



ISSN-Printed	2195-8432
ISSN-Online	2195-8440
ISSN-CD ROM	2195-8459

A Framework To Analyse The Efficiency Of Baitul Maal wa Tamwil (BMT) As Islamic Microfinance Institutions in Indonesia

Atiqi Chollisni Nasution

Institute Islamic Banking and Finance

International Islamic University Malaysia

205A, Jalan Damansara, Damansara Heights, 50480 Kuala Lumpur, Malaysia

Abstract

This paper aims to present a conceptual model on the efficiency of BMT as Islamic microfinance institutions in Indonesia. In the last twenty years, the growth of BMTs increase significantly and have contributed positively to the development of socio economic of the country. Recently, there are around 4,000 BMTs operate and have enhanced thousand poor people life. BMTs responsible in collecting, managing and distributing the funds either for charity or providing financial services for the poor. The paper identifies the appropriate methods to evaluate efficiency of BMTs, such evaluation of Islamic microfinance institution to function effectively to achieve socio economic objective. The findings are not only relevant and applicable to Indonesia but also to other muslim countries and would be useful for further empirical research in this area.

Keywords

Efficiency, Microfinance, Islamic Microfinance, BMT

Introduction

In the last few years, microfinance has become an important component to reduce poverty. Microfinance is defined as the provision of a broad range of financial services such as deposits, loans, payment services, money transfers and insurance to poor and low income households and microenterprises (ADB,2004).

In Indonesia, as of 2006, there are approximately 49 million of small and medium enterprises (SMEs) active in the country and some of them are muslim microentrepreneurs who need financial service which free from interest (read: *riba*). The existence of BMTs as Islamic microfinance institutions (Islamic MFIs) attempt to answer the need of these customers by offering financial services which based on shariah (read; *Islamic principles*).

The term of BMT represents its mission in socio and economic objective. The concept of Baitul maal focuses on collecting and distributing the charity fund to the poor (e.g *zakat, infaq, shodaqoh*). Whilst, Baitut Tamwil operates based on commercial or economic activities. To achieve the missions, BMTs need to be efficient and prudent in operation. Measuring the efficiency of BMTs is important since it will encourage the productivity in order to eliminated the poverty and at the same time secure BMT's position to be sustain in the future.

However, the studies which measure efficiency on Islamic MFIs especially BMTs are still limited. Infact, most of BMT's performance in Indonesia were relatively low (Widiyanto and Ismail, 2008), eventhough it's roles and tasks are seen in developing human resources and supporting microenterprises. Therefore, the study attempts to fill the gap by proposing a framework to analyse the efficiency of BMT as Islamic microfinance institution.

Measuring The Microfinance Institution (MFI) Performance

The growth in importance of performance assessment in profit or non-profit organizations has been linked with a concern to the economic policy maker such as shareholders, stakeholders, board members or customers. Performance measurement is intended to produce objective, relevant

information on program or organizational performance that can be used to strengthen management and inform decision making, achieve results and improve overall performance and increase accountability (Poister, 2003). In the other words, performance measurement leads the human resources in an organizations to focus on organization’s goals and focus their efforts to continuously improve performance.

The emerging issues that cropped out when the performance of MFIs are measured are: what factors are influencing the efficiency, how can MFIs be sustained and how to measure the social impact (poverty reduction) of MFIs . Brau and Woller (2004) mentioned dual missions of MFIs stated to generate enough revenue to cover their operating and financing costs and also to focus on poverty alleviation. Nghiem, et.al (2006) also argued that a successful microfinance operations must meet both poverty reduction and financial sustainability requirements. These two objectives require input minimization (using the least resources for a given level of output) and output maximization (providing the most services for given inputs). An organization is considered efficient when there is a set of optimal outputs, given the inputs ; or the optimal inputs, given the outputs. These condition is called efficient frontier.

Measuring efficiency is one of success indicators to measure the performance of an organization, whether it is public and non-public sectors or profit and non-profit organization. Economic efficiency is described as how well a system is presenting in terms of producing the maximum desired output from given inputs. In other words, by choosing a certain volume and structure of inputs and outputs to maximise profit or minimise cost are called economic efficiency. Farrel (1957) proposed two components to measure economic efficiency, namely technical efficiency (TE) which reflects the ability of firm to obtain maximum output from a given set of input, and allocative efficiency (AE) which represents the ability of firm to use the inputs in optimal scale. the theory of efficiency can be summarized by describing the concept in the figure as follows.

