*Corresponding author. E-mail: aiknc@utar.edu.my

COST AND PROFIT EFFICIENCY OF THE FULL-FLEDGED ISLAMIC BANKS AND ISLAMIC WINDOWS IN MALAYSIA

*Nai-Chiek Aik[1], Kok-Eng Tan[1]

[1]Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman, Selangor, Malaysia.

ABSTRACT

This study investigates the cost and profit efficiency of the full-fledged Islamic banks and Islamic windows operations of domestics and foreign banks in Malaysia over the period from 2002 to 2008, using the non-parametric frontier method, Data Envelopment Analysis (DEA). The findings show that Islamic banking operators are relatively more efficient than Islamic windows operators in terms of the cost and profit efficiency. Apart from that, Islamic banking operators in Malaysia are more efficient at generating profits rather than controlling their costs.

1.0 Introduction

The establishment of Bank Islam Malaysia Berhad (BIMB) in 1983 really marked the beginning of a new era in Islamic banking in Malaysia (Majid *et al*, 2005). The year witnessed the creation of a full-fledged Islamic banking institution (Islamic bank) offering financial services in accordance with Islamic jurisprudence. Instead of establishing many new Islamic banks, the Government introduced a concept of "Islamic window", which allows the existing conventional banks to introduce Islamic banking products to customers. The concept of Islamic window started in March 1993 when the Central Bank of Malaysia or Bank Negara Malaysia (BNM) introduced the "Interest-Free Banking Scheme". As a result, the Islamic banking system received a further boost. Twenty-one Islamic financial products were developed to cater for this scheme with initial participation from only three major banks. By July of the same year, this scheme was extended to all financial institutions in Malaysia. Another important event for the Islamic banking in Malaysia occurred in October 1999 when the second Islamic bank, Bank Muammalat Malaysia Berhad opened its door to the public. There are also two new foreign full-fledged Islamic banks which are Kuwait Finance House and Al-Rajhi Banking & Investment Corporation who were given licenses to operate in Malaysia since 2004.

Today, the Malaysian Islamic banking system is an effective means of financial intermediation reflected by its extensive distribution networks comprising 152 full-fledged Islamic banking branches and more than 2,000 Islamic banking counters. The ability of the Islamic banking institutions in arranging and offering products with attractive and innovative features at prices that are competitive with conventional products, has appealed to both the Muslim and non-Muslim customers. This has spurred the efforts by other non-bank financial institutions such as the development financial institutions, savings institutions and housing credit institutions to introduce the Islamic banking schemes and instruments to meet their customers' demands.

The measurement of efficiency is important to all parties that participate in the banking industry in order to improve the managerial performance. It assists investors in making investment decisions whether to participate in financial activities. It is also vital to the regulators as they are also interested in the banking efficiency since the performance of the banking sector has significant impact on other parts of the economy. By measuring and comparing the efficiency between Islamic banks and Islamic windows in Malaysia, the bankers are able to recognise the effectiveness of their system and approaches being implemented in those years as well as to improve on their cost controlling effort by wisely utilising their inputs in generating profits. Therefore, this study attempts to evaluate the cost and profit efficiency aspects of the Islamic banks and Islamic windows in Malaysia for a 7-year period from 2002 to 2008 using the DEA approach.

2.0 Literature Review

Berger and Mester (1997) suggested the two most important economic efficiency concepts are cost and profit efficiency in their study of the efficiency and productivity change in the United States (US) commercial banking industry. They concluded that profit measures give a more comprehensive view of efficiency and productivity change in the industry than the cost measures. According to Berger and Humphrey (1997), cost efficiency analysis provides one overall cost-efficiency factor showing the relative difference in cost level compared to an average bank cost which could be obtained by curve fitting costs to levels of bank input and output factors. Meanwhile, profit efficiency analysis works in a similar manner but uses profits in place of costs. Since profit reflects quality and product mix, profit-efficiency compounds both operational and cost efficiency and the value of products produced. Most of the bank efficiency studies over the 1990s concentrated mainly on the estimates of cost efficiency (see, for example, Berger *et al*, 1993; Resti, 1997). Subsequently, the studies were criticised for ignoring the revenue and profit side of the banks' operations. Indeed, banks that show the highest inefficiencies and incur the highest costs might be able to generate greater profits than more cost efficient banks (see, for example, Berger & Humphrey, 1997; Berger & Mester, 1997). Maudos *et al* (2002) reported that the most important inefficiencies in European banks are on the revenue side.

