BOARD SIZE AND COST EFFICIENCY IN ISLAMIC BANKS IN INDONESIA

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Abstract. This study aims to analyze the board size's impact on cost efficiency in the context of Islamic banks in Indonesia. Board size involves the composition of the board of commissioners, board of directors, and the sharia supervisory board, all of which play vital roles in guiding and overseeing a bank's activities. In this research, we take an empirical approach, using linear regression analysis to examine the influence of the board size of commissioners, directors, and the sharia supervisory board on cost efficiency through the use of a Fixed Effect Model with software Stata 17. Panel data was collected from Islamic banks in Indonesia for the period 2015-2022. The analysis results indicate that the size of the Board of Commissioners does not have a significant impact on cost efficiency. Meanwhile, the size of the Board of Directors and the size of the Sharia Supervisory Board have a negative effect on the cost efficiency of Islamic banks.

Keywords: Islamic Banks, Cost Efficiency, Corporate Governance, Size of Board of Commissioners, Size of Board of Directors, Sharia Supervisory Board.

1 INTRODUCTION

The Islamic banking industry in Indonesia has experienced rapid growth in recent years, with a 13% increase in 2021 compared to conventional banks, which only grew by 9% (OJK, 2021). In corporate governance, Shariah banks are not only expected to adhere to Shariah principles but also to maintain operational efficiency to compete in an increasingly complex and dynamic business environment. One crucial factor influencing operational efficiency is good corporate governance. Effective corporate governance can impact various aspects of a bank's operations, including cost efficiency (Ain et al., 2021).

Shariah banks operate according to Islamic principles, prohibiting practices such as usury (interest) and involving other principles that encompass justice, transparency, and risk-sharing (Arifin et al., 2021). Therefore, corporate governance in Shariah banks is not only about conventional practices but must also adhere to fundamental Shariah principles. The rapid development of the Islamic banking sector in Indonesia has demonstrated a strong commitment to financial principles based on Islam. In addition to conducting activities in line with Shariah principles, Shariah banks also face challenges in operational efficiency within an increasingly dynamic business environment. In this context, the Islamic Corporate Governance principles that regulate corporate governance by combining Islamic values and good governance principles become highly relevant (Ahzar et al., 2021).

Corporate governance refers to the system, structure, and practices that govern how a company is operated and supervised. Within the scope of Islamic banks, aspects such as the size of the board of commissioners, the size of the board of directors, and the role of the Shariah supervisory board play a significant role in shaping operational decisions, oversight, and compliance with Shariah principles (Bukair & Rahman, 2015). Cost efficiency is a critical element in achieving the long-term success of Islamic banks. Uncontrolled operational costs can reduce profitability, diminish competitiveness, and even disrupt financial stability (Ain et al., 2021). Therefore, research on how good corporate governance can impact cost efficiency in the context of Islamic banks is highly relevant. Dulal Miah dan Uddin (2017) confirmed that conventional banks are more efficient than Islamic banks.

Karavitis et al., (2021) tate that cost efficiency is a crucial factor in ensuring the sustainability and performance of Islamic banks. The management of operational costs, such as employee costs, technology, and infrastructure, has a direct impact on the profitability and competitiveness of banks. Amidst increasing competition and dynamic market changes, Shariah banks need to achieve cost efficiency without compromising compliance with Shariah principles.

Cost management in financial institutions, including Shariah banks, is crucial in maintaining stability and operational continuity (Gassouma & Ghroubi, 2021). n this context, corporate governance plays a vital role in organizing and managing the organizational structure and committees overseeing various aspects of the bank's operations. In the context of Islamic banking in Indonesia, there are three main components that play a key role in corporate governance: the Board of Commissioners, the Board of Directors, and the Shariah Supervisory Board(Ahzar et al., 2021).

The Board of Commissioners plays a crucial role in providing strategic guidance and oversight of the bank's operational activities (Karavitis et al., 2021). he size of the Board of Commissioners, including the number of commissioners and their composition, can impact the efficiency and effectiveness of decision-making. Previous research in the context of conventional banking has shown that the size of the board of commissioners can be related to cost management (Ain et al., 2021; Amin et al., 2022). However, the influence of the size of the board of commissioners on cost management in the context of Shariah banks still requires further analysis.

