



The Role of Bank Size Mediation Between Capital and Efficiency on Islamic Bank Profitability in GCC Region

ABSTRACT

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Islamic bank operating in GCC region controlled approximately 52.5% of total global Islamic financial asset at the end of 2023. However, this large share of asset has not been accompanied by optimal profitability. The purpose in this study to examine the influence of CAR and CIR on ROA of Islamic bank in GCC region during the period 2020–2024 with placing the role of bank size as a mediating variable. The method applied is quantitative method through causal associative approach. This study utilizes secondary data obtained from annual financial report of 24 Islamic banks in GCC region, which were determined based on purposive sampling techniques. Data processing and analysis were conducted using panel data regression to test the relationships among variables, taking into account the effect of each entity as well as time-series factors using Fixed Effect Model in EViews 12 software, along with sobel test to examine the mediating role of bank size. The result of the first structural analysis CAR was found to have a significant influence on bank size, while CIR showed no. Furthermore, in the second structural analysis CIR and bank size significantly affect ROA, while CAR showed no. The sobel test result show that bank size is unable to mediate the influence of CAR and CIR on ROA. These finding indicate that operational efficiency and bank scale factors in Islamic bank in GCC region play a greater role in determining ROA than capital adequacy level. This study provides insights and serves as a basis for assessing the influence of CAR, CIR, and bank size on ROA of Islamic bank operating in GCC region.

Keywords: Bank Size; Capital; Efficiency; Islamic Bank; Profitability

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INTRODUCTION

Islamic bank in Gulf Cooperation Council (GCC) region contribute strategically to growth of global Islamic finance, particularly through their contribution to expansion of Islamic financial market and strengthening of sharia-based economic stability at the international level (Prasojo et al., 2024). Based on a report by Islamic Financial Services Board (2024), total asset of Islamic bank in GCC region by the end of 2023 reached around 52.5% of the global total Islamic financial asset. However, these large asset have

not been fully matched by an optimal contribution to profitability of Islamic bank in the region (Al-Hunnayan, 2020).

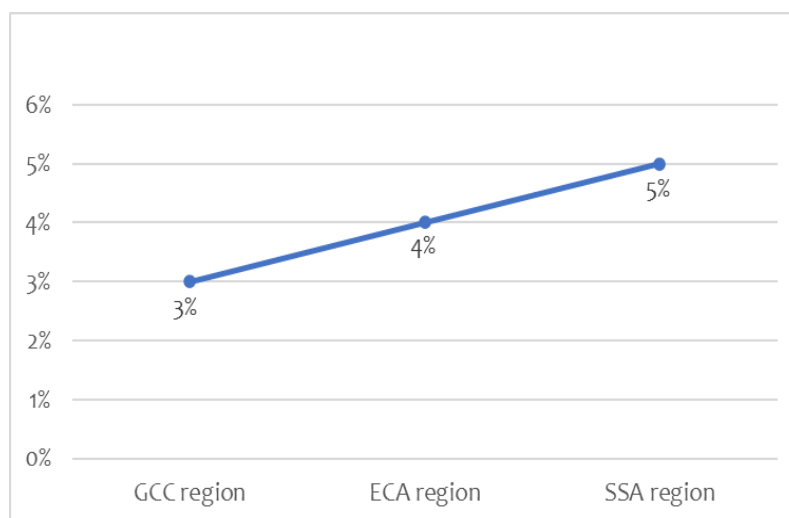


Figure 1. Average ROA of Islamic Bank in 2023 Across Three Regions

Source: Data Processed by Author (2026)

According to information presented in figure 1, the average ROA of Islamic bank operating in GCC region in 2023 stood at 3%, this value remains below that of the Europe and Central Asia (ECA) region which reached 4% and the Sub-Saharan Africa (SSA) region which reached 5% (Islamic Financial Services Board, 2024). This condition has prompted author to analyzing the factors that influence ROA of Islamic bank in GCC region.

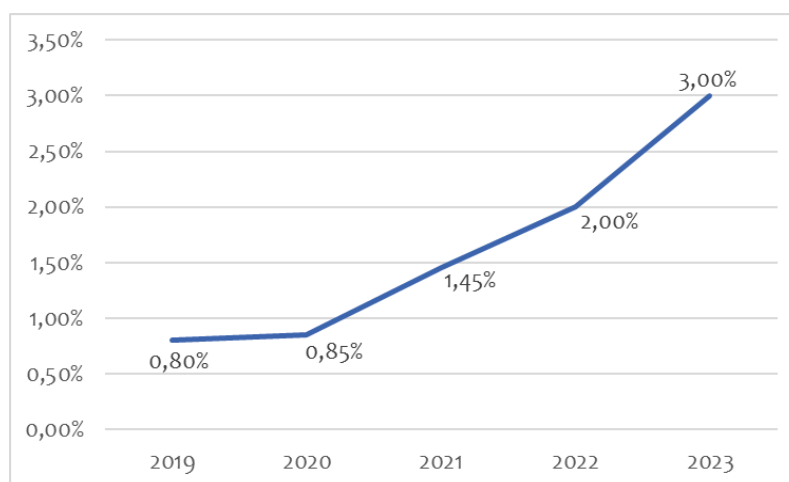


Figure 2. Average ROA of GCC Islamic Bank in 2019-2023

Source: Data Processed by Author (2026)

