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Analysis of The Effect of Temporary Syirkah Funds Ratio and Total Asset Growth Ratio on Return on Asset with Human Capital Efficiency as a Moderating Variable in Commercial Sharia Banks in Indonesia

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Abstract. *This study aims to analyze the influence of Temporary Syirkah Funds and Total Asset Growth Ratio on the financial performance of Islamic Commercial Banks with Human Capital Efficiency (HCE) as a moderating variable. This study uses a quantitative approach with moderated regression to compare the direct effect and the effect after the moderating interaction. The results show that Temporary Syirkah Funds have a positive and significant effect on financial performance after HCE is included in the model, while Total Asset Growth Ratio has no significant effect. HCE is proven to moderate the relationship between Temporary Syirkah Funds and financial performance, but in a negative direction, thus not strengthening the relationship. Meanwhile, HCE is not proven to moderate the effect of Total Asset Growth Ratio on financial performance. These findings indicate that the financial performance of Islamic Commercial Banks depends not only on the size of funds and asset growth, but also on the effectiveness of human resource management and the productivity of bank assets.*

Keywords: *Asset; Commercial; Growth; Human; Performance.*

1. Introduction

Islamic banking plays a crucial role in the Indonesian financial system, serving not only as a financial intermediary but also as an institution that conducts business activities based on Sharia principles. Unlike conventional banks, which rely on interest-based mechanisms, Islamic banks utilize contracts based on sale, lease, and profit-sharing. These characteristics create unique funding structures and asset management within Islamic banks, particularly due to the existence of Temporary Syirkah Funds, which act as customer investment funds, managed by the bank based on profit-sharing principles.

The development of the Indonesian Islamic banking industry shows a fairly positive trend. According to Indonesian Islamic Banking data published by the Financial Services Authority (OJK) as of September 2025, total Islamic banking assets reached IDR 1,006.18 trillion, growing 9.39 percent year-on-year, with a market share of 7.49 percent. The OJK also noted that the Indonesian Islamic banking industry consists of 14 Islamic Commercial Banks, 19 Islamic Business Units, and 174 Islamic Rural Banks (BPRS). This data demonstrates that, in terms of size, the Islamic banking industry continues to expand and has ample room for growth.

However, asset growth in the Islamic banking industry cannot always be interpreted as optimal improvement in financial performance. Asset growth can expand business capacity, but at the same time, it also demands improved management capabilities. In the banking industry, rapid asset growth without good financing quality can put pressure on profitability. Therefore, asset growth should be viewed not only as a measure of expansion but also as a challenge for resource and risk management.

In the context of Islamic commercial banks, one of the items that distinguishes the funding structure of Islamic banks from that of conventional banks is the Temporary Syirkah Fund. Temporary Syirkah Funds hold a unique position because they are neither entirely debt nor owner's equity. These funds originate from fund owners who entrust their funds to the bank to be managed according to sharia contracts, particularly mudharabah contracts. Therefore, the greater the proportion of Temporary Syirkah Funds to total assets, the greater the bank's capacity to raise funds based on sharia principles. However, a large Temporary Syirkah Fund does not automatically improve financial performance. These funds must be managed productively through appropriate financing distribution, adequate risk management, and operational efficiency. If banks are unable to optimally manage temporary syirkah funds, the increase in funds can actually create a burden on profit-sharing distribution and depress profitability. Therefore, this study uses the Temporary Syirkah Fund Ratio as a proxy for sharia capital structure, which better aligns with the characteristics of Islamic commercial banks compared to conventional capital structure ratios such as the Debt to Equity Ratio.

2. Research Methods

This study uses a quantitative approach with a causal associative approach. This approach was chosen because the study starts from numerical data that is statistically processed to test the relationship between variables. Meanwhile, causal associative research was used because this study not only describes the data but also examines the effect of the Temporary Syirkah Fund Ratio and Total Asset Growth Ratio on the financial performance of Islamic Commercial Banks, as proxied by Return on Assets.

The research model also incorporates Human Capital Efficiency as a moderating variable. Therefore, this study goes beyond testing the direct effect but also assesses whether human capital efficiency can strengthen or weaken the relationship between Islamic funding structure and asset growth on financial performance. This framework aligns with research needs in the Islamic banking sector, as funds and assets do not automatically generate profits if they are not managed productively by efficient human resources.