The Board of Directors is responsible for operational decision-making in Shariah banks. The composition and size of the board of directors can influence the speed of decision-making and managerial efficiency (Fama & Jensen, 1983). An excessively large or small board of directors can affect the costs of the bank through decision-making complexity or a lack of adequate representation. The influence of the size of the board of directors on efficiency is not significant (Ramdani & Witteloostuijn, 2010).

In Shariah banks, the Shariah Supervisory Board plays a crucial role in ensuring that all activities of the bank comply with Shariah principles. The effectiveness of the Shariah Supervisory Board in carrying out its supervisory functions can impact the operational quality and costs of the bank. The influence of the size and composition of the Shariah supervisory board on the costs of the bank also needs further examination. Gassouma & Ghroubi, (2021) demonstrate that the Shariah Supervisory Board serves as an advantage for Shariah banks in supervision compared to conventional banks in operational aspects.

This research aims to determine whether the size of the board in Shariah banks affects cost efficiency in the bank. This study is conducted because the board structure in Shariah banks differs from conventional banks, where Shariah banks have a Shariah Supervisory Board. Therefore, this research can provide a better understanding of the factors influencing cost efficiency in the Islamic banking industry and can assist Shariah banks in improving their operations, particularly regarding the size of the board structure in Shariah banks..

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The Agency Theory is a fundamental concept in the study of economics and corporate governance. This theory describes the relationship between the principal (owner or delegator) and the agent (party entrusted to act on behalf of the principal), where their interests may not always align (Fama & Jensen, 1983). The Agency Theory explores how information asymmetry and conflicts of interest can influence the behavior of agents and how principals can create incentives to minimize moral hazard and agency risks (Jensen & Meckling, 1976). The Agency Theory teaches that the right incentive structure can motivate agents to act in the best interests of the principal. In the context of Islamic banking, good corporate governance can help minimize the risk of conflicts of interest, enhance compliance with Shariah principles, and ultimately contribute to cost efficienc(Amin et al., 2022).

Islamic Corporate Governance

Islamic Corporate Governance refers to the framework that governs how a company is operated and supervised. This concept encompasses principles, structures, and practices that guide decision-making and the operations of the company(Ahzar et al., 2021). In the context of Islamic banks, corporate governance involves compliance with Shariah principles as well as general principles of corporate governance that apply internationally. Islamic Corporate Governance plays a crucial role in directing Islamic banks towards achieving optimal operational efficiency. The principles of Islamic Corporate Governance not only help ensure compliance with Shariah principles but also optimize the structure and functions of corporate governance(Bhatti & Bhatti, 2010). The relationship between the corporate governance structure and cost efficiency in Islamic banks can be complex. The size and composition of the board of commissioners, the board of directors, and the Shariah supervisory board can influence each other, and the right balance is needed to achieve operational efficiency.

Cost efficiency in Islamic Banks

Cost efficiency refers to a bank's ability to achieve the highest level of productivity with the most effective costs (Titova, 2016). Cost efficiency involves managing operational and administrative costs to produce optimal services for customers (Karavitis et al., 2021). In Islamic banks, cost efficiency must be integrated with Shariah principles, including avoiding usury (interest) practices and activities that are inconsistent with Islamic law.

Board Size in Islamic Banks

Unlike the board structure in conventional companies or banks, Islamic banks have an additional board known as the Shariah Supervisory Board (Arifin et al., 2021). The size of the board has been considered to influence the effectiveness and efficiency of a company (Mak & Li, 2001). Additionally, Islamic banks may incur additional costs to train board members in the principles of Islamic banking and Shariah law. However, this can also enhance their understanding of these aspects, reducing the risk of errors and non-compliance, which can lead to long-term cost savings.

The size of the board of commissioners refers to the number of members within it. The size of the board of commissioners can influence decision-making efficiency. Coles et al., (2008) found that a large board enhances the value of the company, particularly for large and complex firms. An excessively large or small board of commissioners can affect the board's ability to provide strategic guidance, oversee management, and ensure compliance with Shariah principles. The size of the board of directors also plays a crucial role in decision-making and day-to-day operational management. The board of directors reduces organizational costs and enhances communication among board members (Quttainah et al., 2013). An appropriate board size can facilitate quick and efficient decision-making (Fama & Jensen, 1983). However, an inappropriate size can result in excessive complexity or a lack of diversity in perspectives, which, in turn, can affect cost efficiency (Collin et al., 2017).