According to information presented in figure 2, the average ROA of Islamic bank in GCC region shows a sustained upward trend, from 0.8% in 2019 to 0.85% in 2020, then increasing to 1.45% in 2021, rising again to 2% in 2022, and reaching 3% in 2023 (Islamic Financial Services Board, 2024). Despite this consistent increase, ROA of Islamic bank in

GCC region shows a relatively lower value compared to ECA and SSA regions. ROA is not only influenced by external factors such as market dynamics, but is also largely determined by internal factors within the bank that reflect the effectiveness of financial management (Chudy-Laskowska & Rokita, 2024). Previous study presented by Jatmiko (2025), Arsana et al. (2024), and Jaara et al. (2021) stating that increase ROA is influenced by various internal factors of bank, including capital adequacy, operational efficiency, and bank size. Based on that, this research was conducted to analyze whether there is an influence of internal bank factor, particularly capital adequacy, operational efficiency, and bank size on ROA of Islamic bank in GCC region.

Capital adequacy can be measured using various indicators, one of which is the Capital Adequacy Ratio (CAR) (Budianto & Dewi, 2023). The stable and relatively high CAR indicates that bank is able to provide sufficient capital to drive asset growth, expand operational activities, and develop its business scale, which ultimately has an effect on the size of the bank (M. D. Putri et al., 2025). This is supported by studies Irawati and Maksum (2018) stating that CAR has an effect on bank size. Bank size is one of the factors that effect ROA level (Putra & Pangestuti, 2019). Research by Damayanti and Mawardi (2022) stating that there is an influence of bank size on ROA. In this research, bank size is positioned as a mediating variable because of its strong relationship with financial performance, particularly ROA. Previous research conducted by Alnajjar and Othman (2021) as well as Imamah and Munif (2018) stating that CAR affects ROA. However, different result were shown by Sitompul and Nasution (2019) stating that there is no influence of CAR on ROA. These differing findings prompted author to re-examine influence of CAR on ROA of Islamic bank in GCC region involving bank size as a mediating variable. In addition to capital adequacy, the operational efficiency ratio is also one of indicators that influence ROA (Chudy-Laskowska & Rokita, 2024).

Operational efficiency can be assessed using the Cost-to-Income Ratio (CIR), which show the extent to which bank is able to manage its operating cost to income earns (Folorunso & Ibrahim, 2023). A low CIR value reflect that bank is able to manage cost in its operational activities efficiently (Khasanah, 2025). CIR can affect bank size, as efficient bank have greater opportunities to expand their assets and increase their business scale (Rachman et al., 2023). This is supported by studies Sapci and Miles (2019) stating that CIR affects bank size. Large bank size has the potential to increase ROA, given that large banks have higher efficiency (Aprilia et al., 2024). In this research, bank size is positioned as a mediating variable because it is related to the effect of business scale on profit (Fathinna & Pengestuti, 2016). Previous research conducted by Bagaskara and Rohmadi (2024) stating that there is an influence of CIR on ROA. However, the result of studies by Kumalasari and Hersugondo (2020) stating that there is no effect of CIR on ROA. These differing findings prompted author to re-examine effect of CIR on ROA of Islamic bank in GCC region through bank size.

According to several previous research findings that still show differences in their result, author was motivated to re-examine effect of CAR and CIR on ROA of Islamic bank in

GCC region with bank size as a mediating variable. The novelty in this study lies in the selection of Islamic bank operating in GCC region as the research object due to their strategic role in development of global Islamic finance, particularly through their contribution to growth of Islamic financial market and strengthening of stability Islamic economic system at the international level (Prasojo et al., 2024). The purpose in this study is to analyze the influence of CAR and CIR on ROA, influence of CAR and CIR on bank size, and influence of bank size on ROA. In addition, it also analyze the role of bank size as a mediating variable in the influence of CAR and CIR on ROA of Islamic bank in GCC region.

LITERATURE REVIEW

Signalling Theory

The grand theory in this research is signaling theory. This theory explains how companies convey financial information to interested parties as a form of signaling their condition and performance (Spence, 1973). A stable and relatively high CAR reflects the bank's stability and resilience in the face of potential losses (Putri et al., 2023). An increase in CAR is generally perceived as a positive indicator of bank performance (Imamah & Munif, 2018). A low CIR indicates that bank is able to manage cost in carrying out its operational activities efficiently (Khasanah, 2025). This ratio indicates the extent to which expenses can be covered by revenue (Sirait et al., 2025). Bank size reflects the scale of the bank's operations, large-scale bank tend to have greater ability to diversify their product (Putra & Pangestuti, 2019). And a high ROA level provides a positive signal regarding the bank's effectiveness in managing its asset (Afifah & Wardana, 2022). Using this ratio, stakeholders can assess the extent to which the bank has succeeded in generating net income from the utilization of its asset (Rohmandika et al., 2023). Overall, these indicators signal to stakeholders that the bank has good financial management capabilities.

