DETERMINANTS OF BANKS' EFFICIENCY: A Panel Regression Analysis of Islamic Banks in Malaysia

Muhamad Muda
Professor, Faculty of Economics and Muamalat,
Universiti Sains Islam Malaysia (USIM), Malaysia

Amir Shaharuddin
Lecturer, Faculty of Economics and Muamalat,
Universiti Sains Islam Malaysia (USIM), Malaysia

Abdelhakim Embaya (Corresponding Author)
Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia,
Bandar Baru Nilai, 71800, Nilai, Negeri Sembilan, Malaysia
E-mail: ampya2007@yahoo.com

ABSTRACT

This paper aims to identify the determinants of efficiency of Islamic banks operating in Malaysia. Panel regression analysis is employed with unbalanced data on seventeen Islamic banks, using quarterly data for the period of 2007 to 2010. In addition to that, this study uses the Data Envelopment Analysis (DEA) approach to estimate the technical efficiency as the dependent variable. Also, Tobit multiple regression which allows limited dependent variables is used to analyze the factors that influence banks' efficiency. The empirical results indicate that bank specifics and financial structure determinants are able to explain a significant part of efficiency of Islamic banks in Malaysia. The study reveals that domestic and foreign Islamic banks have different efficiency. The efficiency of Islamic banks is not affected by the global financial crisis.

Keywords: *Islamic Banks Efficiency, Data Envelopment Analysis, Panel Regression Analysis, Malaysia.*

1. INTRODUCTION

Malaysia has emerged as the first country to implement a dual banking system where the Islamic banking system operates side-by-side with the conventional banking system (Mokhtar et al., 2006). The dual financial system has proved to be viable as more competitive and sophisticated Islamic financial products have been introduced into the Islamic banking industry and gained popularity and even preference amongst the customers (Muda and Jalil, 2007). This factor along with the liberalization of the Islamic banking industry which became more intensive since the mid 1990s, have led to the entry of foreign Islamic banks in the Malaysian banking. The foreign banks did not only bring in more capital to the economy, but they also bring along the expertise and culture that add up to the competitiveness in the industry. Thus, Malaysian Islamic banks have operated in a very competitive industry. In 2010, there were a total of seventeen Islamic banking institutions, actively operating in the country. There are more than 2 200 branches of Islamic banks and Islamic banking Subsidiaries banks offering Islamic banking products and services (Abdul Hamid and Azmi, 2011). These Islamic banks constitute part of the Malaysian Islamic financial system which has grown rapidly and further makes Malaysia more attractive as a center for Islamic banking. Based on the Bank Negara Malaysia 2010 annual report, assets that comply with Islam's ban on interest increased to $116 billion and accounted for 21% of the total banking system of Malaysia.

In light of the global financial crisis, studying and analyzing the determinants of banks' efficiency has become one of the hottest topics in terms of research. Studies of banks' efficiency are an important to strengthen the risk management in banks, to enable the Islamic banking system, to absorb the financial shock, and increasing the chance of survival in competitive markets. Furthermore, an analysis of efficiency determinants is important as guidance towards enhancing the economy since banks contribute to economic growth and stability. The work on identifying banks' efficiency determinants has received little attention from academic researchers, especially on Malaysian Islamic banks. Thus, the objective of this study is to identify the determinants of the efficiency of Malaysian Islamic banks.

This paper is organized as follows: the following section discusses the existing literature on bank efficiency. This will be followed by a section that presents the data and methodology, the empirical results and discussions and finally the conclusion.