The Shariah Supervisory Board (SSB) is responsible for overseeing that all activities of the bank comply with Shariah principles. The effectiveness of this board in ensuring compliance can impact the costs of the bank through effective risk management and compliance. Mollah & Zaman, (2015) also found that the size of the SSB significantly influences the effectiveness and performance of Islamic banks. In simple terms, it can be said that a larger Shariah Supervisory Board can enhance the effectiveness of Islamic banks. The advantage given to Islamic banks may be due to participative financial products and additional oversight conducted by the Shariah board in addition to the executive board (CEO), compared to conventional banks (Gassouma & Ghroubi, 2021).

Hypothesis

Board of Commissioners and Cost Efficiency

The more optimal the size of the board of commissioners, including an appropriate number of members for the needs of the Islamic bank, will have a positive impact on cost efficiency. This can be explained by the effectiveness of supervision and better decision-making with diligent and involved board members. Based on Agency Theory, this hypothesis states that the larger the size of the board of commissioners in Islamic banks, the tendency is to reduce agency risks and conflicts of interest between owners and management. Research by Ain et al., (2021) indicates that the size of the board affects the cost efficiency of banks in Chinese companies. Therefore, a larger board of commissioners will positively impact cost efficiency by encouraging tighter supervision of management actions that can affect operational costs.

H1. The size of the board of commissioners has a positive effect on the efficiency of Islamic banks.

Board of Directors Size and Cost Efficiency

A balanced and appropriately sized board of directors, considering the complexity of Islamic banks, will have a positive impact on cost efficiency. An optimally sized board of directors can ensure efficient and fast decision-making (Grassa & Matoussi, 2014). The Agency Theory suggests that an optimal board size will help manage agency risks and minimize information asymmetry between management and owners. This hypothesis argues that an appropriately sized board of directors will have a positive impact on the cost efficiency of Islamic banks by providing space for more efficient decision-making and avoiding excessive bureaucracy (Khan et al., 2017).

H2. The size of the board of directors has a positive effect on the efficiency of Islamic banks.

Sharia Supervisory Board and Cost Efficiency

The presence of a strong and actively engaged Shariah Supervisory Board (SSB) in ensuring compliance with Shariah principles will have a positive impact on cost efficiency. According to Aslam et al., (2023) the SSB plays a primary role in helping filter financial services, products, and activities and operations, in lieu of stakeholders and shareholders, to ensure that all operations comply with Shariah law. Effective supervision will help reduce the risk of conflicts of interest and uncontrolled cost risks. Based on Agency Theory, the presence of a strong Shariah Supervisory Board in Islamic banks is expected to reduce moral hazard and conflicts of interest between management and owners (Aslam & Haron, 2021). Therefore, this hypothesis states that the existence of an effective and active Shariah Supervisory Board in overseeing Shariah principles will positively impact cost efficiency by reducing costs arising from violations of Shariah principles.

H3. The size of the Shariah Supervisory Board has a positive effect on the efficiency of Islamic banks.3 RESEARCH METHODS

The research data were collected from various annual reports of Islamic banks in Indonesia over the period 2015-2020. The required data included information on the size of the Board of Commissioners, Board of Directors, and Shariah Supervisory

Board for each bank, as well as data related to the operational costs of the bank. Operational cost data encompassed various components such as the operational costs of Shariah banks. Regression analysis will be employed to measure the influence of independent variables (size of the Board of Commissioners, size of the Board of Directors, size of the Shariah Supervisory Board) on the dependent variable (cost efficiency), along with control variables (total assets, bank age). A linear regression model will be used, assuming a relationship between dependent and independent variables. Descriptive analysis and assumption tests for multiple regression will be conducted, measuring each variable in Table 1.