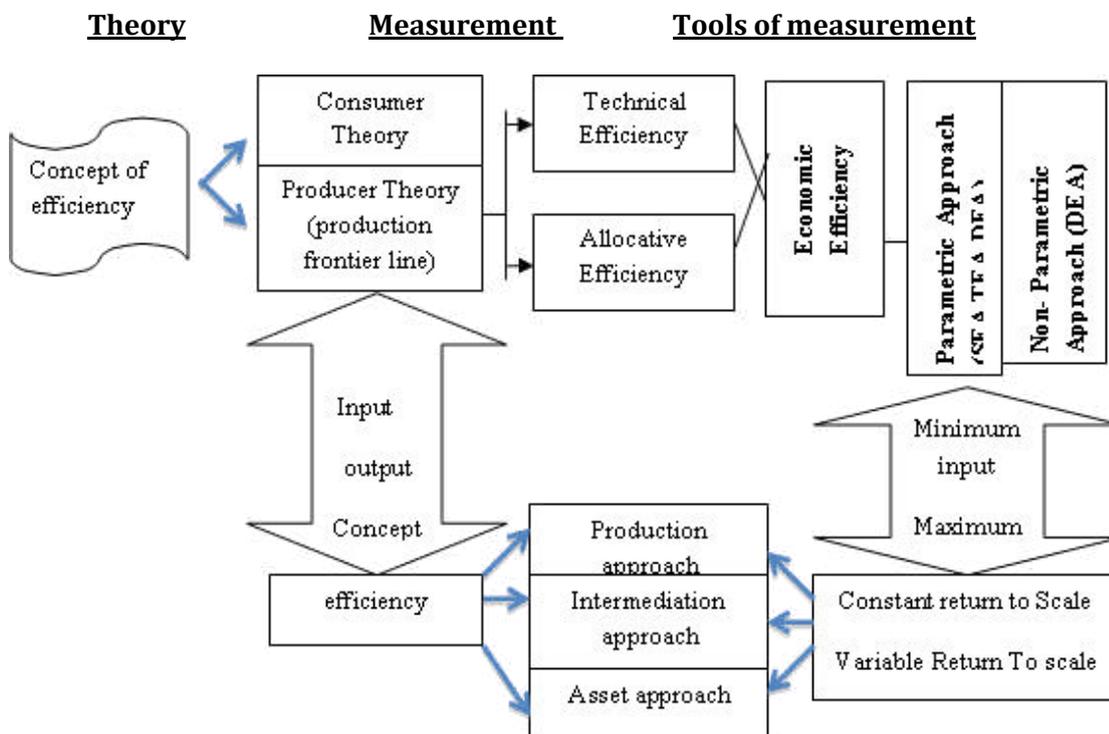


Figure 1. Theory Of Efficiency (Ascaria and Yumanita, 2009)

The formula of measuring the efficiency as follows ;

$$Efficiency = \frac{\text{weighted sum of outputs}}{\text{weighted sum of inputs}}$$

On the other words Efficiency of a firm means its success in producing as large as possible outputs from a given set of inputs (Farrel, 1957).

Figure 1 summarizes that concept of efficiency started from consumer and producer theory, then, it develops to measure economic efficiency. The efficiency can be measured by using parametric and non-parametric. Popovic and Martic (2005) argued that Data Envelopment Analysis (DEA) is a leading method for performance evaluation. This method can be analysed based on production, intermediation and asset approach. By using DEA, the best performers of MFIs could be identified by plotting them on the efficient frontier, especially if the MFIs has efficiently used the inputs to create outputs. DEA method allows the plotting of efficiency rating of organizations in relation to one another to create the efficiency frontier, or set of best performers.

An MFI would be efficient if, after choosing the right mix of inputs and outputs, it uses the resources efficiently. Therefore, an efficient MFI is an MFI which can maximize the outputs and minimize the inputs on its operational activities. It is also incumbent upon the MFI to consistently maintain an efficient operation to ensure its sustainability, otherwise the MFI will not survive. Therefore, this study stated that both financial sustainability and poverty reduction are important.

