Source: Researcher processed data, 2025

Based on a review of previous research, various factors influence fluctuations in profitability growth, and there are inconsistencies in past studies regarding the variables that affect profitability growth. The study by Nanda et al. (2019) is considered a solution as it employs a detailed analysis to evaluate the impact of one fundamental factor on ROA. Additionally, the research by Nasution et al. (2022) utilizes extensive regional macroeconomic data to demonstrate the influence of macroeconomic factors on ROA.

However, both studies have limitations, such as restricted time coverage and the lack of additional macroeconomic variables. To address these weaknesses, this research will extend the analysis period, use the latest data, and incorporate other macroeconomic variables to produce more comprehensive findings. Therefore, it is essential to identify the factors contributing to the profitability growth of Islamic banking, particularly in the Asian region.

The Asia region was chosen based on several reasons. First, Asia is the region with the largest Muslim population and also has an advanced sharia banking system. Second, many countries in Asia support the development of sharia banking through favorable policies. Third, the Asian region has the largest average assets, including the GCC countries. The novelty of this research lies in its focus on combining fundamental and macroeconomic variables to evaluate the profitability of Islamic banking in the Asian region, which has not been done much in previous research.

The influence of CAR on ROA in Islamic banking in Asia reflects the importance of capital adequacy in increasing the efficiency and stability of bank operations. A high CAR ensures banks have sufficient reserves to manage risk, strengthen financial stability and increase customer confidence. In sharia banking, a capable CAR not only meets regulations, but also supports better risk management, thereby contributing to increasing ROA. Research findings by Kurniasari & Zunaidi (2022), Abdillah (2024), and Pravasanti (2018) show that CAR has a significant effect on ROA. However, the research findings contradict the research of Wibisono & Wahyuni (2017), Sudarmawanti & Pramono (2017) and Maulana et al. (2021), namely ROA does not significantly influence CAR. Based on the description above, the following hypothesis is taken:

H_1: CAR has an effect on ROA in sharia banking in the Asian region.

A high BOPO ratio indicates that bank management is less efficient in managing its operational activities. This can have an impact on decreasing profits, which will ultimately reduce the ROA value. This is in accordance with research conducted by Nanda et al. (2019), Yuliana & Listari (2021), Astuti (2022), and Alfianda & Widianto (2020), stated that BOPO has a significant effect on profitability. This shows that if BOPO increases, it means bank efficiency decreases, then profitability also decreases. The research conducted by Rembet & Baramuli (2020), Siagian et al. (2021), and Fitriyani (2019), show that BOPO does not have a significant effect on ROA. This means that an increase in the BOPO ratio increases bank profitability. This is because bank income does not only come from operational income, banks also get other income (non-operational). The influence between BOPO and ROA can be interpreted as meaning that bank management is said to be able to manage operational costs efficiently, to obtain large income so that it can maximize ROA. Based on the description above, the following hypothesis is taken:

H_2: BOPO has an effect on ROA in sharia banking in the Asian region.

The greater the number of third party funds owned by a bank, the greater the management's ability to channel funds in the form of financing which will have an impact on increasing ROA. An increase in deposits provides banks with greater opportunities to increase their

income. Thus, TPF is assumed to have a positive relationship with profitability. This indicates that the more customer deposits collected by a bank, the more bank business activities will increase its profitability. The statement above is also in line with research by Nainggolan & Abdullah (2019), Parenrengi & Hendratni (2018), and Tofan, et al (2022), found that DPK has a significant effect on ROA. However, other studies by Hanafia & Karim (2020), Dasari & Wirman (2020), and Sehany & Nurhidayati (2022), show that TPF does not have a significant effect on ROA, especially if the bank is unable to manage financing properly, which can actually increase credit risk and reduce profitability. Based on the description above, the following hypothesis is taken:

H_3: DPK has an effect on ROA in sharia banking in the Asian region.