2. LITERATURE REVIEW

In banking literature there are several studies which have evaluated the efficiency in banking. However, only a few studies have analyzed the determinants of bank efficiency. In the literature on the determinants of banks' efficiency, particularly in Malaysia, Zamil (2007), Sufian (2007), Ismail et al., (2012) and Sufian et al., (2012) examine the internal and external factors which influence the efficiency of the Malaysian banks. The efficiency estimates of individual banks are evaluated in these studies by using the Data Envelopment Analysis (DEA) approach. Zamil (2007) uses Islamic commercial banks and commercial banks in Malaysia over the period of 2000-2004. The study has found that bank size is significantly positive associated with technical efficiency. This relationship is also found by Sufian (2007), Ismail et al., (2012) and Sufian et al., (2012). Also, Zamil (2007) asserts that capitalization is negatively significant as it is associated with technical efficiency. However, Ismail et al., (2012) have utilized Tobit regression analysis to identify the determinants of Islamic and conventional banks' efficiency in Malaysia over the period of 2006 to 2009 and the results indicate that capitalization is positively associated with efficiency. Also, Sufian et al., (2012) provide empirical evidence that capitalization has positive relationships with banks' efficiency. The latter researcher, Sufian et al., (2012) employ the panel regression analysis to examine the internal and external factors which influence the efficiency of the Malaysian domestic Islamic banks during the period 2006 to 2010. The results find that market power, liquidity and gross domestic product have positive relationships with Malaysian Islamic banks' efficiency, whereas, the inflation exerts negative influence on Islamic banks' efficiency. Sufian (2007) investigates the efficiency of the Malaysian banking sector around the Asian financial crisis in 1997. The regression results suggest that efficiency is negatively related to gross domestic product and bank's market share, while bank efficiency is positively related to loan intensity. Another significant bank specific factor discovered in another study is the bank expenses that the results of Ismail et al., (2012) show that bank expenses is negatively associated with bank efficiency.

There are also studies on the determinants of bank efficiency on other countries, Grigorian and Manole (2006), Seelanatha (2007), Sufian and Habibullah (2010), Garza-Garcia (2012), Shah et al., (2012) and Noor and Ahmad (2012) have applied the non-parametric Data Envelopment Analysis to measure the efficiency of banks and the Tobit model to find out the determinants of bank efficiency. In panel country studies of determinants of bank efficiency, Grigorian and Manole (2006) have looked at determinants of the efficiency of financial institutions in transition countries. The findings indicate that equity capital ratios, Market concentration, foreign ownership, capital adequacy and GDP per capita, are all positively related to the efficiency. Similarly, Noor and Ahmad (2012) investigate the efficiency determinants of Islamic bank sectors in 25 countries during the period of 1997-2009. The studies find a positive relationship between bank efficiency and GDP, bank size, capitalization and operating expense. Also, the results show that loans have a negative relationship with bank efficiency. On the other hand, the deposits, inflation and 2008 global financial crisis have an insignificant negative relationship with bank efficiency.

On the other hand, as single country studies were carried out to examine the determinants of bank efficiency, Seelanatha (2007) examine the determinants of bank efficiency in Sri Lanka during the period from 1989 to 2004. The results show that technical efficiency has positive relationships with variables of capital strength, loans and liquidity; and negative relationships with old banks. Similarly, Sufian and Habibullah (2010) analyze the determinants of banking sector efficiency of the Thai from 1999 to 2008. The results of the regression analysis reveal that capital strength and loans are positively related to the efficiency of banks. The findings suggest that the recent global financial crisis 2008 and bank size are negatively related to bank efficiency, whereas the inflation, Gross domestic product and concentration have an insignificant impact on bank efficiency. More recently, Shah et al., (2012) have investigated the effect of banks' specific factors on the efficiency and compare the efficiency of Islamic banks and conventional banks using data from banking statistics of Pakistan for the year 2001 to 2008. The findings indicate that mark up expenses and ownership have significant impact on technical efficiency. On the other hand, bank size is insignificant in its relationship with technical efficiency. Meanwhile, Garza-Garcia (2012) has sought to identify the efficiency determinants of the Mexican banking industry during 2001-2009. The results reveal that capital, loans, GDP growth and foreign ownership are positively related to the efficiency of banks. The findings suggest that expenses and Inflation rate are negatively related to bank efficiency. On the other hand, bank size and concentration have insignificant impact on banks' efficiency.

The above literature reveals that the following variables; global financial crisis 2008, gross domestic product per capita, concentration ratio and bank age have not been yet studied as the determinants of Malaysian Islamic banks' efficiency, while, these variables have been studied as the determinants of banks' efficiency on other countries. In the light of this knowledge gap, the present paper seeks to provide new empirical evidence on the determinants of Malaysian Islamic banks' efficiency.

