

Granger Causality Analysis on Factors that Affect The Performance of Amil Zakat

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ABSTRACT

This study aims to prove the existence of a Granger causality relationship between the performance variables of Amil Zakat and Dana Amil. Using data from amil zakat institutions between 2010 and 2021 from 10 amil zakat institutions in Indonesia, we find Amil Fund has Granger causality effect to Performance, but Performance doesn't have granger causality effect to Amil Funds. The increase in amil funds will increase the total funds collected by the amil zakat institutions in the next period. However, the more total funds collected doesn't mean increasing the amil funds in the next period. We also tested the simultan effect using two stage lease square regression and we find that Amil Fund and Performance have simultan effects.

Keywords: amil zakat institution, amil fund, amil performance, granger causality, simultan effect

INTRODUCTION

Institutional zakat management in Indonesia began to develop after the reformation with the issuance of Law No. 38 concerning zakat management in 1999, which was later replaced by Law No. 23 of 2011. Along with the strengthening of zakat management, research on zakat management developed following the development of the zakat institution itself. So far, research on the performance of the Zakat Management Unit (UPZ) is still very little. This can be seen from the lack of available research, and the limited research methods used.

Our motivation in this study is based on research conducted by Hizazi et al (2022), where they used regression and found that amil funds had an effect on the performance of amil zakat, but had not seen the effect of performance on factors that affected performance. Other research on institutional performance shows that many

factors that influence performance actually have a simultaneous effect where the independent variable affects the dependent and conversely the dependent variable also affects the independent variable (Buck et al., 2008; Vinayagamooth et al., 2015; Cheon el al., 201; Lundgren and Zhou 2017; Arieftiara and Utama, 2018). The effect of simultaneous causality on the factors that affect this performance applies to both commercial and non-commercial institutions (Cheon el al., 2017; Olaniyi et al., 2017).

Second, the existing research refers more to the efficiency of institutional management (Ahmad & Main, 2014; Muftadi & Susilowati, 2018; Al-Ayubi & Possumah, 2018; Rustyani & Rosyidi 2018; Risanda et. al., 2018). Other performance measures that already exist refer to the macro-level performance measurement of "local government" rather than the performance of the UPZ institution.

UPZ in Indonesia has two forms of management, namely the Amil Zakat Agency (BAZ) and the Amil Zakat Institution (LAZ). Due to the different formation processes, BAZ is a semi-autonomous body formed by the government and LAZ is formed by the community, in general there are differences in management and related subjects in zakat management. These differences in properties also make performance measures and influencing factors different.

This study is expected to prove the existence of a simultaneous causal relationship where amil zakat funds affect the performance of amil zakat and subsequently the amil zakat performance will affect amil funds. The study will also look at other factors that affect the financial performance of amil, both assets and number of branches. Discussion analysis also includes from the qualitative side through the perspective of zakat managers as well as from the quantitative side of testing between the tested variables.

The results of the research can be used as input for the government, funds or through the National Development Planning Agency (BAZNAS) regarding the ideal performance measure of UPZ and in determining reporting standard points that can be used as a reference in measuring the performance of the institution. Stakeholders, both the government, zakat managers and other communities, can see the performance of UPZ better and make better performance comparisons. Stakeholders can also pay attention to the factors that support or hinder performance.

From the background that has been described previously, it is interesting to conduct research on: (1) Does the amount of amil zakat funds affect the financial performance of amil zakat institutions? (2) Does the financial performance of amil zakat affect the amil zakat funds? (3) Does the size of amil zakat affect the financial performance of amil zakat?

This study, to the best of the author's knowledge, is the first to use Granger causality analysis on the influence of amil zakat funds on the performance of amil zakat, and vice versa and vice versa the effect of amil zakat performance on amil funds. Research on the performance of amil zakat using regression analysis tools is still very little used. Previous research with OLS regression was conducted by Mubtadi and Susilowati (2018), followed by Hizazi et al. (2022). Meanwhile, in measuring the efficiency of Wahab and Rahim (2013) followed by Al-Parisi (2017) using Tobit regression.

Another novelty in this research is to find out the factors that affect the financial performance of zakat management units in Indonesia, both the asset variable and the number of branches owned by the zakat amil. Another description is seen from the qualitative side through the perspective of zakat management, complementing the quantitative side.

