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How Efficient Are Islamic Banks in Malaysia?

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Abstract
This study aims to analyze efficiency of seventeen Islamic banks in Malaysia. Data compiled from financial statements of seventeen Islamic banks from year 2008/2009 and focused to descriptive statistics, percentage analysis, and Data Envelopment Analysis (DEA). Finding shows that there is inefficiency of bank profit compare to cost and revenue. The different category of Islamic banks provided different efficiency level, which is mainly driven by the nature of the respective Islamic bank establishment in Malaysia. The paper will contribute to the implementation of Islamic banks in Malaysia. Research methodology is based on parametric approach using pure technical efficiency. This paper mainly focuses on the Islamic banks that been classified into four categories, namely Domestic Bank-Backed, Stand-Alone Domestic, Foreign Bank Backed and Stand Alone Foreign.

Key words: *Islamic Banks, non parametric, pure technical efficiency and Data Envelopment Analysis (DEA).*
JEL Classification: *G21*

Introduction

About 30 years ago, Islamic banks were unheard but now Islamic banks have been a significant development in the banking industry. Besides, the banking efficiency also has been discussed extensively. Moreover, the bank's objective is to minimize costs and maximize revenues and profits. As such, continuous evaluation of overall performance in general, cost, revenue, and profit efficiency in particular are essential for survival of banks in the current competitive environment.

Although there is a vast literature on measuring efficiency of banks internationally, there are minimal numbers of studies in investigative efficiency, specifically using Data Envelopment Analysis (DEA) in Malaysia (Salleh et al., 2001; Guan et al., 2006; Amrizal and Wan Nursofiza; 2004; Rohani et.al, 2005) has basically created the need for such a study. This is particularly true in terms of investigating efficiency studies for Islamic bank in this country. Adding, our concern on the efficiency and effectiveness of Islamic financial institutions to ensure the development and growth of the economy has been addressed by Zeti Akhtar Aziz (2005).

Regardless of an Islamic bank's underlying philosophy, its long run sustainability depends on economic efficiency. An Islamic bank is economically efficient if it operates with

both technical efficiency and price efficiency. The gale of economic liberalization currently sweeping across the globe provides another reason for looking into the efficiency of Islamic banks in Malaysia since 2007; trade liberalization will require Malaysian domestic Islamic banks to compete with other global players in term of their efficiency. Today, Malaysia is at the forefront of Islamic finance with its development of Islamic banking. Yudistira (2003) instigates that Islamic banks performed better than conventional banks in terms of liquidity and risk management. Furthermore, Middle Eastern banks were on average less cost efficient than banks outside that region (Yudistira, 2003).

2. Literature Review

There are many approaches which have been adopted to examine the efficiency of banks, but DEA seems to be the most popular method among the economists. According to Taluri (2000), DEA approach has been used wisely to evaluate and improve the performance of service operation, particularly the bank branches, production plants, hospitals, schools and insurance companies.

In analyzing efficiency among the Islamic banks in Malaysia, the previous studies in Malaysia employed different approaches, focuses and methodologies, which in turn lead to particular results. Gishkori and Ullah (2013) studied the level of efficiency on 34 banks in Pakistan, including Islamic, conventional, and foreign banks by using a DEA approach (technical and scale efficiency) from 2007 until 2011. Technical efficiency of Islamic banks has been seen lower then commercial banks when they measured in terms of constant return to scale. The scale efficiency of all banking systems were almost identical, however, the technical efficiency had a huge variance. Conventional bank system ranked higher in its efficiency because of mark up expenses.

A similar analysis of Islamic bank efficiencies has been done by Brown (2003) on 19 countries in Asia, North Africa and Middle East for the years of 1998 – 2001. By using the most popular method, DEA approach, he measured cost efficiency for variables consisted of two inputs (non-interest expenses and personnel expenses) and three outputs (loans, total deposit a non-interest expenses). This study shows that the banks from Iran, Brunei and Yemen are the most efficient banks.

Izah, Nor Mazlina and Sudin (2009) evaluated the efficiency of Islamic banks using the DEA approach for Malaysia commercial banks for the years of 2000 until 2006. They empirically proved domestic banks relatively more efficient than foreign bank. Inefficiency of domestic banks was recognized through high value of scale inefficiency rather than scale efficiency, whilst, inefficiency of foreign banks was credited to scale inefficiency rather than pure technical inefficiency.