3. DATA AND METHODOLOGY

The data of bank-specific variables are collected from the quarterly balance sheet and income statement of seventeen Malaysian Islamic banks. Regarding the macroeconomic variables, the data is collected from the Department of Statistics, Malaysia. This study uses an unbalanced panel for the period of the first quarter of 2007 to the fourth quarter of 2010. The unbalanced panel is used because the number of observations differs among the Islamic banks. In order to identify the determinants of Islamic banks' efficiency in Malaysia, this study uses the Data Envelopment Analysis (DEA) approach to estimate the technical efficiency as the dependent variable. The regression method is used to analyze the efficiency determinants of Malaysian Islamic banks. In cases with limited dependent variable (where the DEA index ranges between 0 and 1) the Tobit model is known to generate consistent estimates of regression coefficients (Grigorian and Manole 2006). The Tobit model was developed by Tobin (1958) is employed to analyze the factors that influence banks' efficiency. The Econometrics program E-Views 7.1 software for analyzing the data and producing the regression results is used.

3.1 Estimation Model

In the study, estimations for two models are made and the study adopts a step-wise regression model to build the models. The decision is made following Sufian et al., (2012) suggestion that a step-wise regression model can be used to build stable models and avoid severe multicollinearity problems. The regression models can be written as follows:

Model 1

$TE = \alpha_{0+} \beta_1 OHTA + \beta_2 LOTA + \beta_3 DTA + \beta_4 GDPGR + \beta_5 GDPPC + \beta_6 CONC + \beta_7 DDF + \varepsilon$

Where:

TE= Technical Efficiency as the dependent variable.

And the Independent variables are:

OHTA = Overhead Expenditure over Total Assets

LOTA = Loans (financing) over Total Assets

DTA = Deposits over Total Assets

GDPGR = Gross Domestic Product Growth Rate

GDPPC = Gross Domestic Product Per Capita

CONC = Concentration Ratio

DDF = Different between Domestic and Foreign Banks

α is intercept, β is regression coefficient and, ε is an error term.

Model 2

$TE = \alpha_{0+} \beta_1 CRTA + \beta_2 LATA + \beta_3 INF + \beta_4 LOGTA + \beta_5 LOGAGE + B_6 GFC + \varepsilon$

Where:

TE = Technical Efficiency as the dependent variable.

And the Independent variables are:

CRTA = Capital and Reserves over Total Assets

LATA = Liquid over Total Assets

INF = Annual Inflation Rate

LOGTA = Bank Size

LOGAGE = Bank Age

GFC = Global Financial Crisis

α is intercept, β is regression coefficient and, ε is an error term.

3.2 Efficiency Measure

In the banking literature, two major methods for the estimation of bank efficiency are used: parametric and non-parametric approaches. The main method frequently used in estimating bank efficiency is the non-parametric approach, Data Envelopment Analysis (Tahir et al., 2009). The DEA approach is used to estimate technical efficiency for Malaysian Islamic banks during the period from $q_1$2007 to $q_4$2010 for each bank. Following Tahir et al., (2011), this study uses two inputs (total deposits, overhead expenses) and two outputs (total earning assets, total loans) to estimate the technical efficiency for Malaysian Islamic banks.

The efficiency of each bank is computed as follows:

$$\mathbf{TE} = \sum_{j=1}^{n} \mathbf{U}j \ \mathbf{Y}jk \ / \sum_{i=1}^{m} \mathbf{V}i \ \mathbf{X}ik$$

Where:
Y_{jk} is the amount of the *j*th output produced by the *k*th bank, X_{ik} is the amount of the *i*th input used by the *k*th bank, U_j is the output weight, V_i is the input weight.

X_{ik} , $Y_{jk} \geq 0$, $i = 1,\ldots, m$, $j = 1,\ldots, n$, $k = 1,\ldots, s$
U_j , $V_i \geq 0$, $i = 1,\ldots, m$, $j = 1,\ldots,n$

$$\sum_{j=1}^{n} \mathbf{U}j \ \mathbf{Y}jk \ / \sum_{i=1}^{m} \mathbf{V}i \ \mathbf{X}ik \leq 1$$

3.3 Variables of bank efficiency
Factors that influence the efficiency of banks can be divided into bank-specific characteristics, macroeconomic indicators and industry-specific (structural variables). Accordingly, regression models examine the relationship between Malaysian Islamic banks' efficiency and the potential determinant variables.