Tabel 1. Pengukuran Variabel

Simbol	Variabel	Pengukuran	Referensi
Dependent			
CIR	Cost Efficiency	Revenue divided by operational costs	(Chang et al., 2021)
AM	Bank Administrative Costs	Natural Logarithm of Bank Administrative Costs	(Amin et al., 2022)
EM	Bank Labor Costs	Natural Logarithm of Bank Labor Costs	(Milenković et al., 2022)
Independent			
BOC_Size	Board of Commissioners	Size of the Board of Commissioners during one year	(Aslam & Haron, 2020)
BOD_Size	Board of Directors	Size of the Board of Directors during one year	(Aslam et al., 2023)
SSB_Size	Shariah Supervisory Board	Size of the Shariah Supervisory Board during one year	(Aslam et al., 2023)
Control			
Ln_Aset	Total Assets	Natural Logarithm of Total Assets	(Aslam et al., 2023)
Age	Bank Age	Bank Age	(Aslam & Haron, 2020)

Equation of Regression:

The linear regression model used to analyze the influence of board size on cost efficiency is as follows:

$CIR_{it} = \alpha + \beta 1\ BOC\_SIZE_{it} + \beta 2\ BOD\_SIZE_{it} + \beta 3\ SSB\_SIZE_{it} + \beta 4\ LN\_ASET_{it} + \beta 5\ AGE_{it} + \varepsilon$ (1)

Robustness Test Regression Equation:

$EM_{it} = \alpha + \beta 1\ BOC\_SIZE_{it} + \beta 2\ BOD\_SIZE_{it} + \beta 3\ SSB\_SIZE_{it} + \beta 4\ LN\_ASET_{it} + \beta 5\ AGE_{it} + \varepsilon$ (2)

$AM_{it} = \alpha + \beta_1\ BOC\_SIZE_{it} + \beta 2\ BOD\_SIZE_{it} + \beta 3\ SSB\_SIZE_{it} + \beta 4\ LN\_ASET_{it} + \beta 5\ AGE_{it} + \varepsilon$ (3)

4 RESULTS AND DISCUSSION

This study examines the board size proxied by the size of the board of directors, the size of the board of commissioners, and the size of the Shariah Supervisory Board on cost efficiency with control variables of bank size and bank age from 2015 to 2020. The descriptive statistics of the research data can be seen in Table 2.

Table 2. Descriptive Statistics Results

Variable	Obs	Mean	Std. dev.	Min	Max
CIR	79	91.42	14.82	58.1	160.28
EM	79	26.41	1.388	23.635	29.051
AM	79	25.97	1.340	23.635	28.260
BOC_SIZE	79	5.77	2.961	2	13
BOD_SIZE	79	4.43	1.336	3	8
SSB_SIZE	79	2.30	0.539	2	5
LN_ASET	79	14.75	2.116	10.25111	17.871
AGE	79	24.59	14.654	6	56

The research data consist of observations on 79 bank data from 2015 to 2020 with various characteristics and different metrics. The observed variables include CIR (Cost-Income Ratio), EM (Bank Labor Costs), AM (Bank Administrative Costs), BOC_SIZE (Board of Commissioners Size), BOD_SIZE (Board of Directors Size), SSB_SIZE (Shariah Supervisory Board Size), LN_ASSETS (Natural Logarithm of Total Assets), and AGE (Bank Age).

Regarding Cost Efficiency (CIR), the average CIR is 91.42 with a standard deviation of approximately 14.82. The range of CIR values ranges from 58.1 to 160.28, indicating significant variation in cost efficiency among these banks. CIR is a measure of how efficiently a bank manages its operational costs compared to the income generated. Furthermore, Bank Labor Costs (EM) have an average of about 26.41 with a small standard deviation of around 1.388. This indicates that labor costs tend to be relatively stable across the observed banks. Meanwhile, Bank Administrative Costs (AM) have an average of about 25.97 with a similar standard deviation of around 1.340. Both metrics are essential aspects of operational cost management.