Nor Saliza Zainal and Mahadzir Ismail (2012) analyze domestic and foreign Islamic banks in Malaysia for the year 2006-2010 via three methods of efficiency known as technical, pure technical and scale efficiency. A non-parametric was used to estimate the efficiency based on intermediation approach. Empirical results showed local Islamic banks proved to have high values of technical and scale efficiency compared to foreign Islamic banks. Nevertheless, foreign Islamic banks show high pure technical efficiency as compare to the domestic Islamic banks.

3. Methodology

Our paper underlying the assumption that Islamic banks aim is to minimize their cost whereas revenue as well as profits should be maximizes using intermediation approach. This intermediation approach possibly will appropriate for evaluating banks performances since it takes into account total costs, which is consists of interest and total funds (Iqbal and Molyneux, 2005). Data compiled from financial statements of 17 Islamic banks from year 2008/2009. The data were collected from consolidated and unconsolidated annual reports. Final sample contains 30 observations by means of an input-oriented, constant return to scale. The below data frame shows the variables in details.

Figure 1: Input-Output, Input Prices and Output Prices

Revenue Efficiency	**Dependent Variable**			
	Revenue	R	Total Revenue	
	Independent Variables			
	Outputs		**Output Prices**	
	y1	Total loans	P01	Price of loans
	y2	Other earning assets	P02	Price of Other Earnings Assets
Cost Efficiency	**Dependent Variable**			
	Cost	C	Total Costs	
	Independent Variables			
	Inputs		**Input Prices**	
	x1	Labor	PI1	Price of labor
	x2	Total Funds	PI2	Price of Funds
Profit Efficiency	**Dependent Variable**			
	Profit	Π	Total Revenue – Total Cost	
	Independent Variables			
	Outputs		**Output Prices**	
	R	Total Revenue	C	Total Cost

Efficiency concept

There are three main efficiency concepts being adopted in this research. The trendiest efficiency concept would be the cost, revenue, and profit efficiency. The equation (1) shows the simple formula of efficiency, while equation (2) shows the weighted formula of efficiency:

$$Efficiency = \frac{Output}{Input} \quad \text{----------(1)}$$

Full value must equal to one (efficiency) whereas value less than one reflects (inefficiency).

$$Efficiency = \frac{WeightedTotalOutput}{WeightedTotalInput} \quad \text{---------- (2)}$$

The model simplified as follows:

Efficiency of unit j = ---------- (3)

$$\frac{u_1 y_{1_j} + u_2 y_{2j} + \ldots}{v_1 x_{1j} + v_2 x_{2j} + \ldots}$$

Where:

u_1 is the weight given to output 1.

y_{1j} is the amount of output 1 from unit j.

v_1 is the weight given to input 1

v_{1j} is the amount of input 1 to unit j

The above formula applied when there is multiple set of weights for the Decision Making Units (DMUs) when comparing efficiency between DMU's.

Cost Efficiency

The **cost efficiency model** as:

$$Min \sum_{i}^{m} p_i x_i$$

$$\frac{\sum_{i=1}^{m} p_i{}^{o} \tilde{x}^{*}{}_{io}}{\sum_{i=1}^{m} p_i{}^{o} x_{io}} \quad \text{----------(4)}$$

The above equation can be regarded as the input model where:-

m = input used (i = 1, 2, 3…n)
p_i = unit price of the input i from the DMU
x_i = observed input level i from the DMU

Revenue Efficiency

The **revenue efficiency model** as:

$$\max \sum_{r}^{s} q_r y_r$$

$$\frac{\sum_{i=1}^{s} q_r{}^{o} y_{ro}}{\sum_{i=1}^{s} q_r{}^{o} \tilde{y}^{*}_{ro}} \quad \text{---------- (5)}$$

The above equation can be regarded as the output model where:-

s = output used ($r = 1, 2, 3 \ldots n$)
q_r = unit price of the output (r)
y_r = observed output r from the DMU

Profit Efficiency

Profit efficiency occurs when we maximize total revenue over total cost.

$$\max \sum_{r=1}^{s} q_r^0 \tilde{y}_{r0} - \sum_{i=1}^{m} p_i^0 \tilde{x}_{i0} \quad \text{---------- (6)}$$