LITERATURE REVIEW

Amil and Organizational Performance

The influence of managers on organizational performance is an interesting field to observe in both the public and commercial fields. (Brudney et al, 2001; Nicholson-Crotty and O'Toole, 2004; and Buck et al, 2008). Managers have a central role in managing organizational resources both directly and indirectly that will improve organizational performance. Changes related to managers will have an impact on organizational performance, Hill (2005) proves that manager turnover will have a negative impact on organizational performance if managers are recruited from outside the organization, but in the long run it will have a positive effect.

On the other hand, the choice of strategy by managers will affect organizational performance (Boyne and

Walker, 2004; Cheon and An, 2016). Organizations that perform poorly are more likely to take on the position of defender than prospective, even though past strategies do not significantly affect performance. Other studies have related how performance is affected by networks (Meier and O'Toole 2003). This study uses a sample of amil zakat institutions, where managers refer to the term Amil.

Performance of Zakat Institutions

Performance measurement is something that is very important for an institution to see the success of the institution. Commercial institutions have a very good measure of describing this because at least there are performance measures such as earnings and stock returns (Kaplan 2001) that are not owned by non-commercial institutions. Due to this nature, previous research in zakat institutions has mostly used efficiency measures using the Data Enveloping Analysis method which was first formulated by Farel (1957). There is also a study that uses a measure of the production function with Stochastic Frontiers Analysis (SFA) following the Cobb Douglas production function with zakat receipts and distribution as the dependent variable (Risanda et al., 2018), while Muhtadi and Susilowati (2018) use regression in testing efficiency with governance as the independent variable.

The performance variable with efficiency uses the ratio of inputs and outputs produced by zakat institutions. The performance variables that have been used in previous studies are as follows: Efficiency Measures: Distribution Efficiency (Muhtadi & Susilowati, 2018; Al-Ayubi et al., 2018; Rustyani & Rosyidi, 2018), technical efficiency (Risanda et al., 2018; Al-Ayubi et al (2018) and Measures of productivity by Rustyani & Rosyidi (2018).

The number of input and output variables used shows the diversity of

efficiency measures used by previous studies. The use of this variable may be subjective with user preference as the main consideration. On the other hand, from the research above Muhtadi and Susilowati and Risanda et al (2018) also conducted a regression test with the dependent variable Zakat Collection and efficiency but the results were not satisfactory due to methodological limitations where Muhtadi and Susilowati (2018) only used 20 observations and Risanda et al (2018) only used 15 observations whose results might be biased. Hizazi et al. (2022) used the total collection of Zakat, Infaq and shodawah as a performance measure and found that amil funds had a positive effect on the financial performance of amil zakat.

Amil Funds and Organizational Performance

Due to the lack of research that looks at the relationship between amil funds and organizational performance, the initial reference for performance research is to refer to literacy in commercial organizations or companies.

Jensen and Murphy's (1990) research found that executives get manager incentives tend to choose actions that are in line with shareholder interests." Meanwhile, Tosi et al., (2000) in a meta-analysis of executive salary research, reported that all surveyed studies used salary as a variable to improve organizational performance.

In a specific study of amil zakat, Muhtadi & Susilowati, 2018 proved that amil funds had a positive effect on amil zakat. Hizazi et al., (2022) corroborate this finding with a larger number of samples and observations that amil funds affect the performance of amil zakat.

Size of Amil Zakat

Watt and Zimmermann (1978) in their political cost theory state that large

companies are the subject of supervision. The larger the company will have better resources, both material resources and human resources. In this perspective, the bigger the company, the better the company's performance.

Lee (2009) and Pervan and Visic (2012) prove that firm size is positively related to firm performance. This firm size indicates that the larger the firm's assets indicates the firm's ability to earn greater profits. The larger the firm, the higher the ability to manage resources. So that it can improve company performance.

The number of branches owned by the company is an indication of the size of the company. However, the use of the number of branches has not become something that is commonly used in representing the size of the company. The more branches show the business that is growing and the company is growing.