The influence of DER on ROA in Islamic banking in the Asian region partially reflects the complexity in the use of debt and equity in bank funding structures. DER measures the proportion of debt compared to equity owned by a bank, and can provide an idea of how a bank uses debt to meet its growth and operations. DER can increase ROA, because debt used wisely can expand the bank's investment capacity and generate higher profits from the assets owned. However, excessive use of debt can increase financial risk thereby reducing ROA. In sharia banking, where there are limitations on financial instruments, banks must be able to manage debt in a way that is in accordance with sharia principles, so that they can maximize profits without violating existing regulations. This is in line with research by Anwar & Hidayat (2021), Dewi & Badjra (2017), Syafi'i & Haryono (2021) and Ibrahim & Isiaka (2020) who found that DER has a significant influence on ROA. Meanwhile, research by Handayani & Widyawati (2020), concluded that there is no significant influence between DER and ROA. So the hypothesis taken in this research is:

H_4: DER has an effect on ROA in sharia banking in the Asian region.

The influence of GDP on ROA in Islamic banking in the Asian region partially shows how economic growth can influence bank financial performance. When GDP increases, it is usually accompanied by an increase in economic activity and demand for banking services, which can increase bank ROA from interest and fee-based income. In the context of Islamic banking, which operates based on sharia principles, positive economic growth creates more opportunities for banks to channel financing to productive sectors, which in turn can increase ROA. However, the relationship between GDP and ROA is not always linear. If economic growth slows or the economy experiences a recession, Islamic banks may have difficulty maintaining a high ROA. A decrease in GDP can impact loan quality, credit risk and higher operational costs, which will ultimately result in a decrease in ROA. Research conducted by Nasution et al. (2022), Riyanto & Asakdiyah (2020), and Dhiba & Esya (2019) found that GDP has a significant influence on ROA. Meanwhile, studies from Asysidiq & Sudiyatno (2022), Indriwati & Purwana (2021), and Cahyani (2018) concluded that there is no significant influence between GDP and ROA. From the explanation above, the following hypothesis can be drawn:

H_5: GDP has an effect on ROA in sharia banking in the Asian region.

The influence of inflation on ROA in Islamic banking in the Asian region partially reflects how price changes in general can affect bank financial performance. High inflation can increase bank operational costs, including human resource costs and raw material costs, which have the potential to reduce profitability. On the other hand, in conditions where inflation causes an increase in demand for financial products and services, Islamic banks can experience an increase in income. However, this impact largely depends on how banks manage inflation-related risks. If banks cannot manage exposure to price fluctuations, credit

risk may increase, which could ultimately harm ROA. Research conducted by Asysidiq & Sudiyatno (2022), Raharjo et al. (2020), and Millania et al. (2021) found that inflation has a significant influence on ROA. Meanwhile, studies from Cahyani (2018), Supardi et al. (2018) and Syah (2018) conclude that there is no significant influence between inflation and ROA. From the explanation above, the following hypothesis is taken:

H_6: Inflation has an effect on ROA in sharia banking in the Asian region.

The influence of CAR, BOPO, DPK, DER, GDP and inflation on ROA in Islamic banking in the Asian region is very significant. A high CAR indicates that the bank has sufficient capital reserves to face risks, which has the potential to increase customer confidence and attract more deposits. In addition, efficient BOPO reflects good cost management, which can increase profitability and ultimately have a positive impact on ROA. Increasing DPK also provides banks with more resources to channel financing, while a balanced DER shows that banks are less dependent on debt, maintaining financial stability and improving asset performance. Apart from internal factors, macroeconomic conditions such as GDP and inflation also play an important role. Strong GDP growth is usually accompanied by increased economic activity, which has a positive impact on demand for financing and the potential for higher returns for Islamic banks. On the other hand, high inflation can undermine people's purchasing power and reduce bank profitability. Research conducted by (Subekti & Wardana, 2022), Nainggolan & Abdullah (2019), and Anwar & Hidayat (2021), found that CAR, BOPO, DPK, DER, GDP and inflation have a significant effect on ROA. Meanwhile, studies from Cahyani (2018), and Hanafia & Karim (2020), concluded that CAR, BOPO, DPK, DER, GDP and inflation do not have a significant effect on ROA. From the explanation above, the following hypothesis is taken:

H_7: CAR, BOPO, DPK, DER, GDP and inflation simultaneously influence ROA in Islamic banking in the Asian region.