Table 1: Description of variables

Dependent Variable		TE	The technical efficiency equals the total bank outputs divided by total bank inputs by using the Data Envelopment Analysis method.
Independent Variables	Internal Variables (Bank-specific)	CRTA	This is a measure of capital and reserves as a percentage of total assets.
		OHTA	The overhead-to-total assets ratio is total overhead expenditure as percentage of total assets.
		LOTA	The ratio of total loans (financing and advances) over total assets.
		DTA	The deposits ratio is total deposits from customers and deposits from banks and other financial institutions over total assets.
		LATA	The liquidity ratio is cash and short term fund placements with banks and financial institutions divided by total assets.
	Macroeconomic Variables	INF	The annual inflation rate is the annual change in the consumer price indicators.
		GDPGR	Gross domestic product growth is the real growth of the gross domestic product.
		GDPPC	Gross domestic product per capita is the gross domestic product divided by population.
	Structural Variables	LOGTA	The natural logarithm of total assets of individual Islamic banks, where it reflects the bank's size.
		CONC	The concentration ratio is measured by the proportion of total assets held by the largest Islamic banks divided by the total assets of the Islamic banking sector.
		LOGAGE	Number of work periods for each bank, where it reflects the bank's age.
	Dummy Variables	GFC	A dummy variable is to represent the type of banks "1" for domestic Islamic banks and "0" for foreign Islamic banks.
		DDF	A dummy variable is included to examine the effect of the global financial crisis 2008 on the efficiency of Islamic banks in Malaysia, "1" for the period of the crisis and "0" for other periods.

4. RESULTS AND DISCUSSION

Table 2 below reports the descriptive statistics of the variables used in the regression analyses.

Table 2: Descriptive statistics of variables

Variables	Mean	Median	Std. Dev.	Skewness	Kurtosis	Obs
TE	0.81239	0.83833	0.16747	-0.82778	3.02320	236
CRTA	0.08795	0.07907	0.03569	0.93755	3.21548	236
OHTA	0.00378	0.00375	0.00149	0.29280	2.67933	236
LOTA	0.54088	0.56235	0.16448	-0.50779	2.61471	236
DTA	0.86054	0.86749	0.04872	-0.65649	2.82182	236
LATA	0.30667	0.27922	0.14407	0.88741	3.34854	236
INF	0.02352	0.01800	0.02648	0.67347	3.37387	236
GDPGR	0.03851	0.05300	0.04691	-0.82436	2.58156	236
GDPPC	0.02515	0.04000	0.04621	-0.83058	2.58530	236
LOGTA	9.04882	8.99609	0.81775	-0.37390	3.51846	236
CONC	0.18842	0.17950	0.02395	0.16817	4.18697	236
AGE	4.87394	3.00000	5.98715	2.82859	10.1217	236
LOGAGE	1.17684	1.09861	0.82841	0.62298	3.86753	236

The results of table 2 indicate that, on average, the mean value of technical efficiency (TE) is 81.2% over the entire period. There is also a difference between the mean and median of TE which shows that there is a difference in efficiency among the banks. The values of skewness and kurtosis for the variables included in the table indicate that the data are normal distribution or very close to a significant normal distribution. To overcome the violation of the assumptions of the regression model, the variable bank age (AGE) is not closer to a normal distribution, thus, the study resorts to Log Transformation for LOGAGE.

The panel unit-root test is applied to check whether the variables in the model are stationary or non stationary. If the variables do not co-integrate, then we have the problems of spurious regression and the econometric work becoming almost meaningless, therefore, any economic model using non-stationary data co-integration can become an over-riding requirement (Asteriou and Hall, 2007). Im, Pesaran & Shin test has been chosen to perform the panel data unit-root test because the fact that the majority of the unit root tests assumes that you have a balanced panel data, but this test allows for unbalanced panels (Im, Pesaran and Shin, 2003). The test is implemented on level differences (with intercept and intercept & trend).