Previous Research

From several performance alternatives from previous research (Ahmad & Main, 2014; Mubtadi & Susilowati, 2018; Al-Ayubi & Possumah, 2018; Rustyani & Rosyidi 2018; Risanda et. al., 2018) such as Zakat Collection, Zakat Distribution, Zakat Recipient, Total Assets and Zakat Collection efficiency are alternative main performance measures because they are able to describe the maximum amount of zakat institution efforts in collecting as much zakat as possible. Another alternative is the amount of infaq received, because zakat reflects obligations that must be paid while infaq is voluntary. The higher the infaq value will illustrate the higher public trust in zakat institutions. While the variation in the distribution of zakat, is very dependent on the size of the amount of zakat collected.

Previous research with OLS regression was conducted by Mubtadi and Susilowati (2018), followed by Hizazi et al.

(2022). Meanwhile, in measuring the efficiency of Wahab and Rahim (2013) followed by Al-Parisi (2017) using Tobit regression.

Research Framework and Model

Rustyani and Rosyidi (2018) explain that the distribution of funds will be influenced by the amount of costs incurred and the amount received by Amil Zakat. While the distribution of funds will be influenced by the amount of Zakat collected by UPZ so that the Zakat collected will also be influenced by the amount of operational costs and the amount received by the amil. In addition to these two factors, Al-Ayubi et al. (2018) adding the number of volunteers and the number of offices as factors affecting the output of UPZ. The following is a picture of the framework and model of this research:

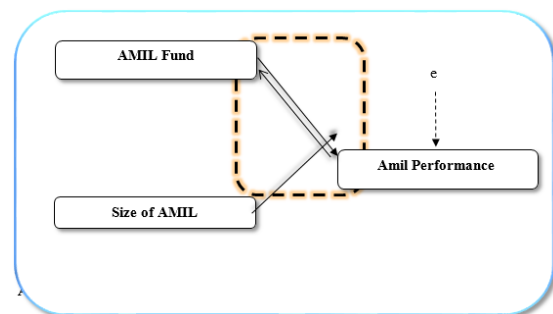


Figure 1. Research Framework

Legend: dashed line is our main research focus.

Amil Zakat Performance Model

The basic model for measuring LAZ performance is as follows:

$$\text{Performance}_{it} = \beta_0 + \beta_1 \text{AmilFund}_{it} + \beta_2 \text{Size}_{it} + e$$

(1)

Where:

Performance = Performance Measure, as measured by the total all Amil Institution Collections.

β_0 = Constant

Amil Fund = Distributed or used of Amil funds measured by amil distribution data

Size = Amil Institution size, measured by total asset

Offices = Number of Offices, measured by the the number of branch offices, service units and centers

i = crosssection/institution i

t = time t

e = error

The simultaneous model of Granger causality on the effect of LAZ performance on amil funds is as follows:

$$\text{AmilFund}_{it} = \beta_0 + \beta_1 \text{Performance}_{it} + \beta_2 \text{Size}_{it} + e$$

(2)

Where:

Performance = Performance Measure, as measured by the total all Amil Institution Collections.

β_0 = Constant

Amil Fund = Distributed or used of Amil funds measured by amil distribution data

Size = Amil Institution size, measured by total asset

Offices = Number of Offices, measured by the the number of branch offices, service units and centers

i = crosssection/institution i

t = time t

e = error

Research Hypothesis

Based on the literature review, previous research as well as the framework and research model above, the hypotheses of this research are as follows:

H1: Amil Fund has a positive effect on Amil Financial Performance;

H2: Amil's Financial Performance has a positive effect on Amil's Fund;

H3: Amil size has a positive effect on Amil's Financial Performance;

H4: Number of Branches has a positive effect on Amil's Financial Performance.

METHODOLOGY

This study uses a qualitative mix method research both in the first year and in the second year. In the first stage, qualitative methods are used to explore the factors that determine the performance of the zakat management unit using the Focus Group Discussion (FGD) method to see what factors are considered to have an effect on the performance of the zakat management unit.

The factors that have been used in previous studies are used as the starting point in determining the factors to be explored with the FGD. The FGD was conducted by re-simulating the process of collecting and distributing zakat and emphasizing the factors that influence this process. The FGD also included mindmapping in exploring as many factors as possible that could affect UPZ's performance and ended with a structured discussion on the formulation of performance measures and their factors. The formulation of the performance model is based on the results of the FGD. Quantitative data based on FGDs were collected from all BAZ and LAZ who were present as the basis for presenting qualitative descriptive performance measurements. The second stage of testing

is carried out using quantitative testing using multiple regression.

