

MEASURING THE PRODUCTIVITY OF ISLAMIC BANKS' PERFORMANCE WITH STOCHASTIC FRONTIER MEASURES: EMPIRICAL EVIDENCE IN INDONESIA

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ABSTRACT

This research investigates the effect of non-financial objectives on Islamic bank efficiency. The sample data are taken from Islamic banks in Indonesia, spanning 2008-2020. By using the parametric approach, the Stochastic Frontier Analysis (SFA) method is employed to estimate the maximum likelihood and profit efficiency level. The model used in this research is called the BC'95 model in translog form. The input-output variables in this research are chosen based on the intermediation approach. The results show that publicity and zakat have positive and significant effects on the efficiency level of Islamic banks in Indonesia. On the contrary, the qardhul hasan has a negative but significant effect. In this case, zakat has the strongest sensitivity toward the dependent variable. Overall, the efficiency trend is in line with national and global macroeconomic conditions, and it strengthens the existence of non-financial objectives in the Islamic bank's efficiency measurement model. It is hoped that this research can be a gateway for regulators, practitioners, and academics to continue to explore and encourage strengthening the manifestation of Islamic values in Islamic bank operational practices.

Keywords: Profit efficiency; Islamic bank; Stochastic frontier analysis; Non-financial objectives

MENGUKUR PRODUKTIVITAS KINERJA BANK SYARIAH DENGAN STOCHASTIC FRONTIER MEASURES: BUKTI EMPIRIS DI INDONESIA

ABSTRAK (10pt Bold)

Penelitian ini bertujuan untuk menyelidiki pengaruh tujuan non-keuangan terhadap efisiensi bank syariah. Tes dilakukan dengan menggunakan data sampel dari bank syariah di Indonesia, yang berlangsung pada tahun 2008-2020. Metode Stochastic Frontier Analysis (SFA) digunakan untuk menganalisis model fungsi profit frontier yang melibatkan tujuan non-finansial dalam menentukan variabel input-output. Di sisi lain, variabel qardhul hasan memiliki efek negatif dan signifikan terhadap efisiensi keuntungan. Secara keseluruhan, tren efisiensi laba saat ini sejalan dengan kondisi makroekonomi nasional dan global. Diharapkan penelitian ini dapat menjadi pintu gerbang bagi regulator, praktisi dan akademisi untuk terus mengeksplorasi dan mendorong penguatan perwujudan nilai-nilai Islam dalam praktik operasional bank syariah.

Kata kunci: Efisiensi keuntungan; Bank syariah; Analisis stochastic frontier; Tujuan non-finansial

INTRODUCTION

Modern banking systems (including Islamic banking) have grown to a level where they are seen as one of the most important indicators of macroeconomic stability. (Bhatia et al., 2018). Currently, global Islamic banking is showing signs that indicate positive developments, including 1) The conversion of conventional banks to Islamic banks, 2) The start of the growth of digital Islamic banks, 3) Expansion of the sharia banking business, and 4) Development of financial instruments new sharia by the central bank. (ICD, 2022). Specifically related to digitalization and fintech, both are believed to be able to help strengthen the resilience of the Islamic financial industry in an unstable (volatile)

environment and, at the same time, to open new avenues of growth. (S&P, 2022).

Islamic banking, it cannot be denied, continues to grow significantly. By the end of 2022, global Islamic banking assets will reach USD 2.25 trillion, growing 6.9 % year-on-year (yoy). The total Islamic banking assets are equal to 69.3% of the total global Islamic financial assets. Regionally, the Gulf Cooperation Council (GCC) region dominates the proportion of global Islamic banking assets with a value of USD 1.34 trillion, followed by the Middle East and South Asia (MESA) region at USD 0.48 trillion and the South-East Asia region at USD 0.31 trillion. (IFSB, 2023). On a local scale, in Indonesia, for example, total Islamic banking assets at the end of 2022 were IDR 802.26 trillion, or an increase of 16.53% compared to the previous year. In this

case, the market share achieved was 7.02%, the second largest after the Islamic capital market (OJK, 2023).