METHOD

This research uses a quantitative approach with a research design of hypothesis testing to examine the influence between the variables formulated in the hypothesis. The population in this study consists of the 100 largest Islamic banks in the Asian region, measured by total assets according to The Asian Banker Insights 2023. This research employed a purposive sampling technique by setting specific criteria to determine the sample and obtained a sample of 18 Islamic banks. The type of data used in this research is secondary data in the form of financial reports from each bank for the period 2019-2023. Since the study period covers several years, the researcher used the year 2020 as a control year in the panel data regression analysis to account for the potential influence of significant external variables, such as the global economic conditions impacted by the COVID-19 pandemic. Considering the number of companies that were the objects of the study and the time period used, the total observation data in this study reached 1,080 observation data. The minimum sample size suitable for panel data regression analysis is 15 to 20 times the number of independent variables (Mulyati, 2022). If this study includes 6 independent variables, the minimum required sample size would be 90 to 120 observations. With a total of 1,080 observations, the sample size used in this study has exceeded the recommended minimum, making the analysis results more valid and representative. The data analysis technique used is panel data regression analysis using Eviews 13 software.

This research analyzes the influence of the independent variable on the dependent variable. In this research there are six independent variables and one dependent variable. The operational definition of the variables is shown in table 3 below

Table 2. Determining the Sample Using the Purposive Sampling Method

Criteria	Amount
Sharia bank listed in the 100 largest sharia banks as assessed by total assets according to The Asian Banker Insights as of 2023.	100
Sharia banks that do not have complete financial reports published on their official websites can be accessed under the provisions for the 2019-2023 period.	(51)
Islamic banks that have total assets below the average total assets of all Islamic banks in each country for the 2019-2023 period.	(31)
Total Sample	18

Source: Researcher processed data, 2025

Table 3. Operational Definition of Variables

Variable	Variable Definition	Measurement	scale
CAR	The ratio that measures the adequacy of a bank's capital to cover the risk of losses that may arise from banking activities (Ali, 2020).	CAR = (Capital / Risk Weighted Assets) X 100%	Ratio
BOPO	The ratio that measures the operational efficiency of a bank by comparing operating costs to operating income (Sudirman, 2022).	BOPO = (Operating Costs / Operating Income) X 100%	Ratio
DPK	Total deposits obtained by banks from customers consisting of current accounts, savings and deposits (Damayanti, 2024).	Data in the form of total third party funds obtained from the financial reports of Sharia Banks for the period 2018 to 2022.	Ratio
DER	A ratio that measures how much of a company is financed by debt compared to its equity (Putri, 2020).	DER = (Total Debt / Total Assets) X 100%	Ratio
GDP	The total value of production of goods and services produced by a country in a certain period (Silitonga, 2021).	Data in the form of annual GDP growth in percent	Ratio
Inflation	The general percentage increase in the prices of goods and services in an economy over a specific time period (Fitria & Anwar, 2020).	Data is in the form of annual inflation rate in percent.	Ratio
ROA	The ratio that shows the company's ability to generate profits from owned assets (Kusumawardani, 2023).	Profitability = (Net Profit / Total Assets) X 100%	Ratio

Source: Researcher processed data, 2025

This study uses three structured stages of data analysis. The first stage is the model selection test to determine the best estimation model by applying the Chow Test, Hausman Test, and Lagrange Multiplier Test (Priyatno, 2023). The Chow Test is a test aimed at determining the most appropriate model between Common Effect and Fixed Effect in the panel data estimation process. The Hausman Test is used to select the most appropriate model between Fixed Effect and Random Effect models. The Lagrange Multiplier (LM) Test is used to assess whether the Random Effect method yields better results than the Common Effect method. The formula used for this analysis can be formulated as follows:

$$Y = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \beta_3 \cdot X_3 + \beta_4 \cdot X_4 + \beta_5 \cdot X_5 + \beta_6 \cdot X_6 + e$$

The second stage is descriptive statistical testing to describe the characteristics of the data by calculating the maximum, minimum, average, and standard deviation values, which facilitates the interpretation of data distribution and variation. The last stage is the R^2 test and hypothesis testing. The R^2 test is used to assess the model's ability to explain the variation of the dependent variable. Hypothesis testing uses the t-test to measure the partial effect of independent variables on the dependent variable, and the F-test to examine the simultaneous effect of independent variables. This stage ensures that the analysis is carried out systematically and accurately (Sugiyono, 2019).