The variables that will be examined in this study are the provision of Total Assets, Number of Amil, Number of Volunteers, Operational Costs and Number of Offices and Total Zakat Collection.

Research Data Source

The data used is secondary data in the form of LAZ financial reports available at BAZNAS and each LAZ from 2010 to 2021.

Subject/ Research Location

The subjects/locations of the research are BAZNAS and LAZ by looking at the general operational similarities and the same basic management. Focus on Quantitative Testing at the national level LAZ using 12 data from 2010-2021.

Research Model

The granger model for measuring LAZ performance is as follows:

$$Performance_{it} = \beta_0 + \beta_1 Performance_{it-1} + \beta_2 \beta_1 AmilFund_{i\ t-1} + \beta_3 Size_{i\ t-1} + e$$

(3)

Where:

Performance = Performance Measure, as measured by the total all Amil Institution Collections.

The simultaneous model of Granger causality on the effect of LAZ performance on amil funds is as follows:

$$AmilFund_{it} = \beta_0 + \beta_1 AmilFund_{it-1} + \beta_2 \beta_1 Performance_{it-1} + \beta_3 Size_{it-1} + e$$

(4)

Where:

Performance = Performance Measure, as measured by the total all Amil Institution Collections.

β_0 = Constant

Amil Fund = Distributed or used of Amil funds measured by amil distribution data

Size = Amil Institution size, measured by total asset

Offices = Number of Offices, measured by the the number of branch offices, service units and centers

i = crosssection/institution i

t = time t

e = error

Alternative tests to see the simultant effect of performance and amil fund are using two stage least square. For this purpose, models to estimate are:

$$Performance_{it} = \beta_0 + \beta_1 AmilFund_{it} + \beta_2 Size_{it} + e$$

(5)

$$AmilFund_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 Size_{it} + e$$

(6)

Where:

Performance = Performance Measure, as measured by the total all Amil Institution Collections.

β_0 = Constant

Amil Fund = Distributed or used of Amil funds measured by amil distribution data

Size = Amil Institution size, measured by total asset

Offices = Number of Offices, measured by the the

number of branch offices,
service units and centers
i = crosssection/institution i
t = time t
e = error

RESULT AND DISCUSSION

Research Samples

In July, 2022, population of Amil Zakat Institution (LAZ) in Indonesia has grown to 27 according to BAZNAS (Badan Amil Zakat Nasional, Indonesia's semi autonomy body who govern BAZ and LAZ in Indonesia). Among this 27 LAZ, we use 10 LAZ as our sample selected on some specific criteria (see Table 2) below.

Table 2. Descriptive Statistics of the Research Data (in Million Rupiah)

Variables	Mean	Max	Min	SD	Obs
Performance	97,200	358,000	18,700	82,600	58
AmilFund	13,600	48,400	1,930	12,200	58
Asset	40,000	189,000	7,070	39,000	55

We can see from above table that performance which is measured by total collection of fund has Rp. average value.

Correlation

The correlation table below shows that all variable has significant relation to each other. The similar result from Hizazi et al 2022, guided us to evaluate whether there is granger effect from performance to amil fund. We see that:

Table 3. Correlation

	Performance	Amil	Size
Performance	1		
	-		
AmilFund	0.902	***	1
	0	-	
Size	0.446	***	0.496
	0.003	0.001	-

Observation : 58

Results

Observations from each sample vary due to availability of data from 2010 to 2021, making our data available in unbalance data panel.

Table 1. Research Sample

No	Criteria	Sample	obs
1	Authorized National LAZ	27	58
2	Not publish financial report in internet	(17)	-
3	Sample for model 1	10	58
3	not available for sample model 2		(3)
4	Observations for model 2		55

Statistic Descriptive

Our descriptive statistics for our models shown as following:

We evaluate our test using granger causality test and two stage least square, to see whether performance and Amil Fund has causality effect and whether the effects are simultan. From the table 5 in the first row, we can see that estimation has 46 observation for granger cause of Amil Fund to Performance and 44 for for granger cause of Asset to Performance and for granger cause of Asset to Amil Fund.