There are number of researchs done in measuring the efficiency of microfinance institutions (MFIs) over the world. Most of them were using Data Envelopment Analysis (DEA) method to measure the efficiency and covered a sample period of two to five years. Among others are Qoyyum and Ahmad (2006), Sedzro and Keita (2009), Nghiem et.al (2006) and Nieto et.al (2007). Efficiency of microfinance could be measured by selecting the appropriate variables in input and output which is required by DEA methods. Some previous studies that using DEA method, mostly used production and intermediation approach which is similar with approach that used by banks. According to Nghiem et.al (2006), production approach considers financial institutions as a production unit, using standard inputs to make transactions and to process financial documents. Meanwhile, in the intermediation approach considers financial institutions as intermediating between savers and borrowers.

DEA method as one of measuring the efficiency is selected to measure the performance of Islamic MFIs. This method is chosen for this study due to its useful features when it applied such each decision making unit (DMU)¹⁰⁶ is assigned a single efficiency score, hence allowing ranking amongst the DMUs in the sample. Secondly, it highlights the areas of improvement for each sigle DMU. Finally, there is possibility of making inferences on the DMU's general profile.

DEA Model identifies reference points (relatively efficient DMUs) that define the efficient frontier and evaluate the inefficiencies. The purpose of DEA is to construct a non-parametric envelopment frontier over the data points such that all observed points lie on or below the production frontier (Coelli, 1996). The formula of DEA method is as follows ;
Efficiency of DMU ;

$$\frac{\sum_{k=1}^p \mu_k y_{kj}}{\sum_{i=1}^m v_i x_{ij}}$$

DMU = decision making unit
 m = different inputs
 p = different outputs
 n = number of DMU evaluated
 x_{ij} = number of input I consumed by DMU_j
 y_{ij} = number of output k produced by DMU_j

In DEA, The most efficient firm (with the score of 1) doesn't necessarily generate maximum output level but it does indicate that it has tendency of generating best practice outputs among the rest of firms in the given sample

In case of measuring efficiency in Islamic MFIs, some previous studies in this area are still rare. How we assess that Islamic MFIs are efficient in contributing its role in economic and social, is one of question that should be investigate more. Moreover, there are some differences between Islamic MFIs and conventional MFIs. The hard differences between them are the basic of operations where MFIs operates based on interest system, on the other hand, Islamic MFs operates based on profit sharing system which should be in line with *shariah* compliant. Therefore, the variable of interest incomes in MFIs should be replaced to variable which appropriate for Islamic MFIs due to the differences on their basic operations. Thus, on the next section, the study proposes the suitable evaluation to measure the efficiency of BMT which is useful for further empirical research in the area of Islamic microfinance.

¹⁰⁶ DMU on this study is BMTs

Measuring the performance of BMT as Islamic Microfinance Institution

As an Islamic microfinance institution (IMFI), the way a BMT operates is more or less similar with a bank. However, the functions of BMTs are more focused as financial intermediaries. It can be seen from the dual system of BMTs, where in social mission they distribute the charity funds, from the person who have to have not. On the other hand, in economic mission, BMTs distribute the financing for the microentrepreneurs or the poor (as borrowers) from the depositors' funds. It is also consistent with Hamim et.al (2008) and Zamil and Abdul Rahman (2008) argued that intermediation approach was suitable for evaluating Islamic banking activities or an Islamic financial institution as a whole. Intermediation approach implies the importance of intermediary activities. Moreover, the Islamic financial system is based on participation in enterprise or equity where the business participants may end up with profit or loss.

Therefore, this study adopts the intermediation approach where three inputs and three outputs will be analyzed. The inputs and outputs are required to measure BMT's efficiency by using DEA method. Some studies used the same number of inputs and outputs such as Avkiran (1999), Yudistira (2003), Azmi et.al (2006) and Sedzro and Keita (2009). In the case of BMTs, the inputs and outputs should represent the function of BMTs to achieve financial sustainability and poverty reduction. Hence, the inputs and outputs that proposed by this study are as follows :

Table 1. The Inputs and Outputs of The Study

INPUTS	OUTPUTS
Number of staffs ; represents the number of staffs that supports BMT operations.	Disbursement of loans ; represents the BMT's activities by delivering the finance to MEs or poor people
Fixed assets ; represents the support of assets to BMT's operations	Number of Borrowers ; represents the achievement of BMTs in reaching the number of MEs or poor people to reduce the poverty.
Total Deposits ; represents total funds that have been collected from customers and depositors	Total profit sharing ; represent the achievement of BMTs to financial sustainability

Based on table 1, inputs and outputs to measure BMT's performance represent its objective. Number of staffs and number of borrowers are defined by the total numbers of people who work and access to BMT's financial services. Fixed assets (less any depreciation) and total profit sharing are used to measure the capital and the achievement of BMTs in earning the profit. Moreover, total deposits and loans disbursed are measured by time deposits, savings deposits and other borrowed funds. Except the total number of staff and borrowers, the variables are measured in millions of Rupiah (Rp).