3. Results and Discussion

3.1. Research Object Description

This study uses panel data consisting of 10 Islamic Commercial Banks (BUS) in Indonesia for the period 2021 to 2025. The banks observed are Bank Aceh Syariah, BCA Syariah, BJB Syariah, Bank Syariah Indonesia, BTPN Syariah, Bank Mega Syariah, Bank Muamalat, Panin Dubai Syariah, Bank Syariah Nasional/Bank Victoria Syariah, and Bank NTB Syariah. With a five-year time span, the number of observations analyzed is 50 bank-year data.

The variables tested consisted of the Temporary Syirkah Fund Ratio as a proxy for sharia funding structure, the Total Asset Growth Ratio as a measure of asset growth, Human Capital Efficiency as a moderating variable, and Return on Assets as an indicator of financial performance. The Temporary Syirkah Fund Ratio, Total Asset Growth, and Return on Assets are presented in percentage units, while Human Capital Efficiency is presented in ratio units or times. Fixed assets are included in the initial data to provide an overview of the bank's size, but are not used as a control variable in the final regression model, in accordance with the research focus.

Table a. Research Object

No	Bank Code	Bank Name	Period	Observation
1	ACEH	Bank Aceh Syariah	2021-2025	5

No	Bank Code	Bank Name	Period	Observation
2	BCAS	BCA Syariah	2021-2025	5
3	BJBS	BJB Syariah	2021-2025	5
4	BRIS	Bank Syariah Indonesia	2021-2025	5
5	BTPS	BTPN Syariah	2021-2025	5
6	MEGA	Bank Mega Syariah	2021-2025	5
7	MUAM	Bank Muamalat	2021-2025	5
8	PNBS	Panin Dubai Sharia	2021-2025	5
9	BSN	National Sharia Bank/Victory Sharia Bank	2021-2025	5
10	NTBS	NTB Syariah Bank	2021-2025	5

The data composition reveals quite diverse bank characteristics. BRIS has the largest asset scale, while BSN has relatively small assets at the beginning of the period, but they increase sharply by 2025. This difference provides important context for interpreting the results, as the study sample includes banks with varying business models and institutional scales.

3.2. Descriptive Statistics

Table b. Descriptive Statistics

Description	Y	X1	X2	Z
Mean	1.91	64.50	8.38	1.80

Median	1.61	67.27	9.71	2.01
Maximum	11.43	80.45	27.64	5.20
Minimum	-6.72	36.25	-12.88	-7.96
Std. Dev.	2.70	12.37	8.58	1.59
Skewness	1.23	-0.77	-0.55	-4.48
Kurtosis	8.45	2.50	3.18	29.72
Jarque-Bera	74.43	5.45	2.60	1,654.73
Probability	0.00	0.07	0.27	0.00
Sum	95.49	3,225.01	418.89	89.78
Sum Sq. Dev.	356.18	7,492.85	3,604.64	124.56
Observations	50.00	50.00	50.00	50.00

Based on Table 3.2, the descriptive statistics output from the Eviews 13 application, the average Temporary Syirkah Fund Ratio (DSTR) was 64.50%, with a minimum value of 36.25 and a maximum of 80.45. This wide range is primarily influenced by BSN data, which shows a much lower Temporary Syirkah Fund Ratio compared to other banks. This condition requires attention because it empirically indicates variations in sharia funding structures that are not the same across banks.

*Total Asset Growth Ratio (TAGR)*has an average of 8.38 with a minimum value of -12.88 and a maximum of 27.64. Negative values in some observations indicate asset contraction, while high growth in others indicates fairly aggressive asset expansion.

*Human Capital Efficiency (HCE)*While the average return on assets (ROA) was 1.80 times, the 2021 PNBS showed a negative value, indicating negative value added to labor costs. Return on Assets averaged 1.91, with significant variation, primarily due to BTPS's high ROA, while PNBS recorded a negative return on assets (ROA) in 2021.

3.3. Testing the Accuracy of the Panel Data Regression Model

The data processing in this study used the Eview 13 application. Model accuracy testing was conducted by comparing the Common Effect Model, Fixed Effect Model, and Random Effect Model. This stage is crucial because the research data is panel-based, so model selection cannot be based solely on the coefficient of determination. It must undergo formal testing to ensure the model fits the data characteristics. Napitupulu et al. (2021) explains model selection as follows:

Table a. Model Selection

Testing	Function	Decision Criteria
Chow Test	Choosing between CEM and FEM	If Prob. > 0.05 then CEM is selected; if Prob. < 0.05 then FEM is selected.
Hausman test	Choosing between FEM and REM	If Prob. > 0.05 then REM is selected; if Prob. < 0.05 then FEM is selected.
Lagrange Multiplier Test	Choosing between CEM and REM	If Prob. > 0.05 then CEM is selected; if Prob. < 0.05 then REM is selected.