Hypothesis Development

Relationship Between CAR and Profitability

CAR is a ratio that indicates a bank's capacity to provide adequate capital to anticipate potential losses due to various risk (Astuti, 2022). On the other hand, profitability is one of the indicators used to assess a company's performance that affects the course of its operational activities (Abidin et al., 2024). In this research, profitability is assessed using ROA because it is considered more objective in reflecting the adequacy of capital and operational efficiency of bank (Stavropoulos & Zounta, 2025). A stable and relatively high CAR indicates a healthy financial condition of the bank (Damayanti & Mawardi, 2022). CAR has an influence on ROA because it show the strength of a bank's capital in supporting risky expansion activities that have the potential to increase profit (Widyaningsih & Sampurno, 2022). That matter according with result of study conducted

by Fathihani et al. (2025), Subekti and Wardana (2022), as well as Alnajjar and Othman (2021) stating that CAR affects ROA.

H1: CAR has a significant influence on ROA.

Relationship Between CIR and Profitability

CIR reflects the operational efficiency of bank, which is assessed by comparing operational cost to income generated. This ratio illustrates a bank's ability to cover its operating cost through the revenue it earns (Sirait et al., 2025). A low CIR value reflects that bank is able to run its business activities efficiently (Khasanah, 2025). CIR management has been proven to have an influence on ROA (Sirait et al., 2025), in according with result of study conducted by Folorunso and Ibrahim (2023) and Mamun et al. (2022) stating that CIR affects ROA.

H2: CIR has a significant influence on ROA.

Relationship Between CAR and Bank Size

The CAR level may differ between small and large bank (Kusuma & Dharma, 2025). Bank size describes the scale of bank based on its total asset (Putra & Pangestuti, 2019). The stable and relatively high CAR indicates sufficient bank capital, enabling bank to expand their business scale, which ultimately leads to increase in bank size (M. D. Putri et al., 2025). That matter according with result of study conducted by Irawati and Maksum (2018) stating that CAR affects bank size.

H3: CAR has a significant influence on bank size.

Relationship Between CIR and Bank Size

A low CIR value reflects the bank's effectiveness in managing operating cost to income earned (Khasanah, 2025). This level of efficiency enables banks to increase their assets and expand their business scale, so that CIR has the potential to influence the size of a bank (Rachman et al., 2023). That matter according with result of study conducted by Sapci and Miles (2019) stating that CIR affects bank size.

H4: CIR has a significant influence on bank size.

Relationship Between Bank Size and Profitability

Large-scale bank generally have greater capacity to diversify their products compared to small-scale bank. This high level of diversification ultimately has an impact on ROA (Putra & Pangestuti, 2019). That matter according with result of study conducted by Damayanti and Mawardi (2022) stating that bank size affects ROA.

H5: Bank size has a significant influence on ROA.

Relationship Between CAR and Profitability with Bank Size as a Mediating Variable

The stable and relatively high CAR value reflects that bank has sufficient capital to drive asset growth, which in turn contributes to increase in size of bank (Putri et al., 2025). Large bank have a higher potential to generate profits, thereby increasing the opportunity to improve ROA (Damayanti & Mawardi, 2022). Based on this, bank size in this study is positioned as a mediating variable that explains indirect effect of CAR on ROA.

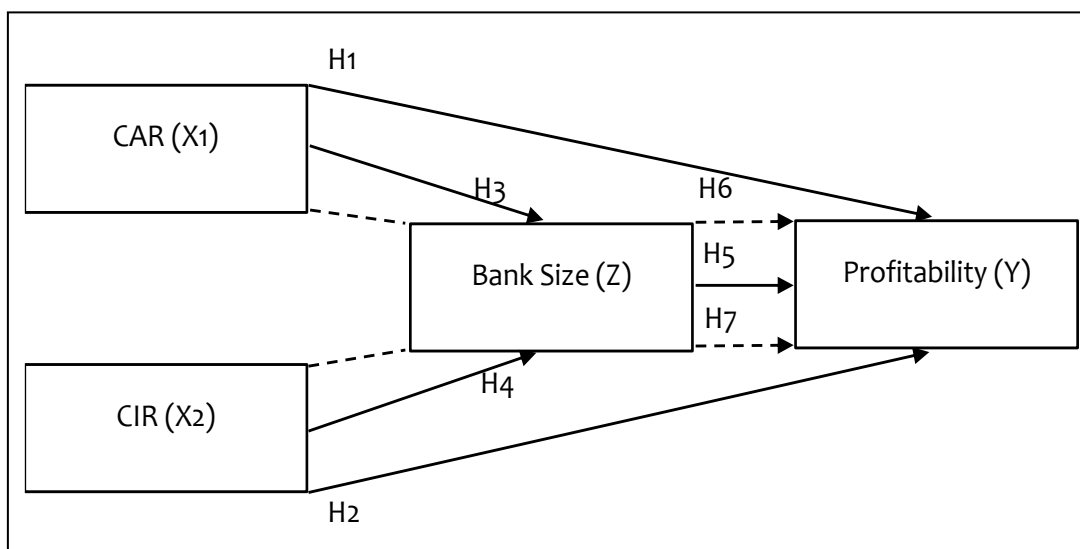
H6: Bank size can mediate effect of CAR on ROA.