Recently, Bader *et al* (2008) found that Islamic banking efficiency studies are mostly from emerging markets and less developed countries while conventional banking efficiency includes studies from both developed and less developed countries. Zaher and Hassan (2001) found that numerous Islamic banks in Pakistan had non-Islamic transactions despite attempts to comply fully with the financial system and Islamic principles, whilst Malaysia did not go for a full Islamic financial system due to the differing cultures within the country. Majid *et al* (2005) compared the relative cost efficiency of two commercial bank sets that are Islamic and mainstream in Malaysia during the period of 1993 to 2000. They found that the efficiency of Islamic banks was not statistically different from the conventional banks. Meanwhile, Batchelor and Wadud (2004) took the DEA intermediation approach to compute the efficiency scores of the Islamic banking scheme (IBS) for the period of 2000 and 2001. Their results indicated that the IBS or Islamic windows tend to perform better in terms of the cost efficiency. Using both non-parametric DEA and parametric stochastic frontier approach, Mokhtar *et al* (2008) reported that the full-fledged Islamic banks are more efficient than the Islamic windows and the Islamic windows of the foreign banks tend to be more efficient than the domestic banks over the

period of 1997 to 2003. Their findings also revealed that the cost efficiency of Malaysian Islamic banks could be improved further. Similarly, Kamaruddin *et al* (2008) discovered that the Islamic banks in Malaysia were relatively more efficient at controlling costs than at generating profits for the years 1998 to 2004 and performed better than the Islamic windows as they dominated the Islamic financial scene due to their long establishment (particularly for BIMB) and also the full support from the Government and public confidence.

3.0 Data and Methodology

A total of 13 commercial banks which included 11 Islamic windows and 2 Islamic banks were selected as the study samples. The sample period 2002-2008 was selected to allow a time period that is sufficient to reduce the lagging impact from the infamous 1997 Asian financial crisis. This study uses only the secondary data collected from the annual reports of the banks for multiple inputs and outputs to DEA. Unlike a parametric approach that specifies a functional form for production efficiency, a non-parametric approach does not require prior assumption of the distribution of inefficiency across observations. DEA could be used even when conventional cost and profit functions that depend on optimising reactions to prices could not be justified (Berger & Humphrey, 1997). DEA is so-named because the data from the best practice decision-making units (DMUs) generates the production frontier and thereby "envelopes" the data from other DMUs. Unlike multiple regression models for determining a production function, which can deal with one single output and several inputs, DEA uses the linear programming to compare the observed consumption (inputs) and production (outputs) to the practically possible best-practice DMUs (efficient frontier).

Following Kamaruddin *et al* (2008), the costs of a bank (DMU) depend on the vector of output y, on the vector of the prices of the inputs used w, and on the level of inefficiency in costs u. Therefore, the cost frontier determines the minimum cost that each bank could attain, given its output vector y and the input price vector w, and can be expressed as:

$$C = C(y, w, u) \qquad\qquad \text{equation (1)}$$

The cost efficiency for the bank $_j$ (CE_j) can be calculated as follows:

$$CE_j = \frac{C^*_j}{C_j} = \frac{\sum Wp_j Xp^*_j}{\sum Wp_j Xp_j} \qquad\qquad \text{equation (2)}$$

where, $CE_j \leq 1$ represents the ratio between the minimum costs (C^*_j) which is associated with the use of the input vector (x^*_j) that minimises costs and the observed costs (C_j) for the bank $_j$.

It is assumed that the possibility of imperfect competition or market power in the setting of prices exists in this study. Therefore, alternative profit efficiency for the bank $_j$ (APE_j) is calculated as follows:

$$APE_j = \frac{P_j}{AP_j^*} = \frac{R_j - \sum Wp_j Xq_j}{R_j^* - \sum Wp_j Xq^*_j} \qquad\qquad \text{equation (3)}$$

where APE_j represents the ratio between the observed profits ($P_j = R_j - \Sigma Wp_j - Xp_j$) and the maximum profits ($AP^* = R^*_j - \Sigma W_j pX^*_j$) associated with the maximum revenue and the input demand X^*_j that maximises profits for the bank $_j$.

4.0 Findings

Table 1 reports the mean values of banks' efficiency scores of both Islamic banks and Islamic window operations over 2002-2008. The results reveal that the volatility of cost efficiency is greater than profit efficiency for the same sample. The mean profit efficiency score of 96.3 percent is higher than the mean cost efficiency score of 82.3 percent. This suggests that a typical bank on average only employed 82 percent of the inputs to produce the same level of output, i.e. it wastes 18 percent of its resources. In contrast, only 4 percent of the resources remains inefficiently used to generate profits, implying that Islamic banking operations in Malaysia are relatively more efficient at generating profits than at controlling costs.