In its development, Islamic banking is directed towards an efficient banking system. (OJK, 2021). Efficient banks can produce more outputs for given inputs. It can help them reduce costs, increase profits, and remain competitive in the market. (Akdeniz et al., 2023). The efficiency terms above can be referred to input input-orientated efficiency and output-orientated efficiency as well as frontier approach efficiency defined by (Farrell, 1957). To date, a lot of research has been carried out regarding measuring the efficiency of Islamic banking with various model forms, starting from the type of efficiency chosen, estimation methods, approaches, and the selection of variables involved in measuring efficiency as per the modeling framework.

The variables involved in the current Islamic bank efficiency measurement model tend to be copy pasted from conventional bank efficiency measurement models. Wahyudi & Soemitra (2022) support this statement, where most researchers place financial objectives such as deposits, labor costs, and fixed assets as input variables and financing and income as output variables. Indicators representing non-financial objectives such as increasing individual education (educational grants, employee training, research, and literacy), zakat, and qardhul hasan have not been involved. Philosophically, every economic activity, including banking, must benefit humans in a comprehensive manner, namely financial and non-financial objectives by maqashid sharia (Mohammed et al., 2008). This research aims to investigate the influence of these non-financial objectives on the profit efficiency of Islamic banks. In the end, the results of this research are expected to confirm the existence of Islamic banks as complete business entities, including financial objectives and non-financial objectives, by the aims or objectives of sharia (maqashid sharia).

The existence of the concept of efficiency in economics is beyond doubt, and this concept is in line with Islamic teachings. In contemporary Islamic management language, efficiency is in line with the meaning of the word itqan, which represents professionalism in carrying out tasks or work. (Hafidhuddin & Tanjung, 2019). The concept of efficiency was first defined by Koopmans (1951) as follows: "A producer is said to be technically efficient if and only if it is impossible to produce more of any output without producing less of another output or using more input." The firm is technically efficient because it uses its inputs to produce the maximum technologically feasible outputs (Coelli et al., 2005).

Some people use the words efficiency and productivity interchangeably, but they do not have the same meaning. In simple terms, efficiency is defined as the comparison between minimum input and actual input or between actual output and maximum output. Meanwhile, productivity is defined as the comparison between actual output and actual input. (Coelli et al., 2005). From the point of view of the orientation of the object that is the goal, efficiency measurements can be grouped into two categories: 1) input-orientated measurements and 2) output-orientated measurements (Kumbhakar. & Lovell, 2000).

Mokhtar et al. (2006) Created a conceptual framework for measuring efficiency in banking, both conventional and Islamic. He divided the banking efficiency measurement process into five stages: determining the objective of the efficiency measurement carried out, selecting the type of efficiency, selecting the estimation method, defining input and output variables, and analyzing the measurement results. Farrell (1957) divided efficiency measurements into two types, namely technical efficiency (TE) and allocative efficiency (AE). Technical efficiency relates to a company's ability to obtain maximum output from a set of available inputs or use minimum input to produce a specific output. Allocative efficiency reflects a company's ability to use inputs optimally with various prices and existing production technology.

Furthermore, allocative efficiency can be further grouped into two categories, namely cost efficiency (CE) and profit efficiency (PE) (Berger & Mester, 1997). A manufacturer is considered cost-efficient if he can produce a certain amount of output at a minimum cost. Likewise, a producer is said to be profit-efficient if he can maximize profit or profit from the allocated input and output. Ultimately, the choice of efficiency type used in measuring banking efficiency depends on the objectives the researcher wants to achieve and the availability of input price and output price data.

Techniques or methods for measuring efficiency can be grouped into two categories: 1) parametric, which uses econometric techniques, and 2) non-parametric, which uses linear programming techniques. Stochastic Frontier Analysis (SFA) by Meeusen & van den Broeck and Aigner, Lovell & Schmidt (both in 1977), as well as Data Envelopment Analysis (DEA) by Charnes, Cooper, & Rhodes in 1978, and Banker, Charnes, & Cooper in 1984 (Coelli et al., 2005), are each examples of the methods most frequently used by researchers in measuring bank efficiency. (Reepu & Arora, 2020).