Board of Commissioners Size (BOC_SIZE), Board of Directors Size (BOD_SIZE), and Shariah Supervisory Board Size (SSB_SIZE) show variation in the organizational structure of these banks. The averages and standard deviations indicate the level of variation within them. BOC_SIZE is the size of the bank's Board of Commissioners. The average size of the Board of Commissioners is 5.77 with a standard deviation of 2.961. BOD_SIZE is the size of the bank's Board of Directors. The average size of the Board of Directors is 4.43 with a standard deviation of 1.336. SSB_SIZE is the size of the Shariah Supervisory Board. The average size of the Shariah Supervisory Board is 2.30 with a standard deviation of 0.539. This organizational structure can influence decision-making and corporate governance in banks. Natural Logarithm of Total Assets (LN_ASSETS) is a measure of the bank's scale, with an average of about 14.75 and a standard deviation of about 2.116. This indicates that the banks in the sample have diverse total assets, which can affect their operational capacity and complexity. Finally, Bank Age (AGE) has an average of about 24.59 years with a relatively high standard deviation of around 14.654. This shows significant variation in the age of banks in the sample.

Table. 3 Correlation

	CIR	EM	AM	BOC_SIZE	BOD_SIZE	SSB_SIZE	LN_ASET	AGE
CIR	1							
EM	-0.2223	1						
AM	-0.2161	0.8824	1					
BOC_SIZE	0.0324	0.1248	0.2025	1				
BOD_SIZE	-0.0605	0.4883	0.4983	0.3652	1			
SSB_SIZE	0.0414	0.2256	0.2508	0.1321	0.3674	1		
LN_ASET	-0.2516	0.1931	0.1737	-0.2818	-0.1808	-0.1407	1	
AGE	-0.4077	0.3254	0.3125	-0.3608	0.081	-0.0653	0.3861	1

The correlation table above presents the relationships between various variables mentioned earlier. The values in this table depict the correlation coefficients between different pairs of variables. Correlation measures the extent to which two variables are related to each other and can range from -1 to 1, with positive values indicating a positive relationship, negative values indicating a negative relationship, and zero indicating no relationship.

The Cost-Income Ratio (CIR) has a negative correlation with the variable EM (Expense to Employee) of around -0.2223, and also with AM (Administrative Expenses) of around -0.2161. This indicates that the higher the CIR, the lower the EM and AM. In other words, if operational and administrative costs are relatively low, the bank's CIR tends to be lower, reflecting better cost efficiency. Board of Commissioners Size (BOC_SIZE) has a positive correlation with Board of Directors Size (BOD_SIZE) of around 0.3652, indicating that the size of the Board of Commissioners tends to have a positive correlation with the size of the Board of

Directors in the bank. Natural Logarithm of Total Assets (LN_ASSETS) has a negative correlation with Bank Age (AGE) of around -0.4077. This indicates that larger banks (in terms of total assets) tend to be younger in age. This could be due to rapid growth in some younger banks. All correlation values of the variables are below 0.8, indicating no multicollinearity in the research variables.

Table. 4 Regresi Results

	(1) CIR	(2) EM	(3) AM
BOC_SIZE	0.379	-0.0255	**0.228*****
	(0.19)	(-0.55)	**(3.08)**
BOD_SIZE	**-3.880***	**0.106***	**-0.359*****
	(-1.73)	**(1.97)**	**(-4.23)**
SSB_SIZE	**-6.472***	**0.141***	0.0524
	(-1.89)	**(1.72)**	(0.40)
LN_ASET	-1.687	0.0714	-0.0642
	(-0.76)	(1.35)	(-0.76)
AGE	-1.046	0.0145	**0.0811*****
	(-1.40)	(0.81)	**(2.87)**
_cons	**172.0*****	**24.36*****	**25.08*****
	(4.26)	**(25.27)**	**(16.44)**
r2	0.116	0.115	0.364
Chow test	0.000	0.000	0.000
N	79	79	79

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The regression table above illustrates the results of three regression models used to examine the relationship between various independent variables (BOC_SIZE, BOD_SIZE, SSB_SIZE, LN_ASET, and AGE) with dependent variables (CIR, EM, AM). Each regression model has regression coefficients indicating the magnitude of the influence of independent variables on the dependent variable, as well as t-statistic values in parentheses indicating the statistical significance of each coefficient.