Relationship Between CIR and Profitability with Bank Size as a Mediating Variable

CIR has the potential to influence bank size, as high efficiency levels provide opportunities for bank to increase their assets and expand their operational scale (Rachman et al., 2023). Large-scale bank generally demonstrate better efficiency levels, thus having the opportunity to increase ROA (Aprilia et al., 2024). Based on this, bank size in this study is positioned as a mediating variable that explains indirect effect of CIR on ROA.

H7: Bank size can mediate effect of CIR on ROA.

Hypothesis of the research



Description:

- > : Direct (partial) effect
- - - - -> : Indirect (mediated) effect

Figure 3. Conceptual Framework
Source: Data Processed by Author (2026)

METHODOLOGY

This research uses a quantitative method with causal associative approach. The research sample consisted of 24 Islamic banks selected using purposive sampling from a total of 41 Islamic banks operating in GCC region during the 2020–2024 period, excluding the 17 Islamic banks that did not publish their financial statements during the research period from 2020-2024. This process produced 120 observation sourced from the annual financial report of each Islamic bank. The period from 2020-2024 was selected as the research period because the ROA of Islamic bank in GCC region showed a steady, gradual upward trend during that time. This research uses panel data regression through EViews software version 12 to analyze relationship between variables, taking into account the differences in the characteristics of each entity and variations between time periods. Panel data regression is a statistical analysis that combines time-series and cross-sectional data, in which information is obtained from many observation units and recorded repeatedly over a specific time period. In this research, panel data regression model is formulated in the following equation:

First model : Relationship between independent variable on mediating variable.

$$Z_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \mu_i + e_{it}$$

Description:

Z = Mediating variable (bank size)

β_0 = Constant

β_1, β_2 = Regression coefficient

X_1 = Independent variable (CAR)

X_2 = Independent variable (CIR)

i = Entity unit (Islamic bank)

t = Time period (years)

e = Error

The first model was used to test the third and fourth hypotheses.

Second model : Relationship between independent variable and mediation on dependent variable.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 Z + \mu_i + e_{it}$$

Description:

Y = Dependent variable (ROA)

β_0 = Constant

$\beta_1, \beta_2, \beta_3$ = Regression coefficient

X_1 = Independent variable (CAR)

X_2 = Independent variable (CIR)

Z = Mediating variable (bank size)

i = Entity unit (Islamic bank)

t = Time period (years)

e = Error

The second model was used to test the first, second, and fifth hypotheses.

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Next, testing for indirect effects, known as mediation testing, aims to determine role of mediating variable as described in Baron and Kenny (1986) theory.

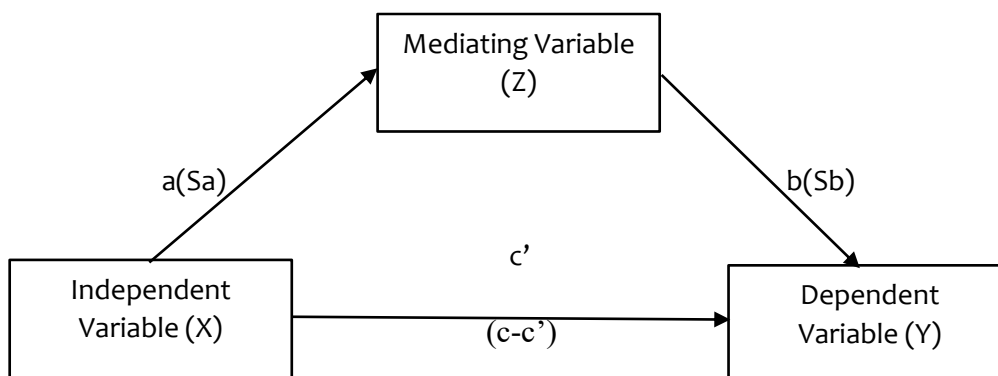


Figure 4. Sobel Test Concept

Source: Data Processed by Author (2026)

The sobel test calculation is performed using the following formula:

$$t = \frac{a \times b}{\sqrt{(b^2 \times SEa^2) + (a^2 \times SEb^2)}}$$

Description:

- a = Independent variable coefficient value
- b = Mediation variable coefficient value
- SEa = Standard error of the independent variable
- SEb = Standard error of the mediating variable

The calculated t-value is then compared with the table t-value. If the calculated t-value was ≥ 2.07 , it can be concluded that mediation occurs. The sobel test was used to test the sixth and seventh hypotheses.