1. Chow Test

The Chow test is conducted to compare or choose the best choice between the Common Effect Model and the Fixed Effect Model. Decision making is done by looking at the probability value (p) for Cross-Section F. If the p value is > 0.05 then the selected model is the Common Effect Model. However, if p, 0.05 then the selected model is the Fixed Effect Model.

Table a. Chow Test Output Results

Redundant Fixed Effects Tests

Equation: Untitled

Cross-section fixed effects test

Effects Test	Statistics	df	Prob.
Cross-section F	44.137777	(9.37)	0.0000
Cross-section Chi-square	123.133973	9	0.0000

Based on the results of the Chow test in Table a. above, both the Cross Section F and Chi-square probability values are 0.000 < 0.05 (the p-value is less than alpha 0.05), thus rejecting the null hypothesis. Therefore, the best model to use is the fixed effect model. Based on the results of the Chow test that reject the null hypothesis, the data testing continues with the Hausman test.

b. Hausman Test

The Hausman test is performed to compare or select the best model between the Fixed Effect Model and the Random Effect Model. Decision-making is based on the probability (p) for the Random Cross-Section. If the p value is > 0.05, the selected model is the Random Effect Model. If the p value is < 0.05, the selected model is the Fixed Effect Model.

Table b. Hausman Test Output Results

Correlated Random Effects - Hausman Test

Equation: Untitled

Cross-section random effects test

Test Summary	Chi-Sq. Statistic	Chi-Sq. df	Prob.
Random cross-section	2.997532	3	0.3920

Based on table b, the results of the Hausman Test show that the p-value = 0.3920 > 0.05, so the best model used is the Random Effect Model.

c. Lagrange Multiplier (LM) Test

The Lagrange Multiplier test to determine the Random Effect Model is better than the Common Effect Model method and is also used to ensure the results of the Fixed Effect Model and Random Effect Model that are inconsistent in previous tests. In this case, the LM test is used, because when the Hausman test was conducted, the suitable model was the Random Effect Model while in the Chow Test the selected model was the Fixed Effect Model so that to decide the model, the Lagrange Multiplier test is necessary. If the p value > 0.05 then the selected model is the Common Effect Model, but if p < 0.05 then the selected model is the Random Effect Model.

Table c. Lagrange Multiplier Test Output Results

Lagrange Multiplier Tests for Random Effects

Null hypothesis: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided

(all others) alternatives

	Hypothesis Test		
	Cross-section	Time	Both
Breusch-Pagan	65.06628	1.115805	66.18209
	(0.0000)	(0.2908)	(0.0000)
Honda	8.066367	-1.056317	4.956855
	(0.0000)	(0.8546)	(0.0000)
King Wu	8.066367	-1.056317	3.595507
	(0.0000)	(0.8546)	(0.0002)
Standardized Honda	9.306327	-0.851746	2.906603
	(0.0000)	(0.8028)	(0.0018)

Standardized King Wu	9.306327	-0.851746	1.471014
	(0.0000)	(0.8028)	(0.0706)
Gourieroux, et al.	--	--	65.06628
			(0.0000)

Based on Table c, the results of the Lagrange Multiplier Test show that the value of the Lagrange Multiplier Test (LM Test) p value = 0.0000 < 0.05, so the selected model is the Random Effect Model (REM).

Table c Results of the Chow Test, Hausman Test, and Lagrange Multiplier Test

Testing	Probability	Decision
Chow Test	0.0000	*FEM* more precise than CEM
Hausman test	0.3920	*BRAKE* more precise than FEM
Lagrange Multiplier Test	0.0000	*BRAKE* more precise than CEM

The Chow test yields a probability of 0.0000, indicating that the Fixed Effect Model is more appropriate than the Common Effect Model. The Hausman test yields a probability of 0.3920, indicating that the Random Effect Model is more appropriate than the Fixed Effect Model. Furthermore, the Lagrange Multiplier test yields a probability of 0.0000, indicating that the Random Effect Model is more appropriate than the Common Effect Model. Therefore, based on this series of tests, the primary model used for hypothesis testing is the Random Effect Model.