In Model (1), considering the relationship between CIR (Cost-Income Ratio) as the dependent variable and independent variables (BOC_SIZE, BOD_SIZE, SSB_SIZE, LN_ASET, and AGE), we observe that the Board of Commissioners Size (BOC_SIZE) variable has no significant impact on CIR. However, the Board of Directors Size (BOD_SIZE) and the Size of the Sharia Supervisory Board (SSB_SIZE) variables have a significant negative impact on CIR. In other words, the larger the Board of Directors and the Size of the Sharia Supervisory Board, the lower the CIR of the bank. This rejects hypotheses 1, 2, and 3.

Model (2) considers the relationship between EM (Expense to Employee) as the dependent variable and the same independent variables. In this model, the Board of Commissioners (BOC_SIZE) variable has no significant impact on EM. However, the Board of Directors (BOD_SIZE) and the Size of the Sharia Supervisory Board (SSB_SIZE) have a positive impact on EM. This means that banks with larger Board of Directors and Sharia Supervisory Board tend to have higher EM, indicating higher operational costs associated with the larger size of these boards. Meanwhile, the Size of the Sharia Supervisory Board has no significant impact on EM (Expense to Employee).

Model (3) evaluates the relationship between AM (Administrative Expenses) as the dependent variable and the same independent variables. In this model, BOC_SIZE has a significantly positive impact on AM, indicating that a larger Board of Commissioners results in higher administrative expenses. The Board of Directors' Size (BOD_SIZE) has a highly significant negative coefficient, suggesting that a smaller Board of Directors tends to have higher administrative expenses. This indicates that banks with a smaller Board of Directors tend to have higher administrative costs.

Discussion

Board of Commissioners Size

The regression results indicate that BOC_SIZE does not have a significant influence on the Cost-Income Ratio (CIR) of the bank. In other words, the size of the Board of Commissioners does not affect how the bank manages the cost-to-income ratio. In simpler terms, changes in the size of the Board of Commissioners will not significantly impact the operational efficiency of the bank..

Board of Directors Size

The model shows that the size of the Board of Directors (BOD_SIZE) has a significant negative impact on CIR. This means that banks with a larger Board of Directors tend to have a lower CIR. This can be interpreted as having more members in the Board of Directors may lead to greater efficiency in managing operational costs and income, resulting in a lower CIR. This finding aligns with the research of (Karavitis et al., 2021), suggesting that a larger board size may increase company costs due to increased remuneration expenses.

Size of the Sharia Supervisory Board

The regression results indicate that the Size of the Sharia Supervisory Board also has a significant negative impact on CIR. This means that the larger the Size of the Sharia Supervisory Board, the lower the CIR of the bank. This suggests that a larger role for the Sharia Supervisory Board can help the bank manage its operational efficiency, leading to a lower CIR.

5 CONCLUSION

From the results of the analysis of the two regression models conducted, several significant findings can be derived. Firstly, the size of the Board of Commissioners (BOC_SIZE) does not have a significant influence on the Cost-Income Ratio (CIR) or Expense to Employee (EM) in the two tested models. However, the size of the Board of Directors (BOD_SIZE) and the size of the Sharia Supervisory Board (SSB_SIZE) show different impacts on these two dependent variables. The size of the Board of Directors has a positive impact on EM (labor costs), indicating an increase in operational costs per employee with a larger board size. Meanwhile, the size of the Sharia Supervisory Board has a positive impact on operational efficiency (CIR) without affecting EM. This influence suggests that the role of the Sharia Supervisory Board can play a crucial role in managing the operational efficiency of the bank..

Banks should consider the following recommendations. Firstly, banks can reassess the size of their Board of Directors to ensure that the benefits of a larger size are proportionate to the high operational costs. This may involve further evaluation of the qualitative benefits of a larger Board of Directors. Secondly, Shariah-compliant banks should strengthen the role of the Sharia Supervisory Board in overseeing operational efficiency and Sharia compliance, ensuring that the observed positive influence can be maintained and enhanced. Finally, further research is needed to understand other factors that may influence the relationship between independent and dependent variables in this context. Additionally, banks should continue routine monitoring of their CIR and EM (labor costs) and conduct more in-depth analyses to make informed decisions in efforts to enhance operational efficiency and manage costs wisely. All these steps should be tailored to the specific business context of the respective banks and accompanied by further research if necessary.

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