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Descriptive statistics are representations of study objects by utilizing data from a population or sample, which is defined as a method for collecting and presenting data with the aim of obtaining more detailed and easily understood information (Sulistiyo & Yuliana, 2019). The description can be in the form of average values, standard deviations, variances, maximums, minimums, sums, ranges and skewness (distribution deviations). Descriptive statistics also play a role in determining the strength of the correlation between variables through correlation analysis, generating predictions through regression analysis, and comparing with the average value of sample or population data (Sugiono, 2020). The results of the descriptive statistics of the study are shown in table 3 below:

Table 3 presents the statistical description of the variables ROA, CAR, BOPO, DPK, DER, PDB, and Inflation. Based on the table the average ROA of 1.69% indicates that the profitability of Islamic banks in Asia is at a fairly good level, with quite a large variation between highly profitable banks (maximum 10.21%) and banks with low profitability (minimum 0.08%). The average CAR value of 20.68% indicates good capital adequacy, although there are banks with excess capital (maximum 58.27%) and those approaching the lower limit of capital adequacy (minimum 12.53%). The average BOPO of 60.90% reflects moderate operational efficiency, with some banks being less efficient (maximum 89%). The average DPK of 30.57 reflects the bank's ability to collect public funds, with significant variation between banks. The average DER of 4.41 indicates a tendency to use equity, although there are banks that are very dependent on debt (maximum 75.03). The average economic growth of 2.23% indicates positive growth, with marked differences between countries. The average inflation of 4.76% reflects moderate inflation stability, although there were cases of hyperinflation (maximum 49.70%). Overall, these indicators provide an overview of the performance and characteristics of Islamic banks in Asia.

Table 4. Statistical Description

Statistic	ROA	CAR	BOPO	DPK	DER	PDB	INF
Mean	1.69	20.67	60.90	30.56	4.41	2.23	4.75
Median	1.34	17.98	60.00	29.00	1.32	3.10	3.20
Maximum	10.21	58.27	89.00	51.00	75.03	8.70	49.70
Minimum	0.08	12.53	35.00	10.00	0.01	-7.80	-3.40
Std. Dev.	1.71	9.49	16.43	11.93	13.56	3.94	7.48
Observations	1.080	1.080	1.080	1.080	1.080	1.080	1.080

Source: Researcher processed data, 2025

Table 5. Model Selection Test

Effects Test	Prob	Selected Model
Chow Test	1.0000	FEM
Hausman Test	1.0000	REM
Lagrange Multiplier (LM) Test	0.0025	REM

Source: Researcher processed data, 2025

Used in research, can be done using the Chow test, Hausman test, and Lagrange Multiplier (LM) test (Priyatno, 2023). The Chow test is to determine the most suitable model between the two Common Effect and Fixed Effect methods to be used in conducting panel data regression. If the Chow test results indicate the CEM method, then the Hausman test does not need to be done again. Conversely, if the Chow test results indicate the FEM method, then the Hausman test must be done again (Priyatno, 2023). Meanwhile, the Hausman Test is a statistical test used to determine whether the FEM model or the REM model is better (Priyatno, 2023). Finally, the Lagrange Multiplier (LM) Test is used to determine whether REM has better results than CEM (Priyatno, 2023). The results of the best model selection test are presented in the following table:

Based on table 4, the results of the Chow test show that the Cross-section Chi-Square probability value is 1.00 > 0.05, which means that H0 is accepted and Ha is rejected. The selected model is CEM. While the results of the Hausman test show that the Cross-section random probability value is 1.00 > 0.05, which means that H0 is accepted and Ha is rejected, with the selected REM model. Finally, the results of the Lagrange Multiplier (LM) test show that the Breusch-Pagan value is 0.025 < 0.05, which means that H0 is rejected and Ha is accepted, with the selected REM model. Based on the Chow test, Hausman test and Lagrange Multiplier (LM) test, the selected model is REM. The following is the regression equation in this study:

ROA = 2,138 + 0,048*CAR - 0,057*BOPO + 0,055*DPK + 0,109*DER - 0,008*PDB + 0,113*INF

From the equation above, it shows that the constant of 2.138 indicates that without the influence of the CAR, BOPO, DPK, DER, PDB, and INF variables, the ROA variable will increase by 213.8%. The CAR coefficient of 0.048 means that every 1% increase in CAR will increase ROA by 4.8%. BOPO has a coefficient of -0.057, which means that every 1% increase in BOPO will decrease ROA by 5.7%. DPK with a coefficient of -0.055 shows that every 1% increase in DPK will decrease ROA by 5.5%. The DER coefficient of 0.109 shows that a 1% increase in DER will increase ROA by 1%. PDB has a coefficient of -0.008, which means that a 1% increase in GDP will decrease ROA by 0.8%. Finally, the INF coefficient of 0.113 shows that a 1% increase in INF will increase ROA by 11.3%.

In regression testing, the coefficient of determination is used to measure how much influence the independent variable has on the dependent variable. A high coefficient of determination indicates that the influence of the dependent variable on the independent variable is more real than the anticipated value of the sample (Sugiyono, 2019). The results of the determination coefficient (R-squared) test measure the extent to which the independent variables can explain the variation in the dependent variable. Based on the data processing results, the R-squared value is 0.999964 or 99.9%. This means that this study is able to explain 99.9% of the influence of CAR, BOPO, DPK, DER, GDP, and Inflation on ROA. Meanwhile, the remaining 0.1% is influenced by other variables outside CAR, BOPO, DPK, DER, GDP, and Inflation that are not included in the model and not analyzed.

A hypothesis is a statement or assumption about a population parameter that may be true or false. The coefficient of determination, t-statistic value, and F-statistic value can be used to test the hypothesis. The statistical test value is in the critical area (the H0 area is rejected) and is not statistically significant (Sugiyono, 2019).

In regression analysis, the t-test is used to determine whether there is a relationship between the independent variable and the dependent variable (Sugiyono, 2019). The t-test is called a partial test. The following are the results of the t-test in panel data linear regression:

The results in Table 5 indicate that the t-value of the CAR variable is 3.241397, which is greater than the t-table value of 1.98729, and the significance value is 0.0012, which is smaller than the predetermined significance level (0.05). Thus, the alternative hypothesis (Ha) is accepted, and the null hypothesis (H0) is rejected. This means that CAR has a significant influence on ROA in Islamic Commercial Banks in Asia. The CAR regression coefficient shows that an increase in CAR significantly contributes to improving the financial performance of Islamic banking in Asia, as reflected in the rise of ROA. In the context of banking efficiency theory, CAR reflects a bank's ability to absorb losses and manage risks, ultimately supporting the bank's financial stability. This study aligns with this theory, which posits that sound capital management is a critical element in maintaining the financial performance of Islamic banks. These findings are consistent with the studies of Kurniasari & Zunaidi (2022), Abdillah (2024) and Pravasanti (2018) which emphasize the importance of CAR management in sustaining operational efficiency and competitiveness of Islamic banks in Asia amidst increasingly intense industry competition.

The results of the t test on the BOPO variable show that the calculated t value of 152.6712 is greater than the t table value of 1.98729, with a significance value of 0.0000, which is much smaller than the specified significance level (0.05). Thus, the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected. This means that BOPO has a significant influence on ROA in sharia banking in Asia. These findings support the operational efficiency theory which states that banks with a higher level of operational efficiency have a better ability to generate returns on their assets. A lower BOPO reflects more effective cost management, which can increase net profit and strengthen profitability as reflected in ROA. However, this research also provides new insights by highlighting the influence of BOPO in the Asian region. Where cost efficiency is often a major challenge for Islamic banking which operates under strict regulations and increasing competition. This is in line with research by Nanda et al. (2019), Yuliana & Listari (2021), Astuti (2022), and Alfianda & Widianto (2020) who emphasize the importance of operational efficiency in improving the financial performance of Islamic banks.