3.4. Classical Assumption Test

According to Gujarati in Faisol (2020), the estimation method for random effects panel models uses the generalized least squares (GLS) method, while for common effects and fixed effects panel models, ordinary least squares (OLS) is used. One advantage of the GLS method is that it does not require classical assumptions. Therefore, if the selected regression model uses a Random Effects Model (REM), there is no need to test classical assumptions. However, a multicollinearity test will be performed to determine whether there is a correlation between the research variables in the regression model.

a. Multicollinearity Test

According to (Ghozali, 2013:91), this multicollinearity test aims to test whether a correlation is found in the regression model between independent variables. A good regression model should not have a correlation between independent variables. If the correlation coefficient between independent variables is above 0.90, it can be concluded that the model has a multicollinearity problem. Conversely, if the correlation coefficient is <0.90, the model is free from multicollinearity. The results of the multicollinearity test by looking at the correlation coefficient between independent variables can be seen in the following table:

Table a. Multicollinearity Test

Variables	X1	X2	Z
X1	1,000,000	-0.003683	-0.214897
X2	-0.003683	1,000,000	-0.303310
Z	-0.214897	-0.303310	1,000,000

Based on the results of the multicollinearity test using the correlation matrix, the correlation values between independent variables show relatively low numbers. The correlation between X1 (DSTR) and X2 (TAGR) is -0.003683, the correlation between DSTR and HCE is -0.214897, and the correlation between TAGR and HCE is -0.303310. All correlation values are below the 0.90 limit, so it can be concluded that there is no indication of serious multicollinearity in the research model. Thus, the variables Temporary Syirkah Fund Ratio, Total Asset Growth Ratio, and Human Capital Efficiency can be used together in the regression model because they do not have a very strong linear relationship with each other.

b. Hypothesis Testing

Hypothesis testing is conducted by examining the regression coefficient, t-statistic or z-statistic, and probability values. The significance level used is 5%. The hypothesis is accepted if the probability value is less than 0.05 and the direction of the coefficient is in accordance with the proposed theoretical argument. Partial tests are used to determine the effect of each variable on ROA, while simultaneous tests are used to examine the influence of variables in the model together. For moderation testing, the primary focus is on the interaction coefficients β4X1Z (DSTR X HCE) and β4X1Z (TAGR X HCE).

Table Decision Making Criteria

Testing	Criteria	Decision
Partial test	Probability < 0.05	Variables have a significant partial influence
Simultaneous test	Probability < 0.05	The models have a significant effect together
DSTR X HCE moderation test	Probability < 0.05	*HCE*moderates the relationship between DSTR and ROA
TAGR X HCE moderation test	Probability < 0.05	*HCE*moderates the relationship between TAG and ROA
Coefficient of determination	The value is getting bigger	The model is increasingly able to explain variations in ROA.

Table Regression Model Output Results 1

Dependent Variable: Y

Method: Panel EGLS (Cross-section random effects)

Date: 06/08/26 Time: 19:26

Sample: 2021 2025

Periods included: 5

Cross-sections included: 10

Total panel (balanced) observations: 50

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.154013	2.191144	2.352202	0.0229
X1	-0.047732	0.031960	-1.493505	0.1420
X2	-0.019749	0.028329	-0.697146	0.4891

Effects Specification

	Rho
Elementary	

		School	
Random cross-section		2.243379	0.7057
Idiosyncratic random		1.448666	0.2943
	Weighted Statistics		
R-squared	0.057515	Mean dependent variable	0.529876
Adjusted R-squared	0.017409	SD dependent var	1.451758
SE of regression	1.439066	Sum squared residual	97.33283
F-statistic	1.434072	Durbin-Watson stat	1.288338
Prob(F-statistic)	0.248573		
	Unweighted Statistics		
R-squared	0.152428	Mean dependent variable	1,909,800
Sum squared residual	301.8880	Durbin-Watson stat	0.415378

Based on Table, the output results of regression model 1 from the review 13 application, the results of the Random Effect Model regression, testing was carried out to see the effect of the Temporary Syirkah Fund Ratio (DSTR) and Total Asset Growth Ratio (TAGR) on Return on Assets (ROA) which can be explained by the following analysis:

1. Variable X1 - Temporary Syirkah Fund Ratio (DSTR) has a t-statistic value of -1.493505 with a probability value (significance) of 0.1420 > 0.05. So it can be concluded that variable X1 does not have a significant effect on variable Y. Therefore, Hypothesis 1 is rejected.