Table 3: Panel unit-root test

Variables	Intercept	Intercept & trend
TE	-11.9*	-9.2*
CRTA	-9.4*	-11.0*
OHTA	-9.1*	-5.6*
LOTA	-13.5*	-10.0*
DTA	-14.5*	-12.4*
LATA	-12.3*	-8.9*
INF	-17.0*	-11.3*
GDPGR	-34.3*	-26.8*
GDPPC	-5.5*	-3.9*
LOGTA	-10.0*	-22.4*
CONC	-12.8*	-44.5*
LOGAGE	-9.8*	-40.9*

* Panel variables are integrated at 1% level of significance.

Table 3 shows that all panel variables are integrated at 1% level of significance. Therefore, all the variables are efficient and appropriate in measuring Islamic banks' efficiency in Malaysia over the study period and the results will be reliable.

4.1 Model 1

The study uses the variance inflation factor (VIF) for all independent variables to investigate whether there is a multicollinearity problem in the model. The VIF measures the impact of collinearity among the variables in a regression model (Gujarati, 2003). Table 4 presents the variance inflation factor (VIF) between the independent variables in the model 1 to test the multi-collinearity problem.

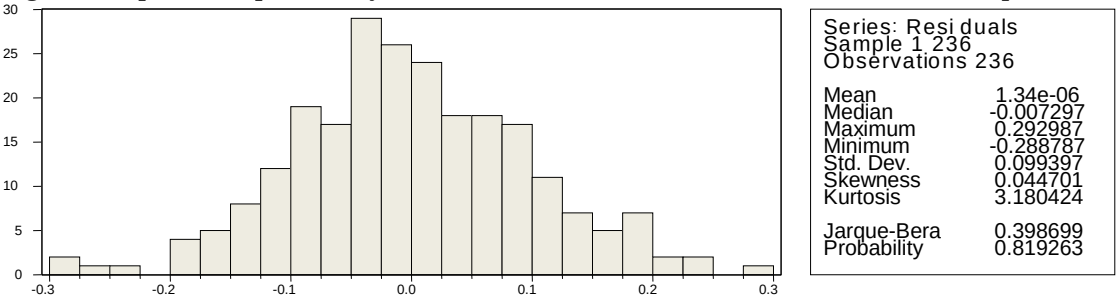
Table 4: The variance inflation factor (VIF)

Variables	*Centered VIF*
OHTA	1.3067
LOTA	1.1819
DTA	1.5635
GDPGR	1.8332
GDPPC	2.1131
CONC	1.7025
DDF	1.8085

The values of VIF for the variables included in the model are between (1.18 and 2.11). This indicates that the model does not suffer from any multicollinearity problems because all VIF values are less than 10 (Gujarati, 2003).

The violation of the normality assumption in limited dependent variable models may be quite severe (Gujarati, 2003). Also, Greene (2003) points out that the non-normality of the residual is important violation that can face the usage of the Tobit regression. Thus, the Jarque–Bera (JB) test of normality is used to test the normality of the residual of model 1.

Figure 1: explains the probability distribution of the residuals and the results of the Jarque–Bera test



The application of the Jarque–Bera test shows that the JB statistics is 0.398 and the probability of obtaining such a statistic under the normality assumption is 0.819. Therefore, the residuals are normally distributed.

The heteroscedasticity is an important violation that can face the usage of the Tobit regression (Brooks, 2008) and (Greene, 2003). Table 5 displays the results of the White heteroskedasticity test**,** where evidence of heteroscedasticity can be found. To overcome the problem of heteroscedasticity, the Huber/white procedure is automatically used.

Table 5: The White heteroskedasticity test

F-statistic	**Prob. F-statistic**	**Chi-Sq- Statistic**	**Prob>chi2**
6.992	0.000	127.884	0.000

Table 6 presents the Tobit regression result. The relative value of the estimated Tobit R^2 indicates that the model is able to explain the influence of the variables on efficiency. In addition, the estimated log likelihood value confirms the model's ability to the explain efficiency.

Table 6: Tobit regression results

Independent Variables	Model 1
C	0.557865* (0.0508)
OHTA	-1.823509*** (0.0036)
LOTA	0.734361*** (0.0000)
DTA	0.265080* (0.0918)
GDPGR	-0.045221 (0.7992)
GDPPC	0.000193 (0.6961)
CONC	0.173593 (0.4967)
DDF	0.064206*** (0.0022)
R^2	0.638016
Log likelihood	210.4691
N	236

*, ** and *** indicate the significance levels of 10, 5, 1 percent, respectively.