Table 1. Operational Definition of Variable

Variable	Description	Computation Method
CAR (X1)	The ratio that indicates the adequacy of bank's capital in facing potential losses caused by risk	CAR = Bank Capital : Risk-Weighted Assets x 100%
CIR (X2)	The ratio that indicates a bank's efficiency in conducting its operation by comparing operating cost to income generated	CIR = Total Operating Expenses : Total Operating Income x 100%
Bank Size (Z)	The scale of bank as reflected in its total asset	Bank Size = Ln (Total Assets)
ROA (Y)	The ratio that indicates the level of bank profits obtained through the utilization of total asset	ROA = Profit After Tax : Total Assets x 100%

Source: Data Processed by Author (2026)

RESULTS

Table 2. Result of Descriptive Statistical Analysis

Variable	N	Mean	Max	Min	Std. Dev
CAR (X ₁)	120	18.64217	28.54000	12.65000	2.954800
CIR (X ₂)	120	42.05883	93.40000	17.00000	15.75238
Bank Size (Z)	120	23.70742	26.30000	21.53000	1.133374
ROA (Y)	120	1.561250	7.000000	-6.700000	1.639622

Source: Eviews 12 Data Processed by Author (2026)

Selection of Panel Data Regression Model

Through Chow and Hausman testing on both model structures, it was concluded that FEM is more suitable for application. FEM was selected as the basis for further analysis and testing.

Structural I

Structural I explains the effect of independent variable on mediating variable. In this study, CAR and CIR are used as independent variables, temporarily bank size as mediating variable.

Table 3. Chow Test Result I (CEM vs FEM)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	100.682790	(23,94)	0.0000
Cross-section Chi-square	389.275738	23	0.0000

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 3, the Cross-section F probability value in the Chow test is $0.0000 < 0.05$. This result confirms that FEM is the most appropriate model. This is followed by the Hausman test.

Table 4. Hausman Test Result I (FEM vs REM)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.673029	2	0.0004

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 4, the Cross-section random probability value in the Hausman test is $0.0004 < 0.05$. This result indicate that best model in this structural testing I is FEM.

Structural II

After selecting in structural I, proceed to structural II. Structural II explains the effect of independent variable and mediation on dependent variable. In this study, CAR and CIR are used as independent variables, bank size as mediating variable, and ROA as dependent variable.

Table 5. Chow Test Result II (CEM vs FEM)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.632144	(23,93)	0.0000
Cross-section Chi-square	170.021114	23	0.0000

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 5, the Cross-section F probability value in the Chow test is $0.0000 < 0.05$. This result confirms that FEM is the most appropriate model. This is followed by the Hausman test.

Table 6. Hausman Test Result II (FEM vs REM)

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.786506	3	0.0323

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 6, the Cross-section random probability value in the Hausman test is $0.0323 < 0.05$. This result indicate that best model in this structural testing II is FEM.

Classical Assumption Test

After selecting the model, classical assumption test were performed on two structures. In this study, the normality test result indicate that data meets the assumptions of normal distribution, the multicollinearity test showed that data were free of multicollinearity, and the heteroscedasticity test showed that there were no signs of heteroscedasticity in any variable. Considering that data used is panel data, the autocorrelation test was not used on cross section data. These result confirm that FEM is valid for regression analysis.

Structural I

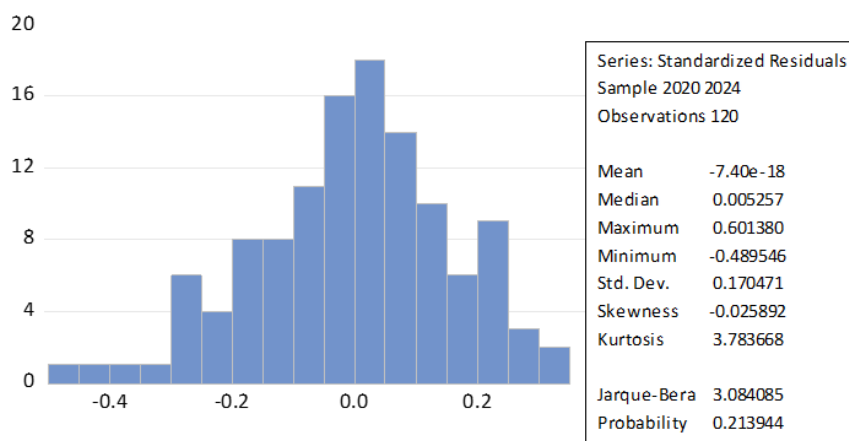


Figure 5. Normality Test Result I

Source: Eviews 12 Data Processed by Author (2026)

Based on Figure 5, the Jarque-Bera probability value in the normality test is $0.213944 > 0.05$. This result indicate that data meets the assumptions of normal distribution.

Table 7. Multicollinearity Test Result I

Variable	CAR(X1)	CIR(X2)
CAR (X1)	1.000000	-0.219822
CIR (X2)	-0.219822	1.000000

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 7, explains the relationship between independent variable, where the correlation coefficient between CAR and CIR is $-0.219822 < 0.90$. Therefore, it can be concluded that data were free of multicollinearity.

Table 8. Heteroscedasticity Test Result I

Variable	Prob.
CAR (X1)	0.8502
CIR (X2)	0.6670

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 8, the CAR probability value of 0.8502 and CIR of 0.6670 > 0.05 indicate that there are no signs of heteroscedasticity in each variable.