The above equation can be regarded as the profit model where:-

m = input used ($i = 1, 2, 3 \ldots n$)
s = output used ($r = 1, 2, 3 \ldots n$)
q_r = unit price of the output (r)
p_i = unit price of the input i from the DMU
y_r = observed output r from the DMU
x_i = observed input level i from the DMU

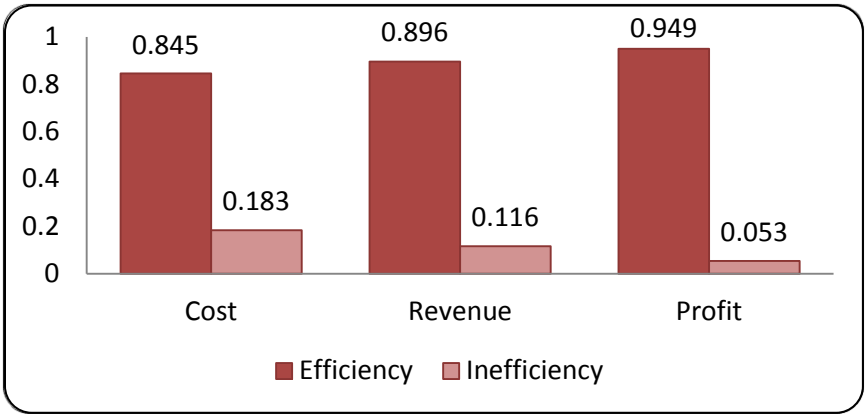
4. Findings and Analysis

In this analysis, an Islamic bank is considered as efficient if the bank is able to generate high revenue and a profit with a minimum cost. In other words, bank operates in an efficient way, if bank managed to generate a decent income from the usage of low cost or investment. A bank considered have a cost efficiencies if the bank were able to generate high volume of income with a cost or investment are being kept at the minimum level while a bank is considered profit-

efficient if the bank can maximize income from its operations at any given level of inputs. This is where the efficiency of the bank in operational approach is measured from the transformation of the two inputs into output. Remaining chapter will briefly explain in details the findings of this research.

Descriptive Statistics: Efficiency for Islamic Banks

Chart 1: Descriptive Statistics of Efficiency



An analysis of the descriptive statistics as shown in Chart 1, summarize the cost, revenue and profit of Islamic banks. Respectively in producing outputs. The same outputs that have been produced by the bank were only used by an average of the Islamic bank only 84.5 %, 89.6 % and 94.9 %. Overall, there is inefficiency in the bank profit as compared to cost and revenue which is more efficient. For revenues efficiency, the Islamic banks only generate 89.6 % of the revenues. The slack of 10.4 % means Islamic bank lost an opportunity cost of revenue as a replacement to produce the same amount of resources. Same results apply to cost efficiency, on average the efficiency are 84.5 % and the slack of 10.4 %. In other words, the Islamic bank only wasted 10.4 % of the inputs. In contrast the Islamic bank efficiency earns 94.9 % of the profit and lost a small amount of opportunity cost of 5.1 %.

5. Descriptive Statistics: Cost, Revenue and Profit Efficiency

Table 1 below differentiated the Islamic banks into four categories by nature of its establishment in the Malaysian banking industry. From the perspective of cost efficiency, the test results showed that the domestic bank-backed Islamic banks were the most efficient as compared to other categories, while stand alone Islamic banks were the least efficient. The main reason behind this result is the opportunity of domestic bank-backed Islamic banks to leverage on its related conventional bank, which has a wider branch network as well as better infrastructure. Similar arrangement is also observed in foreign bank-backed Islamic banks, however, due to its limited branch network allowed under the regulation; the Islamic banks would therefore need to expand on its own to outreach the potential customers.

In addition, these two bank-backed groups are also having the advantage of group synergies from the centralization of certain core and support functions such as risk management, human resource and training, information technology system and infrastructure. By not having

these advantages, the stand alone Islamic banks, domestic or foreign, would need to absorb all these costs, which consistent with the results that showed there were the least efficient from a cost perspective.

The test on revenue and profit data showed that there is a big gap between stand-alone foreign Islamic banks with the rest. This is the fact that this group of Islamic banks is quite new in the Malaysian market and it has yet to gain competitiveness. Its high establishment cost coupled with slow business during the initial set up had adversely impacted the profitability of these Islamic banks. Among the high revenue efficiency achiever groups, the most lagged is domestic bank-backed Islamic banks, which are explained by virtue of its dependency on its conventional bank.