The overhead to total assets (OHTA) has a negative and statistically significant impact on banks' efficiency, which gives support to the efficient structure theory. The result suggests that the high efficiency of banks is consistent with lower OHTA. This result is consistent with studies of Garza-Garcia (2012) and Ismail et al., (2012). Therefore, the overhead variable is important in determining the efficiency of Islamic banks in Malaysia.

Loans to total assets (LOTA) have a positive effect on banks' efficiency and statistically highly significant. The result suggests that the high efficiency of Islamic banks is consistent with high LOTA. Sufian and Habibullah (2010) and Garza-Garcia (2012) have found that banks with higher loans are relatively better to exhibit higher efficiency levels. Similarly, Deposits to total assets (DTA) have a positive effect on banks' efficiency and also statistically significant. This result supports the view that more deposits lead to higher level of efficiency.

For the impact of Gross domestic product growth rate (GDPGR) the result reveals that GDPGR has a negative and statistically insignificant impact on banks' efficiency. However, this result is supported by Sufian and Habibullah (2010). The macroeconomic variable Gross domestic product per capita (GDPPC) has an insignificant impact on banks' efficiency. Therefore, the GDP per capita is insignificant in determining the efficiency of Islamic banks in Malaysia during the period of study. However, Grigorian and Manole (2006) examine the relationship between the GDP per capita and their efficiency, but have found that the GDP per capita is significantly related to bank efficiency.

The structural variable concentration ratio (CONC) has a positive and insignificant impact on banks' efficiency. This result is supported by studies of Sufian and Habibullah (2010) and Garza-Garcia (2012).

The different efficiency between domestic and Foreign Islamic banks as a dummy variable (DDF) has a positive and significant impact on banks' efficiency. This result reveals that domestic and foreign Islamic banks have different levels of efficiency. This result is consistent with studies of Grigorian and Manole (2006), Garza-Garcia (2012) and Shah et al., (2012).

4.2 Model 2

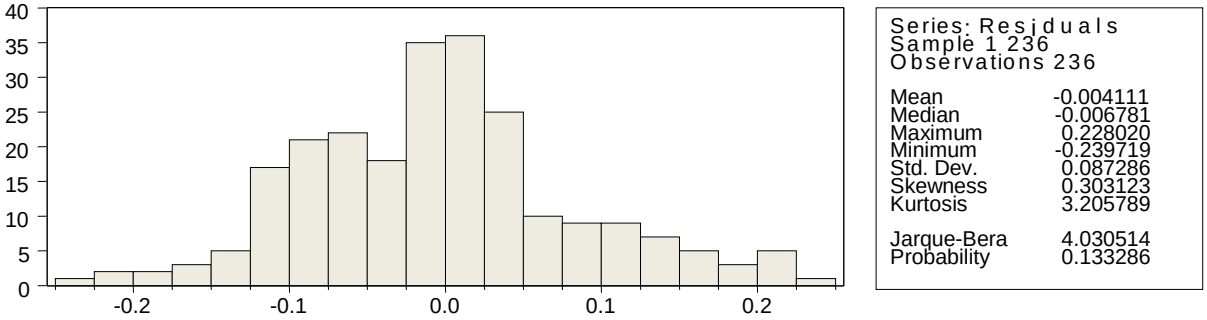
Table 7 presents the variance inflation factor (VIF) between the independent variables in the model 2 to test the multi-collinearity problem. The values of VIF for the variables included in the model are between (1.12 and 2.79). Thus, it can be concluded that there is no multicollinearity problem between the independent variables.

Table 7: The variance inflation factor (VIF)

Variables	*Centered VIF*
CRTA	1.6547
LATA	1.9554
TE	2.6493
INF	1.1454
LOGTA	2.7973
LOGAGE	1.5472
GFC	1.1214

The Jarque–Bera test shows that the JB statistics is 4.03 and the probability of obtaining such a statistic under the normality assumption is 0.133. Thus, the residuals are normally distributed.

