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The Impact of Bank Size on the Profitability of Islamic Banks

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Abstract

The purpose of this research is to investigate the impact of Islamic bank size on profitability and to understand the nature of their relationship. For the period 2012-2021, four profitability measures were used: return on assets (ROA), return on equity (ROE), return on deposits (ROD), and profit margin (PM). The data was analyzed using panel data models to find the link between the variables. The findings reveal that the scale of Islamic banks has a strong, favorable influence on all profitability measures, particularly ROA and ROE.

Keywords: Islamic Bank, Profitability, Savings, Finance Sources, Profit Margin

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تأثير حجم البنك على ربحية البنوك الإسلامية

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المستخلص

الهدف من هذا البحث هو التحقق من تأثير حجم البنك الإسلامي على ربحيتهُ وفهم طبيعة العلاقة بينهما. للفترة 2012-2021 ، وتم استخدام أربعة مقاييس للربحية: العائد على الأصول (ROA) ، والعائد على حقوق الملكية (ROE) ، والعائد على الودائع (ROD) ، وهامش الربح (PM). تم تحليل البيانات باستخدام نماذج بيانات اللوحة للعثور على الرابط بين المتغيرات. تظهر النتائج أن حجم البنوك الإسلامية له تأثير إيجابي قوي على جميع مقاييس الربحية ، وخاصة العائد على الأصول والعائد على حقوق الملكية.

الكلمات المفتاحية: البنك الإسلامي، الربحية، المدخرات، مصادر التمويل، هامش الربح

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معلومات البحث

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Introduction

The banking industry is critical to the economy because it collects savings and redirects them to diverse industries. Banks serve as a bridge between the local and global economies, bolstering the national economy with their contributions and services. Banks seek numerous financing sources, both internal and external, to fund their operations. Finding sources of funding, however, is not the main challenge. The difficulty arises in merging varied and complex sources of finance to construct the bank's capital structure. Financing decisions have a huge impact on a bank's liquidity and profitability, making it one of the most important and complex decisions made at the bank level.

The financing mix can lower the cost of capital and risk. While expanding the number of viable investment options.

A critical topic addressed in financial literature is the size of the bank's impact on profitability. This study is focused on the size of Islamic banks and their impact on profitability measures. Several studies on this topic have been conducted, including those by Kristen Regehr and Rajdeep Sengupta (2011) and Nanda Kumar Tharu and Yogesh Man Shrestha (2019). The study's hypothesis is that the size of Islamic banks has a substantial impact on their profitability, particularly for larger banks that are more vulnerable to risk.

Hypothesis Development

Previous studies have discovered a significant positive relationship between business size and profitability, particularly in terms of return on equity. Some authors, however, argue that volume has no negative impact on profitability. The bank's size is an indication used to determine the bank's size, which impacts its revenue. Because of their larger assets, huge banks generate more money. Several studies have found a positive and significant effect of bank size on profitability.**[1]**

Items of Research

Methodology:

This study examines the relationship between the size of Islamic banks and profitability measures using panel data models. The analysis is founded on prior research as well as the theoretical framework of financial literature. The four profitability measures considered in the study are ROA, ROE, ROD, and PM. The data ranges from 2012 to 202.1 As shown in Tables (1) and (2)

Data Panel's Econometric Model

$$\boldsymbol{PM_t = BS_t + \delta_t + \eta_i + \varepsilon_{it}} \quad (1)$$

$$\boldsymbol{ROD_t = BS_t + +\delta_t + \eta_i + \varepsilon_{it}} \quad (2)$$

$$\boldsymbol{ROE_t = BS_t + +\delta_t + \eta_i + \varepsilon_{it}} \quad (3)$$

$$\boldsymbol{ROA_t = BS_t + +\delta_t + \eta_i + \varepsilon_{it}} \quad (4)$$

B_t Size of Islamic banks

BS_t Logarithm of the volume of Islamic banks

PM_t Margin of profitability

ROD_t The rate of return on deposits

ROE_t The rate of return on equity

ROA_tThe rate of return on assets

δ_t The unobserved time-invariant specific effects

η_i Captures a common deterministic trend

ε_{it}: is a random disturbance assumed to be normal, and identically distributed with E(ε_{it}) = 0 ; Var (ε_{it}) = $\sigma^2 \succ 0$.