Whilst the stand-alone and foreign bank-backed Islamic banks registered approximately the same level of revenue efficiency with mean of +/- 0.9. The strong revenue and profit efficiency for stand-alone Islamic banks were supported by its high market share in the industry by utilizing the advantage of being the pioneers in the industry. In contrast, the strong performance of foreign bank-backed Islamic banks derived from group synergies whereby the foreign bank groups are using the Islamic banks to have better customers outreach from the relaxation of policies for Islamic banking. This group has seen benefited so much from having the Islamic banking arm to gain bigger market share and created a new era of competitiveness in Malaysian banking industry.

Table 1: Descriptive Statistics: Cost, Revenue and Profit Efficiencies of Islamic banks by categories

	Islamic Bank Category	Descriptive Analysis	Cost Efficiency	Revenue Efficiency	Profit Efficiency
1.	Domestic Bank-Backed	n	9	9	9
		Mean	0.915	0.825	0.911
		Maximum	1	1	1
		Min	0.341	0.133	0.215
2.	Stand-Alone Domestic	n	2	2	2
		Mean	0.864	0.881	0.893
		Maximum	1	1	1
		Min	0.165	0.279	0.267
3.	Foreign Bank-Backed	n	3	3	3
		Mean	0.817	0.872	0.844
		Maximum	1	1	1
		Min	0.348	0.366	0.248
4.	Stand-Alone Foreign	n	3	3	3
		Mean	0.766	0.489	0.518
		Maximum	1	1	1
		Min	0.512	0.172	0.643

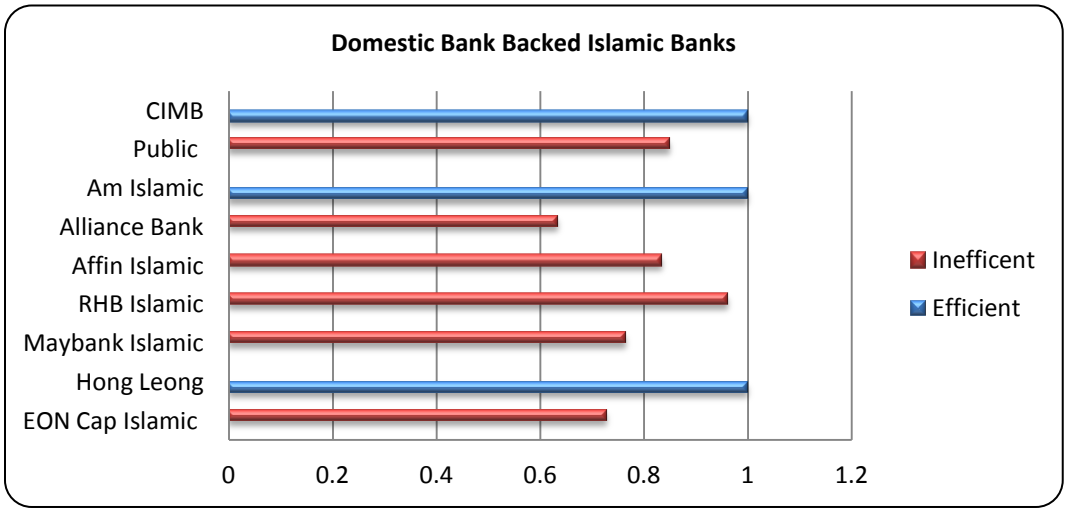
Efficiency Results Overall Sample

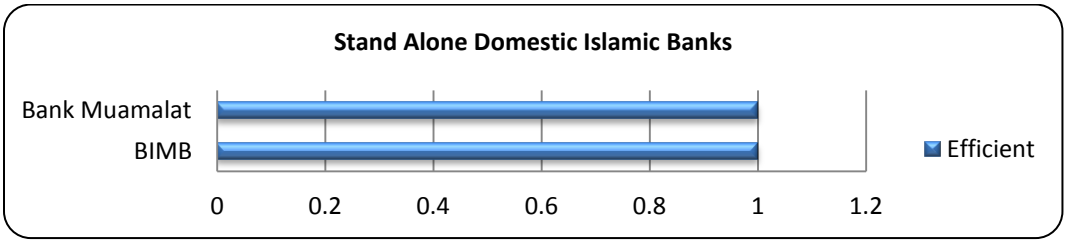
Table 2 and Chart 2 shows a considerable results of overall efficiency of constant return to scale (CRTS) for eight Islamic banks in Malaysia for 2009 out of total samples of 17 Islamic banks scattered from a different category of Islamic banks. In terms of scale of efficiency, it is observed that certain Islamic banks were clearly lagged as compared with the efficient achievers.