2. Variable X2 - Total Asset Growth Ratio (TAGR) has a t-statistic value of -0.697146 with a probability value (significance) of 0.4891 > 0.05. So it can be concluded that variable X2 does not have a significant effect on variable Y. Therefore, Hypothesis 2 is rejected.

3. The adjusted R Square value is 0.017409, which means that the contribution of the influence of variables X1 and X2 on variable Y is 1.74%.

4. The following are the results of the first model regression equation: Y = 5.15401329968 - 0.047732448349*X1 - 0.0197494200684*X2 + [CX=R]

Table Regression Model Output Results 2

Dependent Variable: Y

Method: Panel EGLS (Cross-section random effects)

Date: 06/08/26 Time: 19:50

Sample: 2021 2025

Periods included: 5

Cross-sections included: 10

Total panel (balanced) observations: 50

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-6.494637	2.566514	-2.530529	0.0150
X1	0.088539	0.034751	2.547808	0.0144
X2	0.012733	0.021017	0.605857	0.5477
Z	4.043509	1.143538	3.535964	0.0010
X1Z	-0.042080	0.015371	-2.737622	0.0089
X2Z	0.002293	0.005919	0.387447	0.7003

Effects Specification

	Elementary School	Rho
Random cross-section	2.076535	0.9157
Idiosyncratic random	0.630199	0.0843

Weighted Statistics

R-squared	0.798402	Mean dependent variable	0.256849
Adjusted R-squared	0.775493	SD dependent var	1.333526
SE of regression	0.631853	Sum squared residual	17.56648

F-statistic	34.85126	Durbin-Watson stat	1.180969
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.403093	Mean dependent variable	1,909,800
Sum squared residual	212.6060	Durbin-Watson stat	0.097577

Based on table of the output results of regression model 2 from the review 13 application with the Random Effect Model, testing was conducted to see the effect of Temporary Syirkah Fund Ratio (DSTR), Total Asset Growth Ratio (TAGR), and Human Capital Efficiency (HCE) on Return on Assets (ROA), and to see whether HCE was able to moderate the relationship between DSTR and TAGR on ROA. With the decision-making criteria if Prob. <0.05, then the variable has a significant effect, and if Prob. >0.05, then the variable has no significant effect as follows:

1. The X1Z variable (Interaction of variable X1 with Moderation) has a t-statistic value of -2.737622 with a probability value (significance) of 0.0089 < 0.05, so it can be concluded that the moderating variable is able to significantly moderate the influence on variable X1 on variable Y. Therefore, Hypothesis 3 is accepted.

2. The X2Z variable (Interaction of variable X2 with Moderation) has a t-statistic value of 0.387447 with a probability value (significance) of 0.7003 > 0.05, so it can be concluded that the moderating variable is not able to significantly moderate the influence on variable X1 on variable Y. Therefore, hypothesis 4 is rejected.

3. The adjusted R Square value is 0.775493, which means that the contribution of the influence of variables X1, X2, Z, X1Z, X2Z on variable Y is 77.55%.

4. The following are the results of the first model regression equation:

5. Y = -6.49463723822 + 0.0885393199437*X1 + 0.0127330831428*X2 + 4.04350936523*Z - 0.0420795106684*X1Z + 0.0022934816179*X2Z + [CX=R]

Thus, it can be concluded that after the moderating variable is included, the influence of the independent variable on the dependent variable becomes stronger, from 1.74% (before the moderating variable) to 77.55% (after the moderating variable is added).

4. Conclusion

This study aims to analyze the effect of the Temporary Syirkah Fund Ratio and the Total Asset Growth Ratio on the financial performance of Islamic Commercial Banks in Indonesia, as proxied by Return on Assets. Furthermore, this study also examines the role of Human Capital Efficiency as a moderating variable in the relationship between the Temporary Syirkah Fund Ratio and the Total Asset Growth Ratio on Return on Assets. The research subjects consisted of 10 Islamic Commercial Banks with an observation period of 2021 to 2025, so the analyzed data is panel data. Based on the results of the panel data testing conducted in Chapter IV, the most appropriate model to use is the Random Effects Model (REM). The selection of this model indicates that variations in characteristics between banks still need to be taken into account, but these variations are more appropriately treated as random components. Hypothesis testing was conducted by considering the regression coefficient value, t-statistic value, and probability value at a significance level of 5%. Based on the results of the hypothesis testing, this study indicates that not all proposed variables have the same influence on the Return on Assets of Islamic Commercial Banks.

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