TABLE (1) RESULTS AND DISCUSSIONS DESCRIPTIVE STATISTICS FOR PANEL DATA: AS SHOWN IN TABLE (1)

TABLE (1) DESCRIPTIVE STATISTICS FOR PANEL DATA

Variable	Obs	Mean	Std.Dev	Min	Max
B	60	2.46 e+07	3.13 e+07	108199	1.24 e+08
PM	60	1.085	0.4359618	0.17	1.83
ROD	60	10.53817	4.413784	1.13	17.66
ROE	60	1.251	0.5433846	0.2	2.37
ROA	60	2.95083	9.569053	4.58	45.93

TABLE (2) TEST VIF FOR PANEL DATA MULTICOLLINEARITY

Variable	VIF	1/VIF
PM	**1.00**	**1.000000**
ROD	**1.00**	**1.000000**
ROE	**1.00**	**1.000000**
ROA	**1.00**	**1.000000**

Mean VIF	**1.00**	

This test is designed to find linear interference between study variables by calculating the coefficient of variance inflation (VIF). The highest permissible value for the VIF is 5, and anything beyond that indicates a linear interference problem. We obtained the findings in the table after applying this test, which shows that the VIF coefficients for the explanatory variables are estimated at a value of 1.00, which is less than 5. Furthermore, the variance tolerance value is within acceptable limits, indicating that there are no multicollinearity issues between study variables[2]

However, when we looked at the diagnostic tests for the panel data models, we discovered that they are free of variance instability, as evidenced by the statistical significance of the Breush-Pagan/Cook-Weisberg test being greater than 0.05. This indicates that we accept the null hypothesis and conclude that the residuals of all four models are not heteroskedastic.

Nonetheless, when we examined the statistical significance of the Wooldridge test, which was less than 0.05, we discovered a problem with self-correlation of the residuals of all four models (Tables 3, 4, 5, and 6). This means that we reject the null hypothesis and infer that the models have an issue with residual self-correlation. The robust panel model, as advocated by Danial Hoechle in The Stata Journal, is the solution to this problem.[3]

The model's outcomes were as follows: Model 1 is for PM. As shown in Table (3)

TABEL (3) THE STATISTICAL SIGNIFICANCE OF THE WOOLDRIDGE TEST PANEL MODELS

Dependent Variables	**PM jt**			
Independent Variables	**Pooled OLS Model**	**Fixed Effects Model**	**Random Effects Model**	**Robust Fixed Effects Model**
BS	**0.1693324*** **	**0.0509346**	**0.0946487*** **	**0.0509346**
_cons	**-1.565746*** **	**0.2876645**	**-0.3950738**	**0.2876645**
R-squared	**0.6216**	**0.6216**	**0.6216**	**0.6212**
Fisher stat	**95.28*** **	**0.1081**	**-**	**0.48**
N	**60**	**60**	**60**	**60**
comparison tests				
Hausman test	**7.81*** **			
Fisher Test	**13.33*** **			
Breush-Pagan Test	**37.71*** **			
Statistical problems				
Wooldridge test for autocorrelation	**16.761*** **			
Breush-Pagan/Cook-				

Weisberg test for heteroskedasticity	**3.05***

***significant at 1% , ** significant at 5% , * significant at 10%

The statistical tests revealed that the fixed effects model beats the random effects model, as evidenced by significant Hausman test results. The Fisher's test also yielded significant findings, demonstrating that the fixed effects model outperformed the additive model. The Breusch-Pagan test, on the other hand, revealed that the random effects model is the best fit. Based on these results, it is possible to conclude that the fixed effects model is the best fit for this investigation. Furthermore, the size of Islamic banks has a positive effect on the profitability index, though this effect is not statistically significant. A one-unit rise in the profitability index results in a 0.05% increase in profit[4]**:** as shown in Table (4)

TABLE (4) THE BREUSH-PAGAN TEST PANEL MODELS

Dependent Variables	**ROD jt**			
Independent Variables	**Pooled OLS Model**	**Fixed Effects Model**	**Random Effects Model**	**Robust Random Effects Model**
BS	***1.192332	1.192332***	1.308825**	**1.308825
_cons	*-15.605442	*-8.126717	-9.950312	-9.950312
R-squared	0.5899	0.5899	0.5899	0.5899
Fisher stat	***83.43	17.91***	-	-
N	60	60	60	60
comparison tests				
Hausman test	0.71			
Fisher Test	17.91***			
Breush-Pagan Test	86.87***			
Statistical problems				
Wooldridge test for autocorrelation	34.534***			
Breush-Pagan/Cook-Weisberg test for heteroskedasticity	0.09			

***significant at 1% , ** significant at 5% , * significant at 10%

The test findings show that the random effects model beats the fixed effects model, as evidenced by the Hausman test's insignificant statistical probability. However, Fisher's test demonstrates that the fixed effects model outperforms the pooled model. The substantial Breush-Pagan test indicates that the random model is best.