Table 6. Partial Test Results

Variable	t-Statistic	Prob.
CAR (X_1)	3,241397	0,0012
BOPO (X_2)	-152,6712	0,0000
DPK (X_3)	9,524782	0,0000
DER (X_4)	34,97689	0,0000
PDB (X5)	-0,306217	0,7595
Inflasi (X6)	5,498940	0,0000

Source: Researcher processed data, 2025

The results of statistical test on the DPK variable show that the calculated t value of 9.524782 is greater than the t table value of 1.98729, and the significance value of 0.0000 is smaller than the specified significance level (0.05). Thus, the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected. This means that DPK has a significant influence on ROA in Islamic banks in Asia. The DPK regression coefficient shows that increasing DPK significantly contributes to improving bank financial performance, which is reflected in the increase in ROA of sharia banking in Asia. In accordance with fund management theory, DPK collection reflects the level of public trust in banks and is the main indicator of the bank's ability to channel financing optimally (Hodi & Wardana, 2023). These results are in line with research by Nainggolan & Abdullah (2019), Parenrengi & Hendratni (2018), and Tofan, et al (2022) However, this research makes a further contribution by showing that the impact of DPK on ROA is more significant in the context of the Islamic banking market in Asia, which is characterized by high public preference for a sharia-based financial system.

The results of statistical test on the DER variable show that the t-statistic value of 34.97689 is greater than the t-table value of 1.98729, and the significance value of 0.0000 is smaller than the predetermined significance level (0.05). Therefore, the alternative hypothesis (Ha) is accepted, and the null hypothesis (H0) is rejected. This means that DER has a significant influence on ROA in Islamic banks in Asia. The regression coefficient of DER indicates that changes in the debt-to-equity ratio significantly impact the financial performance of banks, as reflected in changes in the ROA of Islamic banks in Asia. Based on capital structure theory, optimal management of the debt-to-equity ratio enables banks to utilize debt-based funding productively without compromising long-term financial stability. In this context, this study reinforces the understanding that proper DER management not only enhances profitability but also supports the sustainability of Islamic banks' operations in Asia's competitive market. These findings are consistent with the research by (Anwar & Hidayat, 2021), which states that good capital structure management can improve the profitability of Islamic banks through asset optimization. Additionally, studies by (Dewi & Badjra, 2017), (Syafi'i & Haryono, 2021) dan (Ibrahim & Isiaka, 2020) also found that DER has a significant impact on ROA in Islamic banking. However, this study contributes by clarifying the importance of debt management strategies aligned with Sharia principles in addressing global financial challenges.

The results of the statistical test on the GDP variable (X5) in this study indicate that the calculated t value of -0.306217 is smaller than the t table value of 1.98729, and the significance value of 0.7595 is greater than the set significance level (0.05). Thus, the alternative hypothesis (Ha) is rejected, and the null hypothesis (H0) is accepted. This means that the GDP variable does not have a significant effect on ROA in Islamic banks in Asia. This finding indicates that a country's economic growth as reflected in GDP does not directly affect the ability of Islamic banks in Asia to generate returns on their assets. This may be due

to the characteristics of sharia-based financing which are more stable than conventional banks, as well as a business orientation that prioritizes justice and sustainability in the economy, so that the performance of Islamic banks tends not to be too influenced by economic fluctuations as reflected in GDP. This can be caused by several factors, such as the focus of Islamic banks on sharia-based financing which tends to be more stable even though economic conditions fluctuate. Previous studies support this finding, as stated by Asysidiq & Sudiyatno (2022), Indriwati & Purwana (2021), and Cahyani (2018) who stated that the relationship between GDP and ROA in Islamic banks is often insignificant because the structure and business orientation of Islamic banks are different from conventional banks. Thus, this finding provides new insights that although GDP is an important indicator in the economy, its influence on the financial performance of Islamic banks in Asia is more influenced by the stability of Islamic financing and effective internal management, rather than direct macroeconomic conditions.