Table 1: Mean Efficiency Scores of Islamic Banks and Islamic Windows (2002-2008)

	Cost Efficiency Score	Profit Efficiency Score
2002	0.805	0.950
2003	0.763	0.970
2004	0.840	1.000
2005	0.727	0.956
2006	0.928	0.972
2007	0.839	0.951
2008	0.861	0.943
Mean	0.823	0.963

Table 2 reports the mean cost efficiency and profit efficiency scores of individual Islamic banking operators during the same period of study. Apart from HSBC, OCBC and Standard Chartered foreign Islamic windows show the largest gap between their mean efficiency scores of cost and profit. In fact, these two foreign Islamic windows appear to be the least efficient in controlling costs probably due to the constraint in size and branches. These results suggest that, on average, domestic Islamic windows are relatively more efficient than foreign Islamic windows in the cost minimisation and profit maximisation. Further analysis of Table 2 reveals that both (domestic) Islamic banks achieved full efficiency in cost minimisation and profit maximisation. This is probably due to their full-fledged Islamic feature and also attributed by the monopolistic position and market power over a long establishment in Malaysia, particularly BIMB.

Table 2: Mean Efficiency Scores of Individual Islamic Banking Operators

	Cost Efficiency Score	Profit Efficiency Score
Islamic Windows		
AFFIN	0.764	1.000
ALLIANCE	0.822	0.986
AM BANK	0.966	1.000
EON BANK	0.755	0.848

HONG LEONG	0.661	0.965
HSBC	0.914	0.961
MAYBANK	1.000	1.000
OCBC	0.509	0.861
PUBLIC	1.000	1.000
RHB	0.804	0.898
STD CHARTERED	0.509	1.000
Islamic Banks		
BANK ISLAM	1.000	1.000
MUAMALAT	1.000	1.000

5.0 Conclusion

In contrast to the previous local studies that mostly witnessed the 1997 banking calamity, the findings in this study found that the Islamic banking operators in Malaysia achieved high efficiency in utilising the inputs and resources to generate higher profit, but are not efficient in managing costs and expenses. In addition, domestic Islamic banks and Islamic windows are generally more efficient than foreign Islamic windows. The findings from this study concluded that Islamic banking operations in Malaysia have gained improvement in both cost and profit efficiency since 2002 probably as a result of the forced merger scheme implemented by the BNM to bring about greater efficiency to domestic banking operations.

REFERENCES

Bader, M.K.I., Mohamad, S., Ariff, M., & Hassan, T. (2008). Cost, Revenue and Profit Efficiency of Islamic versus Conventional Banks: International Evidence using Data Envelopment Analysis. *Islamic Economic Studies*, **15(2)**, 23-76.

Batchelor, V.B., & Wadud, I.K.M.M. (2004). Technical and Scale Efficiency of Islamic Banking Operations in Malaysia: An Empirical Investigation with a Longitudinal Perspective. *Labuan Bulletin of International Business & Finance*, **2(1)**, 51-69.

Berger, A.N., & Humphrey, D.B. (1997). Efficiency of Financial Institutions: International Survey and Directions for Future Research. *European Journal of Operational Research*, **98**, 175-212.

Berger, A.N., Hunter, W.C., & Timme, S.G. (1993). The Efficiency of Financial Institutions: A Review and Preview of Research Past, Present and Future. *Journal of Banking and Finance*, **17(2/3)**, 221-249.

Berger, A.N., & Mester, L.J. (1997). Efficiency and Productivity Change in the U.S. Commercial Banking Industry: A Comparison of the 1980s and 1990s. Federal Reserve Bank of Philadelphia Working Paper 97/05.

Kamaruddin, B.H., Safa, M.S., & Mohd, R. (2008). Assessing Production Efficiency of Islamic Banks and Conventional Bank Islamic Windows in Malaysia. MPRA Paper No. 10670.

Majid, M.A., Md. Nor, N.G., & Said, F.F. (2005). Efficiency of Islamic Banks in Malaysia. In *Iqbal, M. and Ahmad, A.* (Eds.), Islamic Finance and Economic Development (pp. 99-104). New York: Palgrave Macmillan.

Maudos, J., Pastor, J.M., Pérez, F. & Quesada, J. (2002). Cost and Profit Efficiency in European Banks. *Journal of International Financial Markets, Institutions and Money*, **12**, 33-58.

Mokhtar, H.S., Abdullah, N., & Alhabshi, S.M. (2008). Efficiency and Competition of Islamic Banking in Malaysia. *Journal of Humanomics*, 24(1), 28-48.

Resti, A. (1997). Evaluating the Cost-efficiency of the Italian Banking System: What Can Be Learned from the Joint Application of Parametric and Non-parametric Techniques? *Journal of Banking and Finance*, **21**, 221-250.

Zaher, T.S. & Hassan, M.K. (2001). A Comparative Literature Survey of Islamic Finance and Banking. *Financial Markets, Institutions & Instruments*, **10(4)**, 155-199.