The production function used in measuring efficiency can be written as $y=f(x)+vu$, where y is output, x is input, v is statistical noise, and u is

inefficiency. In the banking efficiency literature, defining and determining bank inputs and outputs is one of the controversial methodological issues because banks produce multiple outputs using multiple inputs. The conceptual perspective regarding efficiency issues in both conventional and Islamic banking departs from the issue of whether banks will be considered as production facilities for various products or whether banks will be seen as financial intermediation agents. Thus, two main approaches are commonly used in measuring banking efficiency: the production approach, initiated by Benston (1965), and the intermediation approach, undertaken by Sealey & Lindley (1977).

In practice, banks carry out these two roles simultaneously, so it is difficult to favor one of the two. The two approaches can be differentiated from the point of view of the meaning of deposits (savings, current accounts, time deposits, and other equivalents) for a bank (Boda & Piklová, 2018). Alharthi (2016) provides conclusions on the problems or objectives of measuring efficiency, namely as follows: 1) Reducing input and producing a certain amount of output (input orientation), 2) Fixed amount of input to maximize output (output orientation), 3) Minimizing input and maximizing output (optimal case), 4) Increasing input and output simultaneously (simultaneously), provided that input must be less than output, 5) Reducing input and output simultaneously (simultaneous) provided that input must be smaller than output.

The economy, which is part of the Islamic teaching system, will benefit society. However, interpreting *mashed sharia* in economic activities requires further explanation. (Yafiz, 2015). Economic activities, which include production, consumption, and exchange involving benefits, are carried out in the context of worshipping Allah SWT. He aims to achieve worldly satisfaction and prosperity in the afterlife. In a smaller context, it is not only about financial objectives but also non-financial objectives. All economic activities that benefit humans are called needs, and everything that is a need must be met. (Ibrahim et al., 2021). On a smaller scale of Islamic economics, namely Islamic banking, benefits are realized by obeying Islamic commands and avoiding prohibitions such as interest, gambling, speculation, *gharar*, and so on, which will allow Islamic banks to adopt innovative banking technologies without compromising *Sharia* principles. (Safiullah, 2022). Mohammed et al. (2008) said it is time for Islamic banking to revise its operational goals (objectives), not just financial goals but also non-financial ones, by *Maqashid Sharia*.

In its development, several researchers have involved non-financial objectives in research on

Islamic banking performance, including 1) Hameed et al. (2004) Proposed a new Islamic banking performance measurement called the Islamicity Disclosure Index involving *Sharia* compliance, corporate governance, and social environment variables. 2) Mohammed et al. (2008) Proposed a new quantity for measuring Islamic banking performance, named the *Maqashid Sharia* Index (MSI). This index has been widely used as a reference tool by Islamic banking researchers to date. 4) Puspitasari et al. (2017) Researched the technical efficiency of Islamic banking by involving input variables in the form of education grants, research and training costs, and publicity costs. 5) Rusydiana & Firmansyah (2017) proposed a quadrant form of Islamic banking performance in the form of efficiency level vs *maqashid sharia* index, 6) Rusydiana & Marlina (2019) proposed a measure of Islamic banking efficiency performance called Social Efficiency, 7) Ibrahim & Ismail (2020) Examines the influence of bank regulation, institutional variables, economic freedom, and *Shariah* law parameters on the efficiency performance of Islamic banking.

This research investigates the effect of non-financial objectives on Islamic bank's efficiency. In this case, those non-financial objectives, namely: publicity, *zakat*, and *qardhul hasan*, are used as input variables in the profit frontier model, and they are operationally derived from the theory of Abu Zahra's *maqashid sharia* by Mohammed et al. (2008) and Antonio et al. (2020). Compared with the quadrant form of Rusydiana & Firmansyah (2017), the relationship between efficiency and non-financial objectives in this research is reflected in a unity, in the form of the transcendental logarithmic (translog) model.