Based on the theory and past studies discussed earlier, the study proposed a framework for measuring the efficiency and factors influencing in BMT. Closer examination of the various factors is important because BMT control significant financial resources. The study attempts to identify the BMT's factors as influencing factors on efficiency. The factors that will be used as BMT's factors are as follows ;

BMT's Size

Previous studies found the relationship between MFI's size and efficiency. Qoyyum and Ahmad (2006) found that MFIs was significantly positively related to the measure of efficiency. In case of banks, Zamil and Abdul Rahman (2007) found that the larger bank size was positively associated with efficiency measure. Moreover, Omar et.al (2006) suggested that size does matter in improving Islamic bank efficiency.

BMT's Profitability

In case of profitability, the study assumes that BMTs become more efficient as a result of enhancing its profitability. A study by Widiyanto and Ismail (2007) argued that the profitability was significantly positive related to the measure of efficiency. BMTs become more efficient if they can enhance

profitability by optimizing the performance of management and reduce operating expenses. Meanwhile, a study by Nieto, et.al (2008) analyzed that non of MFIs in some countries have relationship between efficiency and profitability.

Age of BMTs

The age of BMTs can be indicated by good performance and efficiency of BMTs. It indicates that the longer experienced BMTs will influence the high efficiency of BMTs. It is expected that the more experienced BMTs are able to enhance their profit, hence, affect their financial sustainability. A study by Nghiem et.al (2006) suggested that the sign of the number of years in operation variable does not tend to support the notion that there is synergy between efficiency and maturity. Consistent with Nghiem et.al (2008), a study by Nieto et.al (2008) also found that the age of MFIs was has no significant relationship with efficiency result. Meanwhile, Qayyum and Ahmad (2006) argued that the age of MFIs were positively related with all efficiency measures. In case of BMTs, it is expected that the longer experienced BMTs will affect its efficiency due to its maturity and efforts to increase the BMTs performance as a whole.

Non-performing Loans

Previous studies showed the relationship between non-performing loans to efficiency. Non-performing loans (NPLs) represent the number of default in financing. A study by Isik and Hassan (2003) found a strong negative relationship between NPLs and efficiency scores. Bad management was suspected as the main problem to high operating cost of managing problem loans. It indicates that the higher the NPLs the greater influence it has to lower the efficiency. In case of BMT, NPLs represents the default of payment by borrowers. Therefore, it is expected that the relationship between NPLs and efficiency is negative.

Figure 2 Theoretical Model

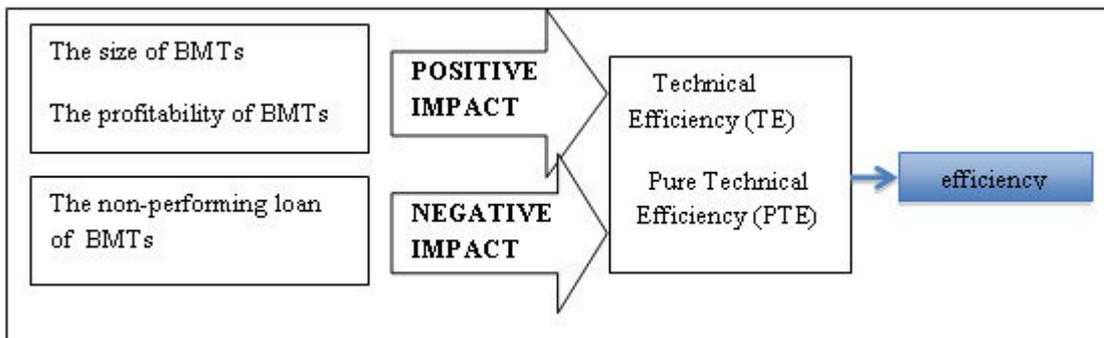


Figure 2 explains the relationship between BMT’s factor that might influence the result of efficiency.

BMT’s size represents the total asset of BMT. The year of BMT’s operation is called the age of BMT. While profitability and non-performing loan (NPL) represent the profit that earned by BMTs and ratio of total loan. Except NPL, all factors are assumed positively influence the efficiency of BMTs as Islamic microfinance institution.