Based on our findings, we conclude that the random effects model is the best choice for this study. According to the findings in Table 4, bank size has a favorable and considerable impact on the profitability index, notably the return on deposits. A one-unit increase in bank size results in a 1.3% rise in return on deposits.[5]

Model 3 : for ROE, as shown in Table (5)

TABLE (5) THE HAUSMAN TEST'S INSIGNIFICANT STATISTICAL PROBABILITY PANEL MODELS

Dependent Variables	**ROE jt**			
Independent Variables	**Pooled OLS Model**	**Fixed Effects Model**	**Random Effects Model**	**Robust Fixed Effects Model**
BS	**4.205406*** **	**2.319684*** **	**4.205406*** **	**2.319684**
_cons	**-36.881*** **	**-7.361717**	**-36.881*** **	**-7.361717**
R-squared	**0.7958**	**0.7958**	**0.7558**	**0.7958**
Fisher stat	**226.06*** **	**11.65*** **	**-**	**1.28**
N	**60**	**60**	**60**	**60**
comparison tests				
Hausman test	**9.26*** **			
Fisher Test	**2.47*** **			
Breush-Pagan Test	**0.00**			
Statistical problems				
Wooldridge test for autocorrelation	**43.708*** **			
Breush-Pagan/Cook-Weisberg test for heteroskedasticity	**3.43***			

***significant at 1% , ** significant at 5% , * significant at 10%

The test findings show that the Hausman test has a large statistical probability, indicating that the fixed effects model outperforms the random effects model. Furthermore, Fisher's test was significant, indicating that the fixed effects model outperformed the summative model. The Breusch-

Pagan test, on the other hand, was significant, showing that the random model is the best. Based on these results, it can be inferred that the best model for the study is the fixed effects model[6] Furthermore, the results presented in Table 5 indicate that the effect of bank size on profitability, specifically the rate of return on equity, has a positive but non-significant impact. This suggests that as the size of the bank increases by one unit, the rate of return on equity increases by 2.23%{7} Model 4 : for ROA, as shown in the table (6).

TABLE (6) THE EFFECT OF BANK SIZE ON PROFITABILITY PANEL MODELS

Dependent Variables	**ROA jt**			
Independent Variables	**Pooled OLS Model**	**Fixed Effects Model**	**Random Effects Model**	**Robust Fixed Effects Model**
BS	**4.205406*** **	**2.319684*** **	**4.205406*** **	**2.319684**
_cons	**-36.881*** **	**-7.361717**	**-36.881*** **	**-7.361717**
R-squared	**0.7958**	**0.7958**	**0.7958**	**0.7958**
Fisher stat	**226.06*** **	**11.65*** **	**-**	**1.28**
N	**60**	**60**	**60**	**60**
comparison tests				
Hausman test	**9.26*** **			
Fisher Test	**2.47** **			
Breush-Pagan Test	**0.00**			
Statistical problems				
Wooldridge test for autocorrelation	**43.708*** **			
Breush-Pagan/Cook-Weisberg test for heteroskedasticity	**3.43***			

***significant at 1% , ** significant at 5% , * significant at 10%

The Hausman test has a large statistical probability, showing that the fixed effects model is superior to the random effects model. Furthermore, Fisher's test revealed that the fixed effects model outperformed the summative model. The Breusch Pagan test, on the other hand, was not significant, showing that the summative model is the best.[1] Based on these findings, we conclude that the fixed effects model is the best model for this investigation. Table 6 shows that the size of the bank has a positive effect on the profitability index, notably the rate of return on assets, with a one unit increase in the size of the bank resulting in a 2.31% increase in the rate of return on

assets[8].

CONCLUSION

Based on the findings, it is possible to conclude that bank size has a beneficial effect on most profitability metrics of Islamic banks, as previously documented in research. The effect on profit margin (PM) is, however, insignificant, which is consistent with the findings of Niresh and Velnampy (2014). The depth of the effect on other profitability indicators is significant, but once self-correlation is addressed, the effect of bank size loses significance on most profitability indicators, with the exception of the rate of return on deposits, which remains significant in both the optimization and corrective models. This finding is important for both conventional and Islamic banks because it emphasizes the favorable impact of bank size on profitability.

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