Structural II

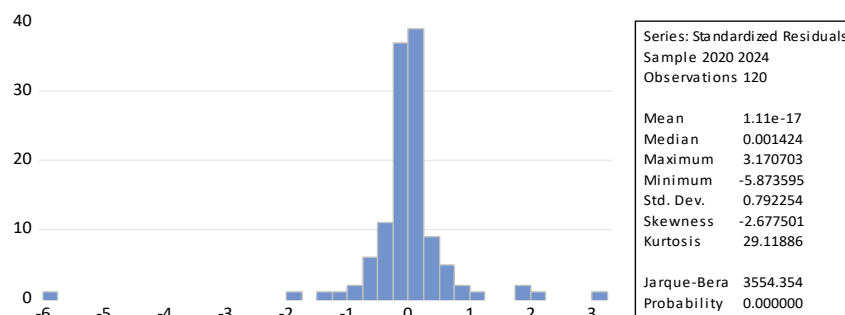


Figure 6. Normality Test Result II

Source: Eviews 12 Data Processed by Author (2026)

Based on Figure 6, the Jarque-Bera probability value in the normality test is $0.000000 < 0.05$. However, this data can still be concluded to be normally distributed because $N > 30$ based on the Central Limit Theorem (Pranadipta & Natsir, 2023).

Table 9. Multicollinearity Test Result II

Variable	CAR(X1)	CIR(X2)	Bank Size (Z)
CAR(X1)	1.000000	-0.219822	0.165571
CIR(X2)	-0.219822	1.000000	-0.647677
Bank Size (Z)	0.165571	-0.647677	1.000000

Source: Eviews 12 Data Processed by Author (2026)

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Based on Table 9, explains the relationship between independent variable and mediation, where the correlation coefficient between CAR and CIR is $-0.219822 < 0.90$, between CAR and bank size is 0.165571 , and between CIR and bank size is $-0.647677 < 0.90$. Therefore, it can be concluded that data were free of multicollinearity.

Table 10. Heteroscedasticity Test Result II

Variable	Prob.
CAR (X1)	0.6310
CIR (X2)	0.3664
Bank Size (Z)	0.2947

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 10, the probability values of CAR at 0.6310, CIR at 0.3664, and bank size at 0.2947 > 0.05 indicate that there are no signs of heteroscedasticity in each variable.

Panel Data Regression Analysis

Table 11. Panel Data Regression Analysis Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28.02617	9.641139	2.906935	0.0046
CAR (X1)	1.642861	1.010403	1.625945	0.1073
CIR (X2)	-32.88977	9.542594	-3.446628	0.0009
Bank Size (Z)	2.844712	0.676244	4.206634	0.0001

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 11, the equation used in panel data regression model can be written as follows: **ROA = 28.02617 + 1.642861*CAR - 32.88977*CIR + 2.844712*Bank Size**

Hypothesis Testing

Structural I

Table 12. T-test Result I

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAR (X1)	0.496737	0.221239	2.245254	0.0271
CIR (X2)	-2.193221	2.032197	-1.079236	0.2832

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 12, the CAR probability value in the t-test is $0.0271 < 0.05$ indicating that CAR has a significant effect on bank size, so H3 is accepted. Meanwhile, CIR $0.2832 > 0.05$ indicating that CIR has no effect on bank size, so H4 is rejected.

Structural II**Table 13.** T-test Result II

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAR (X1)	1.642861	1.010403	1.625945	0.1073
CIR (X2)	-32.88977	9.542594	-3.446628	0.0009
Bank Size (Z)	2.844712	0.676244	4.206634	0.0001

Source: Eviews 12 Data Processed by Author (2026)

Based on Table 13, the CAR probability value in the t-test is $0.1073 > 0.05$ indicating that CAR has no influence on ROA, so H1 is rejected. Meanwhile, the CIR 0.0009 and bank size $0.0001 < 0.05$ indicating that CIR and bank size have a significant influence on ROA, so H2 and H5 are accepted.

Determination Coefficient Test**Structural I****Table 14.** Coefficient of Determination Test Result I

Cross Section Fixed (dummy variables)	
Adjusted R-Squared	0.971528

Source: Eviews 12 Data Processed by Author (2026)

Based on table 14, the Adjusted R-Square value is 0.971528 . This indicates that 97.1% of the variation in bank size can be explained by CAR and CIR, while the remaining 2.9% comes from other variables not included in this study. The value of the Adjusted R-Square does not fully reflect the ability of the independent variables to explain the variation in the dependent variable. This is due to the inclusion of individual dummy in the model, which serve to capture unobserved heterogeneity across cross-sectional unit. The presence of these dummy mechanically increases the model's fit, resulting in a high Adjusted R-Square value. Furthermore, the use of a large number of dummy also has the potential to cause multicollinearity hidden (Baltagi, 2021).

Structural II**Table 15.** Coefficient of Determination Test Result II

Cross Section Fixed (dummy variables)	
Adjusted R-Squared	0.739465

Source: Eviews 12 Data Processed by Author (2026)

Based on table 15, the Adjusted R-Square value is 0.739465 . This indicates that 73.9% of ROA variation can be explained by CAR, CIR, and bank size, while the remaining 26.1% comes from other variables not included in this study.