Conclusion

The primary objective of microfinance is poverty alleviation. Different with conventional microfinance which operates based on interest (*riba*), the role of BMT as Islamic microfinance institution attempts to reduce the number of poverty by offering the Islamic approach on its activities.

To achieve the objective, an MFI should be efficient. It is needed to sustain in the long term of financing activities. Including BMT as Islamic MFI, this institution should be efficient and effective especially on its operation. The measurement of BMT’s performance is needed to enhance its role in the future. The study suggests efficiency measurement by using DEA method to analyze the performance of BMT. Efficiency measurement will help BMT to indicate the diseases in BMT’s body and also improve inefficient condition. The variables select to represent the nature of BMT, such total

profit sharing indicates the profit that has earned and shared to BMTs and customers. Thus, if BMTs efficient, they can achieve more microentrepreneurs, reduce the poverty and gain profit in order to be sustain in the future.

The study suggests number of staffs, total deposits and fixed asset as inputs, where their contribution will help BMT's operation and optimize the output. Number of staff is needed to collect the financing, proposing the concept of BMT and others. Total deposits represent amount of saving that have been collected by BMT, while fixed assets are asset that needed to run the business effectively. The inputs are expected to maximize the outputs such increasing the total number of borrowers, reduce the number of default payment and enhance the profit shared to BMT and its customers.

Based on theories and some empirical studies, the study also suggests that variable of size, profitability and age will influence BMT's efficiency positively, while NPL might influence BMT's efficiency negatively. Size of BMT indicates BMT's power to optimize its asset, profitability represents the economic motives of BMT to earn the profit, age indicates the maturity of BMT, while NPL represents BMT's indicator to reduce the number of insolvency customers. The study expects the theoretical model would be useful for further empirical research in the area of Islamic microfinance.

References

- Ascarya and Yumanita (2008). Comparing The Efficiency Of Islamic Banks in Malaysia And Indonesia. *Buletin Ekonomi Moneter dan Perbankan*, Vol. 11, No.2, October, p.95-119
- Asian Development Bank (ADB) (2004). *Microfinance Development Strategy*, Asian Development Bank Publishing
- Avkiran, Neomi Kemal (1999). The Evidence on Efficiency Gains : The Role of Mergers and The Benefits To The Public. *Journal of Banking and finance*, 23, pp. 991-1013
- Brau, J.C and Woller, G.M (2004). Microfinance : A Comprehensive Review of the Existing literature. *Journal of Entrepreneurial Finance and Business Ventures*, 9: 1-26
- Farrell, M.J, (1957). The Measurement of Productive Efficiency. *Journal Of The Royal Statistical Society. series A*, Vol.120, No.3, 253-290
- Isik. I and Hassan, M.K (2003). Efficiency, ownership and Market Structure, Corporate Control and Governance in Turkish Banking Industry. *Journal of Business Finance and Accounting*, 30 (9 and 10), 1363-142
- Nghiem, Hong Son, Tim Coelli, Prasada Rao (2006). The Efficiency of Microfinance in Vietnam : Evidence from NGO Schemes In The North and The Central Region. *International Journal of Management Science*.131-142
- Nieto, et.al (2007). Microfinance Institutions and Efficiency. *The International Journal Of Management Science*,131-142
- Poister, Theodore, (2003). *Measuring Performance in Public and Non-Profit Organizations*. John Wiley and Sons publisher - USA
- Popovič, Gordona and Milan Martić (2005). *Two Stage DEA Use for Assessing Efficiency and Effectiveness of Micro Loan programme*. Paper presented on The 7th Balkan Conference on operational research, Constanta, May 2005, Romania
- Qoyyum and Ahmad (2006). *Efficiency and Sustainability of Microfinance Institutions in South Asia*. Retrieved on June 2011 from <http://mpa.ub.uni-muenchen.de/11674>
- Sedzro and Keita (2009). Assessing The Efficiency of Microfinance Institutions Using Data Envelopment Analysis. *Journal of International Finance and Economics*, Volume 9, Number 2
- Widiyanto, Cokro. M and Ismail, A.G (2008). Sustainability of BMT Financing for Developing Microenterprises. MPRA Paper No.13746, University Kebangsaan Malaysia.
- Yudistira.D (2004). Efficiency in Islamic Banking : an empirical analysis of eighteen banks. *Islamic economic studies*, 12 (1), 1-48
- Zaman, H (2004). *The scaling-up of microfinance in Bangladesh: determinants, impact and lessons*. World Bank Policy Research Working Paper No. 3398