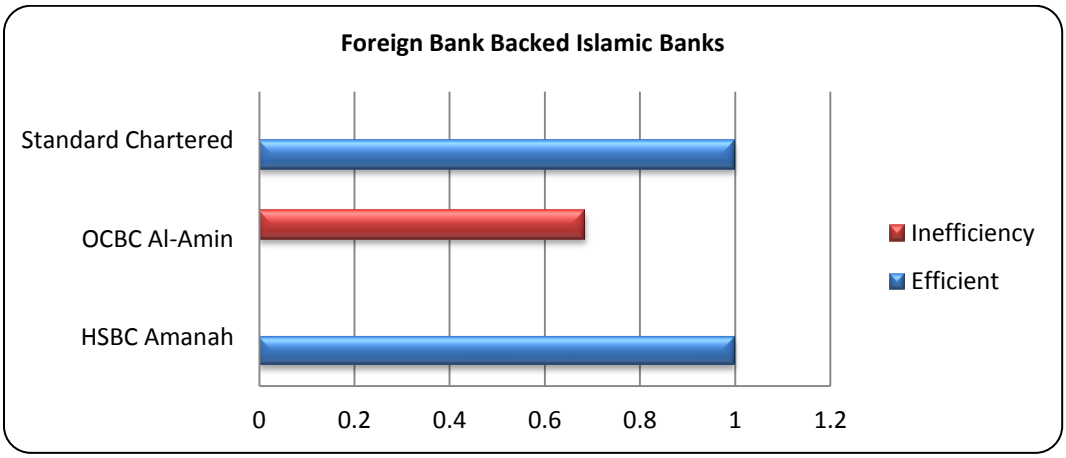
Table 2: Efficiency Results Overall Sample of Islamic Banks

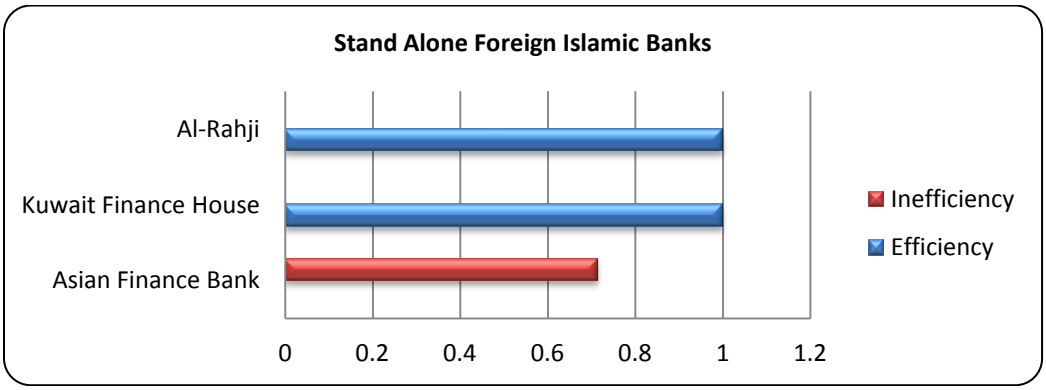
Banks	Period	Value	CRTS/DRTS
Domestic Bank Backed Islamic Banks			
1.EON Cap Islamic	2009	0.728	DRTS
2.Hong Leong Islamic	2009	1.000	CRTS
3.Maybank Islamic	2009	0.764	DRTS
4.RHB Islamic	2009	0.962	DRTS
5.Affin Islamic	2009	0.834	DRTS
6.Alliance Bank Islamic	2009	0.634	DRTS
7.Am Islamic	2009	1.000	CRTS
8.Public Islamic	2009	0.849	DRTS
9.CIMB Islamic	2009	1.000	CRTS
Stand Alone Domestic Islamic Banks			
1.Bank Muamalat	2009	1.000	CRTS
2.BIMB	2009	1.000	CRTS
Foreign Bank Backed Islamic Banks			
1.HSBC Amanah	2009	1.000	CRTS
2.OCBC Al-Amin	2009	0.685	DRTS
3.Standard Chartered	2009	1.000	CRTS
Stand Alone Foreign Islamic Banks			
1.Asian Finance Bank	2009	0.714	DRTS
2.Kuwait Finance House	2009	1.000	CRTS
3.Al-Rahji	2009	1.000	CRTS