METHOD

This research is quantitative. The efficiency measurement model used in this research is based on a production approach frontier as per efficiency theory by Farrell (1957). The type of efficiency measured is alternative profit efficiency as proposed by Berger & Mester (1997), using the Stochastic Frontier Analysis (SFA) method, using a production function in translog form, and implementing the bc'95 model (Battese & Coelli, 1995). The regression process on environmental factors is carried out using one-step regression, integrated into the bc'95 model above, where environmental factors are included as explanatory variables. The model measured is profit efficiency, which involves variables included in the non-financial objectives category, referring to the study of Abu Zahrah's *maqashid sharia* theory

by Mohammed et al. (2008) and Antonio et al. (2020).

The general form of alternative function model profit in this research can be written in the following form:

$$\ln(P) = \ln f(Y, w) + \ln V - \ln U \quad (1)$$

$$U = \delta Z \quad (2)$$

Where P is profit, Y is output, w is input price, V is statistical noise, U is inefficiency, and Z is an explanatory variable (explanatory variable). The process of estimating profit efficiency levels is assisted by FRONTIER 4.1 software, where the value is obtained from the equation: efficiency = exp (-U) (Coelli, 1996). In more detail, this research's profit frontier function model can be expressed in translog form as follows.

$$\ln\left(\frac{P_{it}}{w_{6,it}}\right) = \beta_0 + \sum_{j=1}^3 \beta_{Aj} Y_{j,it} + \frac{1}{2} \sum_{j=1}^3 \sum_{k=1}^3 \beta_{Bjk} \ln(Y_{j,it}) \ln(Y_{k,it}) + \sum_{l=1}^5 \beta_{Cl} \ln\left(\frac{w_{l,it}}{w_{6,it}}\right) + \frac{1}{2} \sum_{l=1}^5 \sum_{m=1}^5 \beta_{Dlm} \ln\left(\frac{w_{l,it}}{w_{6,it}}\right) \ln\left(\frac{w_{m,it}}{w_{6,it}}\right) + \sum_{j=1}^3 \sum_{l=1}^5 \beta_{Ejl} \ln(Y_{j,it}) \ln\left(\frac{w_{l,it}}{w_{6,it}}\right) + (V_{it} - U_{it}) \quad (3)$$

Equation (3) refers to equation (1). It should be noted that $w_{6,it}$ used as a denominator for the dependent variable (profit) to ensure price homogeneity (Safiullah, 2021).

The variables involved in this research model and their operational definitions can be seen in Table 1. The total of 10 variables consists of one dependent variable (P), three outputs (Y), and six

variables). These variables play a role in moderating the inefficiency value. However, this research only focuses on the main variables and the level of profit efficiency. As additional information, the bank-specific variables taken as explanatory variables in this research model are CAR ratio (z1), ROA (z2), ROE (z3), NPF (z4), FDR (z5), BOPO (z6), NOM (z7), GCG (z8), total branch (z9) and time (z10). Macroeconomic variables are excluded in this research as explanatory variables, considering that all sample banks are in the same country, Indonesia.

The sample data used in this research are all Islamic Commercial Banks (BUS) in Indonesia from 2008 to 2020. This time range is expected to accommodate the efficiency measurement model that will be studied concerning the various economic and financial conditions within them.

The year 2020 was chosen as the deadline for sample data. This is because, in the following year (2021), there will be a merger process for three large BUS in Indonesia: Bank Syariah Mandiri, Bank BNI Syariah, and Bank BRI Syariah. The sample size was determined using a purposive sampling technique with the following criteria: 1) Availability of data (allowing for unbalanced panel data), 2) Interest-based income of a