Sobel Test

Known: a=0.496737 SEa=0.221239
 b=2.844712 SEb=0.676244

Here are the calculations for the sobel test:

$$t = \frac{a \times b}{\sqrt{(b^2 \times SEa^2) + (a^2 \times SEb^2)}}$$

$$t = \frac{0.496737 \times 2.844712}{\sqrt{(2.844712^2 \times 0.221239^2) + (0.496737^2 \times 0.676244^2)}}$$

$$t = \frac{1.413073}{\sqrt{(8.092386 \times 0.048946) + (0.246747 \times 0.457305)}}$$

$$t = \frac{1.413073}{\sqrt{0.396089 + 0.112838}}$$

$$t = \frac{1.413073}{0.713391}$$

$$t = 1.980783 \quad t\text{-table} = 2.07$$

Based on sobel test calculation, the calculated t-value is 1.980783 < 2.07 indicating that bank size cannot mediate the influence of CAR on ROA, so H6 is rejected.

Known: a=-2.193221 SEa=2.032197
 b=2.844712 SEb=0.676244

$$t = \frac{-2.193221 \times 2.844712}{\sqrt{(2.844712^2 \times 2.032197^2) + (-2.193221^2 \times 0.676244^2)}}$$

$$t = \frac{-6.239082}{\sqrt{(8.092386 \times 4.129824) + (-4.810218 \times 0.457305)}}$$

$$t = \frac{-6.239082}{\sqrt{33.420129 + -2.199736}}$$

$$t = \frac{-6.239082}{5.587521}$$

$$t = -1.116610 \quad t\text{-table} = 2.07$$

Based on sobel test calculation, the calculated t-value is -1.116610 < 2.07 indicating that bank size cannot mediate the influence of CIR on ROA, so H7 is rejected.

DISCUSSION

Influence of CAR on ROA of Islamic Bank in GCC Region

Based on t-test result in table 13, indicating that CAR has no effect on ROA of Islamic bank in GCC region, so H1 is rejected. This indicates that level of capitalization of Islamic bank in the region has not had a direct effect on ROA growth. These findings are consistent with result of previous studies conducted by Syaidi et al. (2024), Syafrizal et

al. (2023), as well as Nuraeni and Pradistya (2020), which states that CAR has no effect on ROA. In the perspective of signaling theory proposed by Spence (1973), companies, including bank, use financial information such as CAR to send positive signals to the market regarding their financial condition and stability. However, the result of this study show that the signal conveyed through the CAR ratio have not been effective in influencing ROA. This condition can be explained by the structure of banking industry in GCC region, which generally has high capital adequacy in accordance with the implementation of Basel III provisions that require a minimum CAR of 10.5% (Alnajjar & Othman, 2021). Therefore, CAR is no longer a major factor in increasing ROA.

Influence of CIR on ROA of Islamic Bank in GCC Region

Based on t-test result in table 13, indicating that CIR has a significant effect on ROA of Islamic bank in GCC region, so H₂ is accepted. This indicates that CIR level has an effect on ROA. The lower the CIR, the higher the ROA will be due to lower operating cost compared to the income generated, and vice versa (Arsana et al., 2024). These findings support the result of previous research conducted by Hassan et al. (2024), Folorunso and Ibrahim (2023), as well as Mamun et al. (2022), which conclude that CIR affects ROA. In the signaling theory proposed by Spence (1973), a low CIR value reflects a positive signal for investor and customer. The result of this study indicate that signals given by CIR is successfully captured by the market as an indication of higher profitability potential for Islamic bank in GCC region.

Influence of CAR on Bank Size in Islamic Bank in GCC Region

Based on t-test result in table 12, indicating that CAR has a significant influence on bank size in Islamic bank in GCC region, so H₃ is accepted. This indicates that CAR level has an effect on the growth of bank size in the region. These findings support the result of previous research conducted by Irawati and Maksum (2018), which conclude that CAR affects bank size. In the perspective of the signaling theory proposed by Spence (1973), a high CAR level serves as a positive signal to external parties, such as investor, regulator, and customer, reflecting the bank's financial resilience. This positive signal increases market confidence, encourages third-party fund growth and shareholder investment, which ultimately leads to an increase in total assets and bank size (Putri et al., 2025).

Influence of CIR on Bank Size in Islamic Bank in GCC Region

Based on t-test result in table 12, indicating that CIR has no effect on bank size in Islamic bank in GCC region, so H₄ is rejected. This indicates that CIR level has no effect on bank size growth in the region. These finding is inconsistent with the result of a previous study conducted by Sapci and Miles (2019), which conclude that CIR affects bank size. In the perspective of signaling theory proposed by Spence (1973), CIR should reflect a signal of managerial efficiency, where a low CIR value indicates efficient operational management that can increase market confidence and encourage bank expansion

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(Rachman et al., 2023). However, the result of this study show that the signal of operational efficiency conveyed through CIR is not strong enough to be the main indicator in explaining bank size growth. Islamic banks in GCC region show varying levels of efficiency, while asset growth is more influenced by other factor such as capital support, regulatory framework, and market condition than short-term operational performance (Al-Romaihi & Kumar, 2024).