The results of the statistical test on the inflation variable show that the t-statistic value of 5.498940 is greater than the t-table value of 1.98729, and the significance value of 0.0000 is smaller than the predetermined significance level (0.05). Therefore, the alternative hypothesis (Ha) is accepted, and the null hypothesis (H0) is rejected. This means that inflation has a significant influence on ROA in Islamic banks in Asia. The inflation regression coefficient indicates that changes in the inflation rate significantly affect the financial performance of banks, as reflected in fluctuations in the ROA of Islamic banks in Asia. In the context of macroeconomic theory, stable inflation provides opportunities for banks to increase income through Sharia-based financing, while high inflation can raise operational costs and reduce customers' ability to repay financing. This study reinforces the view that Islamic banks need to wisely manage inflation risks to maintain profitability. These findings are consistent with the research of Asysidiq & Sudiyatno (2022) which shows that stable inflation can promote economic growth, ultimately improving the ROA of Islamic banks. Additionally, research by Raharjo et al. (2020) and Millania et al. (2021) also found that inflation significantly affects ROA in Islamic banking. However, this study provides additional insights by emphasizing the importance of adapting Sharia financing policies amid regional inflation dynamics in Asia.

The F statistical test is a simultaneous testing method for all independent variables, namely CAR, BOPO, DPK, DER, PDB, and Inflation have a simultaneous and significant effect on the dependent variable, namely ROA (Sugiyono, 2019). The F test results show that the calculated F value of 5,008,103 is greater than the F table value of 2.20991, and the significance value of 0.000000 is smaller than the predetermined significance level (0.05). Thus, the null hypothesis (H0) is rejected, and the alternative hypothesis (Ha) is accepted. This means that the variables CAR, BOPO, DPK, DER, GDP, and Inflation simultaneously have a significant effect on the ROA of Islamic banks in Asia. This finding underlines the importance of holistic management of internal factors such as BOPO, CAR and DER, as well as DPK, combined with an understanding of macroeconomic conditions such as GDP and inflation. Good operational efficiency, for example, can improve a bank's ability to optimize income from its assets, while strong DPK collection provides sufficient liquidity for financing. On the other hand, economic stability reflected in positive GDP and controlled inflation rates also provides growth opportunities for Islamic banking. These results are in line with research by Nainggolan & Abdullah (2019), Anwar & Hidayat (2021), and Hidayat et al. (2020) which found that a combination of internal and external factors has a significant effect on the financial performance of Islamic banks. In addition, it also confirms that variables such as CAR, BOPO and DER have a dominant influence in determining ROA, while DPK, GDP, and Inflation provide additional impacts through

macroeconomic dynamics. Thus, Islamic banks in Asia need to ensure optimal management of these variables to increase competitiveness, especially amidst the challenges of competition with conventional banks.

CONCLUSION

Based on the description above, it can be concluded that partially the variables CAR, BOPO, DPK, DER, and inflation have a significant effect on ROA of Islamic banking in Asia. An increase in CAR, efficiency (decrease in BOPO), DPK, and inflation are each accompanied by an increase in ROA, while changes in DER also have a significant effect on ROA. Conversely, GDP does not have a significant effect partially on ROA. However, simultaneously, the variables CAR, BOPO, DPK, DER, inflation, and GDP together have a significant effect on ROA, although GDP individually does not show a significant effect. This study has limitations, such as its scope is limited to Islamic banking in Asia and does not cover external factors such as interest rates and fiscal policy. For further research, it is recommended to expand the variables analyzed by including other macroeconomic factors such as interest rates, fiscal policy, exchange rates, and political stability. In addition, a comparative analysis between Islamic banks and conventional banks in various regions will also improve understanding of how external economic conditions affect financial performance. Furthermore, expanding the sample and research period can improve the representation and validity of the findings in a broader context.

The implications of this study highlight the importance of optimal management of fundamental factors to improve the financial performance of Islamic banks, as well as the need to pay attention to inflation fluctuations as a significant macroeconomic indicator. Based on these results, Islamic banks are advised to improve operational efficiency (reduce BOPO), maintain capital adequacy levels (CAR), and manage DPK and DER wisely to support ROA growth. In addition, designing adaptive strategies to inflation fluctuations is essential to reduce its impact on profitability. Although GDP is not partially significant, monitoring overall macroeconomic conditions remains important to anticipate indirect impacts on financial performance.

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