Table 1. Research Variables

No	Variable Name	Definitions
1.	Profit (P)	Profit before tax (PBT)
2.	PLS Financing (Y1)	Mudharabah + musyarakah financing
3.	Other Financing (Y2)	Murabahah + qardh ijarah + istishna financing
4.	Operating Income (Y3)	Margin-based + fee-based income
5.	Price of Deposit (w1)	Shirkah funds are divided by total third-party funds
6.	Price of Labor (w2)	Labor expense divided by total assets
7.	Price of Publicity (w3)	Promotion expense divided by total operating expense
8.	Price of Zakat (w4)	Zakat funds distributed are divided by net profit
9.	Price of Qardhul Hasan (w5)	The benevolent funds (qardhul hasan) distributed are divided by net profit.
10.	Price of Fixed Assets (w6)	Depreciation expense divided by total fixed assets

Source: Financial reports of each bank

input prices (w). The input and output variables selection in this research refers to the intermediation approach. The non-financial objectives referred to in this research are represented by publicity costs, zakat, and qardhul hasan (all three in input prices). As for other non-financial objective variables, such as Mohammed et al. (2008), education grants, training costs, and research costs are not included in the model due to the absence of data (data unavailability).

As in equation (2), U (inefficiency) is expressed in the form of a function Z (explanatory

maximum of 20%, and 3) The profit variable is positive, aimed at avoiding errors in the logarithmic function. The data type used is secondary data obtained from each bank's annual financial reports.

RESULTS AND DISCUSSION

The discussion in this section begins with a statistical description of the variables involved in this research model, as seen in Table 2. This table shows that the standard deviation value of the

dependent variable (P) and the output Y1, Y2, and Y3 are greater than the average value (mean). It shows a relatively high spread of data, which correlates with the real situation of Islamic banking in Indonesia, which contains banks of various sizes. As of the end of 2020, Bank Syariah Bukopin had the smallest assets among other BUS, IDR 5.2 trillion, and the highest assets belonged to Bank Syariah Mandiri, IDR 126.91 trillion. Another condition that can be obtained from Table 2 is that there are several variables with a minimum value of zero, namely the mudharabah + musyarakah financing (Y1), price of zakat (w4), and price of qardhul hasan (w5) variables. This indicates that some BUS has not carried out financing activities based on profit and loss sharing and have not played a social role in

composite error, so the model is deterministic, not stochastic. Table 3 above shows that the sigma squared (σ^2) value is greater than zero and is significant at the value $\alpha=1\%$. Thus, this research model meets the goodness of fit requirements.

Next, as the main discussion of this research, from Table 3 we can see the MLE results for the variables that represent non-financial objectives in this research, namely publicity (w3), zakat (w4), and qardhul hasan (w5). All those variables are in the form of input prices. The publicity (w3) has a coefficient value = 3.10, has a positive sign and is significant at alpha = 1%. This means that publicity has a positive and significant effect on the output variable (profit).

The zakat (w4) has a coefficient value = 40.30, has a positive sign and is significant at alpha = 1%.

Table 2. Statistical description of input-output variables

<i>Variables</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
P	239.17	365.38	1.07	1,910.98
Y1	5,129.91	6,747.41	0.00	29,951.10
Y2	9,185.96	11,238.03	1.85	53,474.24
Y3	1,312.65	1,526.10	44.03	8,133.81
w1	0.0498	0.0154	0.0192	0.1191
w2	0.0256	0.0390	0.0083	0.4146
w3	0.0225	0.0174	0.0016	0.0762
w4	0.1027	0.4381	0.0000	4.5596
w5	0.1110	0.6435	0.0000	6.3534
w6	0.9162	1.3238	0.0181	10.8358

Source: Financial reports of each bank, processed

Note: P, Y1, Y2, Y3, and Y4 are in billions of rupiah

zakat and qardhul hasan (benevolent fund) distribution activities.

The maximum likelihood estimation (MLE) results from the profit frontier function model in this research can be seen in Table 3.

First, we are concerned with the sigma squared (σ^2) value, representing the model's suitability (goodness of fit). The sigma squared (σ^2) value is formulated as $\sigma^2 = \sigma_v^2 + \sigma_u^2$, where σ_v is the variance of statistical noise, and σ_u is the variance of inefficiency. The value $\sigma^2 = 0$ means no

This means that zakat has a positive and significant effect on the level of profit. Meanwhile, the coefficient of qardhul hasan (w5) = -10.18, has negative sign and significant at alpha = 1%. Thus, the qardhul hasan affects the profit level negatively and significantly.