Influence of Bank Size on ROA of Islamic Bank in GCC Region

Based on t-test result in table 13, indicating that bank size has a significant influence on ROA of Islamic bank in GCC region, so H5 is accepted. This indicates that scale of bank contributes to influencing the level of profit. The increase in the scale of Islamic bank in GCC region as indicated by the total asset, is directly proportional to their ability generate profits. These findings support the result of previous research conducted by Hassan et al. (2024) as well as Damayanti and Mawardi (2022), which states that bank size affects on ROA. In the perspective of the signaling theory proposed by Spence (1973), bank size can be viewed as an indicator of financial strength and stability for market participants. Large-scale bank in GCC region have greater capacity to expand financing and investment in strategic sectors such as hydrocarbons, which are the main pillars of economic stability in the region (Al-Romaihi & Kumar, 2024).

Role of Bank Size Mediation in the Influence of CAR on ROA of Islamic Bank in GCC Region

Based on sobel test result, indicating that bank size does not mediate the effect of CAR on ROA of Islamic bank in GCC region, so H6 is rejected. Islamic bank with relatively high CAR do not always expand their business proportionally, given that asset growth in GCC region is largely determined by government policy and the dynamics of the hydrocarbon sector (Al-Romaihi & Kumar, 2024). The high CAR of Islamic bank in this region is generally due to strong capital support from the government and state-owned financial institutions. However, this capital tends to be used to maintain financial stability and meet Basel III requirements, rather than to directly encourage asset expansion (Alnajjar & Othman, 2021). Therefore, the increase in CAR has not been able to increase ROA through bank size.

Role of Bank Size Mediation in the Influence of CIR on ROA of Islamic Bank in GCC Region

Based on sobel test result, indicating that bank size does not mediate the effect of CIR on ROA of Islamic bank in GCC region, so H6 is rejected. Large Islamic bank in GCC region generally prioritize financial stability and compliance with Islamic principles over achieving short-term cost efficiency. High operational costs, such as expenditures for Sharia auditing, regulatory compliance, and social activities, do not always reflect inefficiency but are part of the social responsibility and religious values embraced by Islamic bank (Zubair et al., 2019). Furthermore, Islamic bank in GCC region focus more on

long-term project financing in the hydrocarbon and infrastructure sectors, which is one of the reasons why bank size is not a significant mediator in the influence of CIR on ROA.

CONCLUSIONS

The result in this study indicate that CAR has no influence on ROA of Islamic bank operating in GCC region during the period 2020–2024. This finding indicates that the strong capitalization of Islamic bank in the region does not increase ROA. Conversely, CIR has a significant effect on ROA, making operational efficiency a factor that directly affects the ROA of Islamic bank in GCC region. In addition, this research shows that CAR has a significant effect on bank size. The increase in CAR for Islamic bank in GCC region is in line with the growth in bank size, as reflected in increase total asset. Conversely, CIR has no influence on bank size, so it can be understood that operational cost efficiency does not directly influence the scale of Islamic bank assets in this region. The result also indicate that bank size has a significant influence on ROA. Large Islamic bank are better able to optimize their asset to generate profit. However, bank size cannot mediate the effect of CAR on ROA. Despite an increase in CAR, this does not increase ROA through the role of bank size. Similarly, bank size does not act as a mediator in the effect of CIR on ROA, which indicates that operational cost efficiency does not have an impact on increasing ROA through bank size growth.

Implications

This study provides insight and considerations for Islamic bank operating in GCC region in making decisions related to CAR, CIR, and bank size as an effort to increase ROA. Research findings indicate that CIR and bank size contribute more to influencing the ROA of Islamic bank in GCC region than CAR. Therefore, Islamic bank in this region are expected to be able to manage capital more productively, not only functioning as a risk buffer and fulfilling Basel III requirements, but also aimed at improving the efficiency of operational cost management in order to reduce unproductive expenditures, as well as strengthening asset growth strategies so that large business scales can contribute positively to profit growth.

Limitations and Recommendations

This research has two main limitations. First, the study sample is limited to Islamic bank operating in GCC region during the period 2020-2024. Therefore, the result may not be generalizable to other Islamic bank or to other time periods. Second, the study only focuses on the variables CAR, CIR, and bank size in predicting their effect on ROA improvement.

Based on the research findings and conclusions presented earlier, the researcher offers several recommendations intended to benefit Islamic bank operating in GCC region. These include optimizing the productive use of capital not merely as a risk buffer or to ensure compliance with Basel III regulation enhancing cost management effectiveness

to reduce unproductive operational cost, and strengthening asset growth strategies so that a larger business scale can positively impact profitability. For future researcher, it is recommended to expand the scope of Islamic bank and the time period studied to obtain more diverse data. Additionally, to improve the quality of analysis and obtain more varied results, it is also suggested to include other variables such as FDR, NPF, GCG, as well as macroeconomic variables like inflation and global interest rates.

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