Granger Causality Tests

Table 4. Pairwise Granger Causality Tests

Sample: 2010 - 2021

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
AMILFUND does not Granger Cause PERFORMANCE	46	0.52525	0.4725
PERFORMANCE does not Granger Cause AMILFUND		9.28662	0.0039
ASSET does not Granger Cause PERFORMANCE	44	0.21755	0.6434
PERFORMANCE does not Granger Cause ASSET		0.28964	0.5934
ASSET does not Granger Cause AMILFUND	44	9.1E-06	0.9976
AMILFUND does not Granger Cause ASSET		1.05563	0.3102

From the result above we can see Amil Fund and Performance do not have bi-directional Granger causality effect. Granger causality effect is only running from Amil Fund to Performance not vice versa. However, Asset vs Performance and Asset vs Amil Fund show equally bi-directional Granger causality effect.

Two Stage Least Square Regression

We estimated two stage least square regression to see whether Amil Fund and Performance has simultan effect, the effect of Amil Fund to Performance and vice versa. This regressions has to be executed in one run to avoid bias if estimated one by one. Our results are show in the Table 4a and 4b below:

Table 4a. Panel Two-Stage Least Squares Regression

Dependent Variable: **Performance**

Variable	Coefficient	t-Statistic	Prob.
C	2.37E+10	2.448657	0.0177
Asset	-0.205135	-1.328148	0.1899
Amilfund	6.028547	12.43360	0.0000
Adjusted R-squared	0.744507		
F-statistic	79.67803		
Prob(F-statistic)	0.000000		

Sample: 2010 2021

Periods included: 12

Cross-sections included: 11

Total panel (unbalanced) observations: 55

Instrument specification: C ASSET AMILFUND

And with Amil Fund as the dependent variable the results are:

Table 4b. Panel Two-Stage Least Squares Regression

Dependent Variable: **Amilfund**

Variable	Coefficient	t-Statistic	Prob.
C	-3.18E+08	-0.216630	0.8293
Performance	0.124126	12.43360	0.0000
Asset	0.047554	2.206812	0.0318

Adjusted R-squared 0.758461
 F-statistic 85.78324
 Prob(F-statistic) 0.000000

Sample: 2010 2021
 Periods included: 12
 Cross-sections included: 11
 Total panel (unbalanced) observations: 55
 Instrument specification: C ASSET PERFORMANCE

From the Table 4a, we can see Amil Fund has significant positive effect to performance at 1% level of significancy while Asset doesn't have significant effect to performance. While in Table 4b, we can see that performance has significant positive effect to Amil Fund at 1% and Asset has positive effect to amil fund at 5% significancy level. We conclude that Amil Fund and Performance has simultaneous Effect.

Granger Causality Test between Amil Fund and Performance

Amil Fund has granger causality effect to performance only in one way. And, Performance doesn't have granger causality effect to Amil Fund. From this perspective we see that the bigger Amil Fund expensed, the higher performance in the next period. However, the bigger performance would not be followed by higher Amil Fund in the next period.

Amil Fund Consist of Employee Expends and operational Expends, both are correlated with performance. Employee expend has psychological impact to employee. The increase of salary would increase motivation of employee. At the same time, they probably have feeling that they are more appreciated. This increase creates better mood and followed by improvement of work atmosphere. Thus,

they work more productive and eventually increase performance of amil zakat institution.

Simultan Effect between Amil Fund and Performance

Amil Fund has positive effect to Performance and vice versa, Performance has positive effect to Amil Fund. The higher Amil Fund would increase total fund collected by amil zakat institution and the higher Total Fund Collected would rise amil fund distributed by amil zakat institution.

Other than psychological impact of the increasing of amil fund, the rise of amil fund expend would increase operational expense which is may include promotional expenses, advertising expense that has direct impact to total fund collected. Other operational expenses such as equipment, supplies etc. would increase productivity of amil zakat that eventually increase performance of amil zakat.

CONCLUSION

We provide evidences that find Amil Fund has Granger causality effect to Performance, but Performance doesn't have granger causality effect to Amil Funds. The increase in amil funds will

increase the total funds collected by the amil zakat institutions in the next period. However, the more total funds collected doesn't mean increasing the amil funds in the next period.

We also find Amil Fund and Performance have simultan effects. Amil Fund has positive effect to Performance and Performance has positive effect to Amil Fund. The higher amil fund, the more effort of amil in operation and eventually the higher total fund collected. In other hand the increase of total fund collected will increase the distribution of amil fund.

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