Looking back, we know from the descriptions that publicity (w3) and zakat (w4) become positive drivers toward the profit efficiency level of Indonesian Islamic banks. On the contrary, qardhul hasan (w5) has been a negative driver.

Table 3. Summary of MLE estimation results

<i>Variables</i>	<i>Coefficient</i>		<i>Standard-Error</i>	<i>t-Ratio</i>
<i>Constant</i>	beta 0	-6.3381096E+00	1.1431085E+00	-5.5446263E+00*
<i>Ln(Y 1)</i>	beta 1	-1.3203891E+00	3.8215530E-01	-3.4551112E+00*
<i>Ln(Y 2)</i>	beta 2	-1.1044467E+01	1.5496656E+00	-7.1270005E+00*
<i>Ln(Y 3)</i>	beta 3	1.4213631E+01	1.5150848E+00	9.3814095E+00*
<i>Ln(w 1/w 6)</i>	beta10	8.1930092E+00	1.5240728E+00	5.3757335E+00*
<i>Ln(w 2/w 6)</i>	beta11	-1.3603172E+01	1.9239559E+00	-7.0704175E+00*
<i>Ln(w 3/w 6)</i>	beta12	3.1008585E+00	1.0880818E+00	2.8498394E+00*
<i>Ln(w 4/w 6)</i>	beta13	4.0298653E+01	1.4244056E+00	2.8291556E+01*
<i>Ln(w 5/w 6)</i>	beta14	-1.0184188E+01	1.0895462E+00	-9.3471832E+00*
<i>Sigma-squared</i>		1.3853314E-01	2.5710544E-02	5.3881837E+00*
<i>Gamma</i>		9.8830041E-01	4.4641954E-03	2.2138377E+02*

Log likelihood function = -0.23648203E+02

Note: *, **, and *** are significance at $\alpha=1\%$, 5%, and 10% respectively

Their magnitude of coefficient values also show that zakat (w4) has the strongest sensitivity compared to the other two variables in influencing the profit efficiency of Indonesian Islamic banks, and then followed by qardhul hasan (w5) and publicity (w3), respectively.

Till now, no specific previous research found to be used as a direct comparison. However, Safiullah (2020) In his research found a similar general result that non-financial objectives, namely the Sharia Supervisory Board (SSB) showed a contribution to reducing the inefficiency of Islamic banks. Norfitriani (2016) Her research used ZIS (Zakat-Infaq-Shadaqah) as an output variable in the efficiency measurement of Indonesian Islamic banks, but with no further explanation because she employed a non-parametric approach in analyzing the process. Meanwhile Wan Ibrahim & Ismail (2020) Provided support for this research, where they obtained results that the Maqashid Sharia Index (MSI) had a positive and significant effect on the efficiency of Islamic banks. Each of those input variables in this research is expected to be a positive driver toward profit (output variable). In this case, publicity, zakat, and qardhul hasan should be part of the promotion activities for Islamic banks. By looking back at the estimation result of qardhul hasan (w5), It could be a further question if the public or customers feel the importance of qardhul hasan distributed by Islamic banks.

In this last section, we discuss the existence of non-financial objectives in Islamic bank's efficiency measurement model. The detailed profit efficiency trends throughout 2008-2020 can be seen in Figure 1. Profit efficiency experiences a fluctuating trend and produces several minimum and maximum stationary points (turning points). The minimum turning point occurred in 2009 (28.67%), 2015 (35.35%), and 2018 (46.60%), while the maximum turning point occurred in 2012 (60.65%) and 2017 (46.90%). Overall, the minimum profit efficiency level occurred in 2009 with a value of 28.67%, and the maximum level was in 2012 at 60.65%.