Figure 2: explains the probability distribution of the residuals and the results of the Jarque–Bera test



Applying White's heteroscedasticity test, evidence of heteroscedasticity can be found. To overcome the problem of heteroscedasticity the Huber/white procedure is automatically used.

Table 8: The White Heteroskedasticity test

F-statistic	**Prob. F-statistic**	**Chi-Sq- Statistic**	**Prob>chi2**
2.086	0.0024	48.638	0.0046

Table 9 presents the Tobit regression result. The estimated Tobit R^2 indicates that the model is able to explain the influence of the variables on banks' efficiency. In addition, the estimated log likelihood value confirms that the model is able to explain the banks' efficiency.

Table 9: Tobit regression results

Independent Variables	**Model 2**
C	0.116184 (0.2725)
CRTA	0.585862*** (0.0005)
LATA	-0.638069*** (0.0000)
INF	-0.043847 (0.8682)
LOGTA	0.100337*** (0.0000)
LOGAGE	-0.055797*** (0.0000)
GFC	-0.009245 (0.5404)
R^2	0.630050
Log likelihood	207.3842
N	236

*, ** and *** indicate the significance levels of 10, 5, 1 percent, respectively.

Capital and reserves (CRTA) have a positive and significant impact on banks' efficiency. Grigorian and Manole (2006), Sufian and Habibullah (2010), Garza-Garcia (2012), Ismail et al., (2012), Sufian et al., (2012) and Noor and Ahmad (2012) have come to a similar result that; high level of bank efficiency is consistent with high CRTA. This result indicates that the CRTA variable is important in determining the efficiency of Islamic banks. The liquidity ratio (LATA) has a negative and significant impact on banks' efficiency. This result suggests that banks with more liquidity have lower efficiency, where such banks lead to low funds available for lending, thereby, causing low efficiency. The result of this study indicates that liquidity is a significant factor that contributes towards the efficiency of Islamic banks in Malaysia.

The macroeconomic variable inflation rate (INF) has an insignificant impact on banks' efficiency. Sufian et al., (2012) have found that the inflation exerts negative influence on Malaysian domestic Islamic banks' efficiency. The result of this study is supported by the studies of Sufian and Habibullah (2010) and Noor and Ahmad (2012).

Bank size (LOGTA) has a highly significant positive impact on banks' efficiency, which means that the largest bank size is associated with high efficiency. This result is in line with the economies of scale theory that the Islamic bank is able to enjoy the economies of scale and to produce at lower cost, and thus, to enhance its efficiency. This result is supported by studies of Ersoy (2009), Ismail et al., (2012), Sufian et al., (2012) and Noor and Ahmad (2012). In addition, bank age (LOGAGE) has a significant negative impact on banks' efficiency. This result means that old banks are less efficient than the new banks.

The global financial crisis (GFC) has a negative and an insignificant impact on banks' efficiency. This result means that the efficiency of Islamic banks in Malaysia is not affected by the global financial crisis. This result is consistent with study of Noor and Ahmad (2012).

5. CONCLUSION

This study has sought to identify the determinants of efficiency of Islamic banks in Malaysia, using an unbalanced panel for the period from the first quarter of 2007 to the fourth quarter of 2010 for all Islamic banks in Malaysia. In order to achieve that, various methods and various tests have been performed. The findings indicate that, loans ratio, deposits ratio, capital and reserves and bank's size have a positive significant effect in determining banks' efficiency. Meanwhile, overhead, liquidity ratio and banks' age have a negative significant effect in determining banks' efficiency. Besides, the inflation rate, gross domestic product growth rate, Gross domestic product per capita and concentration ratio are not able to explain the variability of efficiency of Islamic banks. The study also reveals that domestic and foreign Islamic banks have different level of efficiency. The findings of this study indicate that the efficiency of Islamic banks is not affected by the global financial crisis. The results of the study suggest that, policy makers in Islamic banks should focus more on bank specifics (Internal determinants) to increase the efficiency of Islamic banks, while they should formulate appropriate policies to enable the Islamic banks to benefit from economic growth. For future studies, it is recommended to have a wider scope that, this study is confined to Islamic banks of Malaysia. It might be interesting to carry out the same research over traditional and Islamic banks in Malaysia.

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