Chart 2: Efficiency Results Overall Sample of Islamic Banks









6. Conclusion and suggestion

This study has been set out by empirical evidence of Islamic banks in Malaysia. The data were collected from 17 Islamic banks' annual financial reports for the years of 2008/2009. The finding of samples shows that in terms of revenues efficiency, the Islamic banks only achieved 89.6 %, while in the efficiency of cost utilization, on average the efficiency is 84.5 %. The results showed a clear inefficiency in profitability whereby the Islamic banks only achieved 42.5 % of efficiency and the opportunity cost of 57.5% by using the same level of inputs. There are several reasons behind this unconvincing achievement which we could not provide evidence and explain for this research. Nonetheless, in general, higher allowances provided for non-performing loans could be one of the most influenced reasons for this profit inefficiency. The Islamic banks have been categorized into four different types of banks as follows; (a) domestic bank-backed Islamic banks (b) stand-alone domestic Islamic banks (c) foreign bank-backed Islamic banks and (d) stand-alone foreign Islamic banks. The findings suggested that different categories of Islamic

banks provided different levels of efficiency which mainly driven by the nature of the respective Islamic bank's establishment in Malaysian market. Our study expected to provide a platform for a more efficient research and study in this area. It is also encouraged that one can gain a more meaningful result of efficiency tests by using more appropriate and relevant determinants through the deeper level in this study.

7. Suggestions for Further Research

The researchers discovered that the study of Islamic banks efficiency using DEA frontier methods are still lacking because many researchers were inclined towards the performance of conventional banks. This research suggests to add more variables such as fixed assets and off balance sheet items and to compare the efficiency of Islamic banks between different countries by using parametric analysis such as Stochastic Frontier Analysis, Distribution Free Approach, or Thick Frontier Approach.

8. References

Amrizal & Wan Nursofiza. (2004). X-efficiency of the Bank Islam Malaysia Berhad (BIMB): A preliminary study. *National Seminar in Islamic Banking and Finance,* 47-58.

Brown, K. (2003). Islamic banking comparative analysis. *The Arab Bank Review, 5*(2), 43-50.

Gishkori M. A. & Ullah N. (2013). Technical Efficiency of Islamic Banks and Conventional Banks: Evidence from Pakistan Using DEA Model. *Journal of Business & Management,* 7(4), p.p 68-76.

Guan J.C, R.C.M. Yam, C.K. Mok & N. M. (2006). A study of the relationship between competitiveness and technological innovation capability based on DEA models. *European Journal of Operational Research, 170*(3), 971-986.

Iqbal, Z. & Molyneux, P. (2005). Thirty Years of Islamic Banking: History, Performance and Prospect. New York: Palgrave Macmillan.

Izah Mohd. Tahir, Nor Mazlina Abu Bakar & Sudin Haron. (2009). Estimating Technical and Scale Efficiency of Malaysian Commercial Banks: A Non-Parametric Approach. *International Review of Business Research Paper*, 5, 113-123.

Nor Saliza Zainal & Mahadzir Ismail. (2012). Islamic Banking Efficiency: A DEA Approach, paper presented at 3rd International Conference on Business and Economic Research, Bandung, Indonesia.

Mohd , Rohani & Kamaruddin, Badrul Hisham and Yaakob, Norashfah Hanim. 2005. Technical, allocative and scale efficiency of Islamic banking operations in Malaysia (1998-2004), *Technical Report*. Institute of Research, Development and Commercialization, Universiti Teknologi MARA.

Talluri, S., Whiteside, M.W., and Seipel, S.J. (2000). A nonparametric stochastic procedure for FMS Evaluation. *European Journal of Operational Research, 124* (3), 528-538.

Yudistira, D. (2003). Efficiency in Islamic Banking: An Empirical Analysis of Eighteen Banks. Paper presented at the *International Conference on Islamic Banking*, Bank Indonesia.

Zeti Akhtar Aziz. (2005). Building a progressive Islamic banking sector: Charting the way forward. *Seminar on 10-Year Master Plan for Islamic Financial Services Industry*, Putrajaya, Malaysia.