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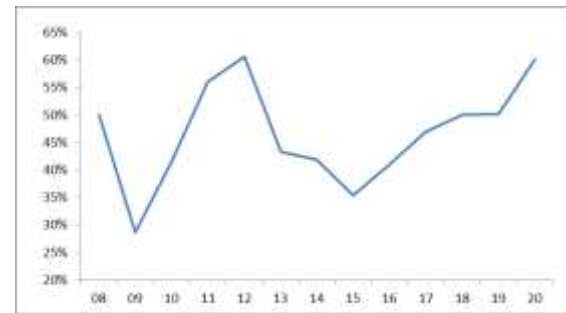


Figure 1. Profit efficiency trend

The average value of profit efficiency in this research is 47.55%. As a comparison, here are several previous empirical data on profit efficiency in Islamic banks: 59.50% for the sample of Islamic banking in the GCC region (Alqahtani et al., 2017), 58.71% for the sample of Islamic banking in the Asian region (Havidez et al., 2017), 69.30% for the metadata sample (Chaffai, 2022), and 71.21% for the Islamic Commercial Bank (BUS), sample in Indonesia (Siregar et al., 2022). Thus, from this comparison, we get the same conclusion that Islamic banks are still inefficient in generating profit. The variations in profit efficiency values are generally influenced by the measurement model used, the variety of variables involved, and specifically influenced by the characteristics of the sample data.

Looking back at the minimum and maximum turning points as seen in Figure 1. they are closely related to economic and financial conditions in Indonesia and global during the 2008-2020 period. In 2007-2009 there was a global financial crisis (GFC) caused by the subprime mortgage problem in the United States, where the impact spread globally to all corners of the world. Especially during the period 2007-2009 during the Global Financial Crisis (GFC), Rosman (2014) Found that the majority of Islamic banks in the Middle East and Asia did not operate efficiently during the GFC period. Meanwhile, Belanès et al. (2015) Confirm that 2009 was the worst year for Islamic bank efficiency levels during the GFC period.

After recovering from the impact of subprime mortgages, national Islamic banking reached its peak growth in 2012. Islamic banking assets in Indonesia experienced growth of 34.2%, and financing grew by around 44%. From a macroeconomic perspective, Gross Domestic Product (GDP) grew by 6.2%, and inflation was maintained at around 4.3% (OJK, 2012). Other turning points can be explained in the same way through global economic and financial transmission which ultimately influences the performance of Islamic banking in Indonesia.

Data OJK (2018) Shows that in 2015 the growth of Islamic banks was at the minimum turning point, and the same thing happened to the 2015 national economic growth rate. Meanwhile, national Sharia banking assets decreased from 20.28% in 2016 to 18.97% in 2017. This situation is inversely proportional to national economic growth which increased from 5.03% in 2016 to 5.07% in 2017.

Based on the discussions above, generally, we can see that non-financial objectives involved in this research (publicity, zakat, and qardhul hasan) have significant effect on efficiency level. The publicity and zakat have positif effect, and qardhul hasan has negatif effect. On the other hand, The profit efficiency trend as in Figure 1 is in line with national macroeconomic conditions. This further strengthen the existency of those non-financial objectives in the Islamic bank's efficiency measurement model.

CONCLUSION

This research aims to investigate the effect of non-financial objectives on Islamic bank efficiency, by employing the Stochastic Frontier Analysis (SFA). The result of maximum likelihood estimation as previously discussed show that non-financial objectives have a significant effect on the efficiency level of Islamic banks. Both publicity and zakat have positive effects, meanwhile qardhul hasan hurts the efficiency level. The variable of zakat has the strongest sensitivity toward efficiency level, then followed by qardhul hasan and publicity, respectively. In addition, the suitability of efficiency trends in this research with national and global economic conditions in the 2008-2020 period confirms the existence of non-financial objectives in the Islamic bank efficiency measurement model. The evidence in this research is limited to Indonesian Islamic banks. It is hoped that this research can be a gateway for regulators, practitioners, and academics to continue to explore and encourage strengthening the manifestation of Islamic values in Islamic bank operational practices.

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